Risk Management for Public Works

AORS National Public Works Week Webinar

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May 21, 2025

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Agenda

1. Municipal Liability and MMS
2. Risk Management Considerations for Summer Operations:
   i. Trip and falls
   ii. Potholes
   iii. Traffic signs and pavement markings
   iv. Road design

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Municipal Road Liability 101

Section 44 of the *Municipal Act*

- (1) The municipality that has jurisdiction over a highway or bridge **shall keep it in a state of repair that is reasonable in the circumstances**, including the character and location of the highway or bridge.
- (2) A municipality that defaults in complying with subsection (1) is, subject to the *Negligence Act*, liable for all damages any person sustains because of the default.
- So… must maintain reasonable state of repair… if not… liable for damages

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Municipal Road Liability 101

What constitutes a “reasonable” state of repair?

- It depends… on many factors.
  - Location of the road, its history, its character, its normal usage, the resources of the municipality, etc.
- Municipality has a duty to prevent or remedy conditions on its roads that create an **unreasonable risk of harm for drivers** exercising reasonable care.
- *“... I think that if the particular road is kept in such a reasonable state of repair that those requiring to use the road may, using ordinary care, pass to and fro upon it in safety, the requirement of the law is satisfied.”* – Chief Justice Armour, 1898

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Municipal Road Liability 101

How does MMS fit in with this?

- The MMS are not used to determine state of repair.
- They are only used as a **defence** against claims of non-repair.
  - “A shield and not a sword”
  - Municipality cannot be sued for failing to meet the MMS
- So, if you fail to meet the MMS, the road is not necessarily deemed in a state of non-repair.

4-Step Test for Municipal Liability

Steps 1 and 2: Non-Repair and Causation

- Caselaw established a 4-step test to assess municipal liability for claims of highway non-repair.

1. **Non-repair:** The **plaintiff** must prove on a balance of probabilities that the municipality failed to keep the road in a reasonable state of repair.
2. **Causation:** The **plaintiff** must prove the "non-repair" caused the accident.

- If plaintiff can prove (1) "non-repair" and (2) "causation", then the municipality is considered liable.
- The municipality then has the onus of establishing at least one of the three defences in s. 44(3).

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4-Step Test for Municipal Liability

Step 3: Statutory Defences

3. **<u>Statutory Defences:</u>** The **municipality** must establish at least one of the three defences from section 44(3) of the *Municipal Act.*

44(3) … a municipality is not liable for failing to keep a highway or bridge in a reasonable state of repair if,

(a) it did not know and could not reasonably have been expected to have known about the state of repair of the highway or bridge;

(b) it took reasonable steps to prevent the default from arising; or

(c) at the time the cause of action arose, minimum standards established under subsection (4) applied to the highway or bridge and to the alleged default and those standards have been met.

4-Step Test for Municipal Liability

Step 3: Statutory Defences

- S. 44(3)(a) **it did not know** and **could not reasonably have been expected to have known** about the state of repair of the highway or bridge;
- *Hamilton-Dawkins v. Town of Ajax, 2024 ONSC 2152*
  - Trip and fall on sidewalk surface discontinuity > 2cm
  - Town inspected sidewalk a year prior; minor crack < 2cm
  - Town did not know / could not have known crack grew to > 2 cm
  - 44(3)(a) defence established; action dismissed

https://charlesandhudson.com/cracks_be_gone_how_to_patch_a_sidewalk/

Lessons Learned from Court Case

More takeaways from *Hamilton-Dawkins v. Ajax*

- Ajax's sidewalk inspection procedure:
  - Summer students walked sidewalks equipped with GPS units
  - 3 categories of SDs: 0-6mm, 6-19mm, >19mm (paint, log for repair)
- No written policy on training to summer students/inspection process
- Town repaired sidewalk without measuring/verifying height of crack
  - "extinguished evidence"
- *"municipality should not readily benefit from its own failure to document or circulate complaints properly"*
  - What if the Town received a complaint about crack?

4-Step Test for Municipal Liability

Step 3: Statutory Defences

- S. 44(3)(b) it **took reasonable steps to prevent** the default from arising;
- Reasonable steps include…
  - An effective system of inspection and monitoring of conditions
  - Taking steps to eliminate/reduce a hazard after becoming aware (or ought to be aware)
  - Having detailed documentation and records
    - Patrol logs, maintenance records, supervisor daily diaries, policies, training records, etc.

