2025-2026 Winter Ready

Winter Claims and Winter Maintenance Best Practices

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ASS'N OF ONTARIO ROAD SUPERVISORS A.O.R.S.

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Common Winter Claims

Two main areas:

1. **Motor Vehicle Collision – Ice and Snow**

Source: excelsiainjurycare.com

Source: law123.ca

2. **Sidewalk Slip and Fall**

Basis of Winter Claims

Municipality's responsibility

Municipal Act, section 44:

- Road must be maintained in a **reasonable state of repair**
- Must protect road users from unreasonable risks of harm to them
- Must eliminate/reduce risk within a reasonable time after becoming aware

Source: Stock Images

Basis of Winter Claims

Plaintiff's argument

- The road/sidewalk was **not** kept in a reasonable state of repair
- The municipality **knew or ought to have known** about the condition
- The failure to address it **caused or contributed** to the collision

Source: Stock Images

Using the MMS

A “statutory defence” against claims

- O. Reg. 239/02 (MMS) is used to defend against claims
- If Municipality can **prove** it met the MMS, then will not be held liable for failing to keep road in a reasonable state of repair
- Key point is being able to prove MMS compliance with records:
  - Weather monitoring records
  - Patrol records
  - Operations records (crew cards/activity sheets, GPS records, etc.)

MVC Court Case Example

Belanger v. Sudbury (Regional Municipality)

- November 22, 2000, 11:15 a.m. … winter storm
- Two-lane Class 1 road
- Belanger's car crossed the centreline and collided with oncoming school bus
- Catastrophic life-altering injuries
- Damages assessed at $12 million
- Region held 100% liable for the damages

Source: ChatGPT

MVC Court Case Example

Belanger v. Sudbury (Regional Municipality)

- Road was **snow covered and slippery**
- This condition constituted a **state of non-repair**
- Region's road maintenance activities:
  - Salt applied at 7:15am
  - Plowed 3 hours later between 10:15am and 11:15am
    - Too late… salt diluted by additional snow fall… **RE-FREEZE** occurred
- Re-freeze caused snow to bond to asphalt… plowing was ineffective

MVC Court Case Example

Belanger v. Sudbury (Regional Municipality)

- Region appealed the Trial Court's ruling of 100% liability
- Region argued that it took reasonable steps to maintain the roads
- The appeal was dismissed for several reasons:

1. **The Region did not meet its own standards and procedures:**
   - Class 1 road – plowing/spreading intervals must be less than 2 hours
   - Class 1 roads to have "first priority"
   - Plowing to be completed approximately 1 hour after first salt application
   - Roads were to be plowed/salted "as often as possible" during a snow event

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MVC Court Case Example

Belanger v. Sudbury (Regional Municipality)

2. **The Region should have known about the risk of a re-freeze:**
   - Plaintiff's Expert argued that the re-freeze principle is well known in the winter road maintenance industry
   - Critical issue was that the road was left for 3 hours after salting
3. **The Region did not take "reasonable steps" to address the condition**
   - Failed to assign a salt spreader in a timely fashion
   - Failed to assign one of its road maintenance contractors to apply salt
   - No records of communications between 7:15-11:15am regarding the road condition

MVC Court Case Example

Belanger v. Sudbury (Regional Municipality)

Key takeaways from this case:

1. Municipalities must understand the risk of **re-freeze**... Ensure patrols and follow-up treatments are completed.
2. The Region failed to meet its own standards… This fact was used against them in court.
3. The 3-hour maintenance gap on a Class 1 road was **unreasonable.**
4. Staff knowledge and training are crucial (re-freeze, levels of service, etc.)

