



Maintenance Office
Provincial Highways Management
Division
Ministry of Transportation

Winter Highway Maintenance Action Plan

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Executive Summary

Ontario has among the safest roads in North America and we at the Ministry of Transportation are committed to keeping Ontarians safe, particularly in the winter weather. Over the past four years the ministry has worked to enhance the quality of its snow clearing, adding equipment, strengthening the oversight of its independent contractors and upgrading the way truck climbing and passing lanes, and freeway ramps and shoulders are ploughed.

Following the release of an Auditor General of Ontario's Review of Winter Highway Maintenance, April 2015, the Ministry was directed by the Minister of Transportation to develop and deliver an action plan within 60 days, to respond to those recommendations. The following plan directly addresses the Auditor General's eight recommendations. The plan has two components:

1. Immediate actions that will be put in place for the 2015/16 winter season.
2. Further improvements for the delivery of winter maintenance services to be implemented in the coming years.

An internal review completed by the ministry in 2013 had identified areas where the Ministry could enhance its winter maintenance. We were pleased to note that many of the Auditor's recommended actions had also been identified and were already underway. This included the re-tendering of a maintenance contract for the Kenora area, increasing the usage of the anti-icing liquids (DLA) and adding stand-alone spreaders in both remote rural and busy urban areas. As a result, all actions in the plan for implementation in the 2015/16 winter season will be funded from within the ministry's current budget allocations.

Included in the plan are actions that:

Enhance the Information Available to Drivers:

Drivers need reliable information so that they can make their travel plans and travel safely on our roads. The 511 information website can provide useful information.

We will improve Ontario's 511 website by:

- Including the time that road conditions were observed (time stamping)
- Adding links from the website to the Road Weather Information System and COMPASS real-time camera images from across the province
- Launching a "Track My Plow" program in two contract areas, with a link from Ontario 511

We will also:

- Provide more public education about winter safe driving and winter highway maintenance, and

- Report on our performance after each winter for each of the 20 contract areas.

Improve Winter Highway Maintenance by:

- Working with our contractors to ensure they have reliable equipment and trained operators out on the highways from the time the first storm strikes until the end of winter
- Increasing the use of anti-icing liquids before winter storms, especially on the heavily travelled southern Ontario freeways
- Working with our contractors to use the right amount of salt at the right times;
- Adding more equipment in key locations, including stand-alone spreaders
- Taking steps to be more aware of changing road and weather conditions allowing contractors to respond more quickly, and
- Providing opportunities for innovation and technology.

As well, following the end of winter 2015/16, the Auditor General will be reviewing the effectiveness of these changes and providing the ministry with further observations and recommendations as necessary.

This plan is intended to improve the way winter highway maintenance is delivered and the road conditions drivers will experience in the coming winter, as well as in the future.

Vision, Mission, and Objectives

The ministry's vision is to be a world leader in moving people and goods safely, efficiently and sustainably, to support a globally competitive economy and a high quality of life.

This vision is supported through all of the ministry's divisions and branches. We have a long history of working to improve road safety through a combination of efforts including strong legislation, public education and effective highway programs including:

- recently enacting the *Making Ontario's Roads Safer Act* to make our roadways safer for pedestrians, cyclists and drivers
- establishing the highest fine range in Canada for driver's convicted of distracted driving, and
- setting the toughest penalties in Canada for street racers and drivers who put themselves and other road users at risk by driving aggressively.

It is because of this commitment to road safety that Ontario's roads ranked among the safest in North America for the past 14 years.

The ministry's key priorities related to winter highway maintenance include:

- keeping Ontario's highways as safe as possible during winter weather conditions, and
- working with contractors, the OPP and road safety groups to promote safe winter driving and deliver winter highway maintenance services.

Provincial Highways Management (PHM) Division is responsible for maintaining and repairing the King's Highways under the Public Transportation and Highway Improvement Act (PTHIA), Section 33. They are the stewards of Ontario's provincial highway network, managing the engineering, construction, operations and maintenance activities performed for the network's upkeep and expansion.

The key objective of the winter maintenance program is to keep Ontario highways as safe as possible during winter weather conditions. MTO continually reviews standards, new technology, equipment and materials to optimize winter maintenance practices.

Purpose

The province, through the ministry, takes its responsibilities for winter highway maintenance very seriously.

The April 2015 Auditor General's report on winter maintenance contained eight specific recommendations on how the province could improve and enhance winter maintenance activities.

Following the release of the Auditor General's report, the Minister directed the ministry to develop an action plan within 60 days to outline how the ministry will further strengthen and improve winter maintenance and address the Auditor General's recommendations for the coming winter and in the future.

The action plan is the next step in the ministry's plan to provide Ontarians with safer winter highway conditions.

Background

The ministry has used contractors to perform winter maintenance for more than 15 years in a move designed to increase business opportunities and help strengthen the economy.

In the 1980s, about half of the winter maintenance work was performed by contractors. Beginning in 1996, the ministry began shifting all highway maintenance work, including winter maintenance, to the private sector. By July 2000, all highway maintenance work was delivered by contractors.