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4-Step Test for Municipal Liability

s. 44(3)(b) - Mitton v. Ministry of Transportation, 2024

- Car lost control, crossed centreline and collided with oncoming car
- MTO contracted winter maintenance operations with detailed specs
- **Step 1 Non-Repair:** road became partially snow-packed (dangerous)
- **Step 2 Causation:** snow-packed road caused loss of control
- **Step 3 Defence:** MTO must prove winter maintenance was reasonable…
  - MTO had excellent winter maintenance records: detailed patrol logs, GPS, video
  - Decision to use salt instead of sand was analyzed and found to be reasonable
- Outcome: claim dismissed

4-Step Test for Municipal Liability

Step 3: Statutory Defences

- S. 44(3)(c) at the time the cause of action arose, **minimum standards** established under subsection (4) applied to the highway or bridge and to the alleged default and those **standards have been met**.
- This is the **MMS**
- Must be able to prove that the MMS was met
  - Documentation
  - Documentation
  - Documentation

Minimum Maintenance Standards

O. Reg. 239/02

- An Ontario Regulation under the Municipal Act
- Sets out the minimum standards of repair for highways under municipal jurisdiction
- Used as a **defence against claims** for failing to maintain a highway in a state of repair
- Maintenance standards for snow, ice, potholes, debris, signs, sidewalks, luminaires, etc.
- Not all-encompassing, not mandatory

Minimum Maintenance Standards

Importance of Documentation

- *“The job’s not done until the paperwork is done.”*
- Documentation is critical in defending claims/lawsuits
- Evidence of municipality’s commitment to public safety:
  - Standardized procedures exist and were followed
  - Regular inspections were done and necessary maintenance completed
- May show “reasonable steps” taken

Minimum Maintenance Standards

Documentation Best Practices

(Stock Images)

- ❑ Train staff on documentation requirements
- ❑ Use standardized forms and templates
- ❑ Complete records contemporaneously (as you go)
- ❑ Use clear, unambiguous language
- ❑ Ensure records are being completed consistently across staff
- ❑ Maintain records in organized, reliable recordkeeping system(s)

4-Step Test for Municipal Liability

Step 4: Contributory Negligence

4. **<u>Contributory Negligence:</u>** Municipality that cannot establish any of the 3 defences in s. 44(3) will be found liable. Municipality can, however, show the plaintiff's actions caused or contributed to their injuries.

- Plaintiff's claim may be reduced if plaintiff failed to take reasonable care
- If plaintiff found 30% contributorily negligent, can only collect 70% of judgement from defendant
- Examples: driving motor vehicle impaired, speeding, distracted

Liability Summary

This is the foundation for road liability

- Section 44 of the *Municipal Act*
- “Reasonable” state of repair = duty to prevent or remedy conditions that create an unreasonable risk of harm
- 4-step test for roads liability:
  - Step 1: Non-repair
  - Step 2: Causation
  - Step 3: Statutory Defences: Knowledge; Reasonable Steps; MMS
  - Step 4: Contributory Negligence

Public Works Summer Operations:

Key Risks and Liabilities

Summer Risks and Liabilities

- Pedestrian Trip and Falls
- Potholes
- Traffic Signs and Pavement Markings
- Road Design:
  - Horizontal and Vertical Curves
  - Shoulders

Sidewalk Trip and Falls

- Very common source of claims
- Injuries and damages can be significant
- Should be simple to defend:
  - Annual inspections
  - Repair SDs > 2 cm
- Records of inspections and repairs are important

Sidewalk Trip and Falls

Bellefleur v. City of London 2002

- No sidewalk, so pedestrians walked on shoulder
- Pedestrian stepped in hole in shoulder and injured leg
- “standard of maintenance applicable to this shoulder approaches that of a sidewalk…”
- Hole was hazardous to pedestrians = shoulder in disrepair
- City had no system for inspecting and repairing potholes in shoulders of roads used by pedestrians. Therefore, City is liable for having failed to maintain a reasonable system of inspection.