Sidewalk Slip and Fall Example

“A Patch of Black Ice”

- Feb. 8th … some snow and rainfall… fluctuating temperatures – freeze/thaw
- Plaintiff was walking child to school, slipped on black ice… sued the City
- City employee treats the sidewalk after the morning rush due to heavy pedestrian traffic
- Usually plows and sands this sidewalk between 10-11am
- Municipal Act, section 44(9): **“Except in case of gross negligence, a municipality is not liable for a personal injury caused by snow or ice on a sidewalk.”**

Sidewalk Slip and Fall Example

“A Patch of Black Ice”

- Was the City “grossly negligent”?
- City’s Policy for winter maintenance of sidewalks:
  - 30-year-old policy
  - Two priorities: Priority 1(highest) and Priority 2(normal)… Schools are Priority 1
  - Employees given maps and lists of sidewalks with plowing directions
  - Maps do not show Priority routes
  - No criteria to assist employees in determining how often to inspect sidewalks
  - Policy does not require employees to do school routes before start of school

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Sidewalk Slip and Fall Example

“A Patch of Black Ice”

- City’s Policy for winter maintenance of sidewalks (continued):
  - Allows night supervisors to call in crews for earlier-than-normal start times
  - No written criteria for night supervisors to follow (based on experience)
  - Supervisors normally check for snow and freezing rain… not freeze/thaw
- There was no early call-in the morning of the slip and fall
- Sidewalk plow route was 28 km long, and had 11 school properties… City’s employee does not follow plowing directions on map… Since all sidewalks lead to a school, every sidewalk was a priority route to him…

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Sidewalk Slip and Fall Example

"A Patch of Black Ice"

- Judge ruled that City was **grossly negligent** in maintaining its sidewalks
- City was held 75% liable for Plaintiff's damages
- Reasons for decision:
  - How can one employee maintain (as high priority) sidewalks that lead to 11 schools within an 8-hour shift?
  - Maps did not identify the Priority 1 and Priority 2 locations
  - City's policy did not provide clear guidance to supervisors or employees regarding sanding operations, inspections and early morning call-in
  - The City employee did not follow the plowing directions on his map

Sidewalk Slip and Fall Example

“A Patch of Black Ice”

- Reasons for decision (continued):
  - The thaw/freeze cycle (which led to hazardous condition) was not given consideration
  - The City did not have documentation to provide evidence to show the last time the sidewalk was sanded
- Lessons Learned/Takeaways:
  - How old is your sidewalk winter maintenance policy?
  - When was the last time it was reviewed or updated?
  - Do you prioritize your sidewalks?
  - Can all high priority sidewalks be properly maintained within an 8-hour shift?

Sidewalk Slip and Fall Example

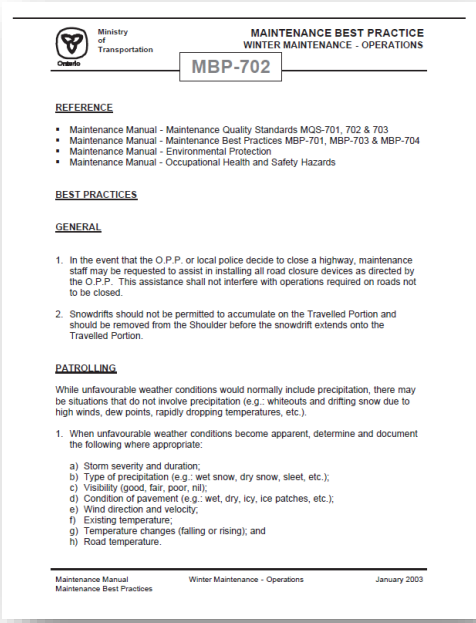
“A Patch of Black Ice”

- Lessons Learned/Takeaways (continued):
  - Do your employees know which sidewalks within their route are high priority?
  - Are the high priority routes clearly marked on a map?
  - Does your policy provide clear direction to supervisors and employees re: inspections, sanding and plowing operations?
  - Do you take into consideration thaw/freeze cycles?
  - Do employees follow your policy?
  - Do employees document their maintenance on a daily basis?
  - Is your form of documentation adequate? Does it allow employees to document spot sanding, plowing and other treatment?

