

Guidelines for Spring Road Use Restrictions

Workshop Manual Provides Criteria for Posting Roads

Introduction

A major problem for New Hampshire municipalities is pavement damaged during the thawing periods. Damage usually occurs during late winter and early spring. It also occurs during warm weather periods in the mid-winter months. To prevent potholes and cracks from forming, two possibilities exist:

1. Apply truck load restrictions during the thawing (or critical) period; and
2. Change the pavement structure to prevent or reduce damage.

Due to budget constraints, many municipalities have only the first alternative. In response to an RSA that limited municipal use of load restrictions, the UNH T² Center held a set of workshops in February 1996. It published *Guidelines for Spring Road Use Restrictions* as a handout in the workshops and to distribute through *Road Business*.

Guidelines for Spring Road Use Restrictions provides an objective, systematic approach to setting load limits. It helps officials determine:

1. Where to apply load restrictions,
2. The amount of the load restrictions to apply, and
3. When to apply and when to remove load restrictions.

Guidelines is available free from the UNH T² Center. The book is summarized below for information and to emphasize that users should collect temperature data throughout the winter.

Where to Apply Load Restrictions

If the surface thickness of a New Hampshire pavement is about two inches or less, road managers should consider load restrictions. Pavements on fine-grained subgrades, such as silts and clays, are candidates for load restrictions. Many older roads have silt or clay subgrades.

Local experience is significant in determining the need for load restrictions. Roads with poor drainage

from side ditches, standing ground water, and high winter precipitation will likely need restrictions. Pavement distress, such as fatigue (alligator) cracking and rutting, also indicates the need for load restrictions.

Load Restriction Amount

Researchers have concluded that, if a municipality restricts road loading, it should require a minimum load reduction of 20 percent. Load reductions greater than 60 percent appear to be excessive for paved roads. General national practice for paved roads is to use load reductions ranging from 40 to 50 percent.

Analysts have had insufficient data to draw conclusions about unpaved roads. Because many unpaved roads (especially very old roads) were not designed for modern truck loads, greater reductions than recommended for paved roads might be warranted in some situations. Local experience becomes especially important in the application of the guidelines to unpaved roads.

When to Apply and When to Remove Load Restrictions

The guidelines use high and low daily temperatures to determine when to apply and remove load restrictions. Temperatures are easy to obtain from local weather stations or newspapers. Some businesses, such as fuel oil companies, have site specific high-low recording thermometers. From the high and low temperatures, one determines Freezing Degree Days and Melting Degree Days. *Guidelines* explains these concepts and provides a worksheet for simple calculation of Degree Days.

To request a copy of *Guidelines for Spring Road Use Restrictions*, check it on page 9 and mail the form. The page 10 "Videos Available" list includes several related videos. Requests can also be made by phone to 862-2826 or 800-423-0060 (in NH), or by email to lchaffee@christa.unh.edu.