- **Lesson learned:** where no sidewalks, have a policy/program for inspecting, maintaining and repairing shoulders, boulevards, etc. if they are used by pedestrians

Sidewalk Trip and Falls

Voisin v. County of Oxford, 2022 ONSC 4912

- Trip on 50 mm milled edge while crossing street
- Construction area; milled edge not ramped
- Many factors considered:
  - Contract, OPS, MMS, Book 7, Human Factors, Lighting, etc.
- County and contractor found 65% at fault
- 35% contributory negligence (construction area at night, poor lighting)
- **Lessons learned:** ensure contracts have proper insurance and indemnity clauses; consider trip ledges when milling/resurfacing

Sidewalk Trip and Falls

Active claim…

- Plaintiff fell forward on trip ledge, landed on forehead, lost consciousness
- Suing for $1.1 million
- Height = 5.0 cm, 3.8 cm, 2.1 cm
- Noted on inspection… but NOT repaired (also not spray painted)
- **Lessons learned:** trip and fall claims can be significant; must follow up and ensure repairs are completed following inspections; spray paint immediately

Sidewalk Trip and Falls - Takeaways

- ❑ Follow a well-documented program of inspection and repair based on MMS
- ❑ Ensure inspectors have proper training (document training)
- ❑ Use appropriate tools and methods for measuring surface discontinuities
- ❑ Inspect and repair boulevards and shoulders where pedestrians use them
- ❑ Repair deficiencies within 14 days
- ❑ Warn the public of any potential hazards (spray paint, pylon, etc.)

Sidewalk Trip and Falls

- See relevant articles on IPE's Centre of Excellence:
  - *Standard Operating Procedure – Sidewalk Inspection*
  - *Sidewalk Inspection Procedures*
  - *Claim Case Studies:*
    - *Anderson v. Hamilton*
    - *Bellefleur v. London*
    - *Kidanemariam v. Toronto*
    - *Worthey vs. City of Hamilton*

Potholes

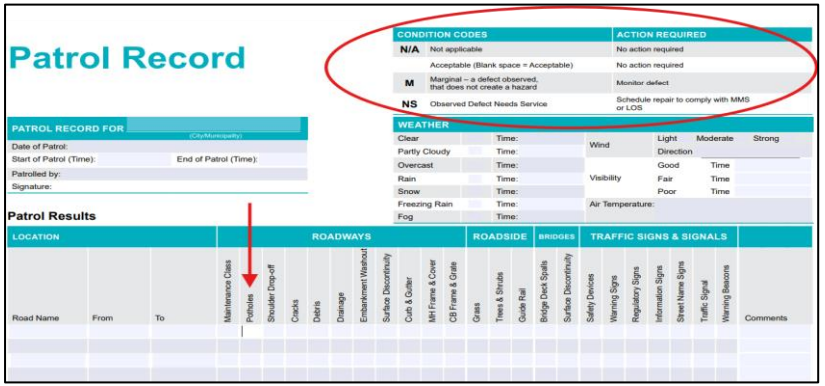
- Another very common source of claims
- Motorcycles, scooters, bicycles more vulnerable
- MMS is the best defence against claims:
  - Well-documented patrols
  - Maintenance records

- Municipalities are not insurers of road users against all vehicular damage
- Consider establishing a process/template for efficiently dealing with pothole claims

Potholes – Maintenance Standards

- MMS: pothole is “a hole in the surface of a roadway caused by any means, including wear or subsidence of the road surface or subsurface.”
- When surface area **AND** depth meet the table, must repair within specified timeframe.

Class of Highway	Surface Area	Depth	Time
1	600 cm²	8 cm	4 days
2	800 cm²	8 cm	4 days
3	1000 cm²	8 cm	7 days
4	1000 cm²	8 cm	14 days
5	1000 cm²	8 cm	30 days



- Potholes checked during road patrols
- Depth and surface area determined by actual measurement or visual estimate.

Potholes – Measurement and Claims

- Measuring potholes
  - Surface area
  - Depth
  - Take multiple measurements
  - Photos, notes, sketches
- Get information from the claimant
- Gather municipal records
- *Beardwood v Hamilton*

