




MINNESOTA DEPARTMENT OF TRANSPORTATION
State Aid Division
Technical Memorandum No. 12-SA-03
October 09, 2012

To: County Engineers
City Engineers
MnDOT District State Aid Engineers
MnDOT District Materials Engineers
FHWA

From: 
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State Aid Engineer

Subject: **State Aid for Local Transportation (SALT)**
Use of ACPA StreetPave Software for Design of Concrete Pavements for Cities and Counties

Expiration

This Technical Memorandum will remain in effect until October 09, 2017, unless superseded prior to this date, or the information provided in this Technical Memorandum is incorporated into the State Aid Manual.

Implementation

This Technical Memorandum, which allows the use of the American Concrete Pavement Association's (ACPA) StreetPave software for jointed concrete pavement design as an alternative to the MnDOT RigidPave software, is effective immediately. In deciding which software program to use, several factors, including those mentioned in this Technical Memorandum, shall be considered by the Engineer. City, county and consultant engineers working on State Aid and Federal-aid concrete pavement projects are allowed to use the ACPA StreetPave software program as an alternative to the MnDOT RigidPave software program. However, concrete pavement projects within Trunk Highway right-of-way must continue to implement the MnDOT RigidPave design software.

StreetPave Equivalent Bituminous Design and the Life Cycle Cost Module are not approved by SALT.

Introduction

In an effort to stay abreast of new technology and design methods, State Aid for Local Transportation (SALT) has recently completed a comparison of the ACPA StreetPave concrete pavement design software and the MnDOT RigidPave concrete pavement design software (previously the only concrete pavement design software approved for State Aid and Federal-aid projects).

Based on the recommendations found in the report titled "[Use of StreetPave for Design of Concrete Pavement for Cities and Counties in Minnesota](#)", SALT will allow the ACPA StreetPave software to be used as an alternative design mechanism for concrete pavement.

Purpose

There are three main purposes of this Technical Memorandum. First, to describe which projects are approved to use the ACPA StreetPave concrete pavement design software. Second, to describe how to obtain a copy of software program, and third, to offer some recommendations on how to begin using the ACPA StreetPave software as mentioned in the "[Use of StreetPave for Design of Concrete Pavement for Cities and Counties in Minnesota](#)".

Guidelines

Applicable Project Types

The ACPA StreetPave concrete design software may be used on state aid funded projects and federal-aid funded projects (**this software is not approved for use on projects within the Trunk Highway right-of-way**).

Please note it is not required to use the ACPA software in place of the MnDOT RigidPave software. The Engineer has the option to use whichever software package they prefer. It may be desirable to use both software programs on a few projects and compare the results to gain an understanding of the program differences. You may also contact your District Materials Engineer or MnDOT Pavement Design Engineer with any questions regarding pavement design.

Using the StreetPave Equivalent Bituminous Design function of the software, or using the Life Cycle Cost Module is not approved by SALT. The use of these two functions was not part of the study, and therefore State Aid for Local Transportation does not support their use on State Aid or Federal-aid projects.

How to Obtain a Copy of the ACPA Software Program

The ACPA StreetPave software can be obtained from the Concrete Paving Association of Minnesota website (www.concreteisbetter.com). The "[Use of StreetPave for Design of Concrete Pavement for Cities and Counties in Minnesota](#)" report was based on StreetPave 1.3, which is recommended for design. However, use of the newer version of StreetPave (StreetPave 12, i.e. 2012) is also acceptable. If you decide to use StreetPave 12, please be aware that some of the program options and features have changed.

ACPA StreetPave Software Recommendations

The following are some general guidelines for using StreetPave that should be considered while designing concrete pavements:

- Most importantly, use the "HELP" menus in the software for guidance and to select the majority of the input values. The "HELP" menus offer detailed explanations of input choices and values, although the terminology may be different.
- The following are recommended user input values:
 - Cracked Slabs: 15% for arterial/collector roads, 25% for residential roads.
 - Terminal Serviceability: 2.25.
 - Reliability: 75-85% for all road types, or at the discretion of the designer.

- Design Life: Selected by the individual agency
- Traffic Category: Choose the category being designed for, and then enter average daily truck traffic or average daily traffic including percentage of trucks. The method to enter traffic and vehicle classification counts in the StreetPave is being worked on and will be updated. Currently, the StreetPave uses a load spectrum platform to compute concrete pavement thicknesses which is different from Rigid Pave design software.
- Design Lane Distribution: Use StreetPave built-in values based on the number of lanes at the facility.
- Subgrade Support: Use the recommended and composite k-values from the StreetPave "HELP" file. To convert R-value to a k-value, a general range of R-values from 12 to 70 is common for soils in Minnesota; this range corresponds to a k-value range of about 75 to 220 using StreetPave's recommendations. You may also use [this chart](#) to compute the design k-value.
- Concrete Modulus of Rupture: 665 psi.
- Concrete Modulus of Elasticity: Use default value from StreetPave.

Questions

For information on the technical contents of this memorandum, please contact Malaki Ruranika, Assistant Project Development Engineer at **(651) 366-3825** or Joe MacPherson, State Aid Construction Engineer at **(651) 366-3832**.

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

To request this document in an alternative format, call Janet Miller at 651-366-4720 or 1-800-657-3774 (Greater Minnesota); 711 or 1-800-627-3529 (Minnesota Relay). You may also send an e-mail to Janet.Rae.Miller@state.mn.us (please request at least one week in advance).