CANADIAN INFRASTRUCTURE REPORT CARD 2019

Monitoring the State of Canada's Core Public Infrastructure

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ACKNOWLEDGEMENTS

The 2019 Canada Infrastructure Report Card is a collective effort produced by the following organizations: The Association of Consulting Engineering Companies Canada (ACEC), the Canadian Construction Association (CCA), the Canadian Parks and Recreation Association (CPRA), the Canadian Public Works Association (CPWA), the Canadian Society for Civil Engineering (CSCE), the Canadian Urban Transit Association (CUTA), the Canadian Network of Asset Managers (CNAM), and the Federation of Canadian Municipalities (FCM).

BluePlan Engineering was responsible for preparing the technical report. Design and layout was provided by Actual Media.

For more information on this Report Card, or the project,
please contact **infrastructure@fcm.ca**

Monitoring the State of Canada's Core Public Infrastructure:
The Canadian Infrastructure Report Card 2019.

Ce document est aussi disponible sous le titre
Suivi de l'état des infrastructures publiques essentielles du Canada :
Bulletin de rendement des infrastructures canadiennes de 2019

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EXECUTIVE SUMMARY

W e are proud to introduce this third iteration of the Canadian Infrastructure Report Card (CIRC) to our national infrastructure conversation. The CIRC offers an objective look at the state of core public infrastructure across Canada.

Public infrastructure gets people and goods moving, provides safe drinking water, handles our waste, creates spaces for sport and recreation, and helps protect our homes against flooding and other natural disasters. It is the foundation that the daily life of Canadians is built upon. The strength of this foundation enables our communities and local businesses to grow, and ensures Canadians have a high quality of life.

This year's report provides a timely **update on the state of Canada's public infrastructure** across all core public infrastructure asset categories: roads and bridges; culture, recreation and sports facilities; potable water; wastewater; stormwater; public transit; and solid waste. It finds that **the state of our infrastructure is at risk**, which should be cause for concern for all Canadians. In order to change course, Canada's public infrastructure will require significant attention in the coming decades.

The evidence for the poor state of Canada's infrastructure comes from the voluntary and federally administered Canadian Core Public Infrastructure Survey (CCPIS). Responses to the CCPIS provide the foundational performance measurement data on the state of Canada's public infrastructure. The questions align with those used to create the 2012 and 2016 CIRC. This facilitates a direct comparison and gives us an exceptional view of the state of our assets over time.

The CIRC partner organizations applaud the federal government, and in particular Infrastructure Canada and Statistics Canada, for initiating the CCPIS and committing to continue to deliver the survey in future years. It is a robust data set, and one that infrastructure professionals across the country can rely on as they make decisions about the assets in their communities.

We were pleased to see a strong response rate for the CCPIS. When the federal government issued the survey to public infrastructure agencies across Canada in 2017, it received responses from **90%** of the approximately 2,000 invited jurisdictions that own and manage public infrastructure. This **doubles the population represented** in the 2016 CIRC survey, with almost 15 times as many municipalities represented.

Given the CIRC's importance to the national infrastructure conversation, we **streamlined this year's report** for ease of use. When we issued the 2016 CIRC, stakeholders were clear about which features they found most helpful. We listened to their feedback and designed this **lean report**, which highlights the most important elements of the state of Canada's infrastructure. Future CIRC publications will use a similar approach.

EXECUTIVE SUMMARY

In the interest of making the CIRC results more accessible and useful, users can now **benchmark communities** against similar municipalities across the country. We believe that delivering the data in this innovative way helps infrastructure stakeholders meaningfully engage with the CCPIS results.

It has always been important to the organizations involved in the CIRC to root our approach in **reporting only the facts** as provided by survey respondents. This separates the CIRC from other national report cards around the world in which the facts are combined with advocacy positions intended to influence infrastructure policy. This is not our intent. The analysis in this report presents only a summary of the information reported by infrastructure agencies.

CIRC 2019 provides stakeholders across the country with the evidence and analysis they need to have meaningful discussions about the state of Canada's infrastructure.

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METHODOLOGY

Leveraging the CCPIS Survey Data

The Canadian Core Public Infrastructure Survey (CCPIS) was issued in 2017 to municipalities and captured year-end 2016 data. The data was collected and analyzed by Statistics Canada before being released in stages during the second half of 2018. Our CIRC group then compiled the published CCPIS data and analyzed it to produce the graphs and tables contained in this report. We will develop future CIRCs based on subsequent versions of the survey administered by Statistics Canada. There is ongoing dialogue between CIRC representatives and Infrastructure Canada and Statistics Canada to enhance the survey and the resultant data.

Quality of Data

As the CCPIS was the first iteration of what we expect to be many surveys capturing similar or related data from communities, it is important to note that survey questions, categories and measures can change periodically to improve the accuracy and data quality. The facilitation of a pan-Canadian survey of communities is a complex venture and everyone involved recognizes that adjustments to the methodology and survey need to occur as the process evolves.

METHODOLOGY

A Consistent Condition Rating Scale

The methodology in the CCPIS used a condition rating scale that is consistent with previous CIRC publications. This increases the comparability of the data over time, but as noted above, the 2019 CIRC is based on dramatically higher response rates, which limits the direct comparability to the 2016 or 2012 CIRC. This is the condition rating scale used in the CCPIS:

- **Very poor:** The asset is unfit for sustained service. It is near or beyond its expected service life and shows widespread signs of advanced deterioration. Some assets may be unusable.

- **Poor:** There is an increasing potential for its condition to affect the service it provides. The asset is approaching the end of its service life, the condition is below the standard and a large portion of the system exhibits significant deterioration.

- **Fair:** The asset requires attention. The asset shows signs of deterioration and some elements exhibit deficiencies.

- **Good:** The asset is adequate. It is acceptable and generally within the mid-stage of its expected service life.

- **Very Good:** The asset is fit for the future. It is well maintained, in good condition, new or recently rehabilitated.

- **Unknown:** Not enough data exists to respond.

Although the survey respondents were asked to identify the current state of their assets using this rating scale, it is important to note that the survey did not include subject matter-specific references for the condition rating of each asset category (i.e., Building Condition Index for facilities, pavement Quality Index values for roads). The survey results provided by each jurisdiction represent the perspective of whomever completed the survey against the rating scale provided above.
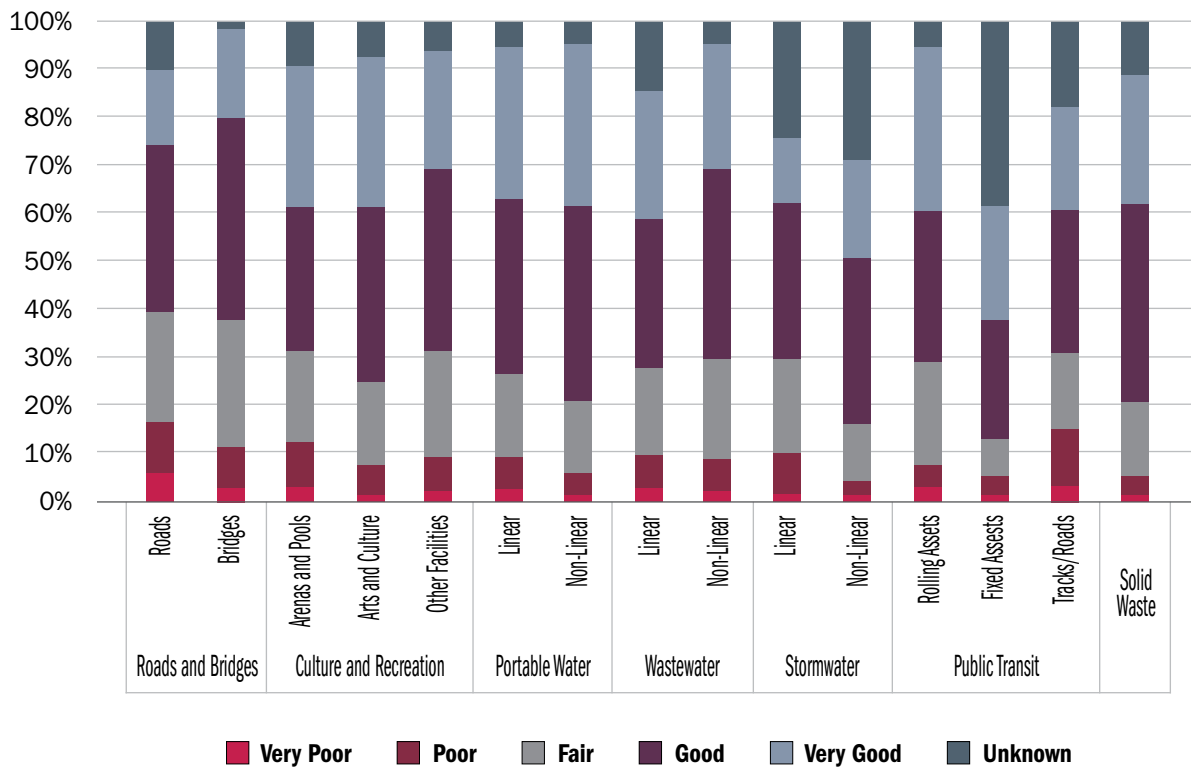
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KEY MESSAGES

A concerning amount of municipal infrastructure is in poor or very poor condition. Infrastructure in this condition represents an immediate need for action, as the rehabilitation or replacement of these assets is required in the next 5-10 years to ensure that the services it provides continue to meet the community's expectations.

An even larger proportion of municipal infrastructure is in fair condition. Infrastructure in this condition represents a view of things to come in the medium to long term. This infrastructure will continue to deteriorate over the next decade, falling into poor and very poor condition if rehabilitation or replacement actions are not taken.

Figure 1: Core Infrastructure Asset Condition Summary

The report also highlights that a majority of the infrastructure that Canadian's rely on every day is more than 20 years old. This finding emphasizes the need for continued reinvestment in existing infrastructure alongside construction of new assets.

KEY MESSAGES

Roads, Bridges and Tunnels

There are enough Canadian roads in poor condition to build a road almost halfway to the moon.

Asset Category	Subcategory	# And % in Poor/Very Poor Condition	# And % in Fair Condition
Roads, Bridges, and Tunnels	Roads	146,255 km (16.4%)	201,283 km (22.6%)
	Bridges and Tunnels	9,661 Structures (12.4%)	20,502 Structures (26.3%)

Culture and Recreation Facilities

One in three recreational or cultural facilities require investment in the next decade. This does not include the programmatic or functional deficiencies they may need to enhance their relevance and use.

Asset Category	Subcategory	# And % in Poor/Very Poor Condition	# And % in Fair Condition
Culture and Recreation	Ice Arenas/Pools	564 Facilities (12.7%)	883 Facilities (19.8%)
	Arts and Culture Facilities	380 Facilities (8.6%)	721 Facilities (16%)
	Other Facilities	1,886 Facilities (8.6%)	4,972 Facilities (22.7%)

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CANADIAN INFRASTRUCTURE REPORT CARD 2019

KEY MESSAGES

Potable Water, Wastewater and Stormwater

- Of our linear assets (e.g., watermains, sewers), 30% are in fair or worse condition.
- Climate change puts an additional strain on these infrastructure systems.

Asset Category	Subcategory	# And % in Poor/Very Poor Condition	# And % in Fair Condition
Potable Water	Linear Infrastructure	17,788 km (9.6%)	32,641 km (17.7%)
	Non-linear Infrastructure	573 Facilities (6.4%)	1,333 Facilities (15%)
Wastewater	Linear Infrastructure	16,350 km (10.8%)	26,211 km (17.3%)
	Non-linear Infrastructure	1,386 Facilities (10%)	2,896 Facilities (20.6%)
Stormwater	Linear Infrastructure	50,251 km (11.3%)	84,614 km (19%)
	Non-linear Infrastructure	700 Facilities (4.4%)	1,866 Facilities (11.8%)

Public Transit

More than 30% of tracks require investment in the next decade.

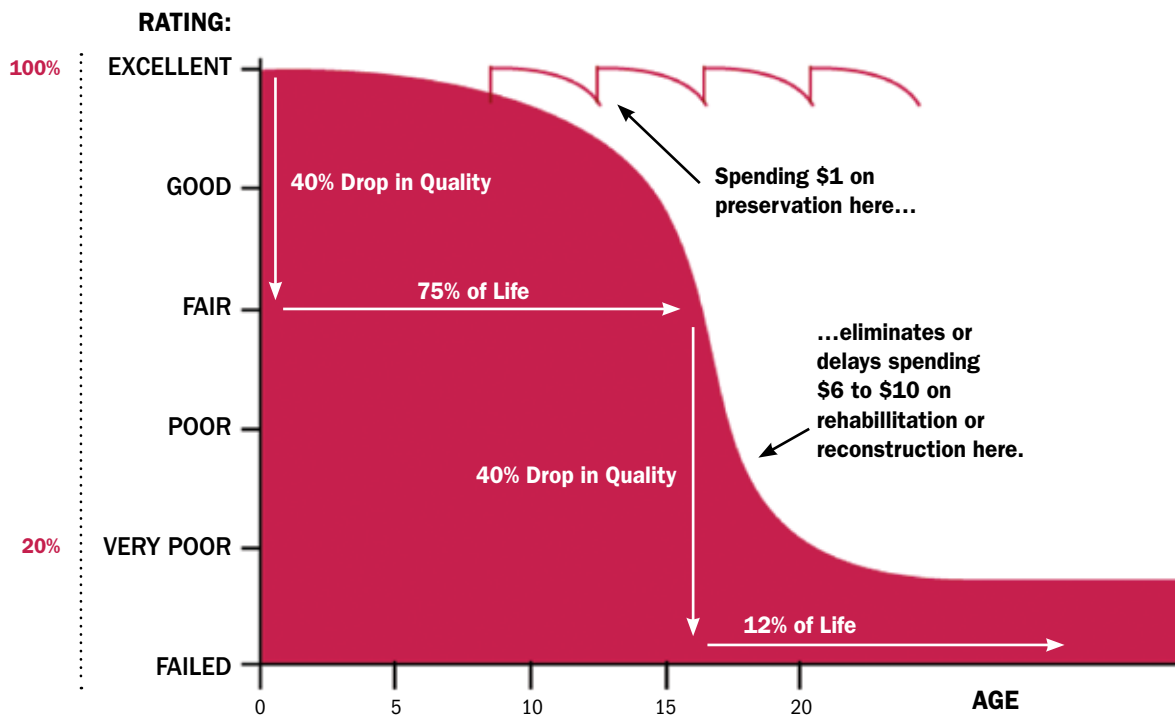| Asset Category	Subcategory	# And % in Poor/Very Poor Condition	# And % in Fair Condition
Public Transit	Rolling assets	604 Units (2.7%)	6,751 Units (30%)
	Fixed assets	2,298 Facilities (7.8%)	3,207 Facilities (11%)
	Roads/Tracks	1,367 km (15.8%)	1,343 km (15.5%)

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KEY MESSAGES

Solid Waste

One in four transfer stations require investment in the next decade.

Asset Category	Subcategory	# And % in Poor/Very Poor Condition	# And % in Fair Condition
Solid Waste	Transfer Station	89 Facilities (7.5%)	193 Facilities (16%)
	Waste Diversion	27 Facilities (3.7%)	86 Facilities (11.6%)
	Waste Disposal	111 Facilities (7%)	326 Facilities (15.7%)

Figure 2: **Example of asset deterioration curve (Roads)**

RATING:

100% — EXCELLENT

40% Drop in Quality

Spending $1 on preservation here…

GOOD

FAIR — 75% of Life

…eliminates or delays spending $6 to $10 on rehabillitation or reconstruction here.

POOR

40% Drop in Quality

20% — VERY POOR

12% of Life

FAILED

0   5   10   15   20   **AGE**

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ASSET MANAGEMENT

Asset management (AM) is a strategic approach to managing infrastructure assets that helps infrastructure owners (e.g. municipalities) maintain and operate infrastructure effectively so that critical services can be provided to the public. Asset Management Plans (AMP) lay out how a group of assets is to be managed over a period of time. The AMP describes the characteristics and condition of infrastructure assets, the level 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.

Similar to previous CIRCs, the CCPIS included questions about the state of asset management practices in each jurisdiction. One of the most revealing questions was whether the infrastructure owner has an Asset Management Plan (AMP). That plan is important because it is the functional report that they use to understand the state of their infrastructure assets and plan the lifecycle expenditures required to sustain those assets.

There is a notable variation in who has a documented AMP, depending on their population size. Only 29% of small municipalities (i.e., less than 5,000 people) reported a documented AMP. Of medium-sized municipalities (i.e., 5,000-30,000 people) 56% reported a documented AMP and 70% of large municipalities (i.e., 30,000 people or more) reported a documented AMP.

Asset management is still relatively new in Canada, and asset management capacity is growing. The survey results highlight the increasing adoption of AM in larger municipalities, while also reminding us of the need to continue supporting smaller municipalities with funding and technical support to adopt AM practices.

AM capacity is in part being enhanced through the Municipal Asset Management Program (MAMP), which is funded by Infrastructure Canada and delivered by the Federation of Canadian Municipalities (FCM). The program's mandate is to increase awareness of AM and develop technical AM expertise at the local level. MAMP programming is delivered through a number of partner organizations including the Canadian Network of Asset Managers (CNAM), the Canadian Urban Transit Association (CUTA), NAMS Canada, Centre d'expertise et de recherche en infrastructures urbaines (CERIU), and the Atlantic Infrastructure Management (AIM) Network. The 2019 federal budget increased funding for the program, extending it to March 2024.

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ASSET MANAGEMENT

Figure 3: Municipal Organizations with Documented Asset Management Plan (Municipalities with up to 5,000 people)
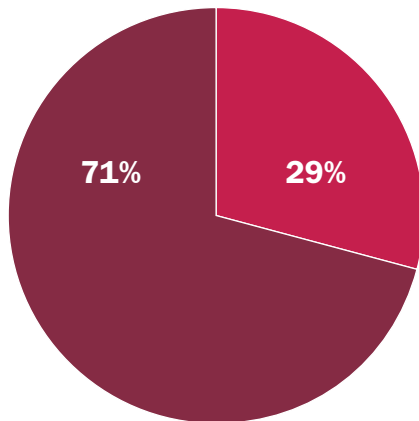
71% 29%

Figure 4: Municipal Organizations with Documented Asset Management Plan (Municipalities with 5,000 to 30,000 people)
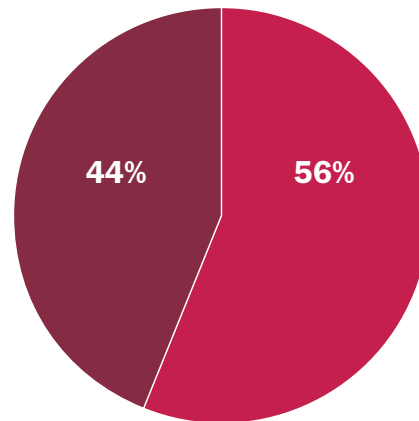
44% 56%

Figure 5: Municipal Organizations with Documented Asset Management Plan (Municipalities with 30,000 or more people)
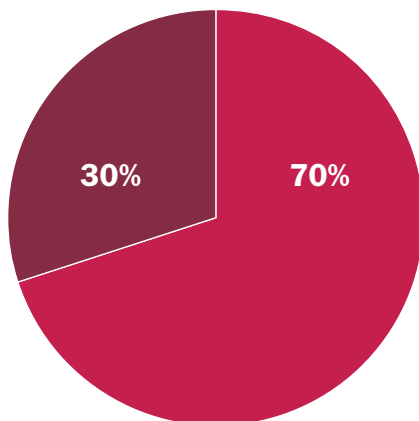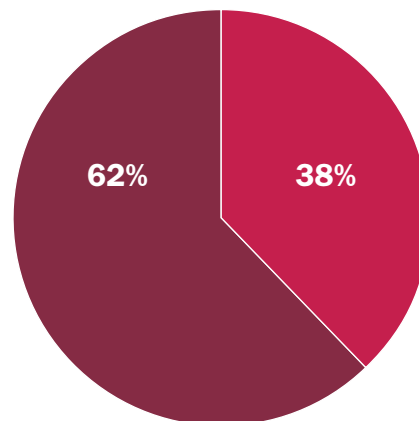
30% 70%

Figure 6: Public Organizations with Documented Asset Management Plan

62% 38%

■ Organization has a documented asset management plan
■ Organization does not have a documented asset management plan

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COMPARISON WITH THE 2016 CIRC RESULTS

Each asset category (except solid waste, a new category) has a side-by-side comparison of the condition profile reported in the 2016 CIRC against the 2019 results. Use a degree of caution when drawing conclusions from the comparison, for two reasons:

- We used a significantly larger sample size used to generate the 2019 CIRC.
- It was challenging to calculate the overall condition profiles in each asset category given the lack of replacement value data.

Notwithstanding these considerations, a comparison of the 2016 and 2019 results suggests the following:

- The 2016 CIRC results are generally consistent with the 2019 results. Despite the small 2016 CIRC sample size, the overall condition profile of each asset category is generally consistent with the 2016 CIRC and 2019 CIRC results. We can conclude that the 2016 CIRC presented an accurate overall view of the state of Canada's core infrastructure.
- The CIRC and the CCPIS data give us the ability to compare how the state of infrastructure changes over time. The best policy is informed by an analysis of high-quality data, and the CIRC provides unbiased facts that support these national infrastructure conversations. We noted several trends:
  - The 2019 results indicate that some asset categories have a worse condition profile than what was reported in 2016 (i.e., roads, bridges, wastewater, linear stormwater).
  - The 2019 results indicate that some asset categories have a better condition profile than what was report in 2016 (i.e., water, non-linear stormwater, culture and recreation facilities, transit).
  - In 2019, we included solid waste assets in the CIRC for the first time.

It is too early to draw conclusions about the impact of infrastructure policy or funding on the state of infrastructure systems. Infrastructure is a naturally slow sector as complex infrastructure can require several years to plan, design and construct. Infrastructure agencies can take months to update their infrastructure data to reflect an asset's new condition. For these reasons, we will need additional iterations of the CCPIS and CIRC before we can provide the data points necessary to identify trends and connect them to implemented infrastructure policy.

