

MEMO

STATE OF KANSAS



GOVERNOR JEFF COLYER, M.D.
RICHARD CARLSON, SECRETARY
Bureau of Road Design

DATE: July 20, 2018

TO: Dan Scherschligt, P.E., Executive Director, Kansas Asphalt Paving Association

FROM: Ryan Barrett, P.E., Pavement Design Leader

A handwritten signature in blue ink, appearing to read "Ryan Barrett".

RE: National Asphalt Pavement Association Pave Express Software

This memorandum summarizes a meeting that took place on March 5, 2018 to run two Kansas Department of Transportation (KDOT) completed AASHTO '93 pavement designs using the National Asphalt Pavement Association's PAVEXpress pavement design software for comparison purposes. The KDOT is primarily using AASHTO '93 pavement design software for pavement design, however, the KDOT is in the process of performing local calibrations and becoming more familiar with AASHTOWare Pavement ME design software with the goal of implementing the AASHTOWare Pavement ME software within the next several years.

The first pavement design run in PAVEXpress was a 44-foot roadway segment consisting of 2-lane pavement and 10-foot shoulder reconstruction on US-169 in Allen County from the Allen/Neosho County line north to 0.4 miles south of the US-169/US-54 intersection. The US-169 highway segment had a 2018 annual average daily traffic (AADT) volume of 6,150 vehicles and a 2018 annual average daily truck traffic (AADTT) volume of 1,476 vehicles. A comparison of the hot mix asphalt pavement design recommendations for the US-169 project is shown below in Table 1.

Table 1 – US-169 Pavement Design Recommendation Results

US-169 Mainline KDOT Completed AASHTO 1993 Pavement Design	US-169 Mainline PAVEXpress Design
1.5" HMA Surface (SR-9.5A) (PG70-28)	1.5" HMA Surface (SR-9.5A) (PG70-28)
2.5" HMA Base (SR-12.5A) (PG70-28)	2.5" HMA Base (SR-12.5A) (PG70-28)
8.5" HMA Base (SR-19A) (PG64-22)	8.5" HMA Base (SR-19A) (PG64-22)
6.0" AB-1	6.0" AB-1
Separation Geotextile*	Separation Geotextile*
12.0" CTSG	12.0" CTSG

Dan Scherschligt, Director

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The second pavement design run in PAVEXpress was a 30-foot roadway segment consisting of 2-lane pavement and 3-foot shoulder reconstruction on K-27 in Wallace County from 7.7 miles north of the Wallace/Greeley County line north to approximately 2-miles south of the west K-27/US-40 intersection. The K-27 highway segment had a 2015 AADT volume of 1,300 vehicles and a 2015 AADTT volume of 501 vehicles. A comparison of the hot mix asphalt pavement design recommendations for the US-169 project is shown below in Table 2.

Table 2 – K-27 Pavement Design Recommendation Results

K-27 Mainline KDOT Completed AASHTO 1993 Pavement Design	K-27 Mainline PAVEXpress Design
1.5" HMA Surface (SR-9.5A) (PG64-28)	1.5" HMA Surface (SR-9.5A) (PG64-28)
2.5" HMA Base (SR-19A) (PG64-28)	2.5" HMA Base (SR-19A) (PG64-28)
5.0" HMA Base (SR-19A) (PG64-22)	5.5" HMA Base (SR-19A) (PG64-22)
6.0" SUBMOD	6.0" SUBMOD

The purpose of the above pavement design comparisons and summary is not meant to be a proprietary product endorsement, but merely a verification that the PAVEXpress software produces pavement design thicknesses comparable AASHTO '93 calculated design thicknesses. There could be discrepancies between inputs, background equations, rounding, and other factors between proprietary and non-proprietary software, but in general the results between KDOT completed AASHTO '93 calculated designs and PAVEXpress are close for the selected projects.

By email: Nat Velasquez, Pavement Design Engineer, Bureau of Road Design