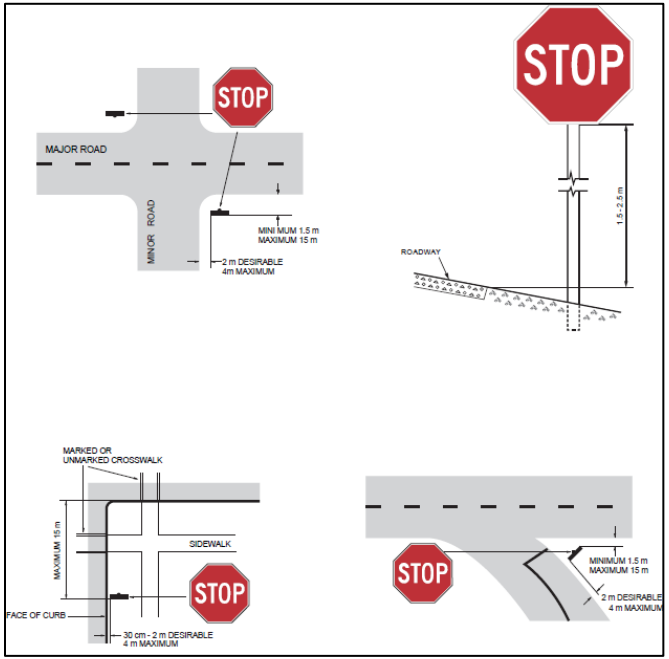
Potholes – Takeaways

- ❑ Train staff to inspect and document potholes during patrols
- ❑ Patrol records are critical for MMS defence
- ❑ Repair potholes proactively
- ❑ Repair potholes within the MMS timeframes
- ❑ Measure pothole surface area and depth properly
- ❑ Establish an efficient process for dealing with claims

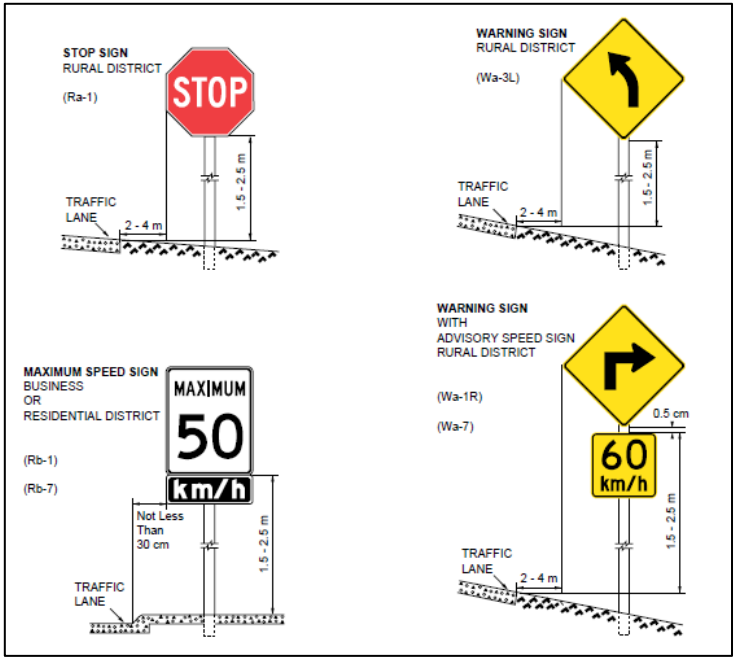
Traffic Signs and Pavement Markings

- Municipalities have a duty to install warning signs for hazards, unexpected and potentially dangerous conditions.
- Signs must be placed sufficiently in advance of hazards to give drivers time to read and process the information and respond accordingly.
- Refer to Ontario Traffic Manuals, Highway Traffic Act (Reg. 615: SIGNS)

Traffic Signs and Pavement Markings



(OTM Book 5 – Regulatory Signs)



(OTM Book 1B – Sign Design Principles)

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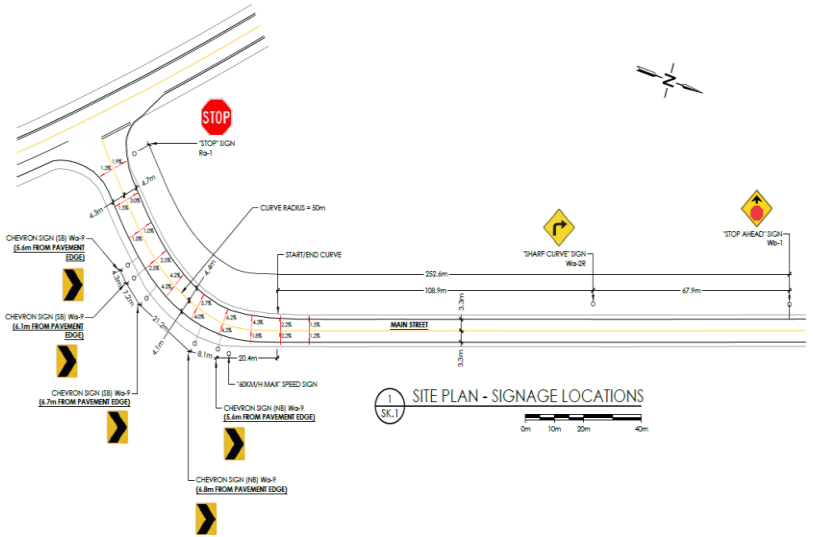
Claims – Expert Reports