MTO Maintenance Manual (2003)

MBP-702 – Winter Maintenance - Operations

- Considered “best practices” for winter maintenance operations
- Often referenced in claims/litigation as a comparable standard
- Good “baseline” to compare your winter operations



Ministry of Transportation
Ontario

MAINTENANCE BEST PRACTICE
WINTER MAINTENANCE - OPERATIONS

MBP-702

REFERENCE

- Maintenance Manual - Maintenance Quality Standards MQS-701, 702 & 703
- Maintenance Manual - Maintenance Best Practices MBP-701, MBP-703 & MBP-704
- Maintenance Manual - Environmental Protection
- Maintenance Manual - Occupational Health and Safety Hazards

BEST PRACTICES

GENERAL

1. In the event that the O.P.P. or local police decide to close a highway, maintenance staff may be requested to assist in installing all road closure devices as directed by the O.P.P. This assistance shall not interfere with operations required on roads not to be closed.

2. Snowdrifts should not be permitted to accumulate on the Travelled Portion and should be removed from the Shoulder before the snowdrift extends onto the Travelled Portion.

PATROLLING

While unfavourable weather conditions would normally include precipitation, there may be situations that do not involve precipitation (e.g.: whiteouts and drifting snow due to high winds, dew points, rapidly dropping temperatures, etc.).

1. When unfavourable weather conditions become apparent, determine and document the following where appropriate:

   a) Storm severity and duration;
   b) Type of precipitation (e.g.: wet snow, dry snow, sleet, etc.);
   c) Visibility (good, fair, poor, nil);
   d) Condition of pavement (e.g.: wet, dry, icy, ice patches, etc.);
   e) Wind direction and velocity;
   f) Existing temperature;
   g) Temperature changes (falling or rising); and
   h) Road temperature.

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 1: Plowing

When should plowing commence?

a) Immediately once snow starts falling

b) Upon or before the accumulation of 2 cm of snow or slush ←

c) Upon or before the accumulation of 5 cm of snow or slush

d) Before the morning rush hour

SNOW ACCUMULATION - ROADWAYS

Class of Highway	Depth	Time
1	2.5 cm	4 hours
2	5 cm	6 hours
3	8 cm	12 hours
4	8 cm	16 hours
5	10 cm	24 hours

Source: AORS

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 1: Plowing

What are the maximum plowing speeds recommended for plowing through lanes and shoulders, when conditions permit?

Source: w.mvk.dk

a) Travelled Portion with plow and wing – 50 km/h, Shoulder – 30 km/h

b) Travelled Portion with plow and wing – 60 km/h, Shoulder – 40 km/h

c) Travelled Portion with plow and wing – 70 km/h, Shoulder – 40 km/h ←

d) Travelled Portion with plow and wing – 80 km/h, Shoulder – 50 km/h

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 1: Plowing

Why should you reduce the speed during shoulder plowing?

a) To wave good morning to your residents
b) To take into account the condition of the shoulders
c) To take into account the proximity of mailboxes, signs, guide rails, etc.
d) Both (b) and (c) ←

Source: wellington.ca

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 1: Plowing

Why should snow banks on shoulders be lowered?

a) To provide adequate future snow storage capacity
b) To reduce drifting problems
c) To provide adequate sightlines and visibility
d) All of the above ←

Source: digitalcommons.library.umaine.edu

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 1: Plowing

For roads that are maintained in a snow-packed condition, how should you address wash-boarding, rutting, potholes or ice formation?

a) Apply sand to improve traction
b) Apply salt to melt it down to a smooth surface
c) Ice blade ←
d) Do nothing

Source: youtube.com

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 2: Spreading

What is the recommended range of maximum spreading speeds?

a) 20 to 35 km/h
b) 32 to 48 km/h ←
c) 40 to 60 km/h
d) 50 to 70 km/h

Source: mwmo.org

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 2: Spreading

Sand is used as an abrasive to provide traction on slippery surfaces. It is often used when temperatures are too low for salt… As a general rule, sand should be used when the temperature is falling below or not expected to rise above ____ °C

a) – 8°C
b) – 12°C ←
c) – 16°C
d) – 20°C

Merkley v. St. Lawrence College of Applied Arts and Technology, 2025 ONSC 4368 (CanLII)

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 2: Spreading

What is the recommended application rate for sand?