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RESULTS BY INFRASTRUCTURE CATEGORY
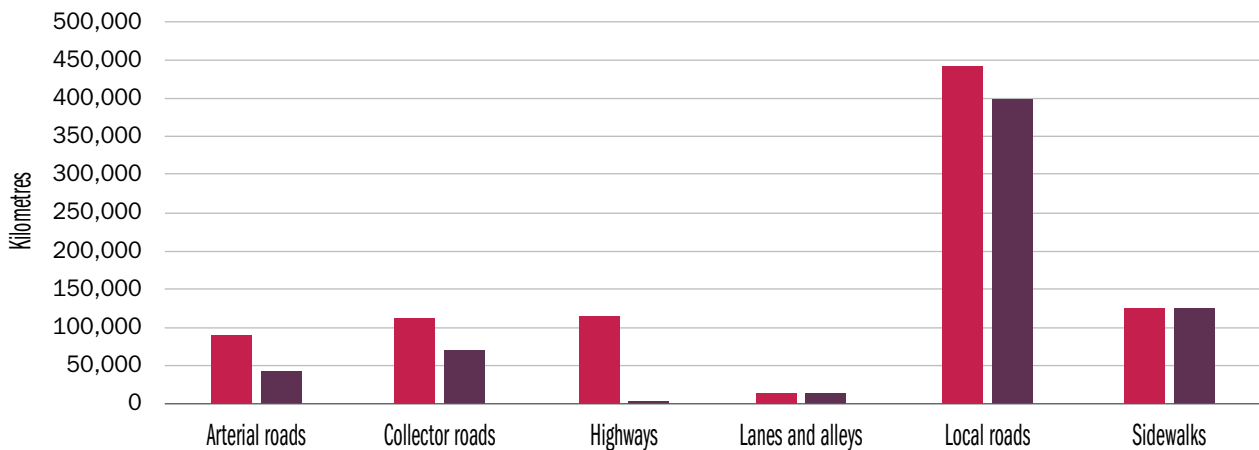
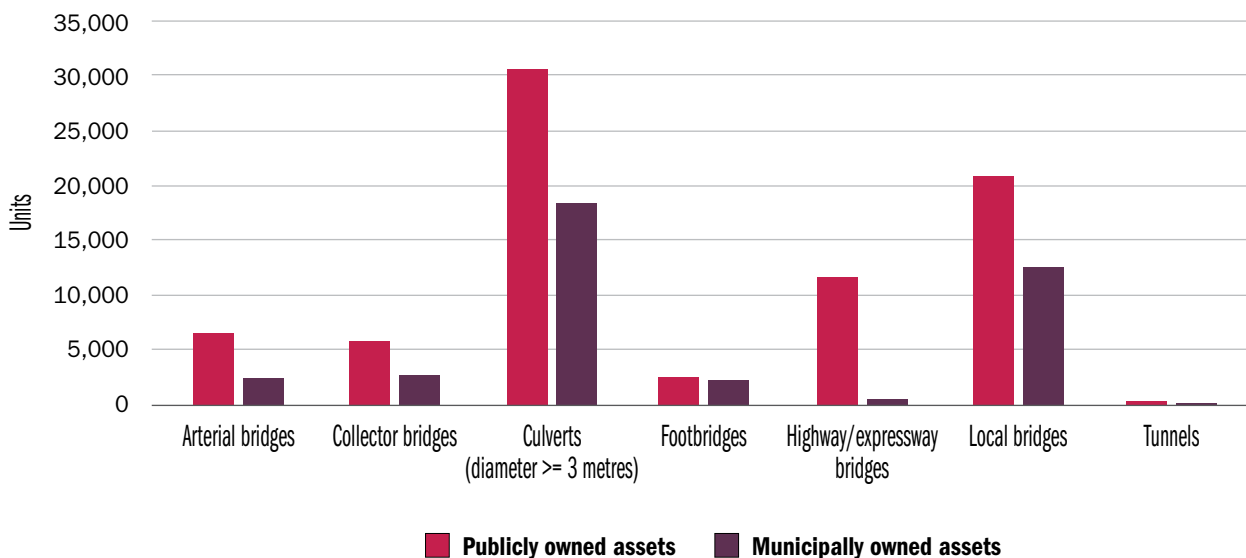# RESULTS BY INFRASTRUCTURE CATEGORY

ROADS AND
BRIDGES

ROADS AND BRIDGES

The road networks section of our survey focused on two-lane equivalent kilometres of highways, arterial roads, collector roads, local roads, lanes, alleys and sidewalks. The survey also included questions about bridges and tunnels, including highway and expressway bridges, arterial bridges, collector bridges, footbridges, local bridges, culverts three metres and greater and tunnels.

Roads and Bridges: Road Asset Inventory

Roads and Bridges: Bridge and Tunnel Assets Inventory

■ **Publicly owned assets**   ■ **Municipally owned assets**

RESULTS BY INFRASTRUCTURE CATEGORY
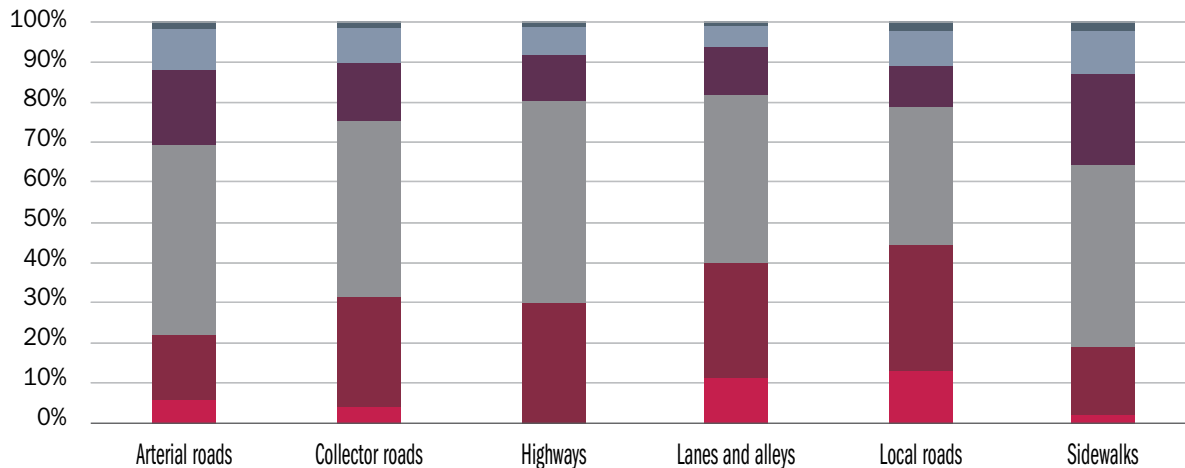
ROADS AND BRIDGES

THE CURRENT STATE

Almost 40% of these assets are in fair or worse condition and only 20% of the assets were constructed in the last 20 years.
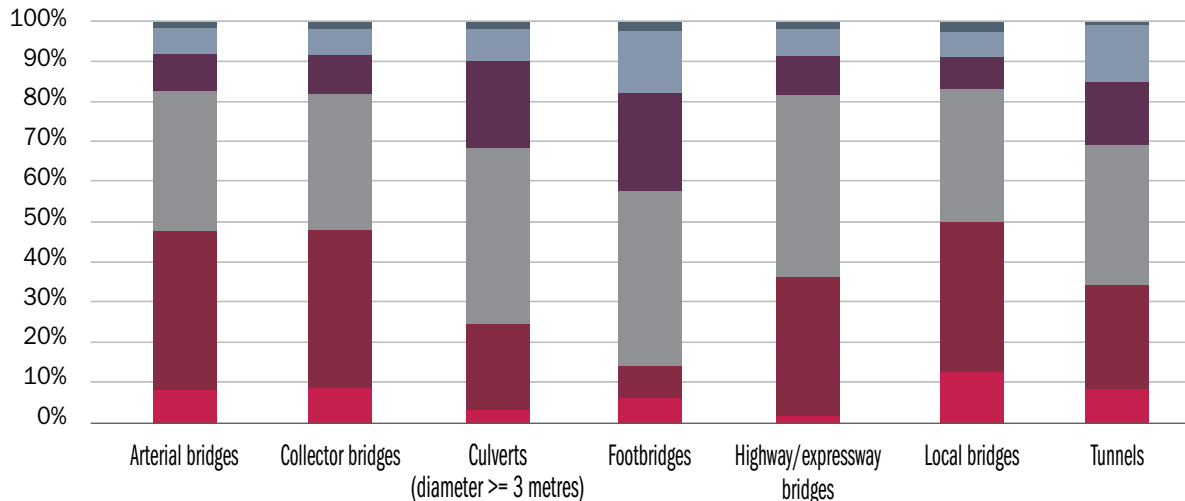
We assessed these assets using a defined scale and their age profile.

- Roads Estimated Service Life (ESL) of 20-40 years.
- Sidewalks ESL of 50 years.
- Bridges and culverts ESL of 50 years.

Roads and Bridges: Publicly Owned Road Asset Inventory (Completed Construction)

**Roads and Bridges:** Publicly Owned Bridge and Tunnel Assets Inventory (Completed Construction)

■ **Completed construction prior to 1940**   ■ **Completed construction 1940 to 1969**   ■ **Completed construction 1970 to 1999**

■ **Completed construction 2000 to 2009**   ■ **Completed construction 2010 to 2015**   ■ **Completed construction 2016**
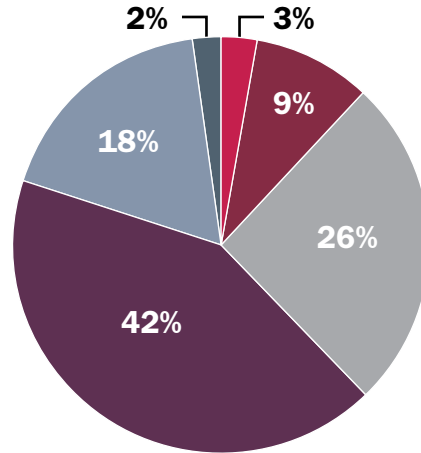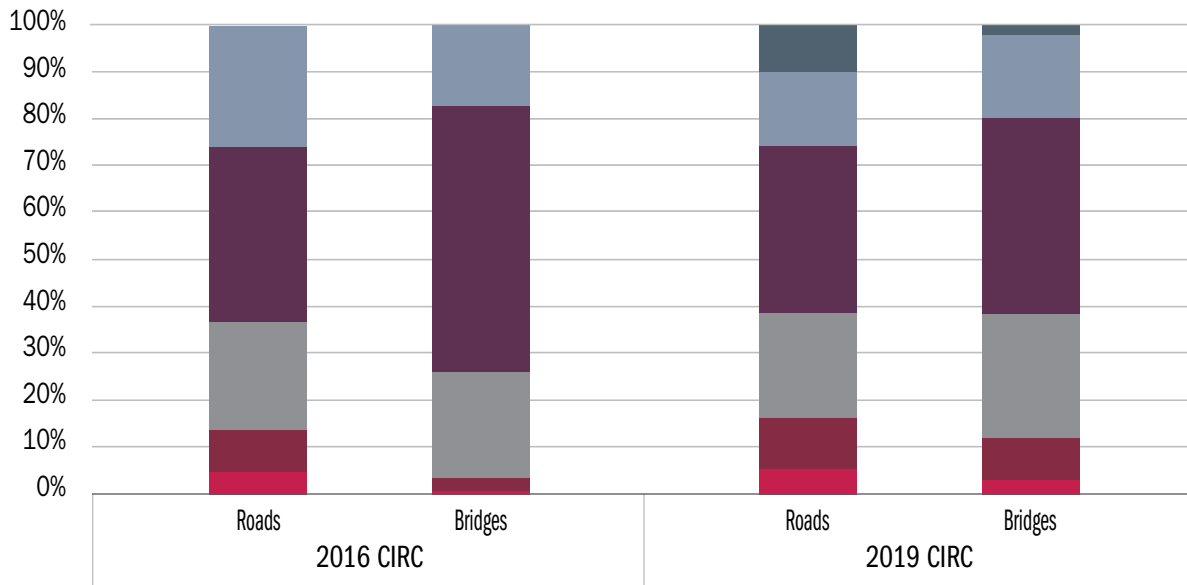
RESULTS BY INFRASTRUCTURE CATEGORY

ROADS AND BRIDGES

Roads and Bridges:
Overall Asset Condition – Roads

6%
11%
10%
22%
16%
35%
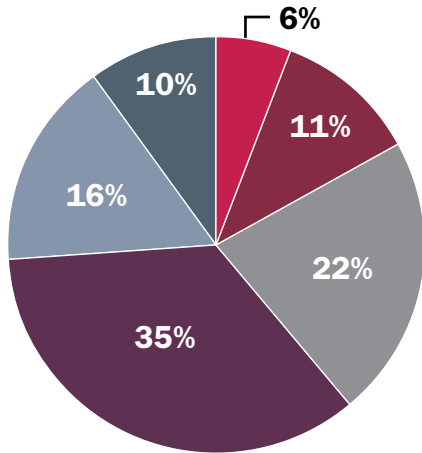
Roads and Bridges:
Overall Asset Condition – Bridges and Tunnels

2%
3%
9%
18%
26%
42%

Roads and Bridges: Comparison with 2016 Results

	2016 CIRC		2019 CIRC	
	Roads	Bridges	Roads	Bridges

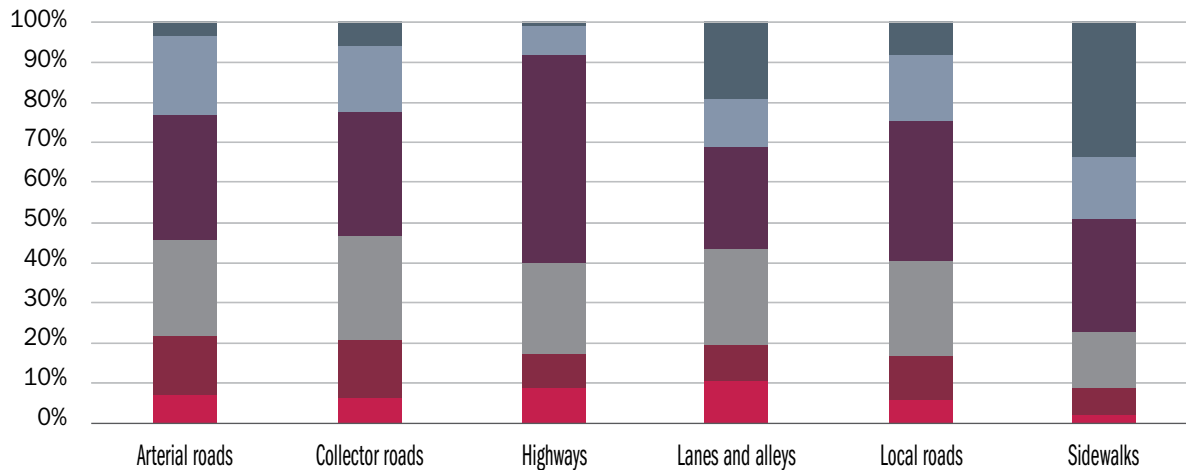■ Very Poor   ■ Poor   ■ Fair   ■ Good   ■ Very Good   ■ Unknown
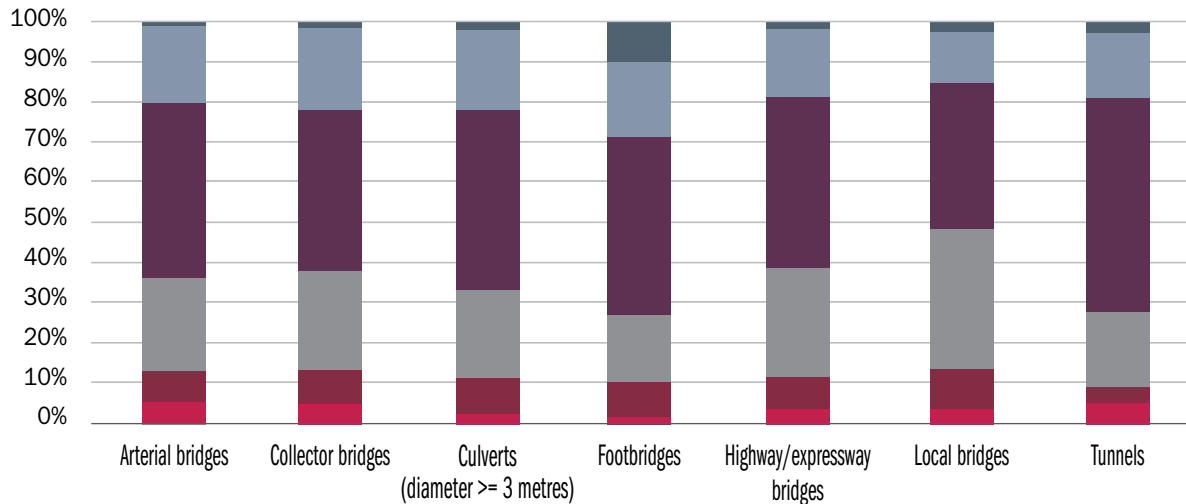
RESULTS BY INFRASTRUCTURE CATEGORY

ROADS AND BRIDGES

Roads and Bridges: Detailed Asset Condition – Publicly Owned Road Asset Condition

Roads and Bridges: Detailed Asset Condition – Publicly Owned Bridge and Tunnel Assets Inventory

■ **Very Poor**   ■ **Poor**   ■ **Fair**   ■ **Good**   ■ **Very Good**   ■ **Unknown**
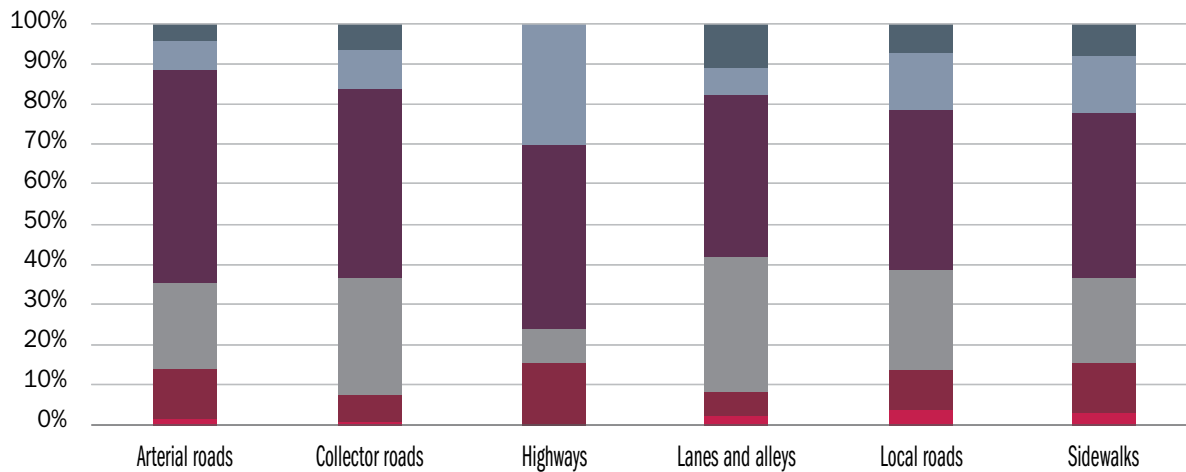
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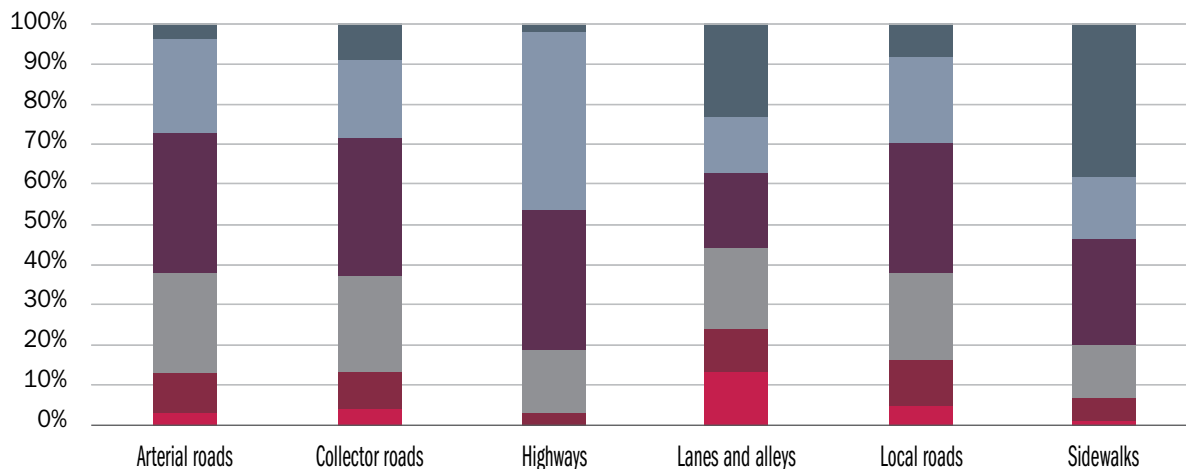
RESULTS BY INFRASTRUCTURE CATEGORY

ROADS AND BRIDGES

Roads and Bridges: Other Relevant Data – Municipally Owned Road Asset Condition (All Rural Municipalities)

Roads and Bridges: Other Relevant Data – Municipally Owned Road Asset Condition (All Urban Municipalities)

