Spring Load Restrictions

A road is at its weakest during the spring thaw. Water that is collected over the winter, as frost and ice in the pavement structure, melts and saturates the road's base, thus weakening it. This water is trapped in the road structure by the remaining frost beneath. The road will stay weakened until the underlying frost melts and the water is allowed to drain. Spring Load Restrictions (SLR) are used to help protect roads in this weakened state by reducing the allowable weight of trucks traveling on them.

SLR are most typically placed on county, township, and municipal roads. The pavement structures of most Minnesota State Highways have been designed to not require a SLR and so, only about 6% of Minnesota State Highways have a SLR. No SLR are placed on Interstate Highways.

In Minnesota, local road authorities usually follow the state recommendations on load restriction start and end dates. These recommendations are developed by Mn/DOT's Office of Materials and Road Research and are available on the internet at http://www.mrr.dot.state.mn.us/research/seasonal_load_limits/sllindex.asp, or from a recording at **(651) 366-5400** or toll free at **1-800-723-6543**, or automatically by subscribing to receive e-mail updates at http://www.mrr.dot.state.mn.us/research/seasonal_load_limits/email.asp.

To account for local climates, SLR start and end dates are announced in reference to six frost zones that divide the state. The start date for each frost zone is determined using a cumulative thawing index (CTI). The CTI is calculated from measured and predicted air temperatures from several weather stations. Research has indicated that when the CTI accumulates 25 F degree-days that a critical amount of thawing has occurred and SLR should be in-place. Mn/DOT announces the start of SLR for a frost zone when the 3-day weather forecast indicates that the CTI will exceed 25 F degree-days and continued thawing is expected.

The end date of the SLR period for each frost zone is determined using measured frost depths, forecast daily air temperatures, and other key indicators. The speed with which the soil thaws is dependent upon a number of variables including maximum frost depth, soil moisture content, and spring weather patterns. Therefore, the duration of the SLR will vary from year to year. However, it is Mn/DOT policy that SLR will last no more than 8 weeks unless extraordinary conditions exist that require additional time or route specific signage.

Questions

Any questions should be directed to the Office of Materials & Road Research, at (651) 366-5592 or MaterialsLab.DOT@state.mn.us .