Road Safety: Opportunities to Reduce Risk

Managing Winter Operations Workshop
Mississauga Grand Banquet Centre
October 24, 2019
Introductions

• Specialize in road user and rail safety
• Transportation system design, operations, and maintenance consulting and forensic investigations
• Operational safety reviews and/or audits for MTO and most many major municipalities in Ontario
• Qualified as an expert in the areas of road user safety, road maintenance, traffic engineering, transportation planning, and road design in the Superior Court of Justice of Ontario.
• Past member of OPS Traffic Safety Committee
Our Firm

- Consulting and forensic engineering firm solely dedicated to transportation safety in Canada
- 120+ roadway, rail, sidewalk and bicycle path design, operations and maintenance legal files
- 2-3 winter maintenance assessments a month
Goals for Attendees

Gain an appreciation for:

• The exposure of road authorities and their contractors to winter maintenance claims
• The importance of defensible policies, solid documentation and credible evidence
• Seven strategic areas for reducing your organization’s liability in claims
Presentation Overview

- Tort Liability in Ontario: The 1% Rule
- Police and Forensic Investigations
- Road Maintenance Case Study
- Key Strategies for Risk Management
Road Environment Influence in Collisions

- Human Factors (93%)
- Road Environment Factors (34%)
- Vehicle Factors (12%)

- Human Factors: 93%
  - 27%
  - 3%
  - 1%

- Road Environment Factors: 34%
  - 3%
  - 6%

- Vehicle Factors: 12%
  - 2%
  - 1%
Liability in Ontario

• Ontario has joint and several liability (1% Rule)
• Significant ramifications for municipalities, agencies and private companies
• In Ontario, if the available insurance policies will cover all the damages, then all parties pay proportionately:
  – $1M damages, two vehicles with $1M policy each
  – Liability: Driver 1: 60% responsible, Driver 2: 39%, Road: 1%
  – Result: Driver 1 pays 60%, Driver 2 pays 39%, Municipality pays 1%
The 1% Rule

• However, if the available policies don’t cover the damages, the 1% rule kicks in:
  – the next most responsible party pays the balance, up to their policy limits

• Same Example:
  – $10M damages, two vehicles with $1M policy each
  – Liability: Driver 1: 60% responsible, Driver 2: 39%, Road: 1%
  – Result - Driver 1 pays $1M, Driver 2 pays $1M, Municipality pays $8M.

• Encourages large, weak claims against deep pockets
Forensic Investigations
Police vs. Forensic Investigations

- Police MVARs and investigations determine fault between involved parties
- Limited investigation of causal factors and environmental conditions
- **For example**, MVAR indicates Driver 1 actions are “speed too fast for conditions” and the road condition as “icy”
- No charges are laid
Police vs. Forensic Investigations (Cont’d)

Forensic investigations seek to determine:
• What was the weather forecast and actual weather conditions leading up the collision?
• Who was patrolling the roadway?
• When were poor road conditions and/or maintenance thresholds noted?
• Who was dispatched, when did they leave the yard, what were their directions?
• Did they follow their planned route and apply the correct measures?
• Who checked to see if the maintenance was effective?
• And last but not least … when did the incident occur in the above sequence of events
Case Study: Belanger v. Sudbury

Sudbury ordered to pay $12M to woman who crashed into school bus on ‘treacherous’ winter road

CANADA

TRENDING
Rob Ford | Ghomeshi | Marco Muzzo | Sunshine list database | Trump | Bosma | Lotto Max

Harold Carmichael, Postmedia Network | December 14, 2016 7:31 PM ET
More from Postmedia Network

The scene on Nov. 22, 2000, after a head-on collision between Lisa Marie Belanger’s Mazda and a school bus.
The Road

- Regional Road 35
- High volume, two-lane rural arterial road
- 80 km/h posted, Class 1 Sudbury road
- Collision location on approach to bridge
The Circumstances

- Collision: November 22, 2000 11:15 a.m.
- Snow began at 5:00 a.m.
- Majority of snow fell between 7:00 a.m. and 11:00 a.m. – 5.5 cm of snow
- Heaviest snowfall between 8:00 a.m. and 10:00 a.m.
- Temperature: - 10ºC
- At time of collision road was packed snow and ice
The Investigation

- Police photographs taken 1½ hours after collision
- Maintenance vehicle had travelled through road section just prior and after the collision
Maintenance Requirements