■ **Very Poor** ■ **Poor** ■ **Fair** ■ **Good** ■ **Very Good** ■ **Unknown**
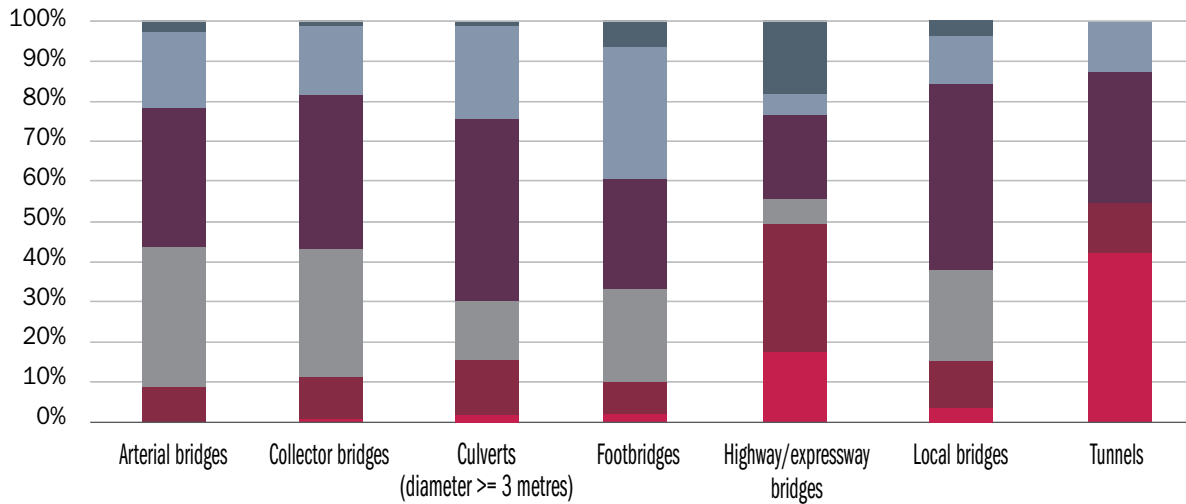
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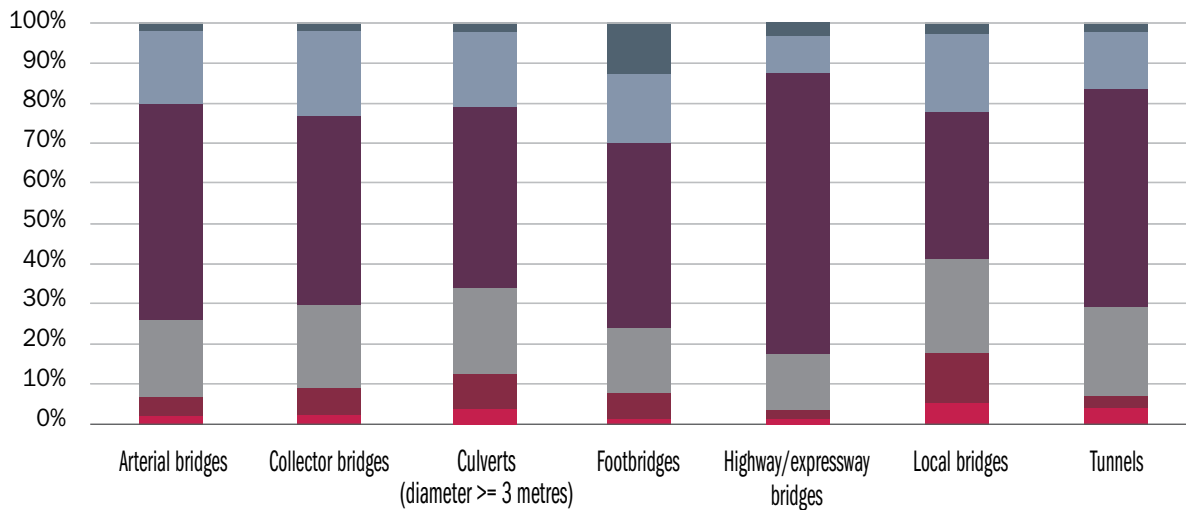
RESULTS BY INFRASTRUCTURE CATEGORY

ROADS AND BRIDGES

Roads and Bridges: Other Relevant Data – Municipally Owned Bridge and Tunnel Assets **(All Rural Municipalities)**

Roads and Bridges: Other Relevant Data – Municipally Owned Bridge and Tunnel Assets **(All Urban Municipalities)**

■ **Very Poor**   ■ **Poor**   ■ **Fair**   ■ **Good**   ■ **Very Good**   ■ **Unknown**

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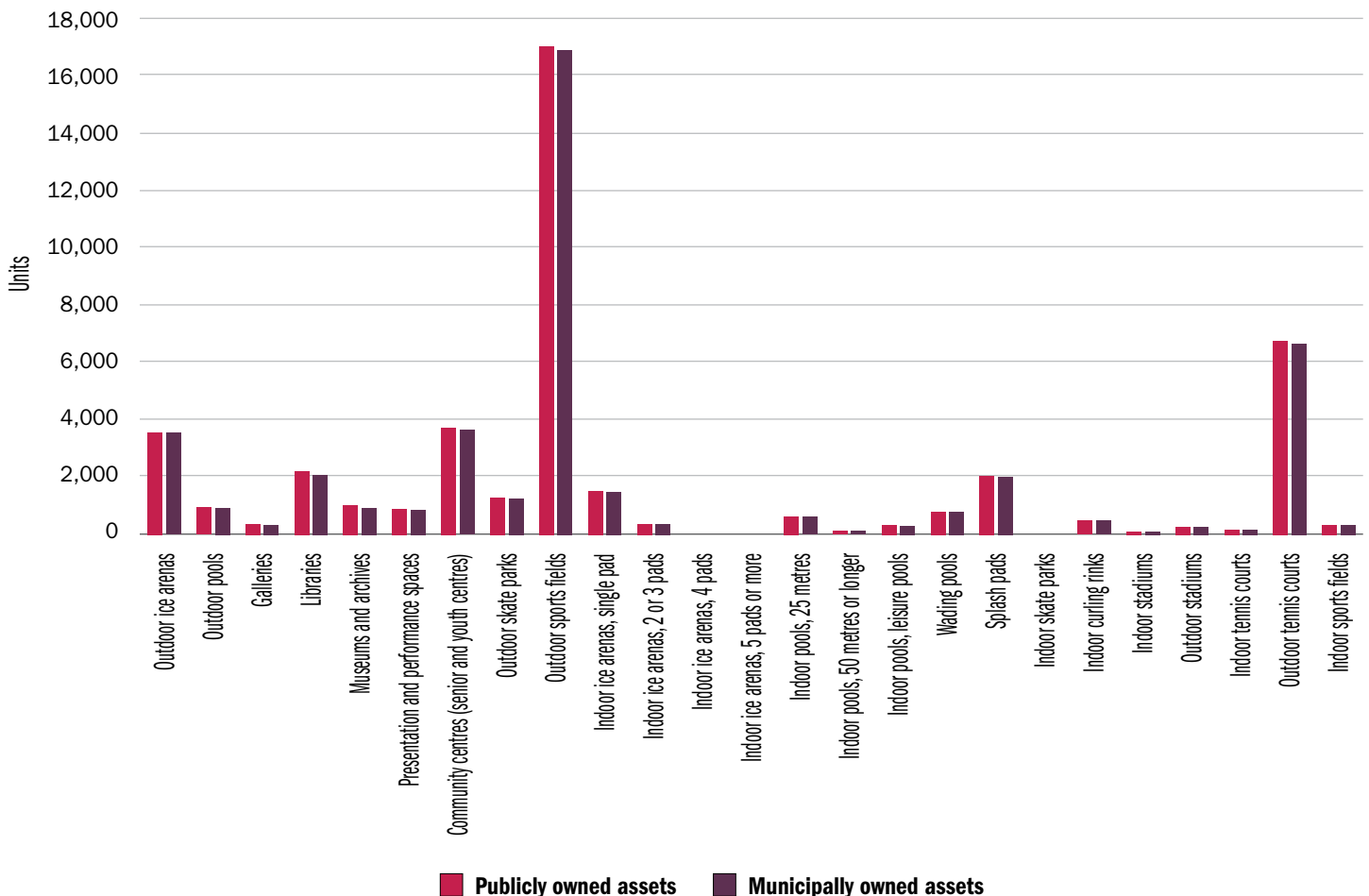
RESULTS BY INFRASTRUCTURE CATEGORY

CULTURE, RECREATION AND SPORTS FACILITIES

CULTURE, RECREATION AND SPORTS FACILITIES

Our survey included several types of culture, recreation and sport facilities:

- **Ice arena facilities:** Indoor ice arenas with 1-5 pads or more, outdoor ice arenas.

- **Pool facilities:** Indoor pools of 25 metres or 50 metres or more, leisure pools, outdoor pools, wading pools, splash pads.

- **Arts and culture facilities:** Galleries, libraries, museums and archives, presentation and performance spaces.

- **Other facilities:** Indoor and outdoor skate parks, indoor curling rinks, indoor and outdoor stadiums, indoor and outdoor tennis courts, indoor and outdoor sports fields, community centres, multi-purpose facilities.

Culture, Recreation and Sports Facilities: Asset Inventory

Legend: Publicly owned assets, Municipally owned assets

RESULTS BY INFRASTRUCTURE CATEGORY

CULTURE, RECREATION AND SPORTS FACILITIES

THE CURRENT STATE

These assets have a consistent condition across this category. Approximately 30-35% of them are in fair condition or worse, and a large proportion of some facility types are more than 50 years old.

The asset classes in the worst condition (i.e., more than 30% are in fair, poor or very poor condition) include single pad ice arenas, outdoor pools and wading pools, indoor 25-metre pools, indoor curling rinks and tennis courts.

We assessed these assets using a defined scale and their age profile.

This asset category is complicated given the public's expectations around criteria unrelated to a facility's physical condition. This includes, for example, revised amenity requirements as demographics shift, and updating facilities for better environmental/energy performance, etc. These are important considerations that are not fully captured in traditional condition assessment data.

- Sports fields and courts ESL of 25 years.
- Playgrounds and other park equipment ESL of 10-15 years depending on the equipment, and playground structures 25-50 years depending on material.
- Asphalt trails and parking lots ESL of 25 years.
- Buildings and structures ESL of 40 years (before they need some substantial refurbishment).
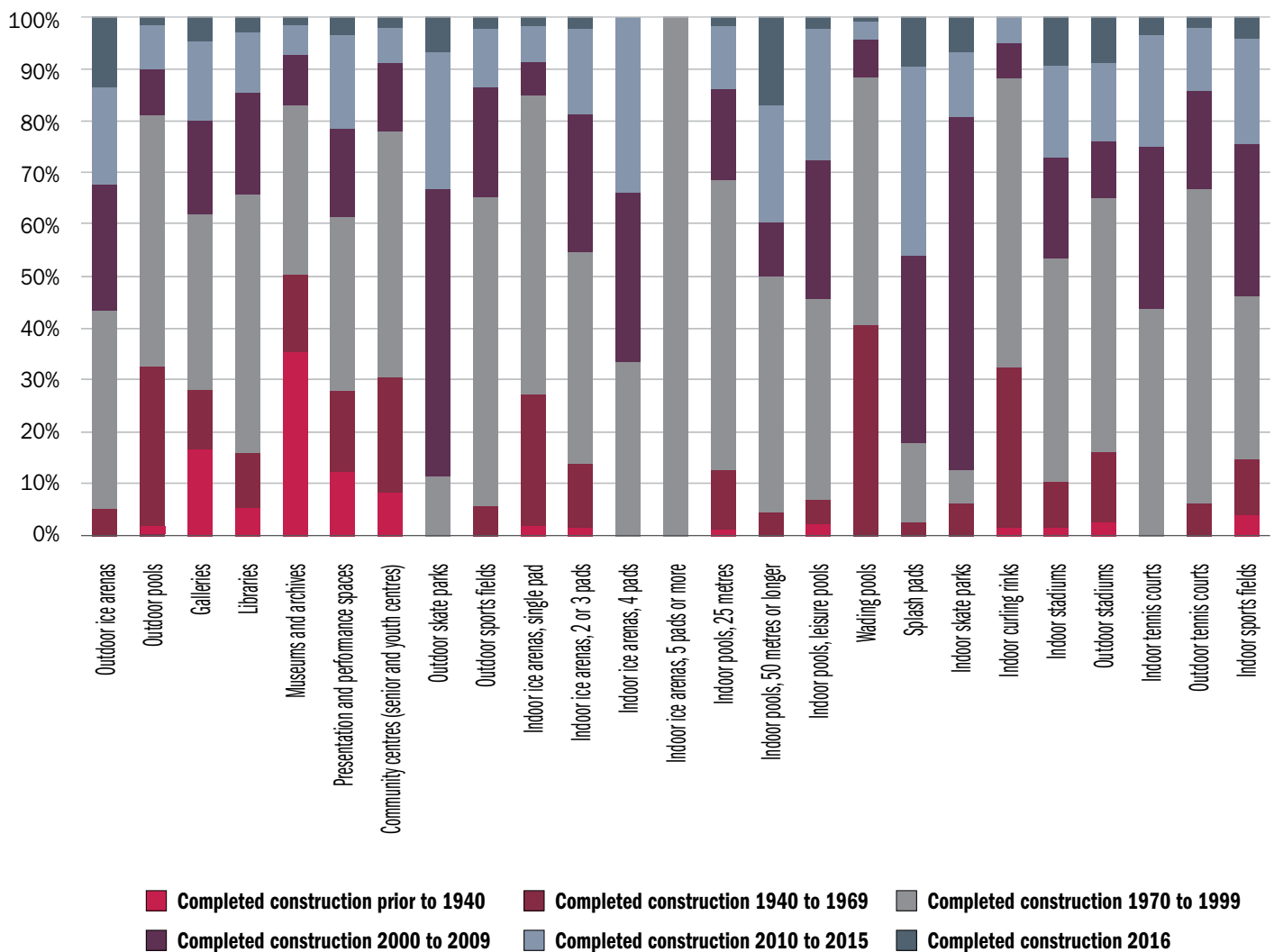
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RESULTS BY INFRASTRUCTURE CATEGORY

CULTURE, RECREATION AND SPORTS FACILITIES

Culture, Recreation and Sports Facilities:
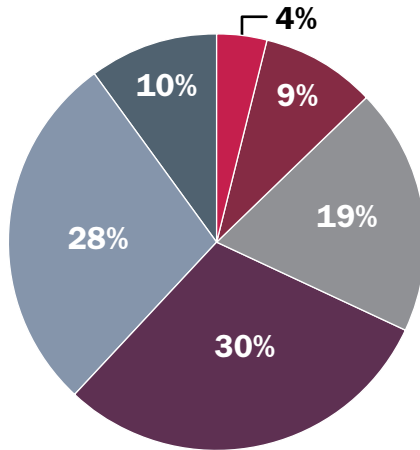**Publicly Owned Asset Inventory (Completed Construction)**

Legend:
- Completed construction prior to 1940
- Completed construction 1940 to 1969
- Completed construction 1970 to 1999
- Completed construction 2000 to 2009
- Completed construction 2010 to 2015
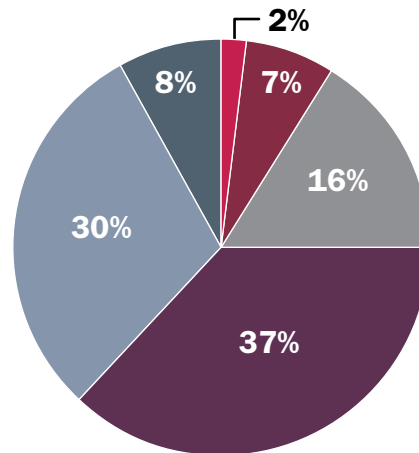- Completed construction 2016

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CULTURE, RECREATION AND SPORTS FACILITIES

Culture, Recreation and Sports Facilities:
Overall Asset Condition – Ice Arenas and Pools

Legend
■ Very Poor
■ Poor
■ Fair
■ Good
■ Very Good
■ Unknown

Pie chart – Ice Arenas and Pools:
- 4%
- 9%
- 19%
- 30%
- 28%
- 10%

Culture, Recreation and Sports Facilities:
Overall Asset Condition – Arts and Culture Facilities

Pie chart – Arts and Culture Facilities:
- 2%
- 7%
- 16%
- 37%
- 30%
- 8%

Culture, Recreation and Sports Facilities:
Overall Asset Condition – Other Facilities

Pie chart – Other Facilities:
- 3%
- 7%
- 23%
- 37%
- 23%
- 7%

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RESULTS BY INFRASTRUCTURE CATEGORY
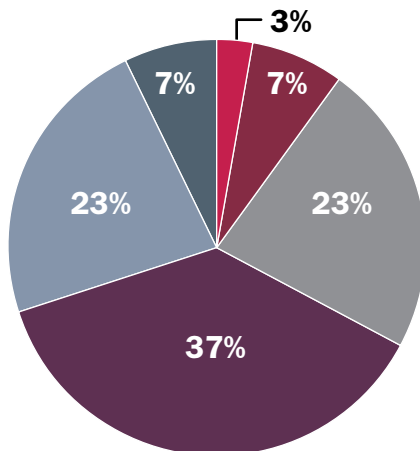
**CULTURE,
RECREATION AND
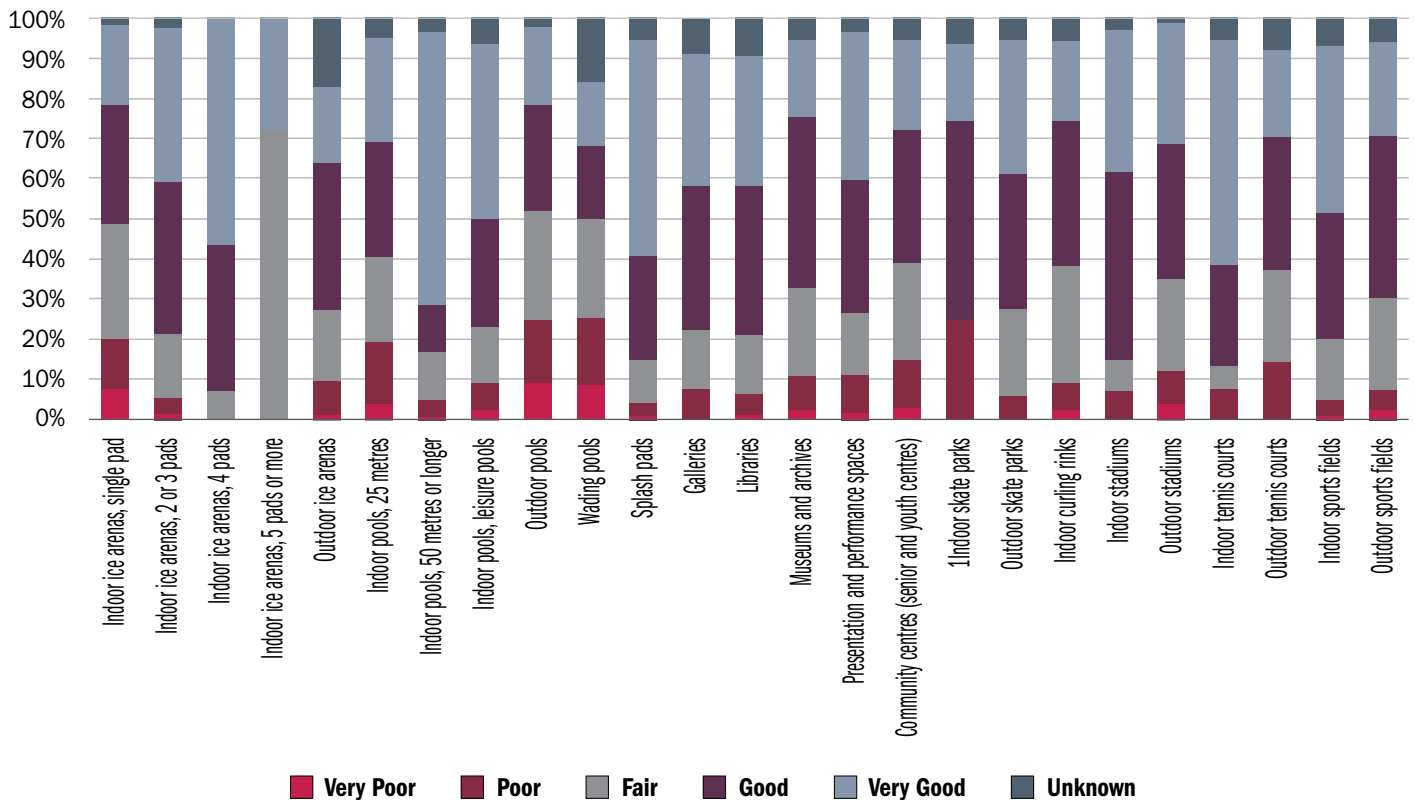SPORTS FACILITIES**

Culture, Recreation and Sports Facilities: Comparison with 2016 Results
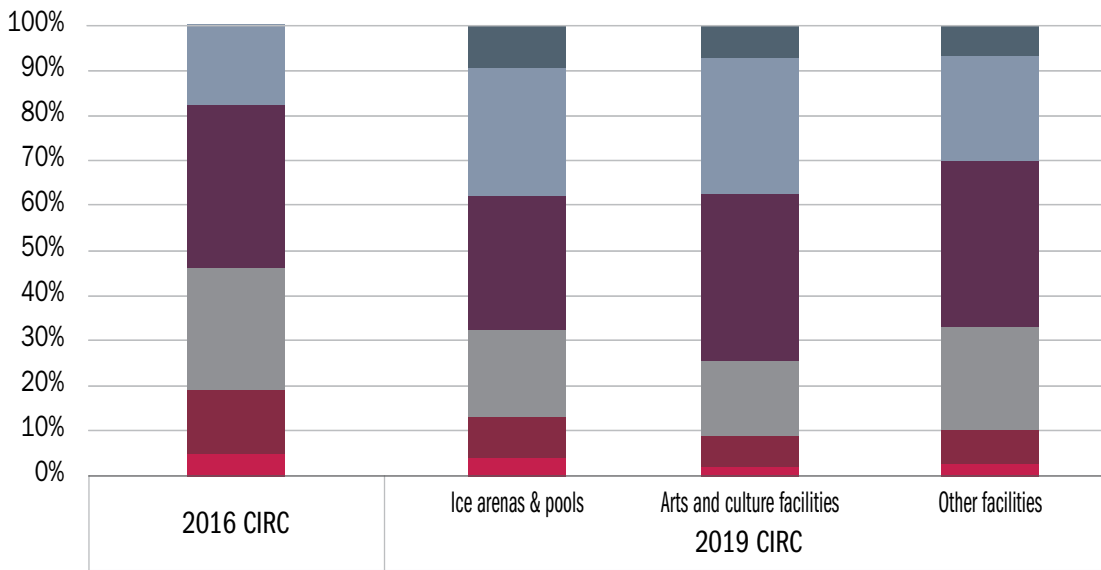
Culture, Recreation and Sports Facilities: Detailed Asset Condition – Publicly Owned Asset Condition