- When a crash occurs, plaintiff will often hire an engineering expert
- Expert will review road condition, including geometric design, signs, pavement markings, etc.
- Any deficiencies will be used against the municipality
- Expert will check if all signs and pavement markings meet current standards (OTM and TAC).



Traffic Signs and Pavement Markings

Common Issues

- Curve warning signs – per OTM Book 6
- Curve advisory speed – ball bank indicator test
- Location of sign in advance of curve/hazard
- Chevron signs and delineators – per Book 6
- Edge lines – required at all curves with advisory speeds
- Centre lines – on hilly roads to keep vehicles in their lane

Courts' Comments re: Warning Signs

- *Fordham, paras 31-37:*
  - A municipality has a duty to erect and maintain proper signs where hazards are hidden or not readily apparent to users of the road.
  - However, signs only required if an ordinary driver exercising reasonable care would be exposed to an unreasonable risk of harm without the sign.
  - The mere presence of a hazard does not require a sign; only a hazard that puts reasonable drivers at risk requires one.

- *Greenhalgh v. Douro-Dummer (Township), 2009:*
  - Ontario Traffic Manuals are guidelines only and do not establish a legally enforceable standard of care for civil liability.
  - The overriding question is always: 'does the condition of the road pose an unreasonable risk of harm to reasonable drivers?'

Traffic Signs and Pavement Markings - Takeaways

- Review your signs and pavement markings to ensure they meet the Ontario Traffic Manuals:
  - Curve warning signs and advisory speed signs
  - Height, offset, size, visibility on approach
  - Proper distance in advance of hazard
  - Centrelines and edge lines where warranted (hills, curves, etc.)
- Inspect signs for retroreflectivity
- Do not “over-sign” or install non-standard signs

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Road Design

- TAC Geometric Design Guide for Canadian Roads
- Horizontal alignment: curves, superelevation, design radii, etc.
- Vertical alignment: crests (hills) and sags, grades, sight distance, etc.
- Shoulders: width, material, etc.

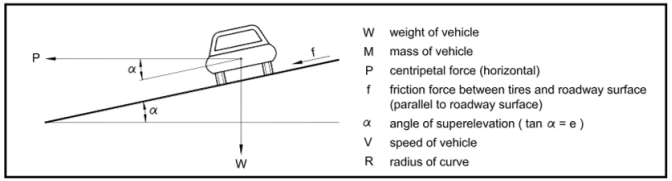


Figure 3.2.1: Dynamics of Vehicle on Circular Curve

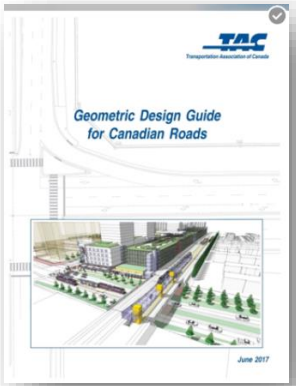
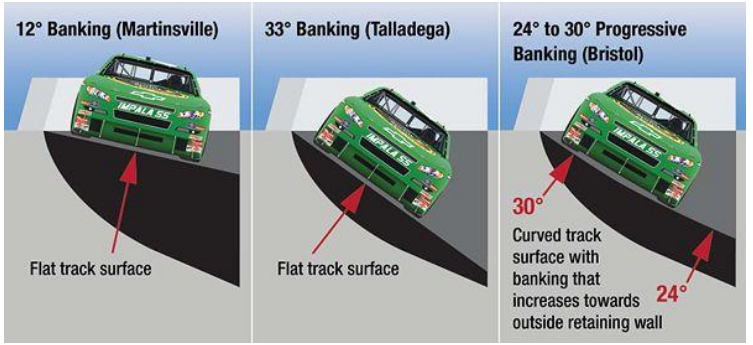


Table 3.2.3: Minimum Radii for Limiting Values of e and f for Rural and High Speed Urban Roadways[27]

