



# Inspection and Maintenance of the Province's Bridges and Culverts 2021 Value-for-Money Audit

## Why we did this audit

- The Ministry of Transportation is responsible for inspecting, maintaining and repairing approximately 3,000 bridges and 2,000 large culverts. In the last 15 years, the Province had budgeted over \$7.5 billion on the maintenance, operation and expansion of Ontario's network of transportation structures, mainly these bridges and culverts.
- While the state of the province's bridges is good, many were built in the 1960s with a design life of 50 years. Over the past several years, some Ontario bridges having had structural issues.
- Other provinces have conducted audits on bridge inspection practices and have found deficiencies that not all the bridges were being inspected as often as necessary and sometimes not at all.

## Why it matters

- If there are insufficient inspection practices and quality assurance, and lack of follow up on inspection findings, this could have implications for public safety, as well as value for money capital planning.
- If there is inaccurate or out-of-date information on bridge condition information being used to assess current and future repair needs of provincial bridges, maintenance work could be scheduled and conducted at wrong times.

## What we found

### Inspection Manual is Outdated and Lacks Flood Response Protocol

- The Ministry's Structure Rehabilitation Manual is outdated.
- This manual, used for planning rehabilitation work on bridges and culverts and their structural components, was last updated in 2007.
- Since then, there have been major changes in practice to all stages of rehabilitation work.
- Although the Ontario Structure Inspection Manual (OSIM) is widely used across Canada for bridge inspection, it:
  - does not provide a uniform inspection approach for all structures in Ontario, and
  - lacks a standard flood response protocol for structures affected by floods or at risk from flooding.

### RECOMMENDATION 1, 2

### Inspection Quality Issues

- The Ministry conducts inspections every two years on every bridge, however there are issues with the quality of inspections, for example:
  - Some inspectors perform six or more inspections per day, contrary to the OSIM and Ministry guidance,
  - The Ministry cannot verify how much time has been spent inspecting some bridges, since some inspection photos do not include required time stamps.
- Sampled consultant inspection files were missing information or contained errors.

### RECOMMENDATION 3

### Technology Not Leveraged

- Ministry is not using technology to improve efficiencies and resolve accessibility issues in inspections.

### RECOMMENDATION 4

**Data Errors Could Affect Safety and Capital Planning Decisions**

- The Ministry's bridge audit inspection program highlights problems with inspection accuracy that are not being resolved.
- As a result, original errors in data remain uncorrected, affecting the accuracy of the calculations on which the Ministry bases its safety and capital planning decisions.

**RECOMMENDATION 5**

**Inspection Training Lacking**

- The Ministry lacks a robust training program for its in-house and consultant inspectors.
- Our review found that the inspection program needs more rigor, testing, and does not provide information on quality assurance procedures that Ministry staff should know.

**RECOMMENDATION 6, 7**

**Capital Planning for Culverts Not Possible**

- The Ministry cannot accurately plan capital work for its culverts, as Bridge Condition Index ratings do not accurately reflect the actual condition of the culverts.

**RECOMMENDATION 8, 9**

**No Tracking of Timeliness of Repairs**

- The Ministry is unaware if maintenance and repair work, including safety-related work, is done in a timely manner.

**RECOMMENDATION 10**

**Conclusions**

- The Ministry has inspections performed every two years on every bridge it is responsible for, as required. However, the Ministry could improve its inspection process, as the inspectors are currently left to make subjective decisions that can ultimately impact capital planning and bridge maintenance.
- The Ontario Structure Inspection Manual does not provide a uniform inspection approach for all structures in Ontario, and it lacks a protocol for structures affected by floods or at risk from flooding.
- The Ministry needs a robust training and testing program for its in-house and consultant inspectors to ensure they are aware of recent inspection issues and updates to the Bridge Management System, inspection techniques, specifications, safety regulations, and Ministry directives or standards.

Read the report at [www.auditor.on.ca](http://www.auditor.on.ca)