■ **Very Poor**   ■ **Poor**   ■ **Fair**   ■ **Good**   ■ **Very Good**   ■ **Unknown**
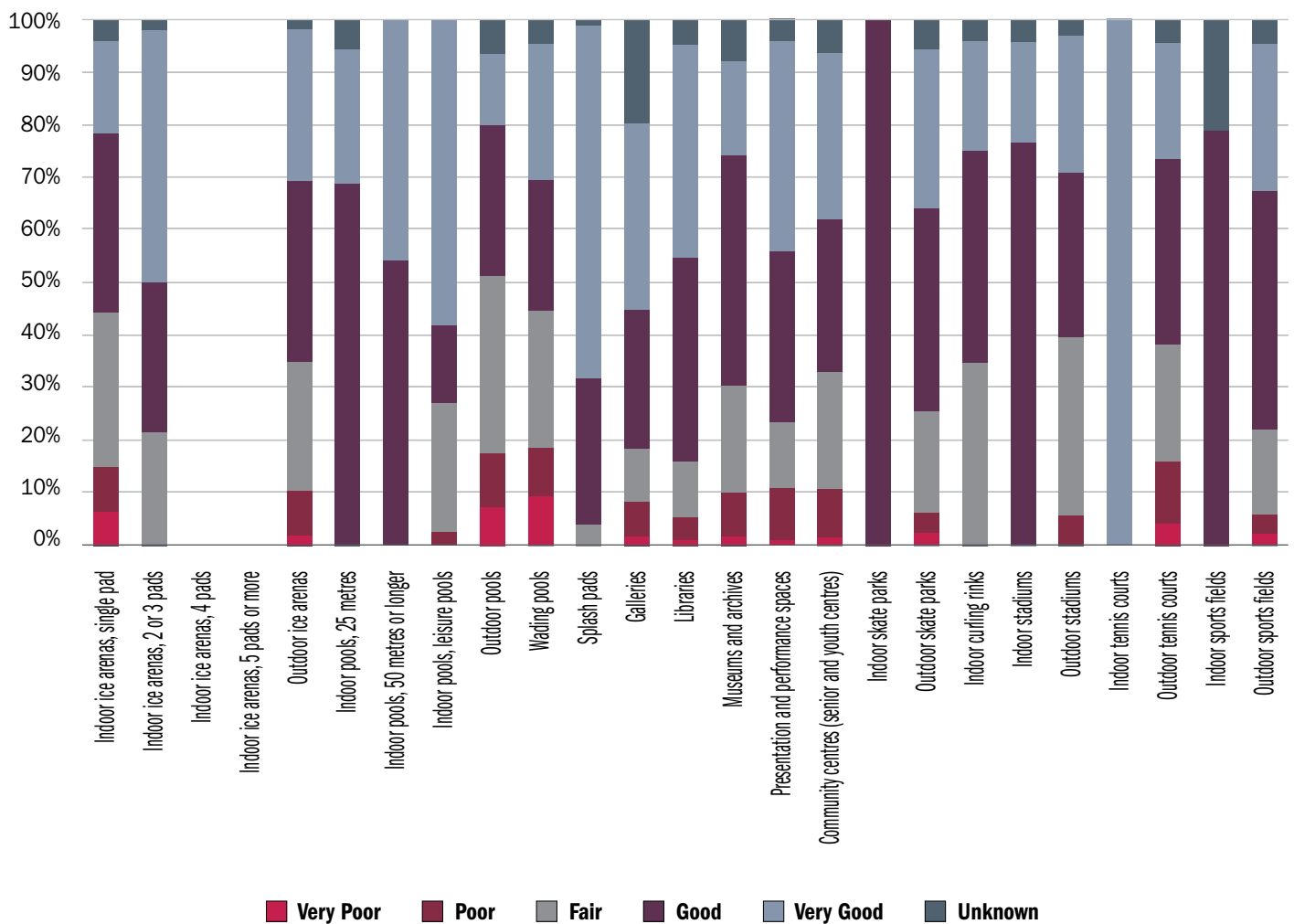
RESULTS BY INFRASTRUCTURE CATEGORY

CULTURE,
RECREATION AND
SPORTS FACILITIES

Culture, Recreation and Sports Facilities:
Other Relevant Data – Municipally Owned Asset Condition (All Rural Municipalities)

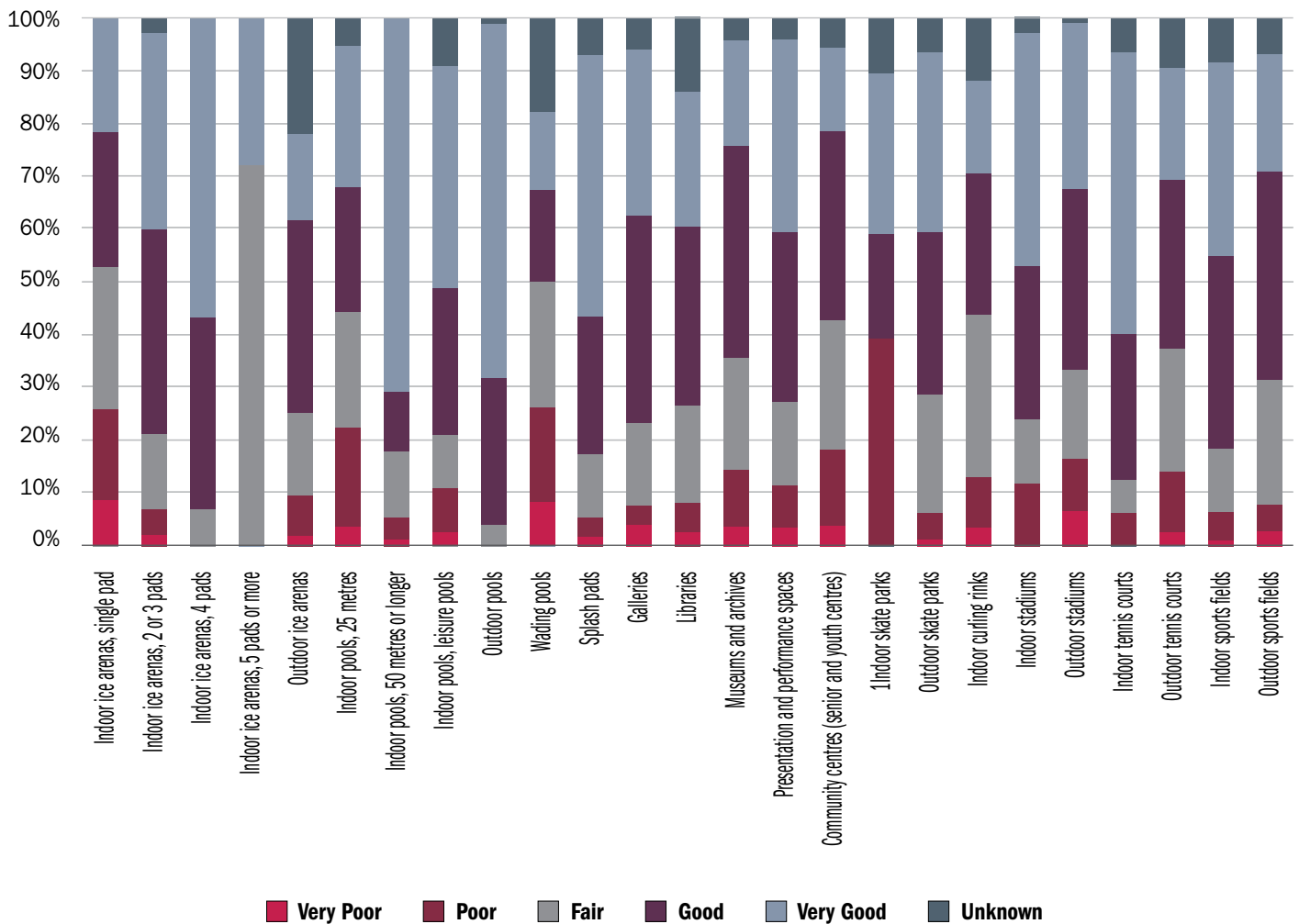Legend: ■ Very Poor ■ Poor ■ Fair ■ Good ■ Very Good ■ Unknown

RESULTS BY INFRASTRUCTURE CATEGORY

CULTURE,
RECREATION AND
SPORTS FACILITIES

Culture, Recreation and Sports Facilities:
Other Relevant Data – Municipally Owned Asset Condition (All Urban Municipalities)

Legend: ■ Very Poor ■ Poor ■ Fair ■ Good ■ Very Good ■ Unknown

Chart categories (x-axis):
- Indoor ice arenas, single pad
- Indoor ice arenas, 2 or 3 pads
- Indoor ice arenas, 4 pads
- Indoor ice arenas, 5 pads or more
- Outdoor ice arenas
- Indoor pools, 25 metres
- Indoor pools, 50 metres or longer
- Indoor pools, leisure pools
- Outdoor pools
- Wading pools
- Splash pads
- Galleries
- Libraries
- Museums and archives
- Presentation and performance spaces
- Community centres (senior and youth centres)
- Indoor skate parks
- Outdoor skate parks
- Indoor curling rinks
- Indoor stadiums
- Outdoor stadiums
- Indoor tennis courts
- Outdoor tennis courts
- Indoor sports fields
- Outdoor sports fields

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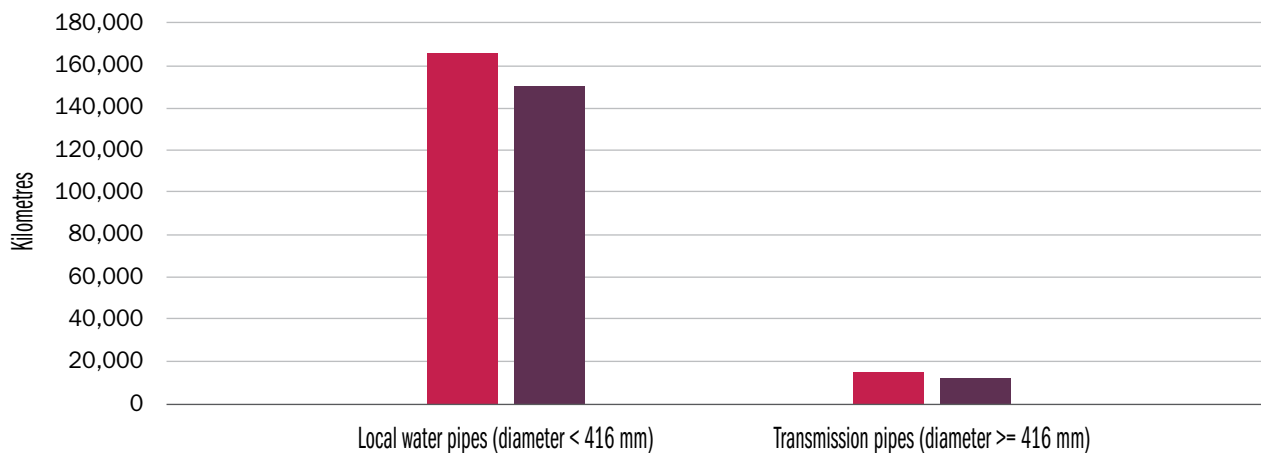# RESULTS BY INFRASTRUCTURE CATEGORY
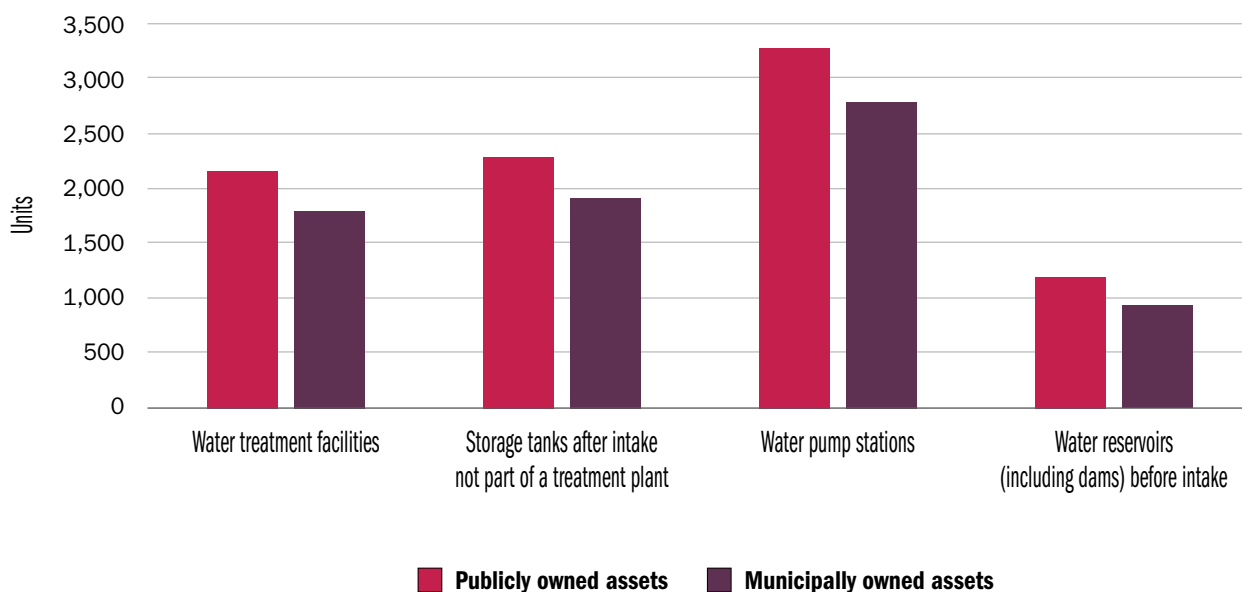
POTABLE WATER

POTABLE WATER

The potable water infrastructure assets in our survey included the linear portion of drinking water systems (i.e., local water and transmission pipes) and non-linear assets (i.e., water treatment facilities, water pumping stations, water reservoirs). Linear water infrastructure is classified into local water pipes—known as distribution pipes—and transmission pipes.

Potable Water: Linear Asset Inventory

Kilometres (y-axis: 0 to 180,000)

- Local water pipes (diameter < 416 mm)
- Transmission pipes (diameter >= 416 mm)

Potable Water: Non-linear Asset Inventory

Units (y-axis: 0 to 3,500)

- Water treatment facilities
- Storage tanks after intake not part of a treatment plant
- Water pump stations
- Water reservoirs (including dams) before intake

■ **Publicly owned assets**   ■ **Municipally owned assets**

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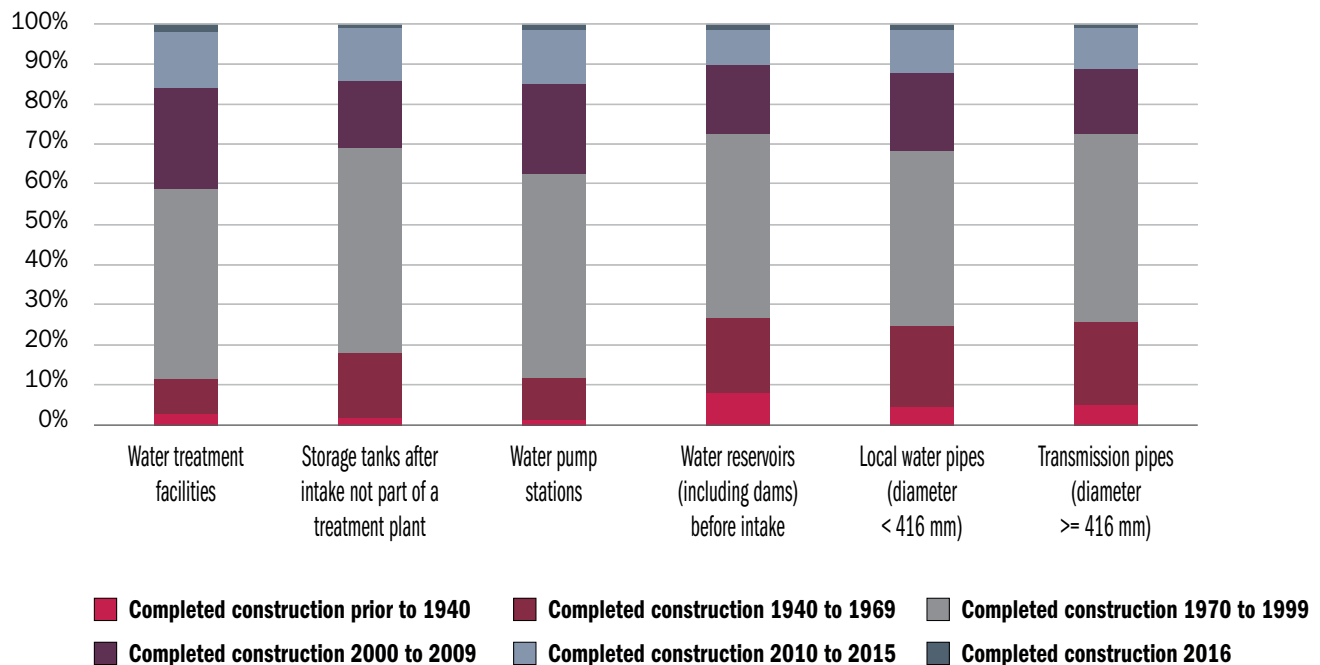# RESULTS BY INFRASTRUCTURE CATEGORY

**POTABLE
WATER**

THE CURRENT STATE

Overall, approximately 30% of potable water infrastructure is in very good condition, 40% is in good condition and 25% is in fair, poor or very poor condition. Approximately 30-40% of these assets were constructed in the last 20 years.

We assessed these assets using a defined scale and their age profile.

- Watermains have an ESL of 70-100 years depending on the material.
- Vertical facilities have an ESL of 50-80 years for structural components, 25 years for mechanical and electrical components.

Potable Water: Publicly Owned Asset Inventory (Completed Construction)

Legend:
- Completed construction prior to 1940
- Completed construction 1940 to 1969
- Completed construction 1970 to 1999
- Completed construction 2000 to 2009
- Completed construction 2010 to 2015
- Completed construction 2016

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RESULTS BY INFRASTRUCTURE CATEGORY

POTABLE WATER

Potable Water:
Overall Asset Condition – Linear

3%
6%
6%
18%
31%
36%

Potable Water:
Overall Asset Condition – Non-linear

2%
5%
4%
15%
33%
41%
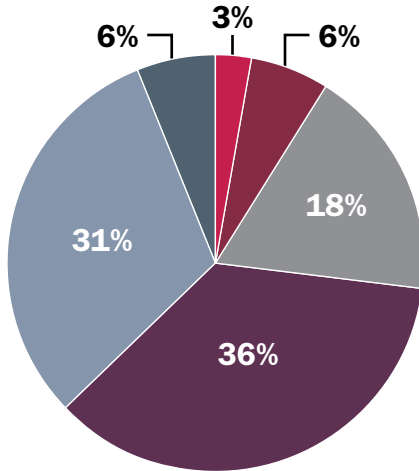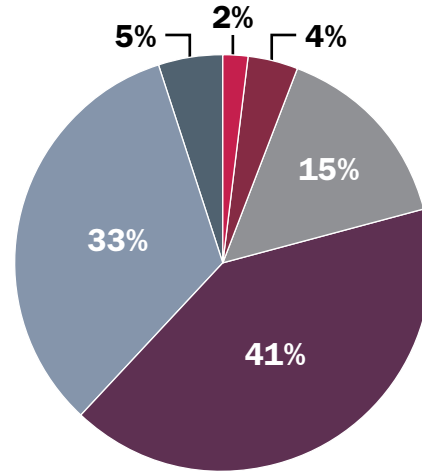
Potable Water: Comparison with 2016 Results
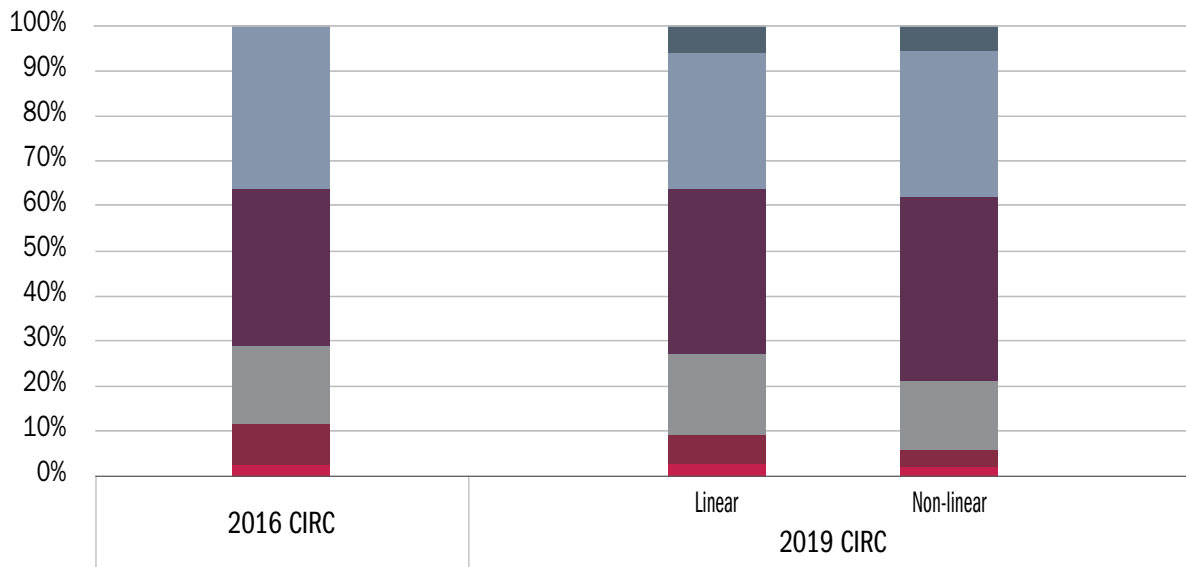
	2016 CIRC	Linear	Non-linear
		2019 CIRC	

■ **Very Poor**   ■ **Poor**   ■ **Fair**   ■ **Good**   ■ **Very Good**   ■ **Unknown**

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RESULTS BY INFRASTRUCTURE CATEGORY

POTABLE
WATER

Potable Water: Detailed Asset Condition – Publicly Owned Assets

Legend: Very Poor · Poor · Fair · Good · Very Good · Unknown
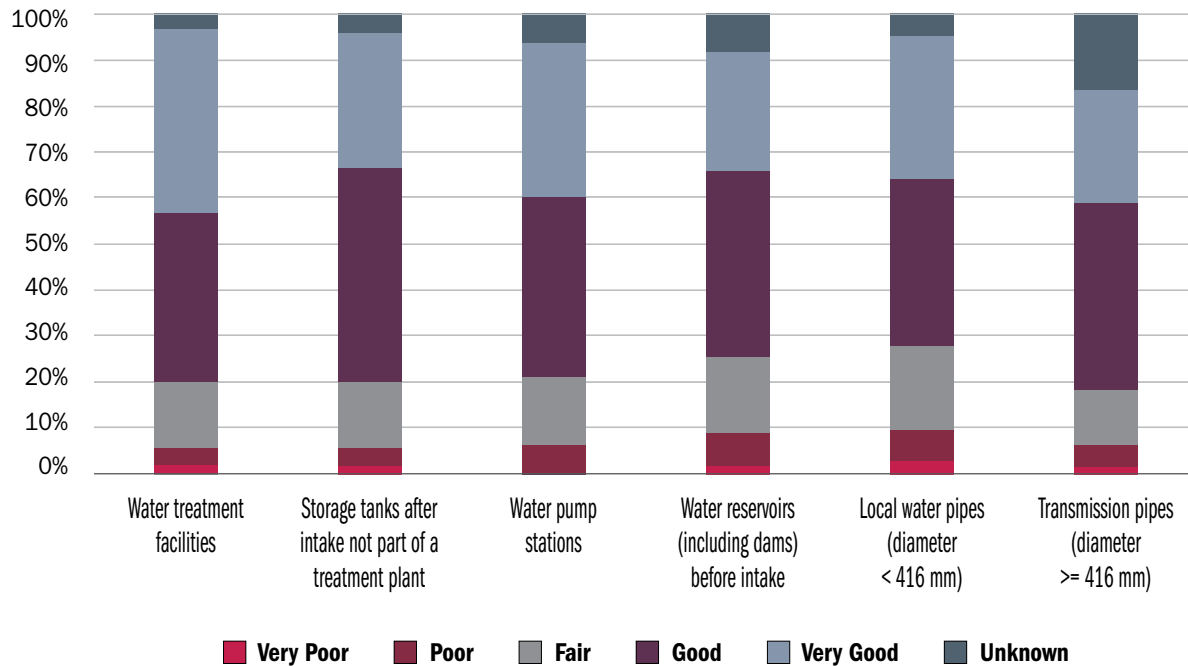
RESULTS BY INFRASTRUCTURE CATEGORY

