



Improve Department Efficiency

Snow and Ice: Average Time to Achieve Bare Lanes (Major Routes)

Purpose:

New Hampshire's winter roadway condition has a direct impact on the safety of the motorist and on the economy of the State. Motorists expect a high level of mobility and businesses depend on "just in time" delivery regardless of the weather. The measure chosen by the NHDOT to indicate the performance of winter operations is the number of hours required to restore major roadways to a "black pavement" condition-one in which travel speeds are at or near posted speed limits and the frequency of the crashes has returned to pre-storm likelihood.

Though some states provide a specific timetable for achieving bare pavement in their snow and ice policies, NHDOT Snow and Ice Policy states that bare pavement shall be provided "as soon as practical" without designating a specific timeframe for various roadway types. Tracking time to bare pavement will provide the Department with a record of the effectiveness of winter operations on the NH's major routes.

Data:

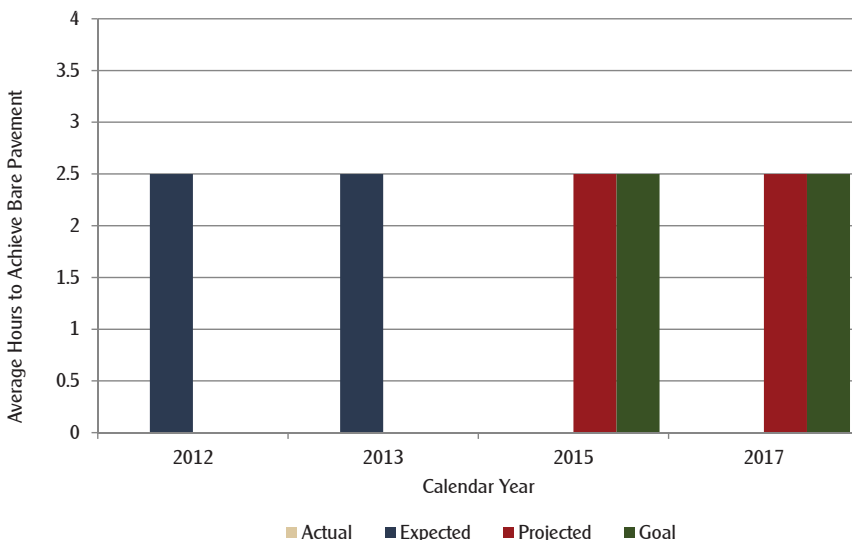
Most of NH's 4,559 mile state highway system is winter maintained by the NHDOT. Due to the high volume (40% of total) and type (high % of commercial freight) of traffic carried, approximately 1600 miles of major routes were chosen for tracking of winter maintenance operations: I-89, I-93, I-95, I-293, I-393, Everett Turnpike, Spaulding Turnpike and Route 101 from Manchester to New Hampton.

Improvement Status

This was a new measure determining the time needed to achieve bare pavement after the end of a storm. Staff at the NHDOT Traffic Management Center were to monitor and gather data for this measure by viewing remote cameras at Road Weather Information Systems (RWIS) station.

During staff training, it was found that the determination of black road condition was quite subjective and the continuous monitoring of RWIS cameras was labor intensive. By changing the determination of black pavement to a measure of friction index, an automated measurement detected by the RWIS stations, subjectivity is eliminated and the need for constant observation is eliminated. The exact method of reviewing the data and calculating the number of hours is under review and a process will be developed to achieve this goal.

Time to Achieve Bare Pavement



The measure will track the number of daylight hours from the end of the storm to when there is bare pavement on the travel lanes of the selected highways. Daylight hours are a typical measure used by governmental agencies due to the difficulties and expense associated with achieving and evaluating bare roads during nighttime hours.

The Department intends to monitor the road condition remotely using their Road and Weather Information Station (RWIS). By tracking the type and rate of precipitation, these stations can determine when a storm has ended. These stations also report surface status and a calculated Friction Index. The Friction Index is a value between 0 and 1 representing the deceleration capabilities of vehicles while taking into account current surface conditions. Larger values indicate a higher level of friction where a smaller value represents a lower level of friction. The Department is in the process of developing a systematic calculated approach to determining the number of daylight hours to achieve bare pavement after a storm ends.

At this time, RWIS are installed at the following locations on these major routes (the locations with Friction Index sensors are marked with an *):

Littleton I-93 SB
Springfield I-89 NB*
Woodstock I-93 NB*
Ashland I-93 SB
Sanbornton I-93 SB
Canterbury I-93 NB*
Derry I-93 SB*
Salem I-93 NB

Over time, additional RWIS Friction Sensors will be added to the major routes to improve the capacity to measure this performance goal.