

## Bridge and tunnel infrastructure in rural Ontario

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### Highlights

- Lower-tier municipalities categorized as within Rural and Small Town areas in Ontario owned 2,691 bridges in 2016, which represents 18% of all bridges in Ontario.
- A higher share of the bridges owned by municipalities in Rural and Small Town areas are in fair or poor condition, compared to those owned by municipalities in Larger Urban Centres.
- The smaller population sized lower-tier municipalities in Rural and Small Town areas own a larger share (47%) of municipal culverts compared to 30% of municipal bridges.

### Why look at public infrastructure?

Bridges are an important public infrastructure asset for rural municipalities in Ontario. Some are approaching the end of their useful life and population expansion in some areas is causing a demand for additional public infrastructure.

Canada's Core Public Infrastructure Survey<sup>1</sup> was conducted by Statistics Canada in 2017 in order "to collect 2016 statistical information on the inventory, condition, performance and asset management strategies of core public infrastructure assets" owned or leased by each level of government in Canada.

The purpose of this factsheet is to show the status of bridge infrastructure among Ontario's rural municipalities (See Box 1).

### Findings

Rural and urban municipalities in Ontario own a majority (61%) of all bridges<sup>2</sup> in (Table 1). For example, 95% of local bridges, 74% of bridges on collector roads and 68% of larger culverts (3+ metres in diameter) are owned by municipalities.

Municipalities in RST (defined in Box 1) areas own 2,691 bridges. This represents 30% of bridges owned by municipalities and about 18% of all bridges in Ontario.

In RST municipalities, more than one-half of all bridges were built before 1970 (61% of collector

#### Box 1: Municipalities

"Municipalities" in Canada's Core Public Infrastructure Survey (CCPIS) refer to incorporated towns/cities and incorporated municipalities. The Statistics Canada terminology is "census subdivisions" (CSDs). The focus of this Fact Sheet is the data for CSDs.

The CCPIS also enumerates the public infrastructure owned or leased by regional governments and by the provincial government. Counties serving rural regions are included as regional governments in the CCPIS. These data are included in the first column of our tables and thus the difference between the first column and the column for all CSDs represents the data for regional governments and for the provincial government.

Lower-tier municipalities (i.e. CSDs) are classified by population size within "Larger Urban Centres" (LUCs) and within "Rural and Small Town (RST) areas", as defined by du Plessis *et al.* (2001). Specifically, LUCs comprise Census Metropolitan Areas (CMAs) (with a population of 100,000 and over) and Census Agglomerations (CAs) (with a population of 10,000 to 99,999) and each includes neighbouring towns and municipalities where 50+% of employed residents commute to the CMA or CA. RST areas comprise all municipalities outside CMAs and CAs.

The data for each respondent to the survey (municipality, regional government, provincial department) are available from Statistics Canada, upon request (Statistics Canada, 2019).

#### References:

du Plessis, Valerie, Roland Beshiri, Ray D. Bollman and Heather Clemenson. (2001) "Definitions of Rural." **Rural and Small Town Canada Analysis Bulletin** Vol. 3, No. 3 (Ottawa: Statistics Canada, Cat. No. 21-006-XIE) (<http://www5.statcan.gc.ca/olc-cel/olc.action?obid=21-006-X&objType=2&lang=en&limit=0>).  
Statistics Canada. (2019) "Canada's Core Public Infrastructure Survey: Micro data, 2016," **The Daily** (Ottawa: Statistics Canada, Catalogue no. 11-001, November 7) (<https://www150.statcan.gc.ca/n1/daily-quotidien/191107/dq191107g-eng.htm>).

<sup>1</sup> Statistics Canada. (bi-annual) **Canada's Core Public Infrastructure Survey** (Ottawa: Statistics Canada, Surveys and Statistical Programs) (<http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&Id=1256357>) and Infrastructure Canada. (2019) **Canadian Infrastructure Report Card 2019: Monitoring the State of Canada's Core Public Infrastructure** (Ottawa: Infrastructure Canada) (<http://canadianinfrastructure.ca/downloads/canadian-infrastructure-report-card-2019.pdf>).

<sup>2</sup> Respondents were asked to simply report the number of bridges. This measure differs from the data published by the Ontario Ministry of Municipal Affairs where the bridges and tunnels are measured as the total square meters of surface area of bridges and tunnels.