POTABLE
WATER

Potable Water: Other Relevant Data – Municipally Owned Assets
(All Rural Municipalities)
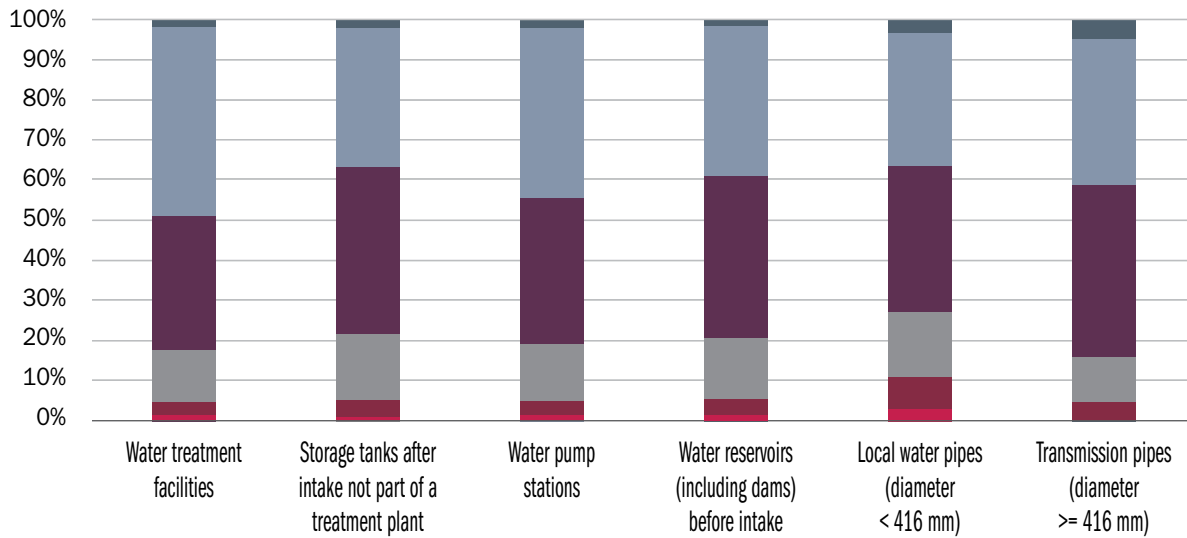
Potable Water: Other Relevant Data – Municipally Owned Assets
**(All Urban Municipalities)**

■ **Very Poor** ■ **Poor** ■ **Fair** ■ **Good** ■ **Very Good** ■ **Unknown**
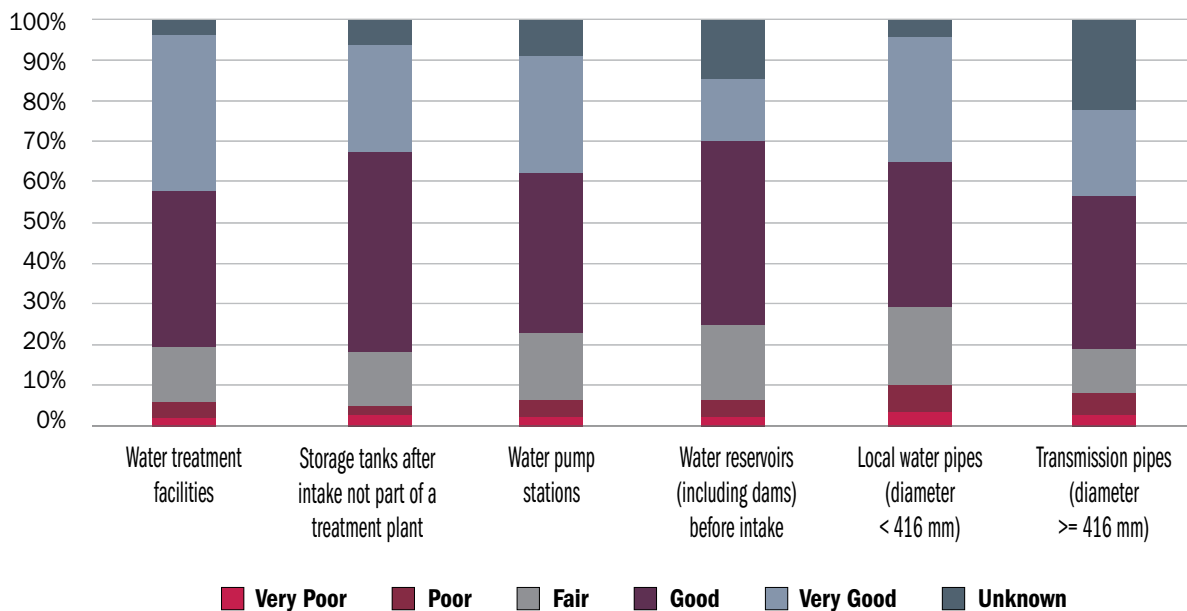
RESULTS BY INFRASTRUCTURE CATEGORY

WASTEWATER

WASTEWATER

The wastewater infrastructure assets in our survey included linear wastewater collection systems (i.e., sewer pipes and sanitary force mains) and non-linear assets (i.e., treatment plants, lagoon systems, pumping stations, lift stations and storage tanks).

Wastewater: Linear Asset Inventory
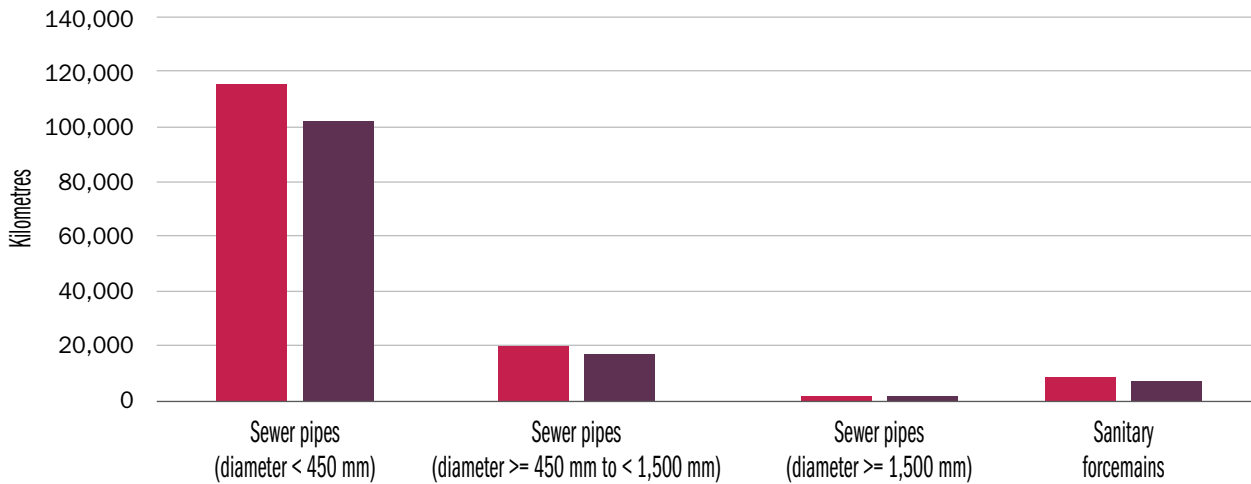
Wastewater: Non-linear Asset Inventory

■ Publicly owned assets ■ Municipally owned assets

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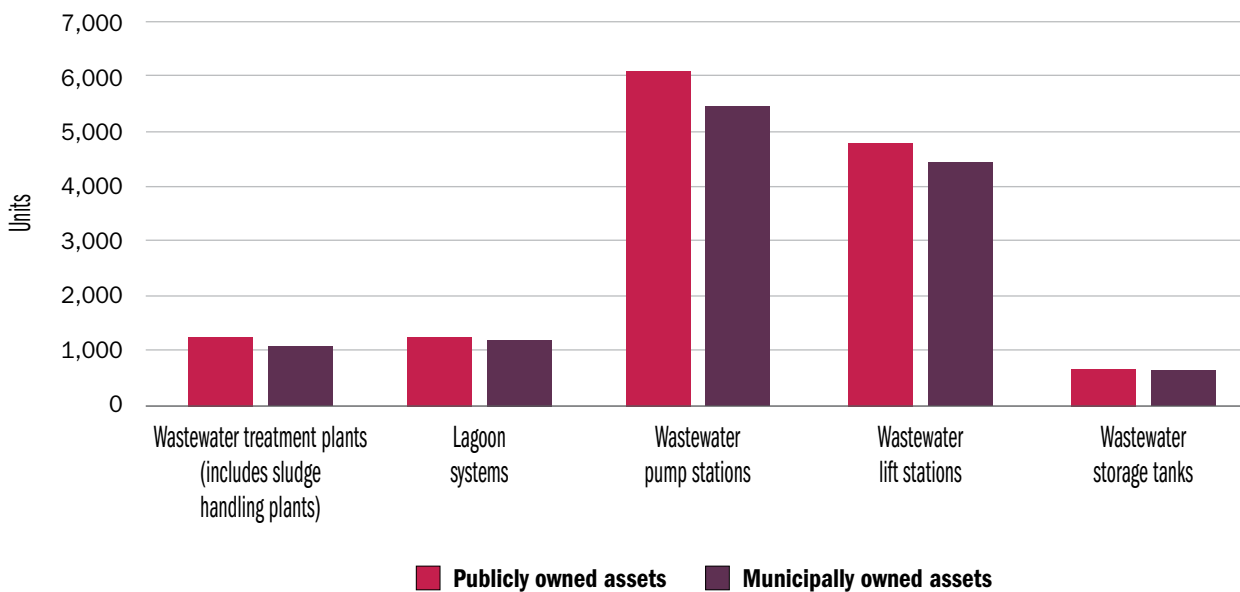
RESULTS BY INFRASTRUCTURE CATEGORY

WASTEWATER

THE CURRENT STATE

Approximately 25% of wastewater infrastructure is in very good condition and 30-40% is in good condition. These positive results represent approximately 55-65% of wastewater assets.

That said, approximately 15% of linear wastewater assets have an unknown condition, which highlights the challenges in assessing underground assets. A large portion of linear wastewater assets are more than 50 years old.

We assessed these assets using a defined scale and their age profile.

- Sewers have an ESL of 70-100 years depending on the material.
- Vertical facilities have an ESL of 50-80 years for structural components, 25 years for mechanical and electrical components.

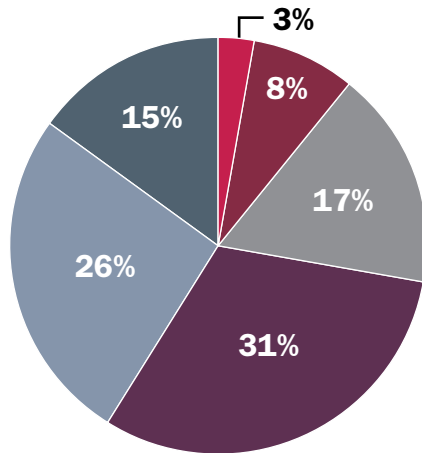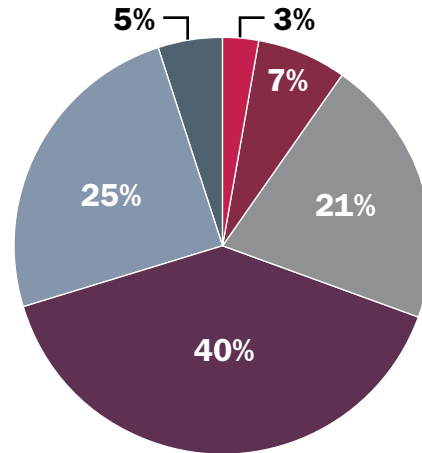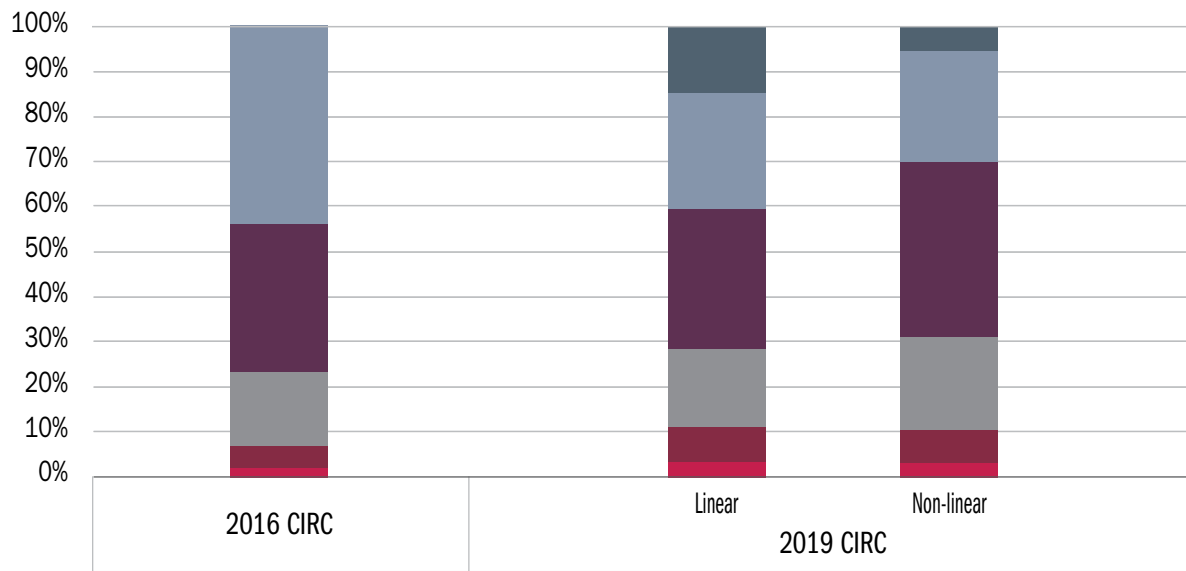**Wastewater:** **Publicly Owned Asset Inventory (Completed Construction)**
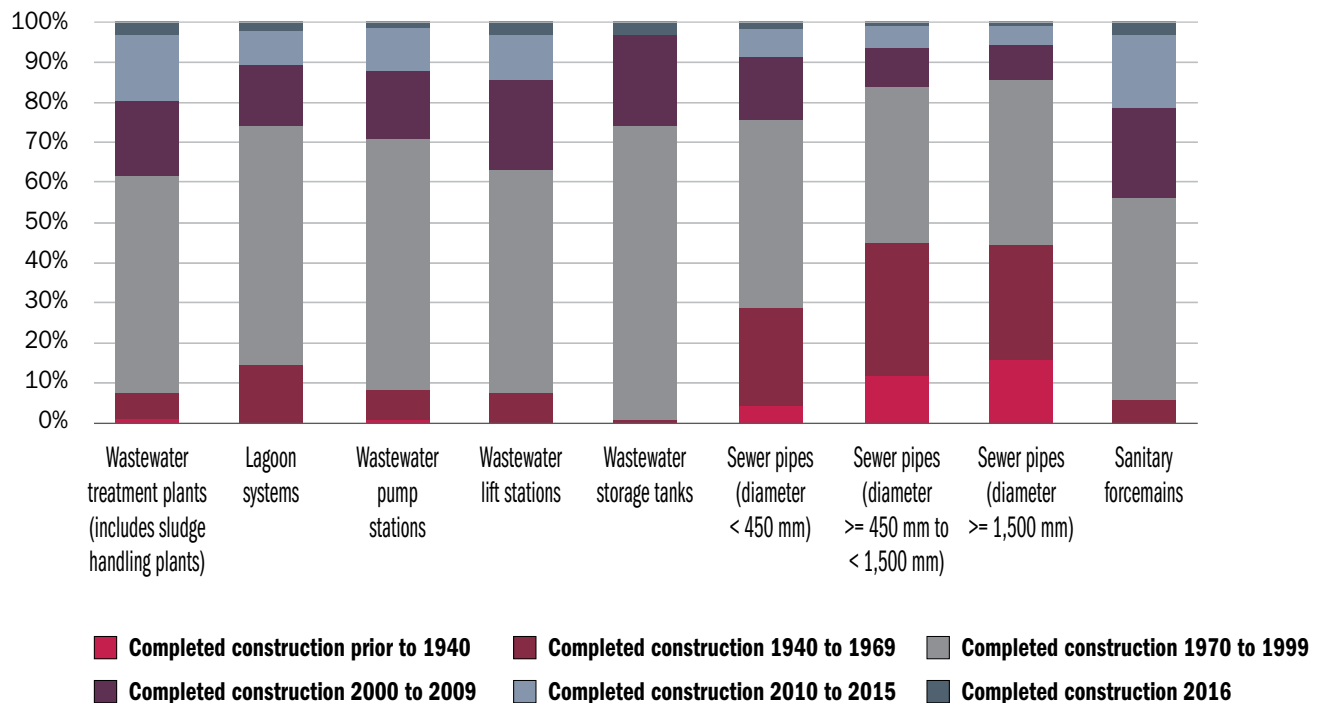
Legend:
- Completed construction prior to 1940
- Completed construction 1940 to 1969
- Completed construction 1970 to 1999
- Completed construction 2000 to 2009
- Completed construction 2010 to 2015
- Completed construction 2016

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RESULTS BY INFRASTRUCTURE CATEGORY

WASTEWATER

Wastewater:
Overall Asset Condition – Linear

3%
8%
15%
17%
26%
31%

Wastewater:
Overall Asset Condition – Non-linear

5%
3%
7%
25%
21%
40%

Wastewater: Comparison with 2016 Results

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

2016 CIRC	Linear	Non-linear
	2019 CIRC	

■ Very Poor   ■ Poor   ■ Fair   ■ Good   ■ Very Good   ■ Unknown

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WASTEWATER

Wastewater: Detailed Asset Condition – Publicly Owned Asset Condition

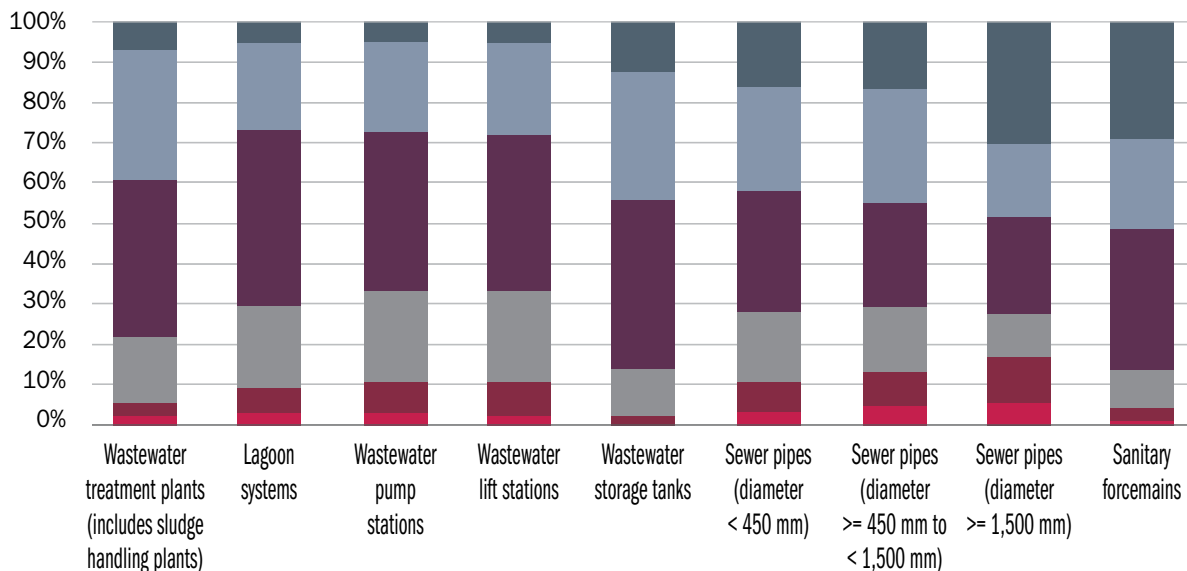Legend: Very Poor | Poor | Fair | Good | Very Good | Unknown
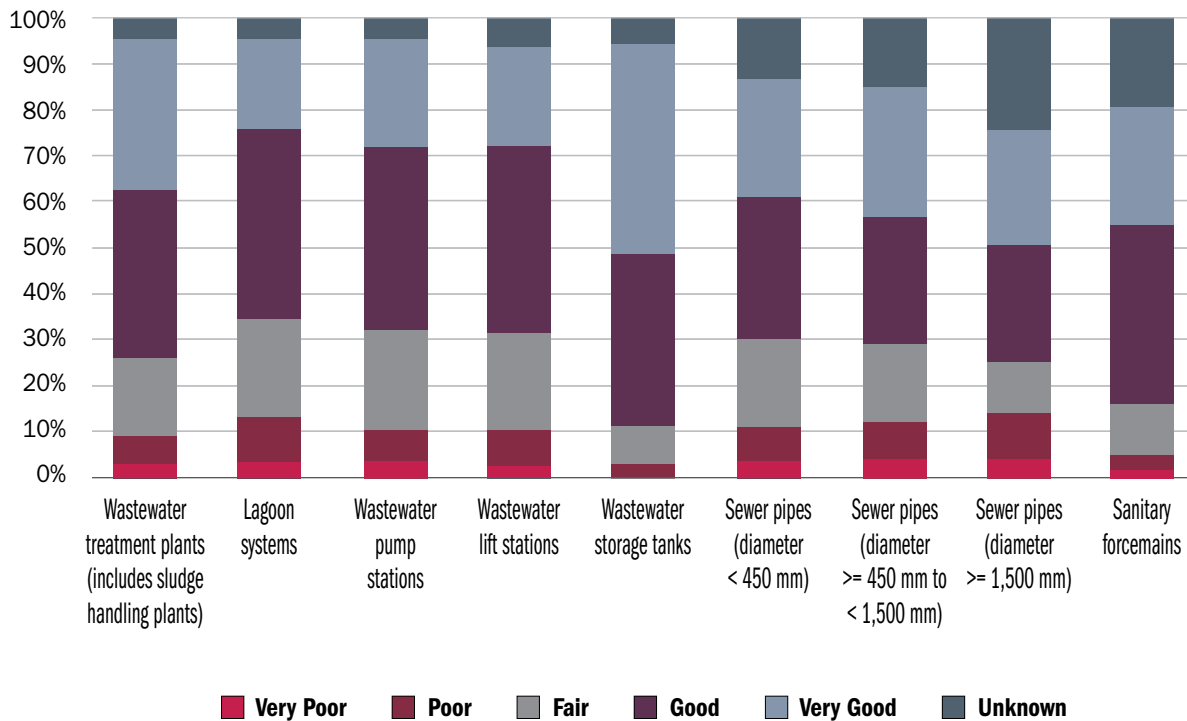
WASTEWATER

