Using RWIS and MEPDG to Control Load Restrictions on Northern Ontario Highways
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Current Practices:
The implementation of Spring Load Restrictions and Winter Weight Premiums (load surpluses) on Northern Ontario’s secondary and tertiary roads is currently based on prescribed jurisdiction-specific dates supplemented by field testing and visual observations of the pavement’s strength.

Pavement Strength

Impact of inaccuacies in SLR dates
(e.g. Delayed implementation of the load restrictions)

Impact of inaccuracies in WWP dates

Pavement Damage

- Current Thresholds (based on deflection testing)
- Optimal Thresholds
- Pavement Damage

Objective of the Project: Development of an MTO Decision-Support Tool for the Implementation of Load Restrictions

Research Outline:
Two Experimental Pilot Sites
Equipment Installation and Monitoring
Data Acquisition and Logging

Development of Simple Models
Relating Pavement Strength to Key Environmental Variables
Validation and Calibration
Sensitivity Analysis
Life Cycle Cost Analysis

Historical Data Gathering
Classification of Northern Ontario Roads into Soils/Traffic Regions

Mechanistic-Empirical
Pavement Design Guide
& OPAC 2000

Optimized SLR/WWP Schedule

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Impact of inaccuracies in SLR dates
(e.g. Delayed implementation of the load restrictions)

Impact of inaccuracies in WWP dates

Premature restrictions on the payload can affect the transportation industries and/or the final consumer.

Typical Heavy Vehicle traveling on Northern Ontario’s Secondary/Low-Volume Roads

Impact of inaccuracies in WWP dates

- Allowing heavy trucks on a weakened pavement (thawing periods) will result in high maintenance expenses.

Life Cycle Costs

Field Testing

Calibrated Models

MTO Regulations:
- On Pavement Serviceability
- Economic Criteria

Preliminary Guidelines (Loads, Dates)

RWIS
Environmental Data

On-site Characteristics (Pavement, Traffic)

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