a) 225 kg / 2-lane km
b) 350 kg / 2-lane km
c) 440 kg / 2-lane km
d) 570 kg / 2-lane km ←

Source: midcoastexcavation.com

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 2: Spreading

Which of the following is <u>not</u> a priority area that may require a heavier application rate for sand?

a) Hills
b) Curves
c) Intersections
d) Parking lots ←
e) Bridge decks
f) Shaded areas

Source: stock images

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 2: Spreading

Which of the following is a primary function of road salt?

a) To form a brine mixture
b) To reduce the possibility of snow sticking/packing to the pavement
c) To prevent ice build-up
d) To allow the plow to remove snow easier
e) All of the above ←

Source: landscapeontario.com

MBP-702 – Winter Maintenance Operations

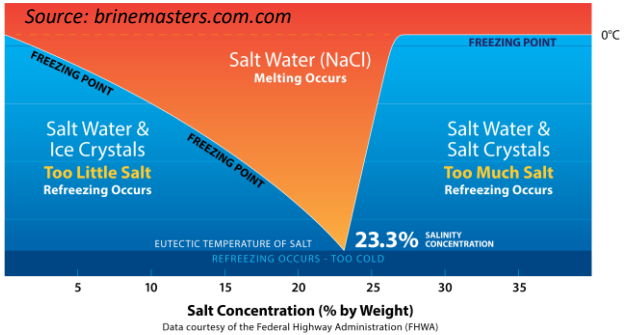
Test your knowledge – Part 2: Spreading

As temperature decreases, the effectiveness of the salt decreases until it becomes ineffective. Normally, salt should not be applied when the temperature is below ____ °C.

Sun and/or heavy traffic volume = higher road surface temperature… Under these conditions, salt can be effective down to ____ °C

a) – 8°C … – 12°C
b) – 12°C … – 18°C ←
c) – 16°C … – 20°C
d) – 20°C … – 24°C

Eutectic Temperature of Salt = -21C



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Test your knowledge – Part 2: Spreading

Salting should commence before ___ cm of snow accumulates on the pavement.

a) 0.5 cm ←
b) 1.0 cm
c) 2.0 cm
d) 5.0 cm

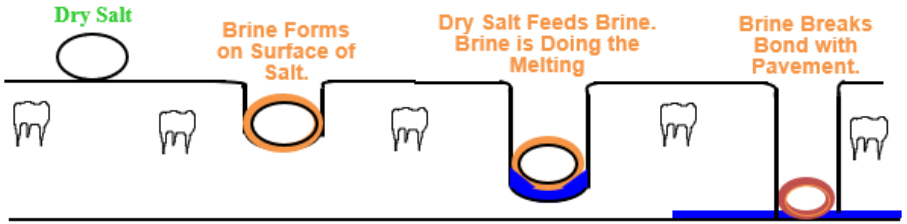
Source: greelysand.com

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 2: Spreading

In general, salt should be applied how long in advance of plowing? (To prevent it from being pushed off the road before it has had a chance to work.)

a) N/A, salt works instantly
b) 30 minutes ←
c) 60 minutes
d) 2 hours



Source: Innovative Solutions

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 2: Spreading

What is the recommended application rate of salt per 2-lane-km?

a) 70 to 110 kg / 2-lane-km
b) 100 to 140 kg / 2-lane-km
c) 130 to 170 kg / 2-lane-km ←
d) 160 to 200 kg / 2-lane-km

ROADWAY DE-ICING LEVEL OF SERVICE TABLE
2015 - 2022

ROAD CLASSIFICATION	TYPICAL	WINTER (1) SERVICE LEVELS	DEICER	APPLICATION RATE KG/LANE-KM	TIME FRAME TO COMPLETE DE-ICER OPERATIONS
Expressways	DVP / FGGE	Bare Pavement	100% Rock Salt		Up to 2.5 cm of snow 1-2 hrs
Arterials (minor / major)	Yonge St. / Sheppard Ave.	Bare Pavement	100% Rock Salt		Up to 5 cm of snow & continuing 2-4 hrs
Collectors	Main Streets through sub-division	Centre Bare Pavement (3)	100% Rock Salt		Up to 8 cm of snow & stopped 4-6 hrs
Locals	Residentials (2)	Safe and Passable Pavement	100% Rock Salt		Up to 8 cm of snow + stopped 8-12 hrs
Laneways		Safe and Passable Pavement	100% Rock Salt		24 hrs from the end of snowfall

