

Ministry of Transportation

Office of Assistant Deputy Minister
and Chief Engineer

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March 29, 2022

Christopher Tyrell
Clerk of the Committee
Standing Committee on Public Accounts
Legislative Assembly of Ontario
Toronto, ON M7A 1A2

Dear Mr. Tyrell:

On behalf of the Deputy Minister of Transportation, please find attached the Ministry's response to the Value-for-Money Audit: Inspection and Maintenance of the Province's Bridge and Culverts of the 2021 Annual Report of the Auditor General, including an update on the Ministry's action plans and timetable for addressing the Auditor's concerns.

This Audit was released in December 2021 and work has begun on addressing the recommendations. MTO has created work groups for each Audit recommendation and has started work on the items with more urgent timelines. Interim progress has been made on creating a protocol for flood inspections, for clarifying quality assurance requirements, and bridge inspection training. Several action items, or portions thereof, are expected to be completed in the spring of 2022.

If you have any questions, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Harkness", with a long horizontal flourish extending to the right.

Jennifer Graham Harkness, P.Eng.
Assistant Deputy Minister / Chief Engineer

Attachment

c: Doug Jones, Deputy Minister of Transportation
Taras Natyshak, MPP, Chair of the Committee
Bonnie Lysyk, Auditor General

Summary Status Table in Response to the Report of the Auditor General of Ontario

Value-For-Money Audit: Inspection and Maintenance of the Province's Bridges and Culverts

[Section #, 2021 Annual Report of the Auditor General]

Ministry of Transportation (MTO)

Auditor's Recommendation & Action	Completed undertaking	Outstanding undertaking (including timeline)
<i>1a. Update the Ontario Structure Inspection Manual (OSIM) to provide clarity and guidance on how inspectors can quantify the degradation of the over all material condition of a bridge.</i> MTO will update the OSIM to improve clarity and, where possible, reduce subjectivity in the element rating methodology.	• Work Group (WG1) established	• Estimated Completion Winter 2024 • Work will begin in Spring 2022 • Discuss and create appropriate revisions to OSIM
<i>1b. Incorporate in the OSIM inspection table that are used in assessing the elements of a structure the ability to identify and summarize the elements that are critical to the structure's integrity.</i> As part of the OSIM revisions, MTO will provide additional guidance to identify and assess which elements may be critical to the integrity of the various bridge types.	• Work Group (WG1) established	• Estimated Completion Winter 2024 • Work will begin in Spring 2022 • Discuss and create additional guidance on critical elements
<i>2a. Develop a standard flood response protocol for assessing, monitoring and inspecting provincial structures affected by floods, or at risk from flooding.</i> MTO will develop a guideline to outline the roles and responsibilities for responding to flooding events, including any post-flood inspections.	• Work Group (WG2) established • 1 meeting held	• Estimated Completion Winter 2023 • Work will begin in Spring 2022 • Provide guidance on roles and responsibilities for flood response • Create a Manual or similar document

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<i>2b. Create a flood inspection manual for structures that are at risk from flooding and review and update it periodically.</i> MTO anticipates having this guide implemented by the end of 2023. In the interim, MTO will issue guidance in the form of a memo to engineers in order to have a consistent and robust response protocol for flood events within 6 months.	• Work Group (WG2) established. • 1 Meeting held • Flood Response Memo drafted and distributed to group for review	• Estimated Completion Spring 2022 • Issue Flood Response Memo
<i>3a. Implement practices that will enforce that guidance in the OSIM on the length of time an inspection should take, and regular review the number of inspections completed per day by inspectors to assess their reasonableness and to take corrective action where it is necessary.</i> As part of the revisions to OSIM, MTO will examine the intent of the inspection times and the role they have in as a measure in ensuring that a quality inspection is achieved. To ensure that inspectors spend adequate time to perform a thorough inspection, MTO will review and update the 2009 Quality Assurance memo relating to inspection oversight.	• Work Group (WG3) established • 1 meeting held	• Estimated Completion Winter 2024 • Review Inspection time recommendations in OSIM and other MTO Quality Assurance requirements for inspector oversight

