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| <b>POLICY NUMBER:</b><br><b>O&amp;M 1</b>  |  | <b>POLICY NAME:</b><br><b>Snow Removal and Ice Control</b>   |  |
| <b>ADOPTION DATE:</b><br><i>October 15, 2001</i>   |  | <b>LAST UPDATED:</b><br><i>November 17, 2021</i>   |  |
| <b>POLICY APPROVED BY:</b><br><i>Commissioner, NHDOT</i>                                 |  | <b>SIGNATURE:</b><br><i>Robert F. Sheehan</i>  |  |
| <b>RESPONSIBLE OFFICE:</b><br><i>Bureau of Highway Maintenance</i>                       |  | <b>CONTACT PERSON:</b><br><i>Administrator, Highway Maintenance</i>  |  |
| <b>REQUIREMENTS:</b><br><i>All Winter Maintenance employees must follow this policy.</i> |  | <b>PROCEDURES AND RESOURCES:</b> <ul style="list-style-type: none"> <li>• <i>RSA 228:21, I(b)</i></li> <li>• <i>RSA 230:81</i></li> <li>• <a href="#"><i>Winter Maintenance Roadway Type Map</i></a></li> <li>• <a href="#"><i>Operational Guidelines for Snow and Ice Control Operations</i></a></li> </ul> |  |

**POLICY STATEMENT**

Pursuant to NH RSA 230:81 the Department of Transportation establishes this winter weather Snow Removal and Ice Control Policy (“Policy”). This Policy supersedes the Winter Maintenance Snow Removal and Ice Control Policy, dated October 15, 2001. The Department’s Operational Guidelines for Snow and Ice Control Operations, as may be amended, is hereby incorporated by reference in its entirety.

The Department intends to provide the “Levels of Service” identified in this Policy provided that the Department has the necessary employees, contractors, equipment and materials, and within the limitations imposed by weather conditions. This Policy is predicated on a typical intensity storm with an accumulation rate of less than 1-inch per hour. The Department’s winter maintenance strategy is not to provide black, wet roads during a winter weather event. The Department’s strategy is to use anti-icing, mechanical means, and de-icing to keep roads passable at reduced speeds during winter weather and to restore roads to clear travel, after the storm, in a timeframe and condition commensurate with the roadway type and function as described below.

**SUMMARY**

Each state road that the Department is responsible to maintain has been designated a winter maintenance “Type” depending on its historic traffic volume, its proximity to critical infrastructure such as hospitals and whether it is a divided highway. This Policy describes a “Level of Service” and a general plowing frequency for each type of road.

Actual precipitation type, intensity, air temperature, pavement temperature, wind direction and speeds as well as traffic volumes and rush hour times typically vary significantly from place to place. Because of this, the responsibility for determining the particular time to begin storm management activities, including plowing and treating, is delegated to local patrol foremen with guidance and direction from their chain of command.

It is important to note that when freezing rain and other weather events occur that cause the road to quickly freeze, it will take time for the Department to provide treatment to the entire roadway system. If the weather strikes unexpectedly, and crews are called in from home to the sheds, they must first travel to the shed, load the trucks and then begin their routes. Once the routes are started, depending on the roadway type, they will typically take between 1 to 3½ hours to complete. Even with the best technology, winter weather can be unpredictable and there is no way for the Department to prevent the possibility of a quick freeze.

This Policy establishes broad guidelines and minimum goals for local supervisory staff to strive for and also informs those expectations to the winter driver based on the type of roadway being traveled on and relative to the stage of the storm event. The Department's Operational Guidelines for Snow and Ice Control Operations are additional guidelines that have been developed to provide employees more detail on tools, materials, equipment, technology and strategies to perform winter maintenance.

#### **AUTHORITY**

The Commissioner of the Department of Transportation per RSA 228:21, I(b) shall establish the manner in which such highways shall be maintained. This Policy is in accordance with RSA 230:81.