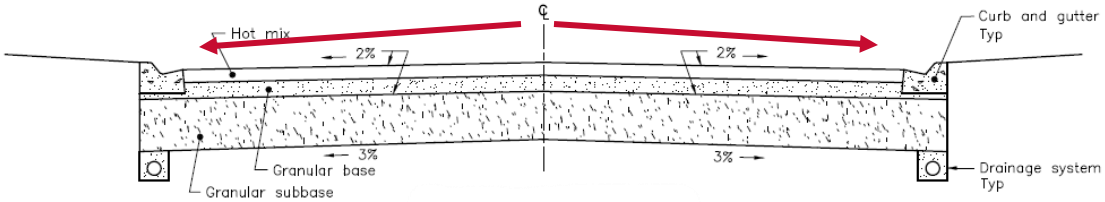
Source: City of Toronto

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 2: Spreading

How should salt be applied?

a) In a narrow strip along the centreline (crown) of the road ←
b) Uniformly across the travelled portion of the lane being driven upon
c) Uniformly across the entire travelled portion of the road
d) In a narrow strip along the outer edge of the road



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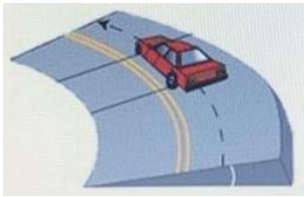
Test your knowledge – Part 2: Spreading

What is an important consideration for applying salt on a super-elevated section (curve)?



Source: Chegg.com

a) Application rate should be doubled to ensure no ice on the curve
b) Vehicle speed should be reduced to ensure enhanced salt application
c) Salt should be kept as high up on the curve as possible ←
d) Salt should also be applied on the shoulders through the curve

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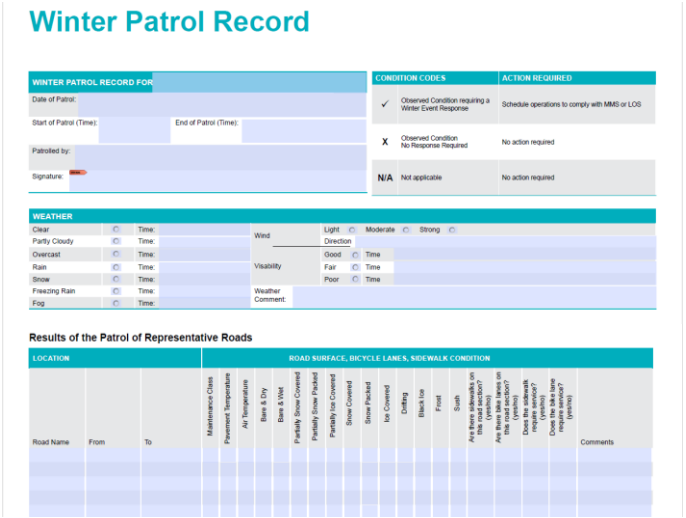
MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 3: Patrolling

When unfavourable weather conditions become apparent, the Patroller should determine and document:

a) Storm severity and duration
b) Type of precipitation (wet snow, dry snow, sleet, etc.)
c) Visibility (good, fair, poor, nil)
d) Condition of pavement (wet, dry, icy, ice patches, etc.)
e) Wind direction and velocity
f) Existing temperature
g) Temperature changes (falling or rising)
h) Road temperature
i) All of the above ←



MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 3: Patrolling

During a winter storm event, the Patroller should monitor weather and road conditions through radio communications with plow and spreader operators.

a) True ←
b) False

Source: rocknetworks.com

MBP-702 – Winter Maintenance Operations

Test your knowledge – Part 3: Patrolling

The Patroller should monitor snow and ice control operations to ensure that:

a) Salt or sand is being applied at the correct rate and time
b) Appropriate speeds are being maintained
c) Material is effective for the conditions
d) All of the above ←

