



**MINNESOTA DEPARTMENT OF TRANSPORTATION**  
**State Aid Division**  
**Technical Memorandum No. 11-SA-01**  
**January 11, 2011**

**To:** County Engineers (Distribution 618)  
City Engineers (Distribution 650)  
MnDOT District State Aid Engineers  
MnDOT District Mate **11-SA-01**

**From:** Rick Kjonaas, P.E.  
Deputy State Aid Engineer

**Subject:** Interim Pavement Design Strength Requirements

### **Implementation**

The requirements and guidelines contained in this Technical Memorandum are effective March 1, 2011 for all local federal-aid and state-aid funded projects.

### **Introduction**

Statutes 169.80 thru 169.891 allow 20,000 pound (10 ton) gross weight on any single axle on paved streets or highways unless posted to lesser weight limits. Currently there are proposed rules language revisions to the pavement strength minimum standards to change current minimum 9-ton design strengths to 10-ton staged design strength. The definition of 10-ton staged design strength is proposed to be added to the standard as "10-ton staged structural designs must be able to carry 10-ton traffic except during Spring Load Restrictions, or year-round if needed for system continuity." In addition, language is proposed to require adequate roadway width necessary to accommodate a pavement overlay necessary to ultimately achieve 10-ton structural strength during Spring Load Restrictions.

### **Purpose**

The law allowing 10-ton axles is currently in effect. The rules revision process timeline will extend beyond the 2011 letting period, therefore this Technical Memorandum requires local federal and state aid plans submitted for approval to be in accordance with the above minimum pavement design strength requirements beginning March 1<sup>st</sup>, 2011.

## **Guidelines**

For R-value designs, use either the “Bituminous Pavement Design Chart (Aggregate Base)” also known as Mn/DOT R-Value Chart at:

<http://www.dot.state.mn.us/materials/pvmtdesign/docs/RValueChart.pdf>

Or the Mn/DOT Flexible Pavement software (electronic version of the R-value chart) at:

<http://www.dot.state.mn.us/materials/pvmtdesign/software.html>

If you have a question(s) about either MnPAVE or the R-value and ESAL method, please contact your respective Mn/DOT District Materials Engineer for assistance. In addition, the Mn/DOT Pavement Design Engineer, Tim Andersen, at 651-366-5455 is available to discuss the pavement design.

When submitting Federal Aid or State Aid plans please include a copy of both the input parameters and the output solution:

### **State Aid – Ultimate 10 Ton Staged Flexible Pavement Design – 1/10/2011**

The agency initially builds a pavement structure that has 9 ton axle load carrying capacity year round. The agencies intent is to add to the pavement structure sometime in the future to ultimately provide a year round 10 Ton axle capacity pavement structure.

During the initial roadway construction or reconstruction, the agency builds the roadway geometric section needed to ultimately accommodate a 10 ton pavement section. The “Ultimate 10 Ton Staged Flexible Pavement Design” chart is to be used for this type of design.

Any roadway constructed under “Ultimate 10-Ton Staged Flexible Pavement Design” may be load posted accordingly.

### **Questions:**

For information on the technical contents of this memorandum, please contact either Paul Stine, State Aid Operations Engineer at (651) 366-3830 or Joe Thomas, State Aid Project Engineer at (651) 366-3831.

A link to all active and historical State Aid for Local Transportation Technical Memoranda can be found at: [http://www.dot.state.mn.us/stateaid/sa\\_tech\\_memos.html](http://www.dot.state.mn.us/stateaid/sa_tech_memos.html)

To request this document in an alternative format, call Bruce Lattu at 651-366-4718 or 1-800-657-3774 (Greater Minnesota); 711 or 1-800-627-3529 (Minnesota Relay). You may also send an e-mail to [bruce.lattu@state.mn.us](mailto:bruce.lattu@state.mn.us) (please request at least one week in advance).