



PittRigid ME Could Save Millions in Concrete Pavement Costs

PittRigid ME gives highway designers a practical tool to select the optimal design parameters in Pennsylvania for concrete pavement sections. The PittRigid ME tool is based upon the Mechanistic-Empirical Pavement Design Guide (MEPDG) and AASHTOWare Pavement ME Design software. The MEPDG method has been shown to produce more efficient and equally durable pavement designs than the AASHTO 93 method currently used in Pennsylvania. Use of the Pavement ME software is currently recommended by AASHTO and FHWA. PittRigid ME produces similar results to Pavement ME for Pennsylvania conditions.

Case study projects were selected from the Pennsylvania Turnpike Commission, PennDOT and Allegheny County of Pennsylvania to demonstrate the benefit of using the methodology for more efficient pavement designs. These case studies represented a variety of conditions in order to illustrate how the application of the ME Guide through use of PittRigid ME tool could reduce costs. However, other factors are considered when selecting a pavement design method for a wider variety of conditions.

Potential cost reductions were determined by performing an alternative design using the MEPDG/PittRigid ME design method and calculating the resulting cost reductions based on the project quantities. The results of the analysis revealed these potential cost reductions.

Project	Original Design Total Costs/Depth of Pavement	PittRigid ME Design Total Costs/Depth of Pavement	Cost Reduction
Southern Beltway Plain Cement Concrete Pavement RPS 12 inches	\$44,025,986	\$37,422,088 9 inches	\$6,603,898
US-119 Plain Cement Concrete Pavement RPS 12 inches	\$10,640,273	\$9,044,232 8 inches	\$1,596,041
Ivory Avenue Plain Cement Concrete Pavement RPS 10 inches	\$210,375	\$178,819 8 inches	\$31,556
Total			\$8,231,495

This benefit analysis reveals that if the PittRigid ME Designs for the three case studies had been used total pavement construction costs would have been reduced by a total of \$8,231,495. As shown, the benefits were significant for all three case studies representing different project scales but not all pavement design scenarios.