Design Speed (km/h)	e_{max} (m/m)	Design Value for f	e + f	Minimum Radius (m) (calculated)	Minimum Radius for Design (m)
40	0.04	0.17	0.21	60	60
50	0.04	0.16	0.20	98	100
60	0.04	0.15	0.19	149	150
70	0.04	0.15	0.19	203	200
80	0.04	0.14	0.18	280	280
90	0.04	0.13	0.17	375	380
100	0.04	0.12	0.16	492	490
40	0.06	0.17	0.23	55	55
50	0.06	0.16	0.22	89	90
60	0.06	0.15	0.21	135	130
70	0.06	0.15	0.21	184	190
80	0.06	0.14	0.20	252	250
90	0.06	0.13	0.19	336	340
100	0.06	0.12	0.18	437	440

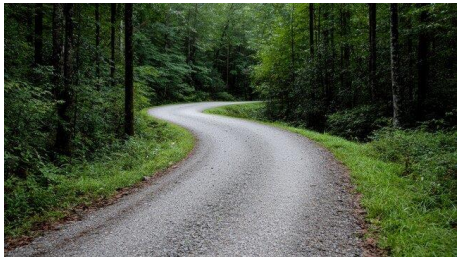
Road Design: Horizontal Curves

- Curves: crash rates 3X higher, run-off-road crashes 4X higher
- Curves are visually demanding for drivers
- Minimum curve radii based on design speed (e.g., 80 km/h = 250 m)
- Tighter radius = greater risk
- Superelevation – reduces likelihood of skidding/sliding/tipping
  - Sharper curve and higher speed requires greater superelevation



Road Design: Horizontal Curves

Housen v. Nikolaisen, 2002 SCC 33

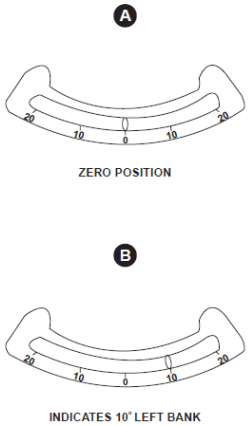


stock.adobe.com

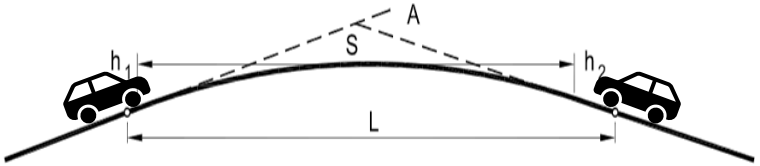
- July 1992, rural municipality of Shellbrook, SK
- Rural road, lacked warning and regulatory signs
- Dangerous curve that was not readily apparent
- Driver lost control and crashed; passenger quadriplegic
- Municipality breached its duty to maintain the road in reasonable state of repair by failing to erect warning signs
- Plaintiff 15% contributorily negligent – no seatbelt, accepting ride with impaired driver
- Driver and municipality 85% jointly and severally liable

Horizontal Curves - Takeaways

- Curves are a major location for run-off-road crashes (4x more)
- Review sharp/severe curves due to higher risk
- Verify whether curves have proper superelevation
- Ensure warning signs installed per OTM Book 6
  - Minimum advance placement per Tables 3 and 4
  - Advisory speed signs must both safe and realistic
  - Verify advisory speeds using ball-bank indicator
- Pavement markings per OTM Book 11 (centre lines, edge lines)



Road Design: Vertical Curves



- Visibility and sight distance important
- Stopping sight distance (SSD) based on speed
- Reducing speed increases SSD
- Common issues:
  - Insufficient SSD (for posted speed limit)
  - Speed limit too high
  - No centreline pavement marking
  - Road too narrow

Road Design: Vertical Curves

Deering v Scugog (Township), 2010

- Vehicle lost control at crest of hill due to perceived risk of head-on collision
- Narrow road (6 m)
- Narrow shoulders
- No centreline
- Sight distance deficiencies (for posted speed limit)
- Horizontal deflection at crest

Paralyzed sisters win court case against Oshawa, Scugog

A high-profile court battle between Erica and Shannon Deering and the City of Oshawa ended with a win for the quadriplegic sisters, eight years after the car accident that left them with catastrophic spinal injuries.