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<i>3b. Communicate to all bridge inspectors the requirement to date- and time-stamp all photographs taken during an inspection.</i> MTO will issue guidance to all staff and service providers to remind them of the requirements for time and date stamping.	• Work Group (WG3) established • 1 meeting held • Discussions about QA requirements that are relevant	• Estimated Completion Spring 2022 • Issue guidance to staff and service providers on time stamping of photos • Issuance of Memo or similar
<i>3c. Assess the feasibility of using current camera technology to assist in instantaneously uploading photos that are automatically date- and time-stamped.</i> MTO will assess camera technologies that may allow photos to be uploaded automatically into BMS. As part of quality assurance, the need for time recording of photographs will also be added to the next bridge inspection oversight training session before the start of the next inspection cycle.	• Work Group (WG3) established • 1 meeting held	• Estimated Completion Winter 2023 • Update QA requirements for photographs • Issuance of Memo or similar

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<i>3d. Enforce its quality assurance process for its regional offices to verify that the information that is being observed and documented in the inspection files is accurately recorded in the Ministry's systems.</i> MTO will create requirements for regional staff to confirm that quality assurance procedures are performed on an annual basis and reinforce these requirements at the next inspection oversight training.	• Work Group (WG3) established • 1 meeting held	• Estimated Completion Winter 2023 • Update QA requirements for photographs • Issuance of memo or similar
<i>4a. Prepare a business case for incorporating new technology in the inspection process.</i> Pending the results of the jurisdictional scans and research, and some trials where appropriate, MTO will complete a business case identifying the benefits and limitations of the technology and how these technologies can be incorporated into new inspection policies. MTO will conduct a jurisdictional scan on the use of drones and other new technologies for bridge inspection and report on the findings.	• Work Group (WG4) established • Attended Transportation Association Canada (TAC) presentation from several jurisdictions	• Estimated Completion Winter 2023 + Winter 2025 • Create report or similar document • First report on jurisdictional scan (2023) and second on recommendations for MTO (2025)

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<i>4b. If possible, incorporate new technology such as drones to assist with the inspection process.</i> MTO will conduct a pilot project for the use of new technology to guide the development of potential policies for their use in bridge inspections.	• Work Group (WG4) established • Discussion at Bridge Committee and requirement added to Regional Inspection assignments	• Estimated Completion Winter 2024 • Formal trial of advanced technology for inspection
<i>5a. Update inspection and data entry practices where they are seen to be outdated or open to error.</i> MTO will review the software to determine if additional data integrity checks can be incorporated. The consultant oversight process will be strengthened to incorporate data verification. Structural engineers will also be tasked with reviewing the data on their assigned bridges to ensure quality of the key pieces of inventory information.	• Work Group (WG5) established	• Estimated Completion Winter 2023 • Improve programming of software • Develop plan to review data

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<i>5b. Have its Bridge Office inspection auditors follow up on their recommendations to the province's road network regions and ensure that errors its auditors have found in the data that affects the accuracy of the Bridge Condition Index values are corrected, or that documentation exist demonstrating that no corrections are needed.</i> For the audit inspections performed by the Structures Office, a memo detailing the audit requirements and scope, including post-audit actions and follow up, has been prepared and will be implemented prior to start of next inspection cycle.	• Work Group (WG5) established • Memo issued for Bridge Office Audit follow up	• Estimated Completion Winter 2024 • Monitor memo in 2023
<i>6a. Reinstate the practical field inspection component of the Ontario Structure Inspection Manual (OSIM) training.</i> MTO will review the OSIM inspection training program to ensure that appropriate practical training is provided to inspectors while also taking into account the safety concerns associated with working in and around live lanes of traffic. This training will be reviewed in advance of bridge inspectors doing work for MTO to ensure their training is current immediately.	• Work Group (WG6) established • Meeting held • Draft document created for Regional training of already existing/newly hired consultants. • Concepts presented to Bridge Committee	• Estimated Completion Spring 2022 and 2024 • Creating an immediate inspector training (2022) and formal training program (2024)