Wastewater: Other Relevant Data – Municipally Owned Asset Condition (All Rural Municipalities)
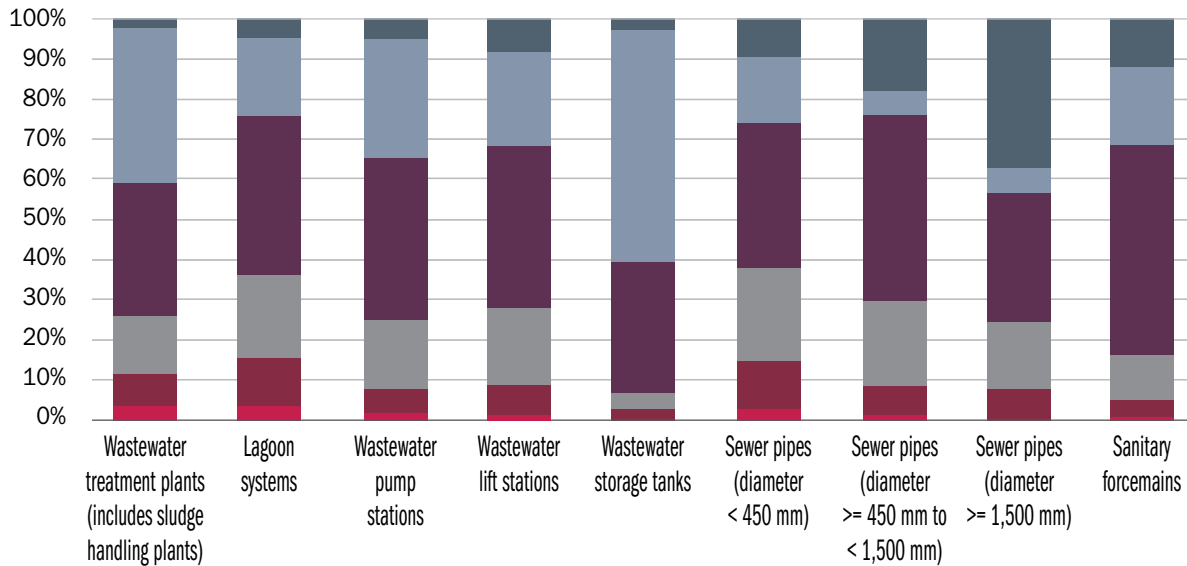
Wastewater: Other Relevant Data – Municipally Owned Asset Condition (All Urban Municipalities)

Legend: Very Poor, Poor, Fair, Good, Very Good, Unknown
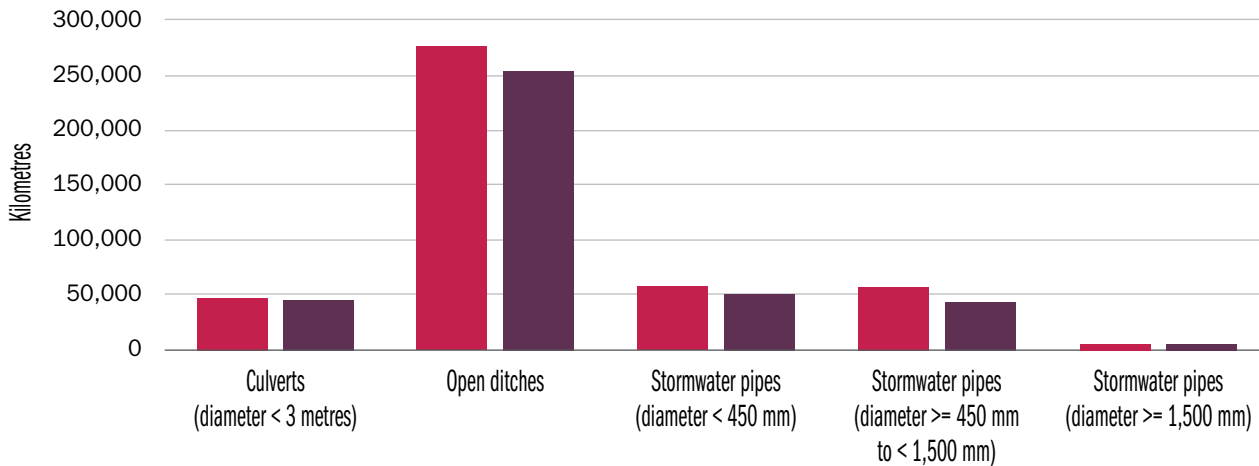
RESULTS BY INFRASTRUCTURE CATEGORY
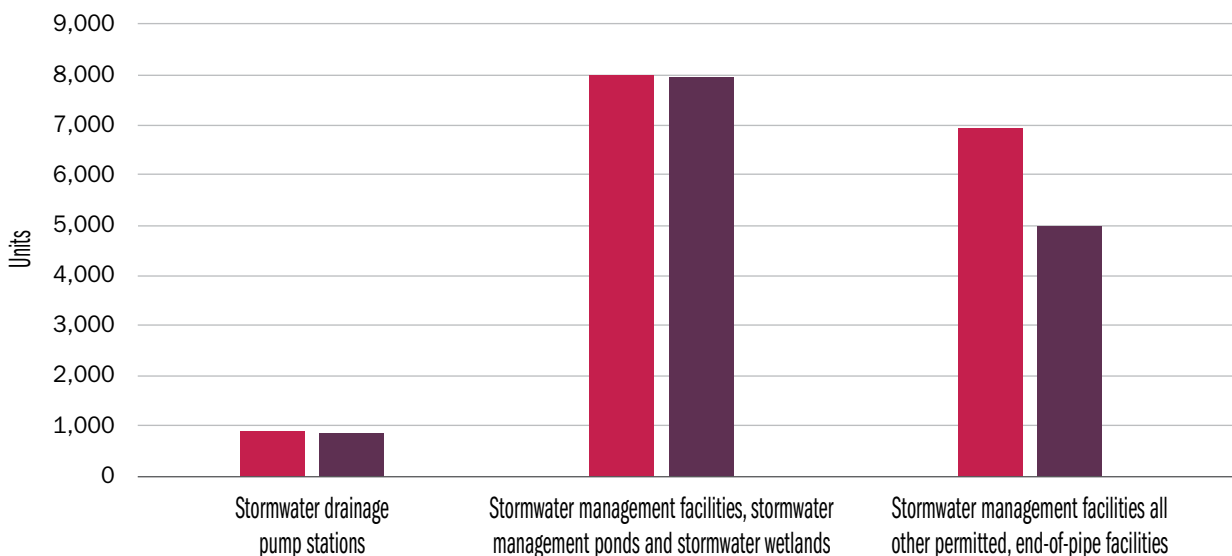
STORMWATER

STORMWATER

The stormwater infrastructure assets in our survey included linear stormwater collection systems (i.e., storm water collection pipes, open ditches and culverts less than three meters in diameter) and non-linear assets (i.e., stormwater drainage pump stations; stormwater management facilities, including stormwater management ponds, storm water wetlands and all other permitted end-of-pipe-facilities).

Stormwater: Linear Asset Inventory

Stormwater: Non-linear Asset Inventory

■ **Publicly owned assets**   ■ **Municipally owned assets**

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RESULTS BY INFRASTRUCTURE CATEGORY

STORMWATER

THE CURRENT STATE

Approximately 40-60% of stormwater infrastructure is in good or very good condition. We don't know the condition of a large portion of stormwater assets because historically, collecting data about their condition was a low-priority activity.
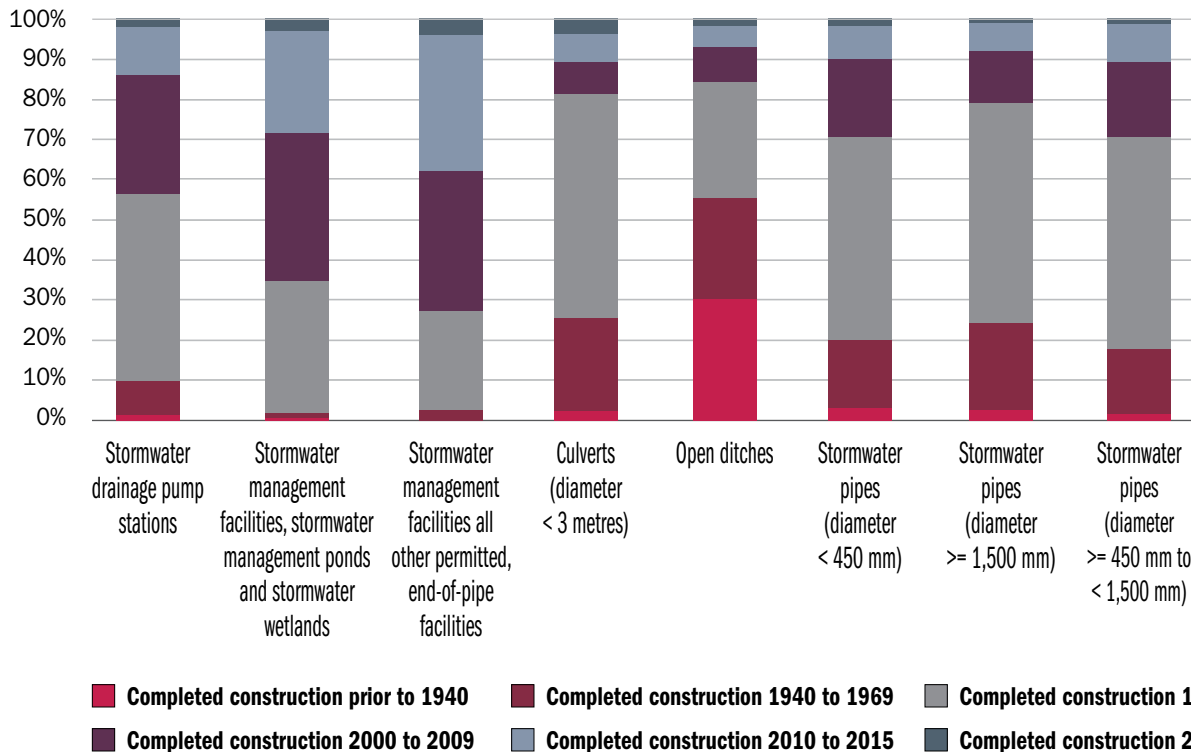
Stormwater management assets were largely built in the last 20 years, and there is a growing focus on understanding their future rehabilitation/replacement needs.

The state of stormwater infrastructure is particularly critical given the impact of climate change. Jurisdictions across Canada are experiencing longer and more intense precipitation events. This has highlighted capacity issues in stormwater infrastructure that go above and beyond the need to rehabilitate existing assets.

We assessed these assets using a defined scale and their age profile.

- Sewers and culverts have an ESL of 70-100 years depending on the material.
- Vertical facilities have an ESL of 50-80 years for structural components, 25 years for mechanical and electrical components.
- ESL of new types of stormwater management facilities is still TBD by the industry.

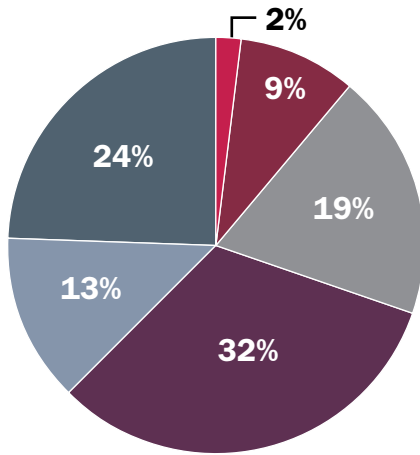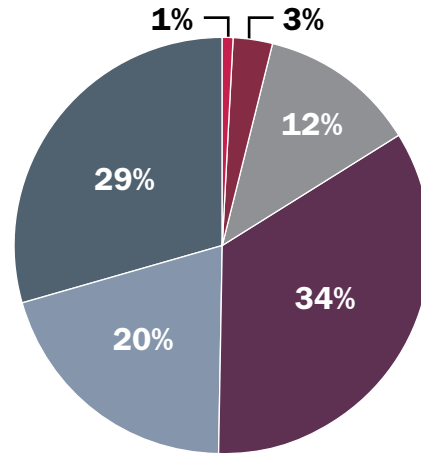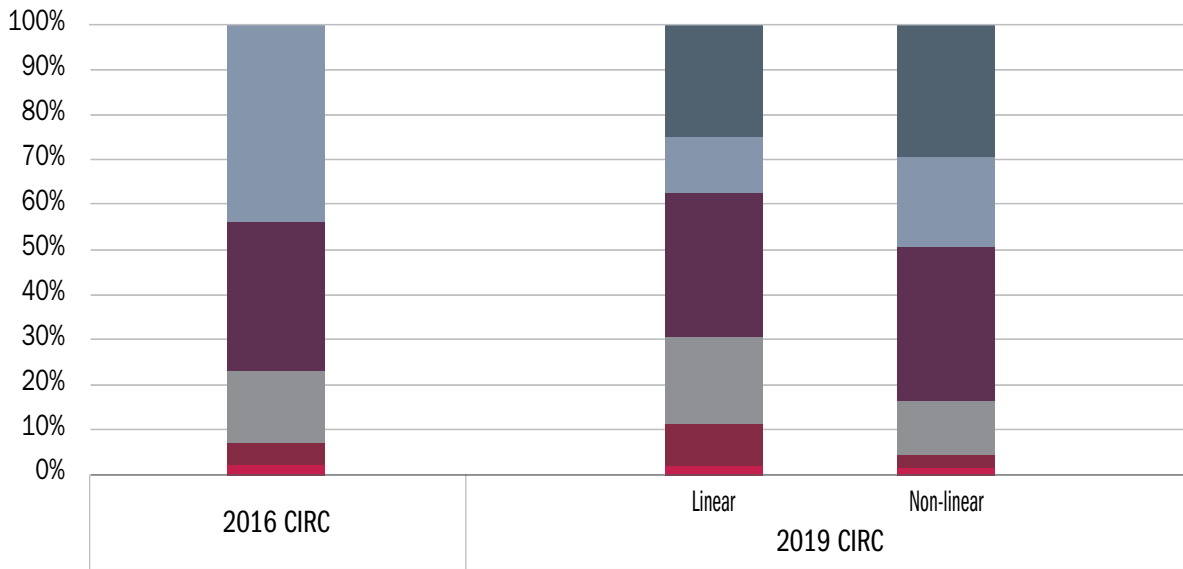**Stormwater:** **Publicly Owned Asset Inventory (Completed Construction)**

Legend:
- ■ Completed construction prior to 1940
- ■ Completed construction 1940 to 1969
- ■ Completed construction 1970 to 1999
- ■ Completed construction 2000 to 2009
- ■ Completed construction 2010 to 2015
- ■ Completed construction 2016

RESULTS BY INFRASTRUCTURE CATEGORY

STORMWATER

Stormwater:
Overall Asset Condition – Linear

2%
9%
19%
24%
13%
32%

Stormwater:
Overall Asset Condition – Non-linear

1%
3%
12%
29%
34%
20%

Stormwater: Comparison with 2016 Results

- 2016 CIRC
- Linear
- Non-linear
- 2019 CIRC

■ Very Poor   ■ Poor   ■ Fair   ■ Good   ■ Very Good   ■ Unknown

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RESULTS BY INFRASTRUCTURE CATEGORY

STORMWATER

Stormwater: Detailed Asset Condition – Publicly Owned Asset Condition

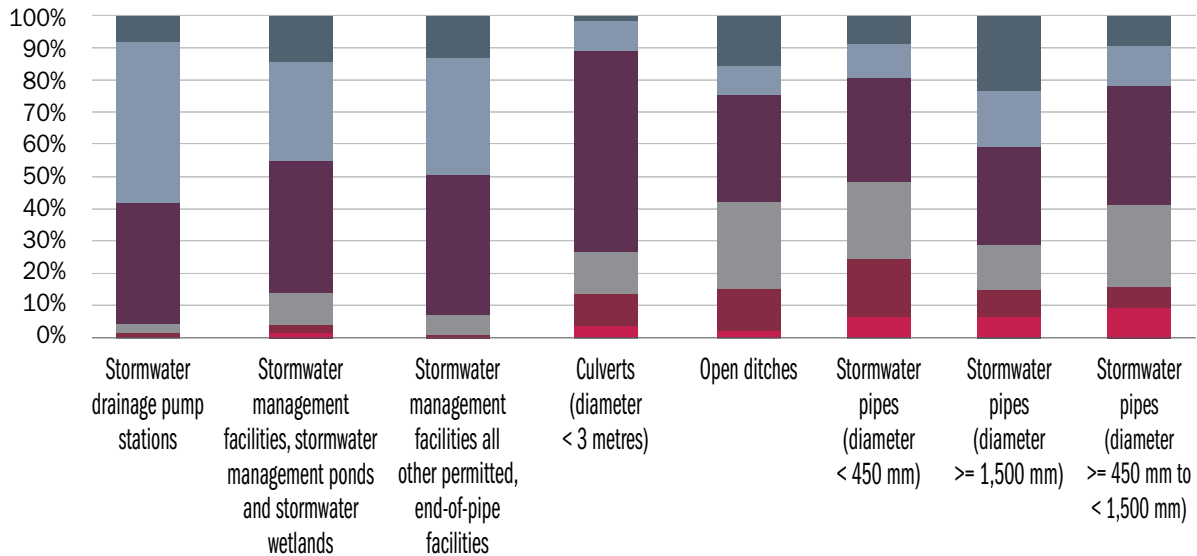Legend: Very Poor, Poor, Fair, Good, Very Good, Unknown
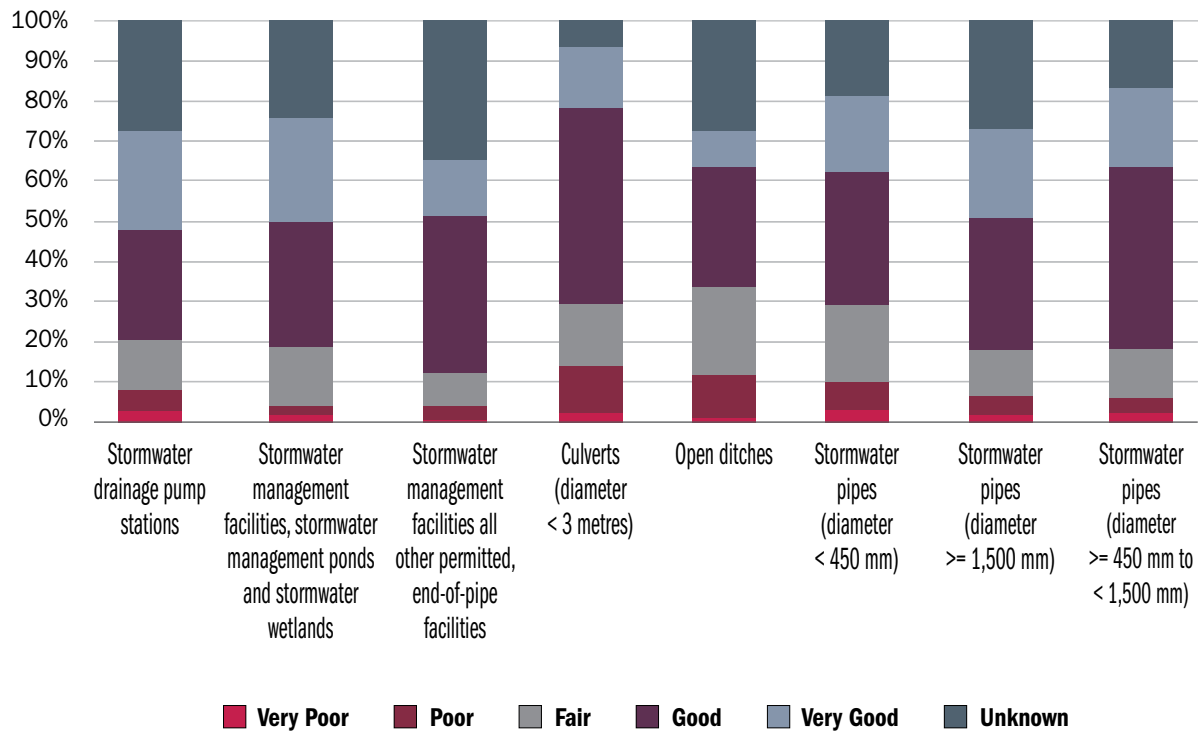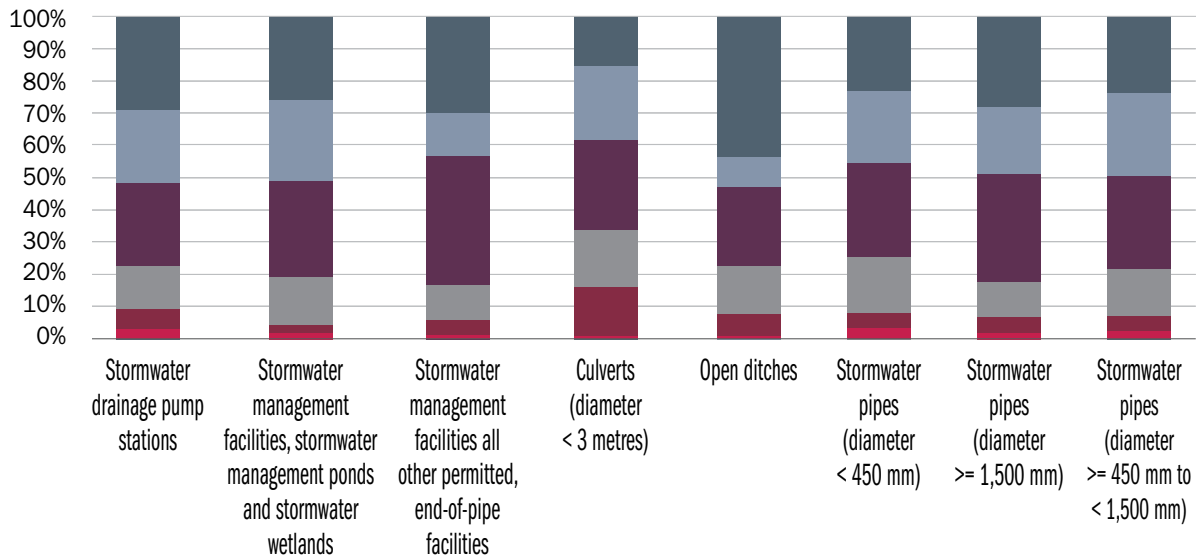
RESULTS BY INFRASTRUCTURE CATEGORY