#### **BACKGROUND**

*It is virtually impossible to provide bare pavement during a winter storm, and therefore this policy does not require such a condition on any roadway.* Judgment based on past experience, training, and available resources is essential in conducting and timing remedial work to attempt to reduce ice and snow hazards. As each storm situation varies, it is important to emphasize that this Policy is intended to assist foremen in the field in making well informed, judgment decisions in the completion of their snow removal and ice control responsibilities. The Commissioner of Transportation recognizes that a rigid policy is not practicable given the varying conditions that exist in each storm across the 4,000+ centerline miles of State highways. It is unreasonable to assume that a policy can be prepared that could dictate set procedures under all the variants possible. Instead, this Policy provides broad guidelines and allows the local patrol crew and supervisory staff to exercise discretion and react to the specific conditions, type of roadway and current and predicted weather that may exist within their geographic area.

The Department's response to winter weather is limited by the resources available. Factors such as equipment breakdowns, employee absence, as well as employee and contractor vacancies, hiring freezes, material shortages, budgetary restrictions, illness, pandemic, severe winter weather, or unforeseen, uncontrolled or unanticipated events may lead to conditions that impact the Department's snow and ice control operations, including the ability to provide the Levels of Service set forth in this Policy. The traveling public should anticipate snow cover and/or icy conditions on roadways and should monitor the Department's 511 Traveler Information System for updates on difficult or ice/hazardous driving conditions.

### **LEVELS OF SERVICE**

Snow and ice control operations are limited by the resources available for winter maintenance operations (including, but not limited to the budgets/availability for personnel, equipment and materials). Due to these limited resources, the Department has prioritized the level of service for snow removal and ice control according to the roadway types that have been established by NHDOT. These roadway types are available at the link below:

<https://www.nh.gov/dot/org/operations/highwaymaintenance/winter-driving.htm>

For each roadway type, this Policy estimates plowing cycle times based upon average conditions and local geographic and/or geometric factors. Assuming a typical storm depositing 1" of snowfall per hour, those estimated plowing cycle times indicate accumulations and corresponding maximum accumulation goals. When storm intensity exceeds 1" per hour, the accumulations noted by roadway type would increase by varying proportions. Due to the limited resources available, this will require local supervisory staff to exercise their discretion to adjust their maintenance operations and possibly redirect resources to roadways that carry a higher volume of traffic to assure those roadways remain passable. In addition, even during a typical winter storm event, there may be further reduced levels of service between the hours of 9:00 P.M. and 4:00 A.M, depending upon specific storm conditions, availability of resources, traffic volume and roadway type.

Other factors that the NHDOT has little or no control over may affect the Department's ability to provide the level of service that is described in this Policy. In the event that factors such as storm intensity, inability to provide sufficient staffing (i.e. illness, vacancies, etc.), equipment breakdown/unavailability or winter material shortages do not allow the Department to meet the Levels of Service set forth in this Policy, the districts and maintenance crews should prioritize winter weather maintenance based on the conditions and circumstances specific to their geographic area and the general goals set forth in this Policy. Further, the Department may, at its discretion, reallocate resources and personnel among districts to address resource shortages and varying storm conditions throughout the state.

The designated roadway types (1-A, 1-B, 2, 3, 4 & 5) have been determined primarily by the average daily traffic (ADT) volumes maintained by the NHDOT but may have been modified to include consideration of posted speed limits, highway grade, truck volume, accessibility to hospitals and emergency services, special events, second and/or third shifts at major industrial complexes and major commercial traffic generators. There is also consideration given to establish continuity between individual maintenance patrol sections and highway maintenance districts.

All recommended travel speeds noted for each roadway type are *advisory only*. This Policy is intended to be supportive of “reasonable and prudent” driving and provides the motorist with reasonable, generalized expectations of the roadway conditions, by type of roadway. The varying levels of service on the different types of roadways reflect the NHDOT’s effort to provide reasonable service levels to the motorist while considering the environmental and budgetary effects of providing service levels exceeding what is reasonable.

The NHDOT strives to limit, to the extent practical, environmental impact from our winter maintenance operations. Chloride, one of the main components of many anti-icing chemicals, salt being one of those chemicals, is a known contaminant currently found within a number of watersheds within the State of New Hampshire. Through continual training, use of brine pretreatment at select locations and monitoring, the NHDOT will endeavor to provide an appropriate level of mobility as described below while limiting its impacts to the environment.

**Type 1-A Roadways (Interstate and Turnpike Roadways)**

Type 1-A roads consist of I-89, I-93, I-95, I-293, I-393, Everett Turnpike, Spaulding Turnpike and Route 101 from Everett Turnpike to Route 95.

