

Snow & Ice Preparation November 2019

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Snow and Ice: Overview



Highway Division perform snow and ice removal on 15,000+ lane miles

- 6 Districts and 20 sub-Districts
- 150 Depots/ Salt Storage Locations
- Over 700 personnel at the height of a storm

Snow and Ice: New this Year



- Expanded use of GPS on treatment vehicles
- New communications tools for customers and municipal partners
- Sidewalk Snow and Ice Removal Pilots

Technology Updates for this Year

1. All Vendor Material Spreaders (1300) will have GPS units installed, MassDOT will utilize GIS to analyze activities and performance during and post storms to increase effectiveness and efficiency.
2. Enhancing RWIS (Road Weather Information System) Sensors, adding more Fixed and Mobile Grip sensors to better evaluate road conditions.
3. Weather forecast, alerts and warning emails are available from our contractor to any municipality who would like to receive this information. This was done in partnership with the Massachusetts Municipal Association.

Snow and Ice Equipment

- Vendor Equipment (1500 Vendors)
 - This is a 1 year contract so MassDOT can expand use of GPS technology for monitoring and incorporate additional requirements into future contracts.
 - Vendors have submitted required documentation and have had vehicles inspected and calibrated.
- MassDOT Equipment
 - Maintenance garages are performing preseason maintenance and repairs on all Snow and Ice equipment.



Available Equipment Breakdown			
Equipment Type	Total	Hired	State
Combo (Plow and Spreader)	1450	1200	250
Plows	2120	2010	110
Front End Loaders	460	360	100
Misc equipment (Tankers, Snowblowers)	295	260	35
Snow Melters	3	0	3
Totals	4328	3830	498

Snow and Ice Materials

Salt (Sodium Chloride)

- Salt is our major deicer. In terms of both time and budget, salt is widely regarded as the most effective means of deicing highways.
- MassDOT works with OSD to put out a statewide procurement contract for salt (VEH107) that any municipality can use.
- This was a new contract for FY19, all pricing was renewed for FY20 at the same price per ton.
 - 4 vendors for MassDOT areas (Eastern Salt, Morton Salt, Champion Salt and Saltine Warrior)
 - Cost per ton for FY20 is \$50.02.
- MassDOT is currently at 78% capacity with salt with deliveries continuing.

Snow and Ice Materials

Liquid deicers (Magnesium Chloride & Blended Brine)

- Both are used to pretreat roadways to reduce the amount of salt needed for a storm and keeps ice from bonding to the pavement.
- Blended Brine is mixture of salt, water and Magnesium Chloride it is all produced by MassDOT at the depot in Sagamore. This has a longer lasting effect enabling us to pretreat roads well before a storm.

MassDOT Highway Materials Summary			
	Salt (Tons)	MgCL (Gallons)	Blended Brine (Gallons)
Capacity	340,000	900,000	175,000
On hand (11/8/2019)	267,000	570,000	90,000
Forecasted (12/02/2019)	310,000	800,000	125,000

Internal Communications

Snow and Ice Desk

- Activated during major winter weather events
- Coordinates among Highway Districts to report recovery efforts and major roadway incidents every 2 hours

Internal Pages

- Highway Operations Center sends alerts about major roadway events
- Distributed internally then shared globally via Twitter

Public Information Office

- Constant coordination with media partners
- Messaging pre-storm and during to keep the traveling public informed and updated on recovery efforts

Public Communications



Twitter Updates @MassDOT

- Approx. 118,000 followers
- Receive alerts about incidents impacting normal traffic flow and recovery efforts during the storm

MassDOT Website

- Communicate incident information in real-time from Highway Operations Center
- View roadway traffic cameras across the state in real-time

511 System

- Mass511.com website features over 300 real-time traffic cameras
- Interactive Voice Response system that provides travel time and incident information

Variable Message Boards

- Provide real-time traffic information through Go-Time system
- Weather advisories to alert motorists pre/during storm
- Alert travelers to tandem/propane and speed limit restrictions of I-90

Other Snow and Ice Activities

DCR

- Perform Snow and Ice removal on 66% of DCR roadways.

Municipal/Other

- Provide materials (salt) to the National Guard vendors.
- Coordinate through ESF-1 to provide assistance to cities, towns and other entities when requested.

Immediate Actions and Next Steps

Milestone / Deliverable	Completion Date
Complete vendor Sign ups and inspections	Completed
GPS & data download equipment installed/assigned to equipment	12/15/2019
Fill salt storage sheds to greater than 90% capacity	12/2/2019
Provide snow and ice training to MassDOT employees	11/27/2019
Provide snow and ice training to hired vendors	11/23/2019
<i>Hope for the best prepare for the worst</i>	<i>Always</i>

Snow and Ice Control on Sidewalks and Bikeways pilots

- Review and research current methods
 - MassDOT Highway division data
 - DCR ([snow removal public priority viewer](#))
 - State DOTs (Survey through Clear Roads)
 - Cities and Towns ([Sidewalk Snow removal Map](#))

Snow and Ice Control on Sidewalks and Bikeways pilots

- Identify approaches and locations
 - MassDOT Highway Division in-house staff
 - Contracted
 - Hourly
 - Competitive bid (area of responsibility)
 - Partner with municipality
- Use walkability map and known areas of concern to determine locations to pilot.

Sidewalk Pilot Highlights

- Almost 35 total miles of sidewalks
- Locations are based on key routes – especially around high pedestrian volumes and transit locations
- 33 communities
 - District 3 – 13 communities
 - District 4 – 16 communities
 - District 6 – 3 communities
 - Boston – 96 priority locations totaling over 9 miles

Snow and Ice Control on Sidewalks and Bikeways pilots

- Next Steps

- Monitor and document throughout the season.
- Evaluate Snow and Ice Control approaches, effectiveness, costs and obstacles.
- Plan/Design facilities with Maintenance in mind (including the cost to maintain)

[Click here for an example of a sidewalk maintenance impediment](#)

Appendix