STORMWATER

Stormwater: Other Relevant Data – Municipally Owned Asset Condition
(All Rural Municipalities)

Stormwater: Other Relevant Data – Municipally Owned Asset Condition
(All Urban Municipalities)

■ **Very Poor**   ■ **Poor**   ■ **Fair**   ■ **Good**   ■ **Very Good**   ■ **Unknown**

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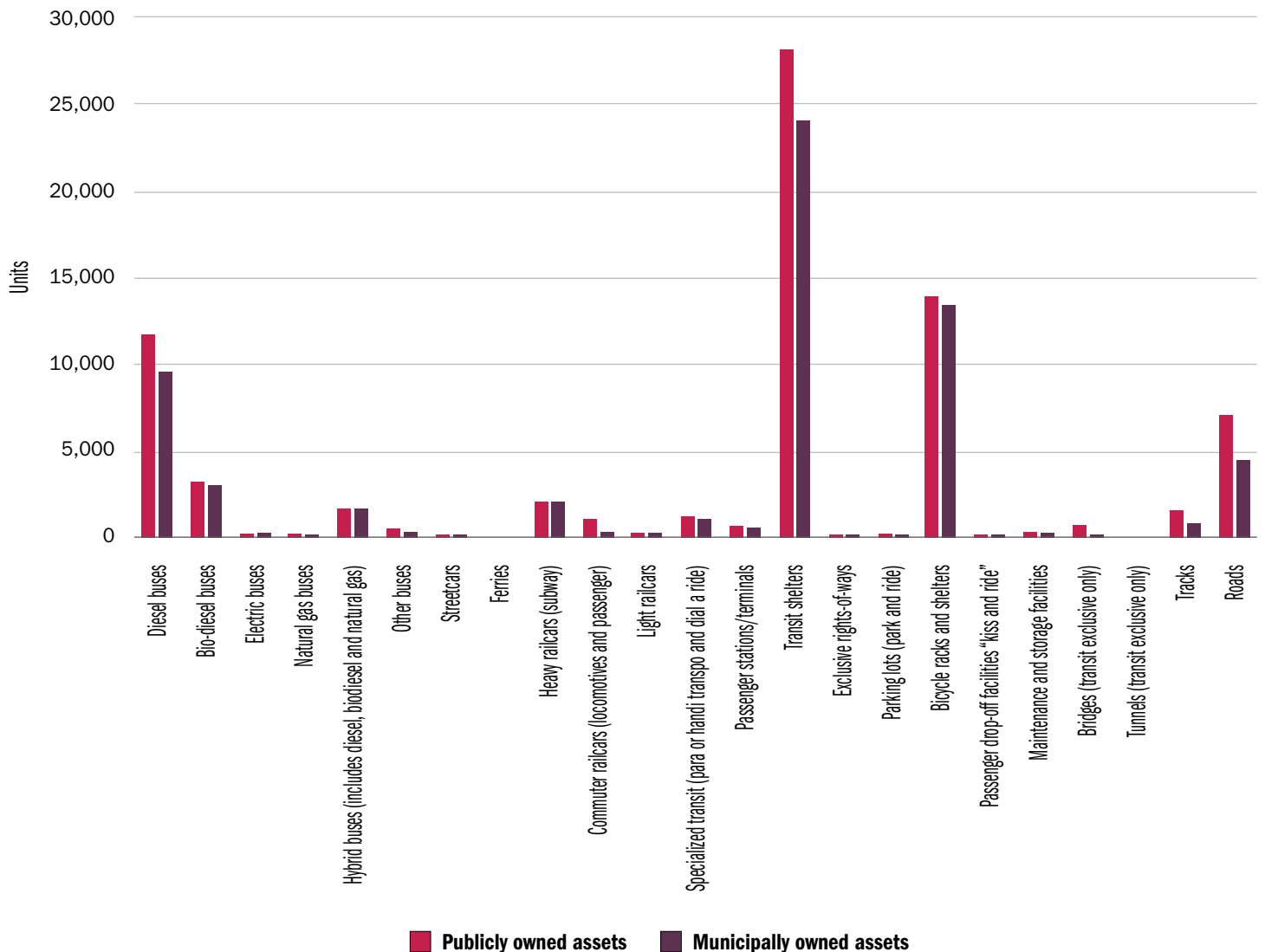# RESULTS BY INFRASTRUCTURE CATEGORY

PUBLIC TRANSIT

**PUBLIC
TRANSIT**

Our survey included rolling stock assets (i.e., buses, streetcars, ferries, heavy railcars, commuter railcars, light railcars, specialized transit) and fixed public transit assets (i.e., passenger stations/terminals, transit shelters, exclusive rights-of-way, parking lots, bicycle racks and shelters, passenger drop-off facilities, maintenance and storage faculties, transit exclusive bridges, tunnels, tracks, roads).

Public Transit: Asset Inventory

■ **Publicly owned assets**   ■ **Municipally owned assets**

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RESULTS BY INFRASTRUCTURE CATEGORY
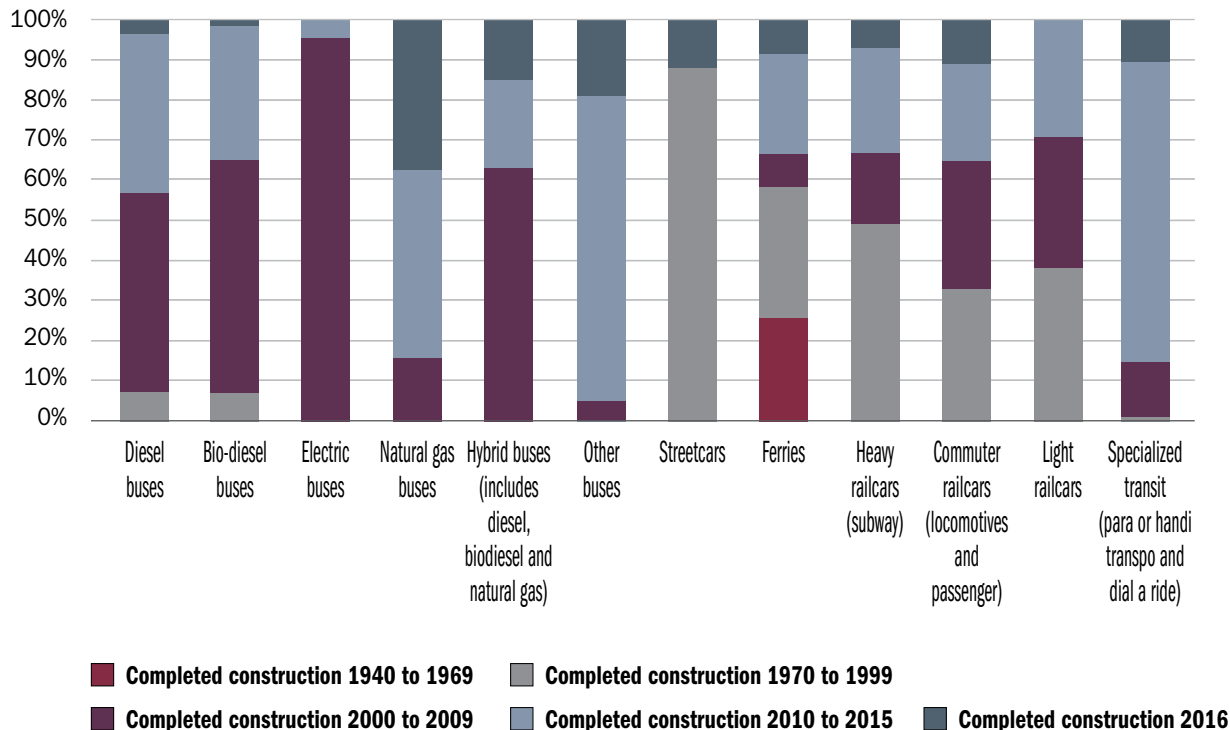
PUBLIC
TRANSIT

THE CURRENT STATE

The condition of public transit assets varies across this category. Some relatively new types of infrastructure are in good condition and other assets, such as fixed tracks, are in much worse condition.

We assessed these assets using a defined scale and their age profile.

- Public Transit Rolling Stock assets may have a wide range of ESL. For instance buses and other motor vehicles have 7-15 years of ESL, whereas vehicles such as ferries, streetcars, and railcars have 30-40 years of ESL.

- Pubic Transit Fixed Assets may range from 30-75 years of ESL depending on the type of structure and the material they are made of. For instance, a passenger terminal may have 75-100 years of ESL whereas a bus shed may have 30 years of ESL.

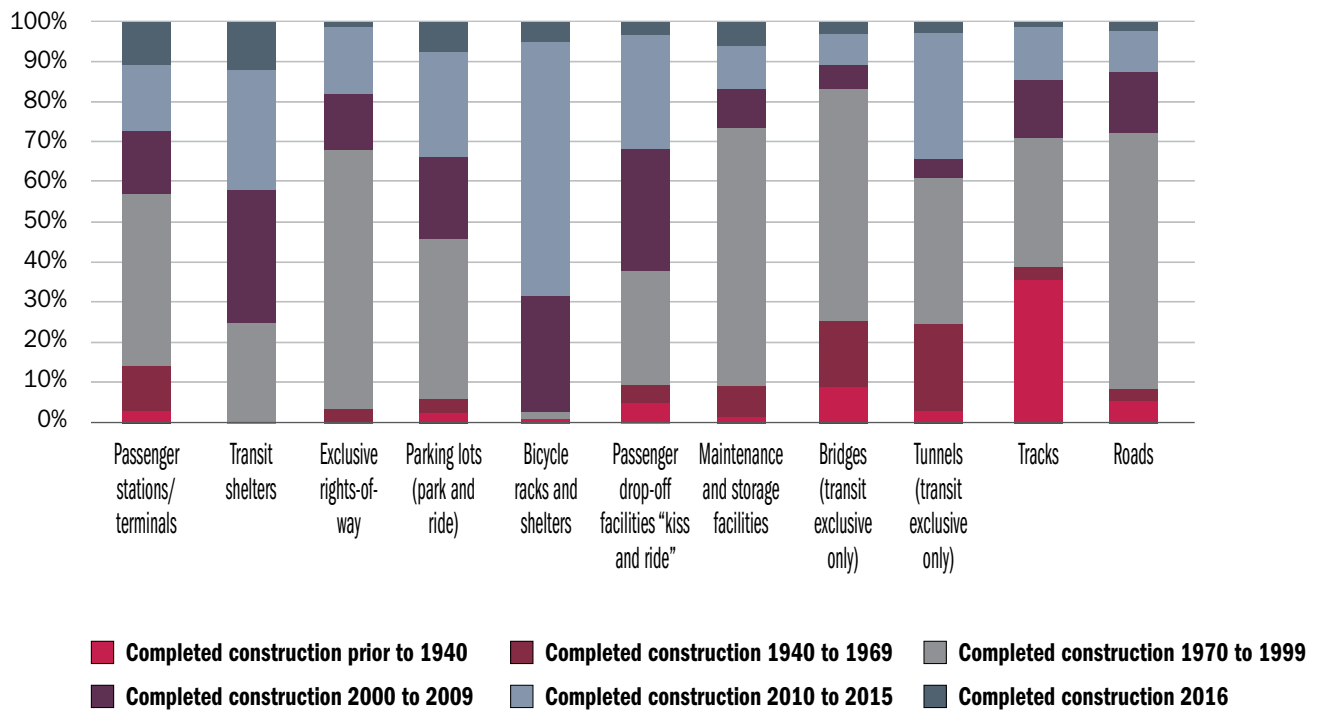**Public Transit: Public Owned Rolling Stock Assets (by Purchase Period)**

- Completed construction 1940 to 1969
- Completed construction 2000 to 2009
- Completed construction 1970 to 1999
- Completed construction 2010 to 2015
- Completed construction 2016

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RESULTS BY INFRASTRUCTURE CATEGORY

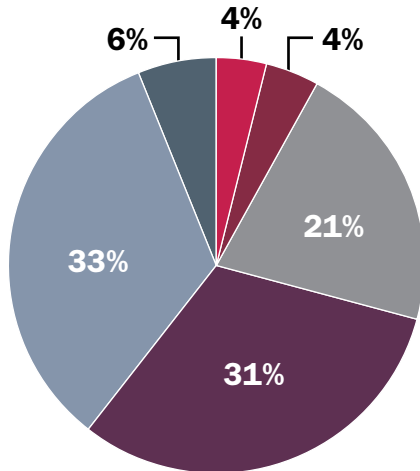**Public Transit:** Public Owned Fixed Assets (by Construction/Purchase Period)

Legend:
- Completed construction prior to 1940
- Completed construction 1940 to 1969
- Completed construction 1970 to 1999
- Completed construction 2000 to 2009
- Completed construction 2010 to 2015
- Completed construction 2016

CANADIAN INFRASTRUCTURE REPORT CARD 2019

RESULTS BY INFRASTRUCTURE CATEGORY

PUBLIC TRANSIT

Public Transit:
Overall Asset Condition – Rolling Assets

Legend:
- ■ Very Poor
- ■ Poor
- ■ Fair
- ■ Good
- ■ Very Good
- ■ Unknown

Pie chart (Rolling Assets):
- 6%
- 4%
- 4%
- 21%
- 33%
- 31%

Public Transit:
Overall Asset Condition – Fixed assets

Pie chart (Fixed assets):
- 2%
- 3%
- 9%
- 38%
- 24%
- 23%
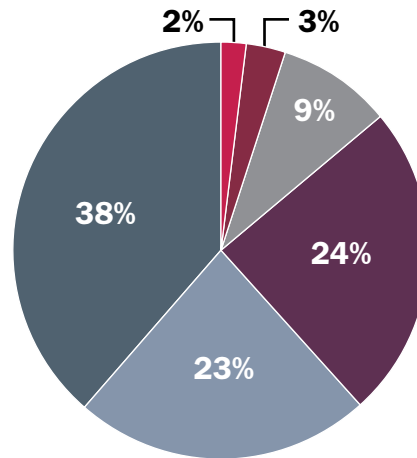
Public Transit:
Overall Asset Condition – Tracks/Roads

Pie chart (Tracks/Roads):
- 4%
- 12%
- 15%
- 19%
- 20%
- 30%

48
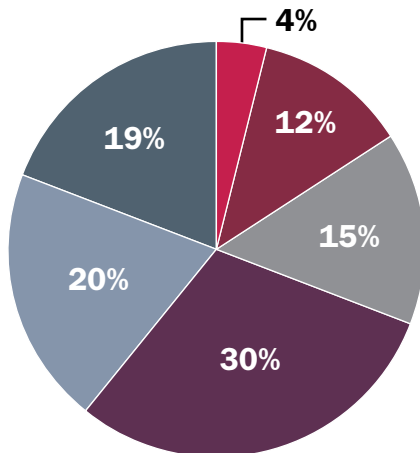
canadainfrastructure.ca

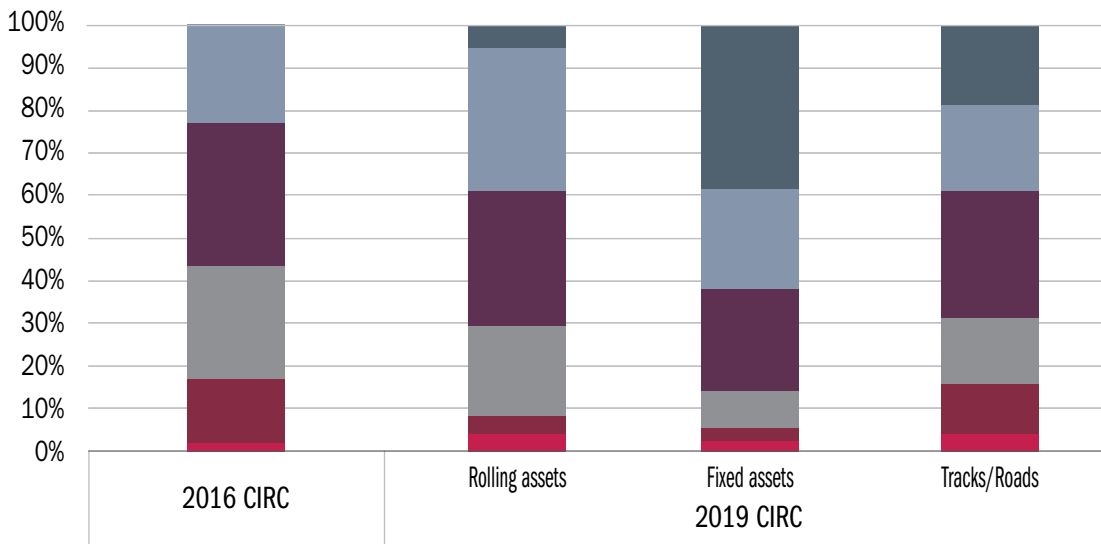# RESULTS BY INFRASTRUCTURE CATEGORY

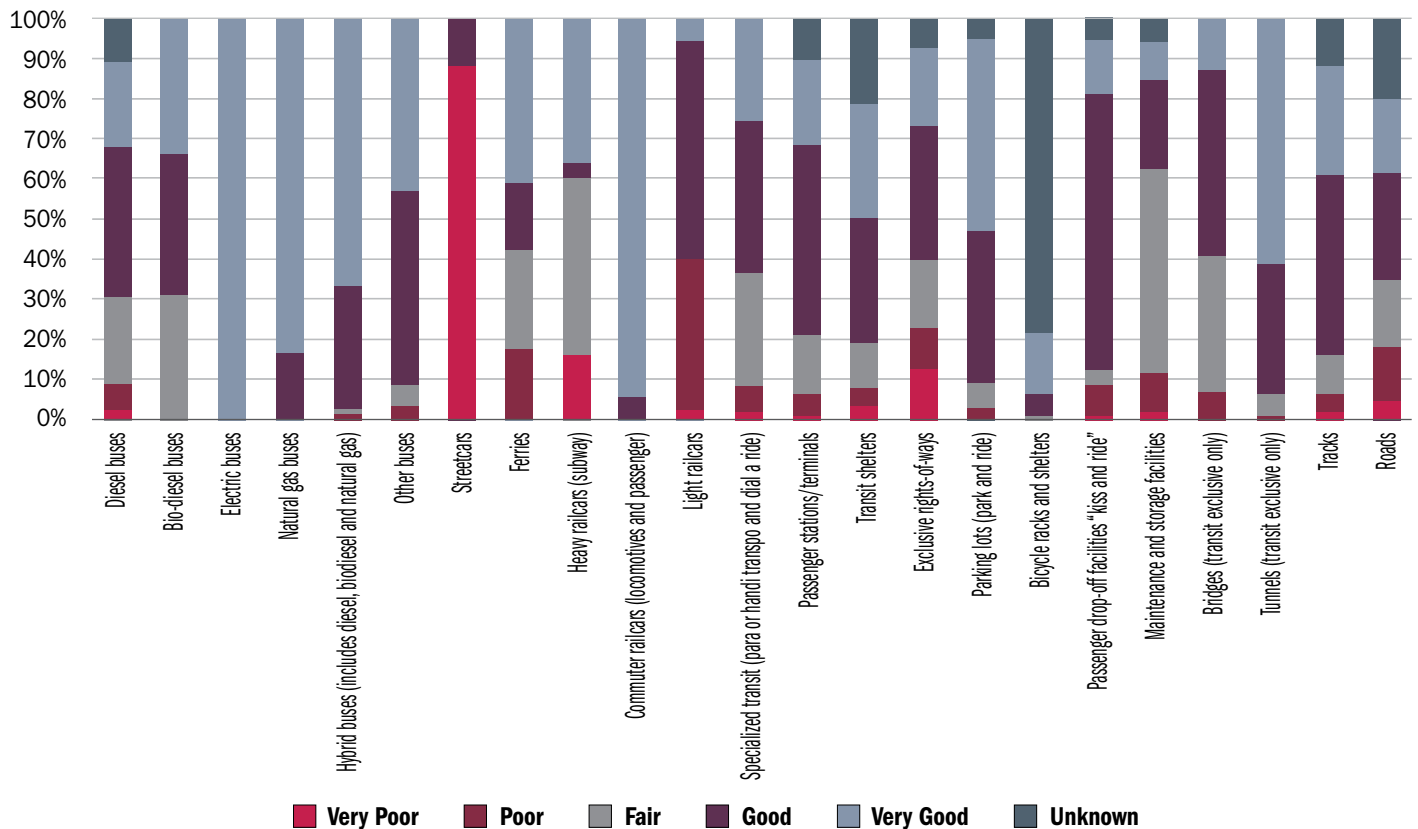**Public Transit:** Comparison with 2016 Results