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6b. Include quality assurance procedures for inspections as part of the future OSIM inspection training curriculum for Ministry staff. Specific training will be provided to MTO staff to reinforce the importance of proper oversight of consultant inspectors.	• Work Group (WG6) established	• Estimated Completion Winter 2023 • Include QA in MTO specific training
6c. Finalize the testing approach and test the inspectors as part of its certification process at the end of the OSIM training workshop. MTO will review the OSIM inspection training program to ensure that the appropriate practical training is provided to inspectors. All inspectors that undertake MTO work will have their training reviewed prior to doing work for MTO. MTO will also incorporate testing into the next training workshop, scheduled for 2022.	• Work Group (WG6) established	• Estimated Completion Winter 2023 • Formal testing in bridge inspection training workshops/seminars
7a. Communicate the quality assurance requirements that are required to be performed by regions for consultant inspections through the biennial workshops held for Ministry staff. OSIM inspection training for MTO staff will include a component on oversight of consultant inspection starting with the next workshop in 2022.	• Work Group (WG7) established • Meeting held, discussed workshop/webinar to inform MTO of QA requirements	• Estimated Completion Spring 2022 • Create webinar

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<i>7b. Audit a sample of contracts to ensure that regions are performing the quality assurance checks.</i> The Structures Office will audit a sample of bridge inspections to validate that the quality assurance checks have been undertaken. MTO anticipates beginning this work within the next 12 months.	• Work Group (WG7) established • Memo (SCB-SO-2021-05) issued for Structures Office to do audit inspections of Regional bridges – to review quality of inspections.	• Estimated Completion Winter 2023 • Create a process for Structures Office to review Regional work and produce some type of documentation, to ensure proper regional oversight was undertaken.

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<i>8. To ensure that construction methods used in the repair and rehabilitation of bridges are up to date and are applied consistently across the province, we recommend that the Ministry of Transportation update its Structure Rehabilitation Manual to incorporate all of the interim policy memos it has issued since its last update, and assess if any other relevant information should be included.</i> MTO will review advancing techniques and the practices of other jurisdictions and incorporate these into an updated Structural Rehabilitation Manual along with adding the most recent memoranda. Where required, memoranda are released in lieu of updating the Structure Rehabilitation Manual and other manuals in order to implement new requirements more quickly than waiting for a review of the entire manual. The contents of the memos and the lessons learned during their implementation will then be incorporated into the respective manuals and guidelines when they are updated.	• Work Group (WG8) established	• Estimated Completion Winter 2024 • Update Rehabilitation Manual

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<i>9a. Review and update the existing rating system to better represent the actual condition of large culverts.</i> MTO will review the rating system for culverts and ensure the measure adequately represent their true condition.	• Work Group (WG9) established • Discussion at Bridge Committee	• Estimated Completion Winter 2024 • Develop rating system for culverts similar to BCI (Bridge Condition Index)
<i>9b. Review and update the deterioration model for large culverts used in the Asset Management System to predict future repair needs.</i> MTO will review the deterioration models used for culverts of all types and materials. The asset management of large culverts will be reviewed to determine if changes should be made to better anticipate future repair needs. MTO will Implement culvert prediction and cost models into the new AMS software.	• Work Group (WG9) established • Discussion at Bridge Committee	• Estimated Completion Winter 2024 • Develop deterioration models to better predict needs of culverts, both for need year and value • Incorporate Deterioration into new software (Fall 2025)

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<i>9c. Develop performance targets for large culverts, measure the culverts against the targets, and report on their condition publicly.</i> MTO will develop performance targets for large culverts that properly reflect the condition of the asset, set appropriate performance indicator targets and report on conditions annually.	• Work Group (WG9) established • Discussion at Bridge Committee	• Estimated Completion Winter 2024 • Develop performance target for the Key Performance Indicators (KPIs)
<i>10a. To validate that regions are tracking the maintenance needs of the province's bridges and completing maintenance work in a timely manner going forward, the Ministry of Transportation Head Office should obtain the information from the regions or through the Bridge Management System and ensure that maintenance work is completed on a priority basis.</i> MTO will release a maintenance tracking memo to clarify the roles of structural and maintenance sections and to prioritize and record maintenance work. The Structures Office will review the maintenance accomplishments and report on them.	• Work Group (WG10) established • Meeting held • Memo drafted	• Estimated Completion Winter 2023 • Draft memo to be reviewed by group and issued