Dec. 20, 2012 | 2 min read

Erica, left, and her sister, Shannon Deering, are shown with their dogs, Kali and Bubba, in June 2012. An appeals court upheld a court decision that ruled Scugog and Oshawa were 2/3 responsible for an August 2004 crash that left the sisters injured and in wheelchairs.

Vertical Curves - Takeaways

- Vertical crest curves with deficient sight distances are common
- Yellow centreline pavement marking required where SSD < 150 m
- Roads with steep hills or rolling terrain may warrant speed limit reduction
- KEEP RIGHT signs may be used for areas with narrow pavement width and restricted sight distance
- Other warning signs may be warranted due to limited sight distances (SCHOOL BUS STOP AHEAD, INTERSECTION, HIDDEN tab, etc.)

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Road Design: Shoulders

- Purpose of shoulders:
  - Recovery area for errant vehicles
  - Refuge for stopped or disabled vehicles
  - For emergency and maintenance vehicles
  - Lateral support of roadway structure
- Paved, partially paved (0.5 m) or gravel
- Shoulder drop-offs (MMS: 8 cm x 20 m)
- “Design” widths

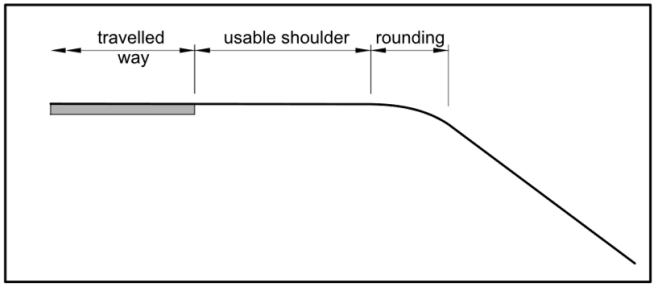

Figure 4.4.1: Usable Shoulders

Table 4.4.1: Shoulder Widths for Undivided Rural Roads (m)[15]

Design Speed (km/h)	Designation and Design Hour Directional Volume					
	Rural	Collector			Arterial	
	Local	Design Hour Directional Volume			Design Hour Directional Volume	
		<250	250-450	>450	<450	>450
60	1.0	1.5	2.0	2.5		
70	1.0	1.5	2.0	2.5		
80	1.0	2.0	2.5	2.5	2.5	3.0
90	1.0	2.0	2.5	2.5	2.5	3.0
100	1.0	2.5	2.5	3.0	2.5	3.0
110					2.5	3.0
120					3.0	3.0
130					3.0	3.0

Road Design: Shoulders

Claim example

- Catchbasin installed adjacent to roadway
- 130 mm drop-off
- Motorcycle crashed, multiple injuries
- CB was installed by private property owner
- Outcome TBD…
- **Lessons Learned:** Inspect shoulders for obstructions or potential hazards

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Shoulders - Takeaways

- Be aware “design” widths
  - Rural: Local = 1.0 m; Collector = 1.5-2.5 m (depends on traffic)
- Maintenance is important
- MMS application:
  - Shoulder drop-offs: 8 cm x 20 m
  - Potholes in shoulders: 8-12 cm x 1,500 cm^2
- Inspect for hazards and obstructions
- Inspect and repair shoulders used by pedestrians, ATVs/ORVs, etc. (higher standard)

Risk Management Summary

What we covered

- Sidewalk Trip and Falls
- Potholes
- Traffic Signs and Pavement Markings
- Road Design:
  - Geometrics: Horizontal and Vertical Curves
  - Shoulders

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General Risk Management Best Practices

- ❑ Establish internal procedures that align with the MMS
- ❑ Ensure the procedures are being followed through
- ❑ Ensure employees have appropriate training and understand internal procedures
- ❑ Ensure proper documentation is being completed and retained
- ❑ Use detailed contracts with proper indemnity and insurance clauses
- ❑ When in doubt, reach out!

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Intact is here to help!

- General risk management advice
- Centre of Excellence
- Contract reviews
- Education seminars
- MMS compliance reviews
- Documentation reviews
- Road risk assessments
- Site visits

Example Inquiries:

MMS

patrol templates

trails

sidewalk patios

warning signs

cycling facilities

log books

ATVs and ORVs

golf carts

etc…

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Thank You!

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Topics covered:

- Overview of liability and MMS
- Summer risks and liabilities:
  - Trip and falls
  - Potholes
  - Traffic signs and pavement markings
  - Road design: geometrics, shoulders

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