Snow will be plowed and salt (in addition to other chemicals as conditions require) will normally be applied as needed during the storm in an effort to maintain a brine layer on the pavement surface in an effort to prevent snow and ice from bonding to the road. During the course of the storm, the typical plowing frequency will be approximately 1½ hours with an average accumulation of approximately 1½” resulting. Based on a typical 1” per hour storm event, the maximum accumulation goal will be approximately 3”. The Department may reduce plowing frequency on one or more lanes of multi-lanes facilities when storm conditions and/or resources prevent the Department from achieving the typical plowing frequency on all lanes.

Following the cessation of a winter event, NHDOT will strive to provide bare travel lanes as soon as practicable on these roads however in some locations snow pack may remain on the roadway surface for a longer period of time. In most cases, this will occur within approximately three (3) daylight hours. The suggested maximum travel speed during the storm for the Interstate/Turnpike system is 45 M.P.H.

In the case of rural interstate corridors with a winter ADT less than 15,000 (i.e. I-93 from Franconia Notch to the Vermont state line), between the hours of 9:00 P.M. and 4:00 A.M., plowing frequency may be reduced to every 4 hours depending upon the type of storm and the discretionary allocation of available resources with an increase of maximum allowable accumulation goal to 4".

**Type 1-B Roadways (Primary and Secondary Roadways Carrying a Volume Greater than 5,000 ADT)**

Snow will be plowed and salt (in addition to other chemicals as conditions require) will normally be applied as needed during the storm in an effort to maintain a brine layer on the pavement surface in an effort to prevent snow and ice from bonding to the road. During the course of the storm the typical plowing frequency will be approximately 2 hours with an average accumulation of 2" resulting. Based on a typical 1" per hour storm event, the maximum accumulation goal will be approximately 4 inches.

Following the cessation of a winter event, NHDOT will strive to provide bare travel lanes as soon as practicable. In most cases, this will occur within approximately four (4) daylight hours however in some locations snow pack may remain on the roadway surface for a longer period of time. The suggested maximum travel speed during the storm for Type 1-B roads is a maximum of 40 M.P.H.

In the case of rural Type 1-B roadways with a winter ADT less than 15,000, between the hours of 9:00 P.M. and 4:00 A.M., plowing frequency may be reduced to every 4 hours depending upon the type of storm and the discretionary allocation of available resources maintaining a maximum allowable accumulation goal of 6".

**Type 2 Roadways (Roadways with ADT between 1,000 and 5,000)**

Snow will be plowed and salt and/or winter sand will normally be applied as needed during the storm. During the course of the storm the typical plowing frequency will be approximately 2½ hours with an average accumulation of 2½" resulting. Based on a typical 1" per hour storm event, the maximum accumulation goal will be approximately 5 inches.

Following the cessation of a winter event, NHDOT will strive to provide one-third bare pavement (centered on the middle of the road) as soon as practicable. Once Type 1-A and Type 1-B roads have been addressed, NHDOT will attempt to provide bare travel lanes as soon as practicable on Type 2 roads. In most cases, this will occur within approximately eight (8) daylight hours after the end of the storm event unless packed ice has formed on the roadway. In some cases, de-icing materials (i.e., salt) and equipment may not be used to remove this pack ice and may remain until weather conditions make it practical to remove this buildup with normal plowing methods. The suggested maximum travel speed during the storm for Type 2 roads is 35 M.P.H.

Between the hours of 9:00 P.M. and 4:00 A.M., plowing frequency may be reduced to every 5 hours depending upon the type of storm and the discretionary allocation of available resources maintaining a maximum allowable accumulation goal of 8".

**Type 3 Roadways (Roadways with less than 1,000 ADT)**

Snow will be plowed and salt and/or winter sand will normally be applied as needed during the storm. During the course of the storm the typical plowing frequency will be approximately 3½ hours with an average accumulation of 3½" resulting. Based on a typical 1" per hour storm event, the maximum accumulation goal will be approximately 7 inches.