• Collision date pre-dated MMS
• No formal patrol routes or policies

SUMMARY OF QUALITY STANDARD

The level-of-service for WINTER PLOWING, SANDING AND SALTING shall be in accordance with the following (Refer also to approved Maintenance Classification Map):

REGIONAL URBAN EXPRESSWAYS AND ARTERIAL STREETS (Class 1 and 2)

* Surfaces shall be maintained As Bare As Possible through Continued Use of all assigned men, equipment and materials suited to the conditions.
* The maximum allowable snow accumulation is 1 INCH
* Coverage (either plowing or spreading) intervals shall not be greater than every 2 hours throughout the storm.
* These classes have First Priority
Maintenance Performed

• Contractor vehicle assigned to route was out of service – no contract provision for backup
• City spare combo unit assigned to RR 35
• 6:15 to 7:30 am: RR35 received plowing and salting in both directions
• 10:15 to 11:15 am: RR35 received plowing in both directions
• 10:45 a.m. to 11:20 am: RR35 was plowed and salted in both directions
Maintenance Findings

- No patrol records or diaries
- Maintenance vehicle assigned to route went into shop for wiper blade motor repairs for two hours during first maintenance run
- No evidence of communications or coverage adjustments:
  - Spare units
  - Adjacent routes
Maintenance Findings

• 7:30 a.m. plowing and salting efforts were overwhelmed by new snowfall
• Roadway refroze and became snow packed
• Subsequent plow efforts were unable to bare roadway - plowed twice
• Maintenance return periods were not met
Verdict

• 14 year period for matter to go to trial
• Evidence relied heavily on maintenance records

Although I acknowledge that the crew cards completed by the Defendant’s employees were not always a model of detail and accuracy, I accept that they are a fairly accurate reflection of the work done on the road that day and accordingly, I accept the evidence of Mr. Kennedy that he salted the area of the accident at about 7:15 a.m., and I accept that Mr. Bonhomme plowed in the area of the accident twice between 10:15 and 11:15 a.m. I also find it most likely that Mr. Kennedy dropped salt in the northbound lane within the 15 minutes prior to the accident, and then in the southbound lane not long after the accident had happened.
Verdict

- Road was in a state of non-repair
- 100% liability on road authority

I have little difficulty finding that the condition of the road amounted to a state of non-repair. Roads are not meant to be slippery. Although a snow-covered and slippery road may be safely travelled by many, it poses a significant risk to all users because it renders them less able to make the many adjustments required for safe driving. Braking takes longer, steering corrections are less effective, and driving becomes more difficult.
Road Authority Risk Considerations

- Continuous patrolling and/or communications during storm events, regardless of active operations
- Reliable documentation and reporting
- In-house and contractor equipment breakdown protocols
Seven
1. Salt Management Plans and Policy

- Clear delineation of operational practices versus future objectives and general guidance
- Operational policy agreement
2. MMS Reliance

- MMS identifies the maintenance prompts and reasonable response periods
- MMS does not identify:
  - Winter maintenance patrolling policies
  - Maintenance policies and practices
  - Industry good practice
3. Route/Planning and Design

- Salt versus sand/plow routes
- Attainable circuit times
- Combining priority roadways with lower-class facilities
4. Patrolling and Dispatch

- MMS standards and operational practices
- Representative roads and the weather event
- Patroller observations, decisions and documentation
- Reporting levels and gaps
  - Night versus day patrol responsibilities and record keeping
  - Patrol versus maintenance
- Maintenance operators fulfilling patrol function
5. Maintenance Documentation

- Record-keeping of times, accomplishments and activities:
  - Start and end times
  - Routes taken
  - Activities and application rates

- GPS reliance
  - System malfunction/off
  - Sensors malfunction or not reporting
  - Location accuracy

- Longer-term GPS data access

- Basic back-up maintenance documentation
6. Outsourcing/Contracts

- Equipment and resource expectations
- Clear delineation of duties, reporting and communications
- Mobilization thresholds
- Multiple contractors by operation
- Limitations and constraints in the contract
- Record keeping expectations
7. AT Facility Maintenance

- Reduced “effective lane width”
- Off-road facilities
- Patrolling for sidewalk conditions
- Sidewalk clearing by-laws
Summary

- Review of policies and practices to ensure they are current and reflect industry good practice.
- Periodic review of day-to-day actions and documentation quality.
- Ensure contracts reflect needs, roles and responsibilities over a range of routine winter weather events.
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