In 2009, the ministry began the shift to a performance-based contract model where the contractor decides how best to achieve the results the ministry requires. For example, contractors can choose to use plows and spreaders or combination units with tow-plows to achieve the contract requirements. Previously, the ministry measured the contractor's compliance with ministry-specified methods. Now the ministry monitors, oversees and verifies the results the contractors deliver.

The ministry has 20 area maintenance contracts in place to provide highway maintenance services. Five different contractors perform this work. The Rt. Hon. Herb Gray Parkway in Windsor and Highway 407 are maintained by other contractors.

Maintenance Standards

The ministry's winter highway maintenance standards and operational requirements have been developed based on extensive experience and are consistent with the best practices of highway authorities in North America. We work closely with many other road authorities across Ontario, Canada, North America and Europe to keep abreast of advances in the field of winter highway maintenance.

Plowing is required to start when about 2 cm of snow or slush begins to accumulate on the roadway. As well, spreading equipment is to be deployed within 30 minutes of the start of a winter storm. Throughout the storm, crews monitor and adjust operations as required for intensity, duration and precipitation type. Salt becomes less effective for melting ice and snow at temperatures below minus 12°C. Below minus 18°C, salt is not effective; instead sand may be used to improve friction.

A severe or long storm may delay restoring highways to the bare pavement condition, even with the best efforts of highway crews. To cover one route, one time, may take up to 10 hours on low volume highways and up to 1.6 hours on freeways.

Extreme weather may also result in the closing of highways, which is a decision made by the Ontario Provincial Police.

Details of the Action Plan

The Auditor General's report contained eight specific recommendations. For each recommendation, the action plan outlines the areas the ministry reviewed and the resulting actions, both this coming winter and in the future. Each of the ministry's actions is designed to keep Ontario's highways as safe as possible during the winter, improve the experience for drivers, and ensure contractors meet our maintenance standards.

Recommendation 1: "Having sufficient winter equipment in good working order"

Key areas of review:

- Availability of trained operators
- Route calculations and resulting numbers of equipment
- Equipment reliability
- Adjusting equipment to meet local needs
- Contractors' performance last winter

Actions already taken:

- Worked with contractors to add 105 pieces of equipment to clear passing and truck climbing lanes and freeway ramps and shoulders faster, and
- Developed an enhanced process for calculating routes and equipment levels for the new Kenora area contract.

By Winter 2015/16 the ministry will:

- Through discussions with all contractors, address any equipment or operator issues from last winter. The ministry will continue to hold the contractors accountable for meeting contract requirements, including equipment deployment. If required, MTO will negotiate any key equipment changes, including standalone spreaders.
- For winter 2015/16 only, offer contractors the opportunity to earn a winter readiness and performance incentive to enhance safety. Before the start of winter, all contractors will now be required to submit verification that their equipment is ready and provide a roster of dedicated operators. Through the entire winter, the ministry will assess the performance of each piece of equipment and its drivers.

In the future the ministry will:

- Work with our contractors to enhance the visibility of snowplows, improving safety for operators and the travelling public
- Establish a ministry/industry joint working group, to attract, train and retain winter equipment operators and incorporate findings into future contracts

- Review and update standards and best practices for determining routes and equipment levels
- Complete a review of the recent Kenora area contract and incorporate findings in future contracts
- Establish a joint ministry/industry equipment reliability working group and incorporate their findings into future contracts
- Review and update winter highway classes, including a review of those of other jurisdictions, and
- Strengthen internal processes to make more timely increases to service levels if needed.

Recommendation 2: “Encourage proactive use of winter materials”

Key areas of review:

- Appropriate use of road salt
- Winter material risk-sharing provisions and winter severity
- Increased use of anti-icing liquids (DLA)
- Opportunities for pre-treated and pre-wet salt
- Contractors’ performance last winter

Actions already taken:

- Re-established risk-sharing thresholds for salt and sand for current contracts, and
- Set thresholds and expected material quantities to be used including DLA for the recent Kenora area contract.

By Winter 2015/16 the ministry will:

- Change how thresholds for salt and sand are set, sharing costs with contractors for more severe winters
- Include education on all winter materials, including DLA, pre-treated and pre-wet salt, in patroller training for contractors’ staff
- Work with contractors on facility improvements, such as new storage tanks and sheds, at our maintenance yards
- Increase DLA usage, especially on southern Ontario freeways, by sharing costs with contractors, and
- Through discussions with contractors, address any concerns with material usage last winter.

In the future the ministry will:

- Review other material risk-sharing models for future contracts, and
- For future contracts, specify the expected quantities of salt, sand and DLA to be used each year and have contractors confirm these quantities are included in their bids.

Recommendation 3: “Awareness and Accurate Reporting of Road and Weather Conditions”

Key areas of review:

- Road Patrolling
- Technology
- Contractors’ performance last winter

Actions already taken:

- Worked with contractors to deliver patroller training for staff before last winter
- Added 20 new ministry oversight staff, to increase in-storm monitoring, and
- Included prescriptive road patrolling requirements in the recent Kenora area contract.