Public Transit: Detailed Asset Condition – Publicly Owned Asset Condition

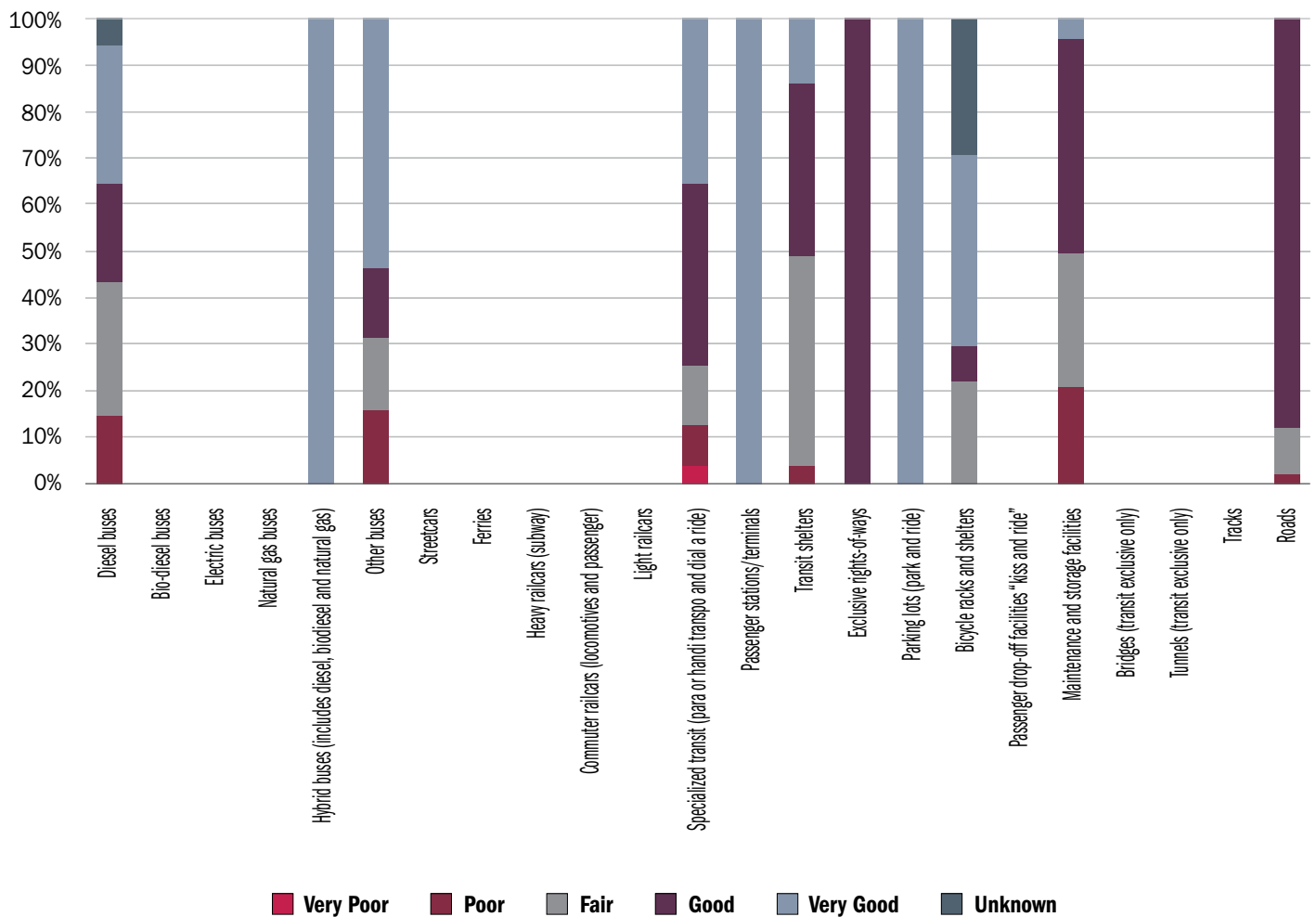Legend: ■ Very Poor ■ Poor ■ Fair ■ Good ■ Very Good ■ Unknown

RESULTS BY INFRASTRUCTURE CATEGORY

PUBLIC TRANSIT

Public Transit: Other Relevant Data – Municipally Owned Asset Condition (All Rural Municipalities)

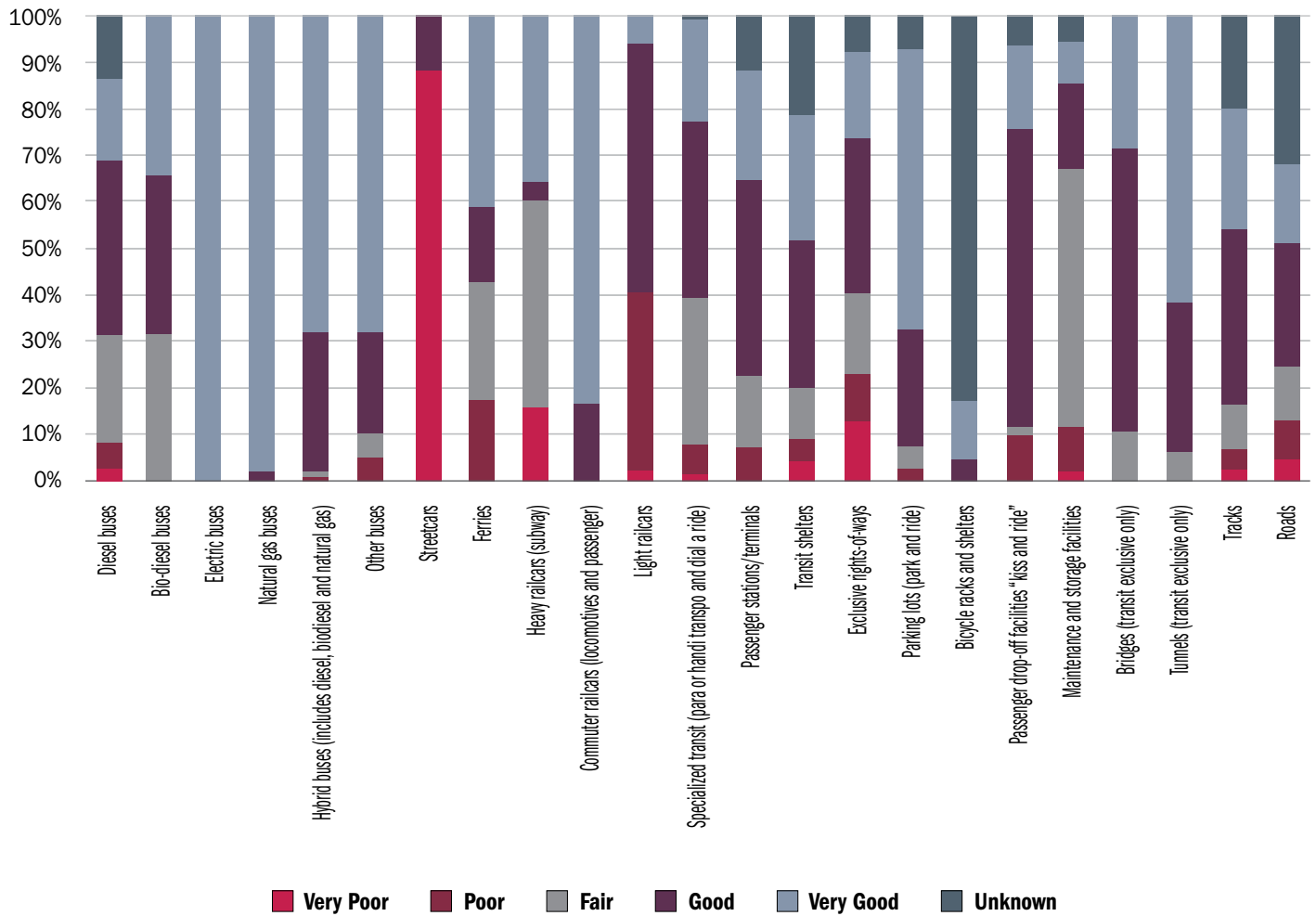Legend: Very Poor · Poor · Fair · Good · Very Good · Unknown

RESULTS BY INFRASTRUCTURE CATEGORY

PUBLIC
TRANSIT

Public Transit: Other Relevant Data – Municipally Owned Asset Condition (All Urban Municipalities)

Legend: Very Poor, Poor, Fair, Good, Very Good, Unknown

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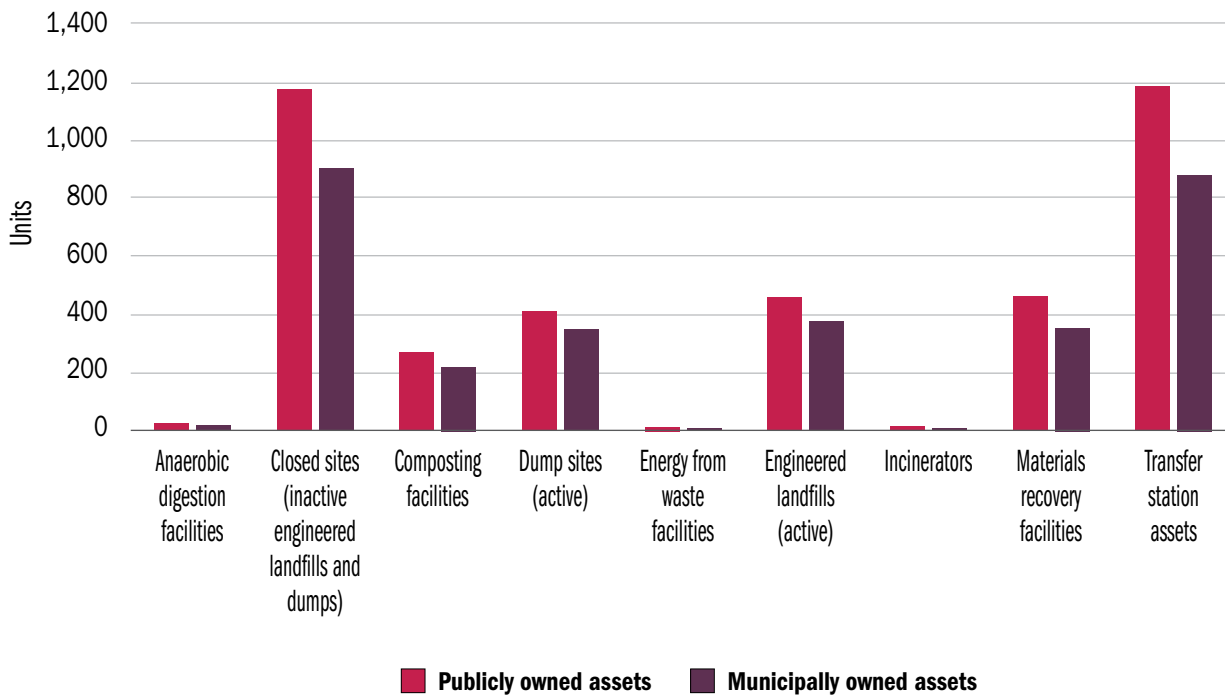# RESULTS BY INFRASTRUCTURE CATEGORY

SOLID
WASTE

SOLID WASTE

The solid waste assets in our survey included transfer stations assets, waste diversion assets (i.e., composting facilities, materials recovery facilities, anaerobic digestion facilities) and waste disposal assets (i.e., engineered landfills, dump sites, closed sites, incinerators, energy from waste facilities).

Solid Waste: Asset Inventory

Publicly owned assets   Municipally owned assets

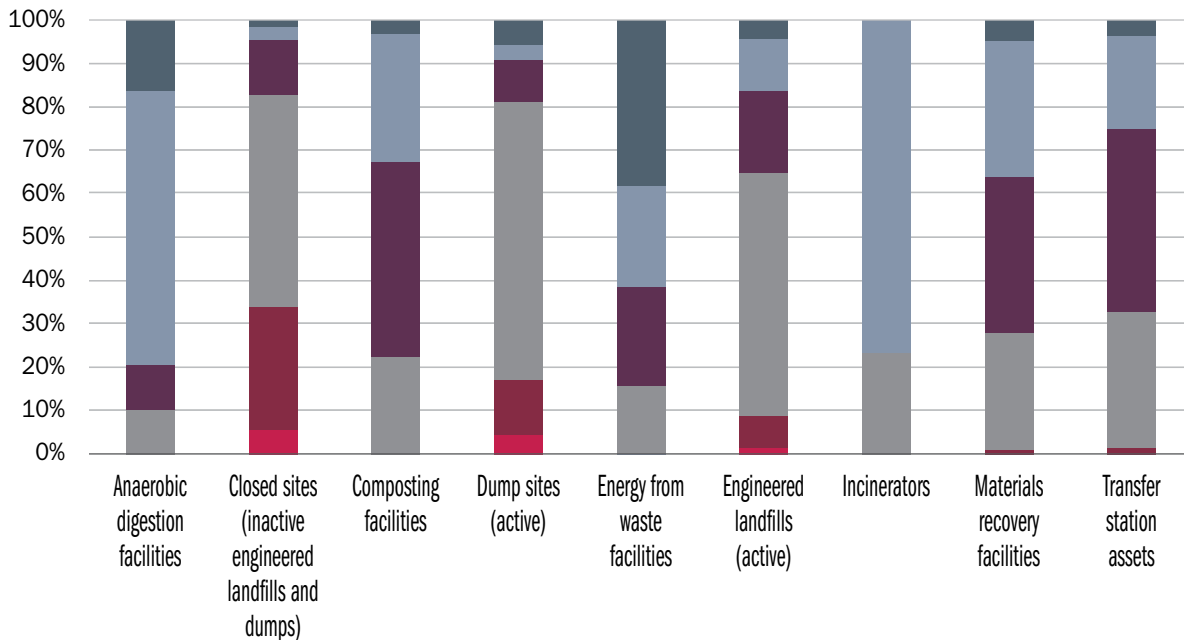# RESULTS BY INFRASTRUCTURE CATEGORY

SOLID
WASTE

THE CURRENT STATE

The solid waste assets in our survey included transfer stations assets, waste diversion assets (i.e., composting facilities, materials recovery facilities, anaerobic digestion facilities) and waste disposal assets (i.e., engineered landfills, dump sites, closed sites, incinerators, energy from waste facilities).

Solid Waste: Publicly Owned Asset Inventory (Completed Construction)

- ■ Completed construction prior to 1940
- ■ Completed construction 1940 to 1969
- ■ Completed construction 1970 to 1999
- ■ Completed construction 2000 to 2009
- ■ Completed construction 2010 to 2015
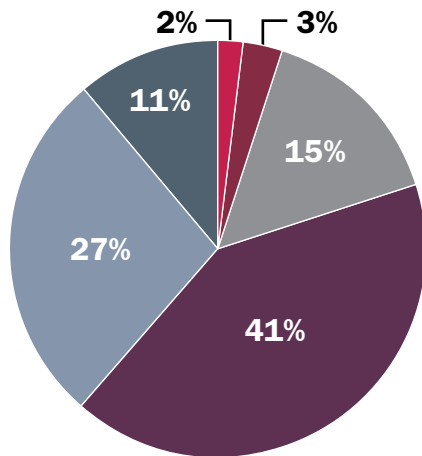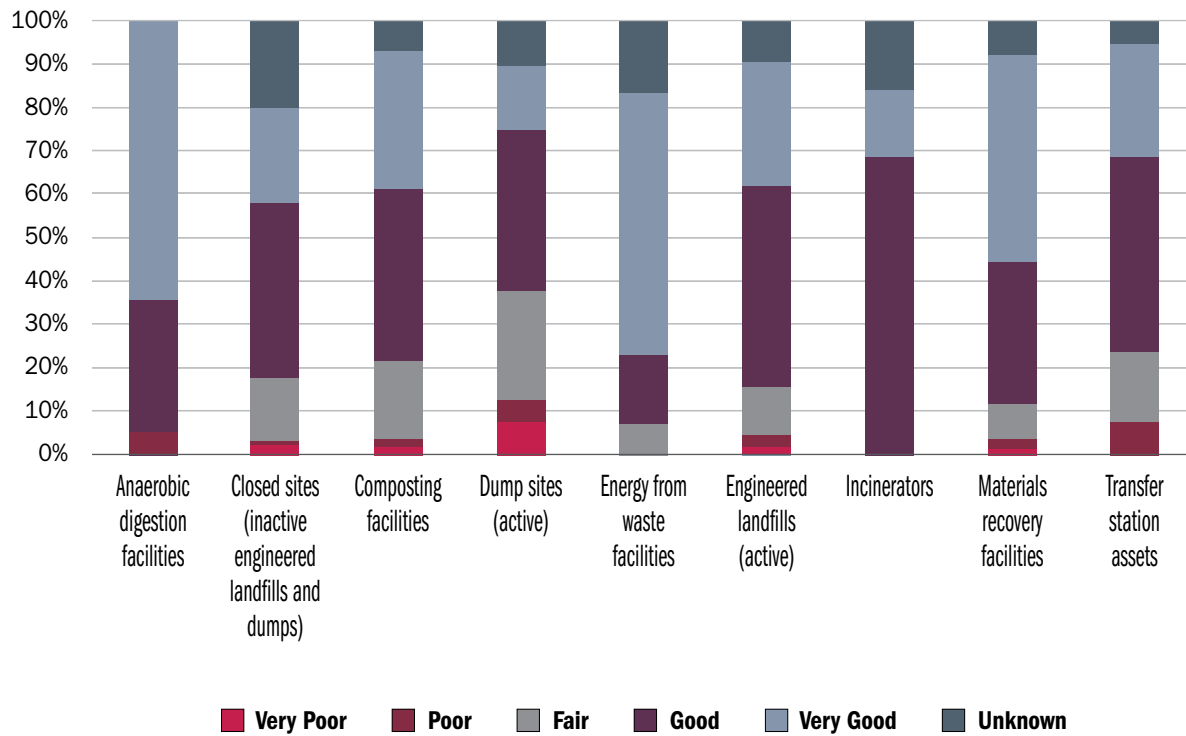- ■ Completed construction 2016

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RESULTS BY INFRASTRUCTURE CATEGORY

SOLID WASTE

Solid Waste: Overall Asset Condition

Solid Waste: Detailed Asset Condition

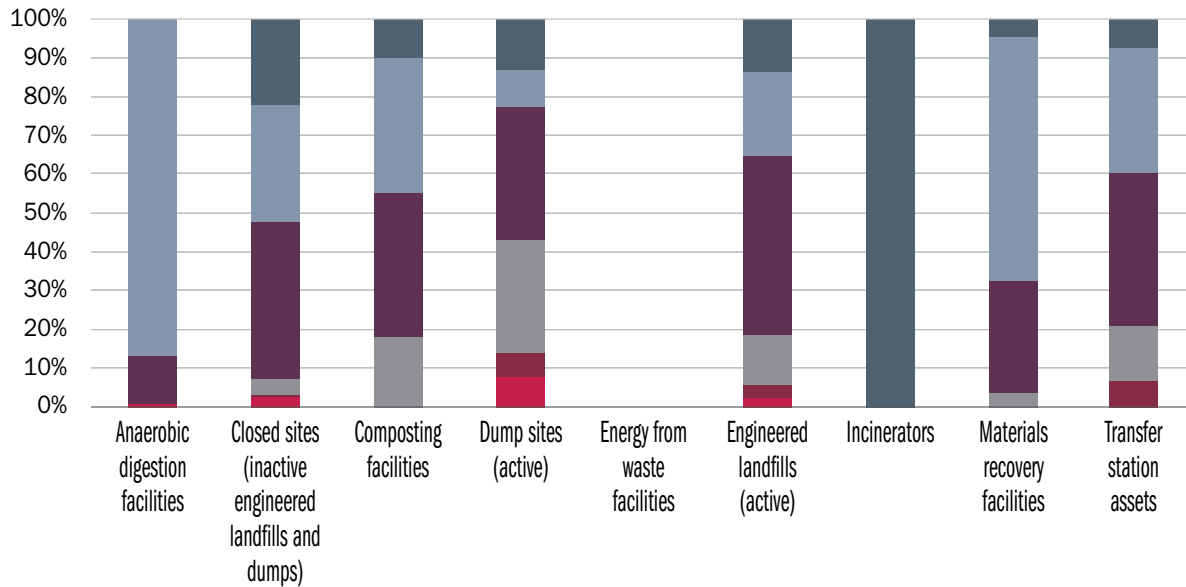■ Very Poor ■ Poor ■ Fair ■ Good ■ Very Good ■ Unknown
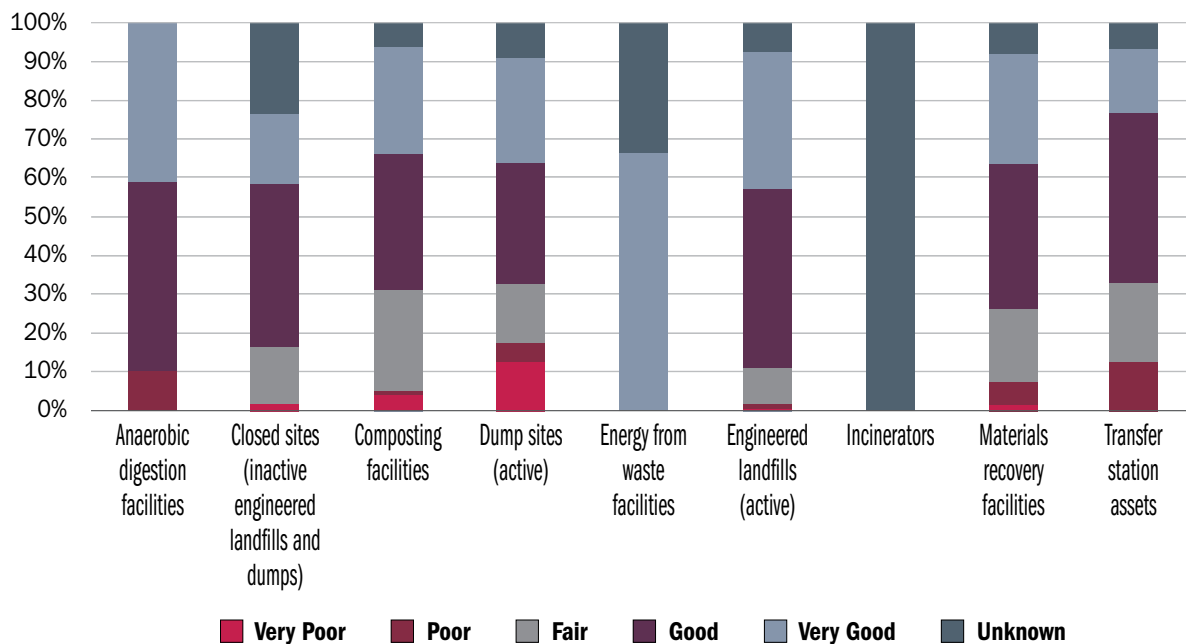
RESULTS BY INFRASTRUCTURE CATEGORY

SOLID WASTE

Solid Waste: Other Relevant Data – Municipally Owned Asset Condition
(All Rural Municipalities)

Solid Waste: Other Relevant Data – Municipally Owned Asset Condition
(All Urban Municipalities)

Legend: Very Poor | Poor | Fair | Good | Very Good | Unknown

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THANK YOU TO ALL WHO PARTICIPATED

On behalf of the Canadian Infrastructure Report Card (CIRC) team, we would like to thank all municipalities who completed this important survey. Your knowledge and expertise will help inform investment needs and asset management practices across Canada.

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