**Table 1. Bridge and Tunnel Infrastructure in Ontario, 2016**

Type of road asset	Bridges and tunnels owned by all organizations <sup>2</sup> (provincial, regional, municipal)	Bridges and tunnels owned (or leased) by lower-tier municipalities	Percent municipal owned	Bridge and tunnel infrastructure owned (or leased) by lower-tier municipalities (census subdivisions <sup>1</sup> )							
				Census subdivisions <sup>1</sup> (CSDs) within Larger Urban Centres (i.e., within Census Metropolitan Areas and Census Agglomerations)				Census subdivisions <sup>1</sup> (CSDs) within Rural and Small Town Areas (i.e., outside Census Metropolitan Areas and outside Census Agglomerations)			All census subdivisions (included in survey)
				CSDs with population 30,000 or more	CSDs with population of 5,000 to 29,999	CSDs with population 1 to 4,999	All CSDs in Larger Urban Centres (subtotal)	CSDs with population of 5,000 and over	CSDs with population of 1,000 to 4,999	CSDs in Rural and Small Town Areas with population of 1,000 or more (subtotal)	
				Number <sup>2</sup> of bridges / tunnels							
Total bridges	14,498	8,905	61	4,960	1,070	183	6,213	2,258	433	2,691	8,905
Highway/expressway bridges	3,616	418	12	405	-	-	405	7	F	13	418
Arterial bridges	3,030	1,450	48	1,280	124	9	1,412	31	F	37	1,450
Collector bridges	2,021	1,496	74	1,153	90	5	1,248	236	F	248	1,496
Local bridges	5,123	4,860	95	1,605	767	168	2,540	1,931	389	2,320	4,860
Footbridges	709	682	96	518	89	1	608	52	F	74	682
Culverts (diameter greater than or equal to 3 metres)	12,580	8,515	68	3,428	900	153	4,481	3,633	400	4,034	8,515
Tunnels	35	20	57	15	3	-	18	2	-	2	20

1. Municipalities in the Core Public Infrastructure Survey have been identified using the concept of a census subdivision (CSD). A CSD is the general term for incorporated towns and municipalities (as determined by provincial/territorial legislation) or areas treated as municipal equivalents for statistical purposes (e.g., Indian reserves, Indian settlements and unorganized territories). Municipal status is defined by laws in effect in each province and territory in Canada. A CSD is classified as urban (**Larger Urban Centre**) if it falls within a Census Metropolitan Area (CMA) or Census Agglomeration (CA) and is classified as rural otherwise. CMAs have a total population of 100,000 or more (with 50,000 or more in the core) and includes all neighbouring towns and municipalities where 50%+ or more of the workforce commutes into the core. CAs have a core population of 10,000 or more and includes all neighbouring towns or municipalities where 50%+ of the workforce commutes into the urban core. Rural CSDs (**Rural and Small Town Areas**) have no population centres over 10,000 and have less than 50% of employed individuals who commute to a CMA or CA for work. Excluded are 140 Indian Reserves (comprising 64 thousand residents) and 84 census subdivisions within rural and small town areas with a population of 1 to 999 inhabitants (comprising 43 thousand residents).

2. Organization refers to municipal, regional, provincial, federal government or Indigenous entities (such as a Band council) who own a core public infrastructure.

Source: Statistics Canada, Core Public Infrastructure Survey, 2016, Tables 34-10-0078-01 and 34-10-0120-01.

bridges, 57% of local bridges and (the exception) 39% of arterial bridges) (Table<sup>3</sup> A14).

culverts) compared to their share of municipal bridges (30%, 2,691 of 8,904 municipal bridges.

The condition of bridges among RST municipalities is worse than in LUC municipalities. In RST municipalities, the share of bridges that were in fair to poor condition was 42% for local bridges and 41% for collector bridges (Table A15). For LUC municipalities, these shares were 37% and 27%, respectively.

### Summary

Municipalities in rural and small town areas in Ontario own 30% of the bridges owned by municipalities, which represents 18% of all bridges in Ontario.

New bridges in RST municipalities have a (slightly) shorter expected useful life compared to new bridges in LUC municipalities (Table A16).

At the time of the survey, a higher share of the bridges owned by municipalities in rural and small town areas were in fair or poor condition, compared to the bridges owned by municipalities associated with larger urban centres.

The share of municipalities with an asset management plan for bridges is slightly low(er) in RST municipalities, compared to LUC municipalities (83% and 86%, respectively) (Table A17).

For the management of bridge assets, spreadsheets are the most common type of information system being used (53% of RST municipalities and 65% of LUC municipalities) (Table A18). Virtually all municipalities (97% of RST and 99% of LUC) had some form of information systems, such as paper records, custom asset management software and off-the-shelf management software.

Municipalities in RST areas own a larger share of municipal culverts (47%, 4,034 of 8,515 municipal

The Rural Ontario Institute gratefully acknowledges the work of Ray Bollman in preparing this edition of [Focus on Rural Ontario](#). Questions on data sources can be directed to [RayD.Bollman@sasktel.net](mailto:RayD.Bollman@sasktel.net). Any comments or discussions can be directed to [NRagetlie@RuralOntarioInstitute.ca](mailto:NRagetlie@RuralOntarioInstitute.ca)

<sup>3</sup> Tables labelled with an “A” are available in the accompanying “Appendix Tables: Canada’s Core Public Infrastructure Survey, 2016.”