By Winter 2015/16 the ministry will:

- Through discussions with contractors, address any contract specific patrolling gaps
- Work with contractors to add dash cams in patrol vehicles
- Expand the pilot project using tablets to automate road condition reporting;
- Deliver additional, expanded patroller training to contractors’ staff
- Install four new Road Weather Information Stations (RWIS)
- Add 16 cameras to existing RWIS stations. 144 stations will have cameras
- Install more than 30 stand-alone roadside cameras at strategic locations
- Install a pilot weather warning system on Highway 401 in Northumberland County, and
- Exchange RWIS data with municipalities and Environment Canada.

In the future the ministry will:

- Consider models that include MTO patrolling and directing operations for future contracts
- Review the effectiveness of the pilot weather warning system for potential applications in other areas
- Review the results of tablet road reporting pilot and consider full implementation, and
- Complete the provincial RWIS network, to a total of about 155 stations.

Recommendation 4: “Improved reliability of Ontario 511 website”

Key areas of review:

- Timeliness and accuracy of information for travellers
- Technology
- Standardize public feedback process

Actions already taken:

- Completed review of existing Ontario 511 site relative to other jurisdictions.

By Winter 2015/16 the ministry will:

- Deliver patroller training, stressing the importance of reporting changing road and weather conditions
- Time-stamp road condition information with “condition observed at”
- Add link to both Road Weather Information System and [COMPASS](#) cameras, allowing the public to view “real time” road conditions on the website
- A “Track My Plow” program planned for the Owen Sound and Simcoe County areas with a link from the Ontario 511 website
- Expand the pilot project using tablets to automate road condition reporting
- Increase publicity on the availability of the toll free 1-844-507-1427 number, and the winterhighways@ontario.ca and routesdhiver@ontario.ca email addresses, the @Ontario511 Twitter feed, and
- Better monitoring of winter highway maintenance trends and issues to identify and take corrective action as needed.

In the future the ministry will:

- Launch a new Ontario 511 website for winter 2017/18 with the ability to support new technology and applications, and
- Add more roadside camera images and investigate crowd sourcing of road condition information.

Recommendation 5: “Best-Value Procurement of Maintenance Contracts”

Key areas of review:

- Recent Kenora area contract – based on procurement process used for the ministry’s design-build construction projects
- Opportunity for lessons learned and input from industry stakeholders.

Actions already taken:

- Used best value procurement process for the new Kenora area contract instead of lowest bid.

In the future the ministry will:

- Complete a review of the Kenora area contract procurement process and discuss findings with industry stakeholders, and
- Organize a town hall meeting with all past/potential maintenance contractors to discuss future contract models, including procurement.

Recommendation 6: “Oversight of contractor performance”

Key area of review:

- Improved and more consistent oversight.

Actions already taken:

- Before winter 2014/15, added 20 ministry oversight staff (one per contract area) and delivered new training, and
- Made other ministry organizational changes, including adding five Regional Maintenance Engineers and a Maintenance Director.

By Winter 2015/16 the ministry will:

- Review and update oversight process with the assistance of independent expert, and
- Deliver training on the updated process to ministry staff.

In the future the ministry will:

- Create a centralized web-based database by winter 2016/17 to track the outcome of all oversight audits.

Recommendation 7: “Accurate and meaningful reporting of bare pavement performance standard”

Key areas of review:

- How to make bare pavement reporting more meaningful to the public
- How to ensure the bare pavement standard is appropriate
- Accuracy of the data
- Add a website link to a winter severity index.

By Winter 2015/16 the ministry will:

- Include bare pavement reporting in patroller training for both contractors and MTO staff
- Deliver bare pavement administration training to MTO staff, and
- Complete a review of the work of other jurisdictions on bare pavement performance measures and compare to Ontario’s standards.

In the future the ministry will:

- Work with the University of Waterloo to develop and calibrate a winter severity index for each contract area, allowing for a comparison to the bare pavement results, and
- Display bare pavement results and a winter severity index for each contract area following winter 2015/16.

Recommendation 8: Monitor and assess remedial measures

Key areas of review:

- How to further enhance winter maintenance
- Contractors’ performance last winter
- Contractors’ performance during winter 2015/16

Actions already taken:

- Made improvements in many areas of winter highway maintenance based on recommendations of the internal review completed in 2013, and
- Tendered enhanced contract for the Kenora area.

By Winter 2015/16 the ministry will:

- Complete contractor discussions to address any outstanding concerns from the previous winter, and
- Work with the OPP, the Ontario Road Builders Association (ORBA) and road safety groups to deliver an expanded public winter maintenance and safe driving campaign.

In the future the ministry will:

- Update the ministry's quality standards and best practices, including highway classes, by winter 2016/17
- Develop additional winter highway maintenance performance measures by winter 2016/17, and
- Begin development of other highway maintenance contract models, including a ministry-directed contract model, in consultation with ORBA.

Acceptance & Sign-Off

Recommended By:	Kevin Bentley <i>Director, Maintenance</i> <i>Provincial Highways</i> <i>Management Division</i>	<i>Signature</i>	<i>Date</i>
Recommended By:	Gerry Chaput <i>Assistant Deputy Minister</i> <i>Provincial Highways</i> <i>Management Division</i>	<i>Signature</i>	<i>Date</i>