Following the cessation of a winter event, NHDOT will strive to provide one-third bare pavement (centered around the middle of the road) as soon as practicable. Once Type 1-A, Type 1-B and Type 2 roads have been addressed, NHDOT will attempt to provide bare travel lanes as soon as practicable on Type 3 roads. In most cases, this will occur within approximately twenty-four (24) hours, unless packed ice has formed on the roadway. In those cases, de-icing materials (i.e. salt) and equipment will not be used to remove this material and shall remain until weather conditions make it practical to remove this buildup with normal plowing methods. The suggested maximum travel speed during the storm for Type 3 roads is 30 M.P.H.

Between the hours of 9:00 P.M. and 4:00 A.M., plowing frequency may be reduced to every 7 hours depending upon the type of storm and the discretionary allocation of available resources maintaining a maximum allowable accumulation goal of 10". Strategic use of winter sand may be utilized to help carry low traffic volumes during these extended plow cycles and during periods of packed ice being present.

**Type 4 Roadways \* (Roadways with less than 2,500 ADT)**

These are designated "low salt roadways" for which all municipal officials, including selectmen, police chief, fire chief, chief of ambulance service, and superintendent of schools or school board, have signed and submitted a written request to establish low (minimum) salt sections on existing Type 2 highways shown on the winter maintenance system map and recorded by Highway Inventory System.

Snow will be plowed during the storm to attempt to keep the roads open to traffic. Salt will in most cases be used only at the beginning and/or end of the storm. During the course of the storm the typical plowing frequency will be approximately 2½ hours with an average accumulation of 2½" resulting. Based on a typical 1" per hour storm event, the maximum accumulation goal will be approximately 5 inches. The suggested maximum travel speed during the storm for Type 4 roads is 30 M.P.H.

Between the hours of 9:00 P.M. and 4:00 A.M., plowing frequency may be reduced to every 5 hours depending upon the type of storm and the discretionary allocation of available resources maintaining a maximum allowable accumulation goal of 8". Signs will be erected on these roadway sections delineating the reduced winter maintenance zone. Due to the reduced winter maintenance efforts, continually snow covered roads will be deemed acceptable.

**Type 5 Roadways\* (Roadways with less than 1,000 ADT)**

These are designated "no salt roadways" for which all municipal officials, including all selectmen, police chief, fire chief, chief of ambulance service, and superintendent of schools or school board, have signed and submitted a written request to establish no salt sections on existing Type 3 highways (red routes) on the winter maintenance system map and recorded by the Highway Inventory System.

Snow will be plowed and winter sand will be used as needed during the storm to attempt to keep the roads open to traffic. During the course of the storm the typical plowing frequency will be approximately 3 ½ hours with an average accumulation of 3 ½" resulting. Based on a typical 1" per hour storm event, the maximum accumulation goal will be approximately 7 inches. The suggested maximum travel speed during the storm for Type 5 roads is 25 M.P.H.

Between the hours of 9:00 P.M. and 4:00 A.M, plowing frequency may be reduced to every 7 hours depending upon the type of storm and the discretionary allocation of available resources maintaining a maximum allowable accumulation goal of 10". Signs will be erected on these roadway sections delineating the reduced winter maintenance zone. Due to the reduced winter maintenance efforts, continually snow covered roads will be deemed acceptable.

\* Low Salt/ No Salt Roadways

**Summary of Roadway Types, Plowing Frequency, and Accumulations:**

| Roadway Type | Average Plowing Frequency target | Average Accumulation target | Maximum Accumulation target |
|--------------|----------------------------------|-----------------------------|-----------------------------|
| 1-A          | 1 ½ hours                        | 1½"                         | 3"                          |
| 1-B          | 2 hours                          | 2"                          | 4"                          |
| 2            | 2 ½ hours                        | 2 ½"                        | 5"                          |
| 3            | 3 ½ hours                        | 3 ½"                        | 7"                          |
| 4            | 2 ½ hours                        | 2 ½"                        | 5"                          |
| 5            | 3 ½ hours                        | 3 ½"                        | 7"                          |

**AMENDMENT RECORD**

This policy is reviewed every two years to ensure its continuing relevance and accuracy. Record any amendments below.

| Date       | Comments                             | Name             | Title        |
|------------|--------------------------------------|------------------|--------------|
| 11/17/2021 | Revised and adopted into SOS format. | Victoria Sheehan | Commissioner |
| 10/15/2001 | Policy Adopted.                      | Carol A. Murray  | Commissioner |