MQS-702 – Winter Maintenance Operations

Test your knowledge – Quality Standard/LOS

Within ____ minutes from the time of the call-out, equipment operators and vehicles shall be ready to begin work.

a) 20 minutes
b) 30 minutes ←
c) 60 minutes
d) 90 minutes

Source: guamtraining.com

MQS-702 – Winter Maintenance Operations

Test your knowledge – Quality Standard/LOS

Once commenced, snow or ice control operations shall continue, utilizing all resources assigned to the route, until the prescribed level of service is achieved.

a) True
b) False ←

Example Prescribed LOS from MTO:

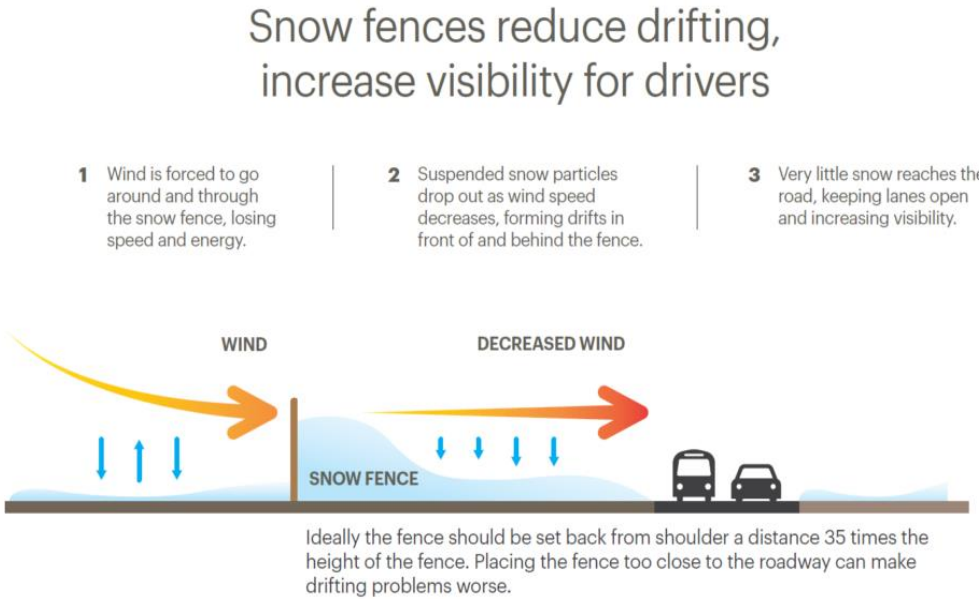
The defined level of service for Class 3 is essentially bare pavement, and is the objective to be reached as soon as reasonably possible after the storm has ended or abated, normally within 24 hours.

Snow Drifts and Blowing Snow

- Common in exposed windy locations
- Snow drifts can lead to hazardous conditions that can be unsafe for road users
- Snow drifts can:
  - Cause loss of vehicle control
  - Obscure signs
  - Block/reduce sightlines
  - Reduce effective road width
  - Cause ice formation

Figure 2.1. The snowdrift on this curve reduced sight distance and prevented evasive maneuvers that might have prevented this fatal crash.

Snow Drifts and Blowing Snow



- Snow begins to move when wind speed reaches **10 km/h** and increases as wind speed increases
- Snow is carried just above ground surface (within 1m) until it reaches an obstruction
- **Whiteouts** occur when turbulence is created and snow moves over/around an obstruction adjacent to a roadway

Snow Drifts and Blowing Snow

What you can do to address snow drifts

- Install temporary snow fence in known “problem areas”
- Permanent natural barriers such hedges / coniferous trees
- Plow drifts back on road shoulders more frequently
- Patrollers should **track** locations prone to snow drifts, record on patrol log
- Identify and document/map locations prone to snow drifts

Thank you for attending!

Contact Information:

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Thank you for your dedication and hard work keeping our roads safe and communities moving!

Wishing you and your teams a safe, efficient and successful 2025/2026 Winter Season!