R&T UPDATE
Concrete Pavement Research & Technology

ULTRA-THIN WHITETOPPING DESIGN AID NOW AVAILABLE ON THE INTERNET

Ultra-thin whitetopping (UTW), the overlay of 2 to 4 inches of concrete pavement on existing asphalt pavement, has proven to be a viable and successful pavement rehabilitation strategy for intersections, ramps, and light aircraft aprons. Since 1992, distressed asphalt pavements in 26 states have been rehabilitated with UTW. Many of the early UTW pavements were constructed as test and experimental sections, lacking a design procedure. The American Concrete Pavement Association has now completed a useful tool for designing ultra-thin whitetopping pavements entitled "Ultra-Thin Whitetopping Load-Carrying Capacity Calculator."

The ACPA has developed a website that calculates the total number of trucks that an ultra-thin whitetopping pavement can carry during its service life. The calculations are based on a comprehensive mechanistic analysis and correlation to existing UTW performance data.

Users can benefit from this web-based spreadsheet calculator by determining if ultra-thin whitetopping is an option for their city or county's roadway rehabilitation projects. All that is required are the following input variables:

- Thickness of the UTW pavement
- Joint spacing (size of slabs)
- Average flexural strength of the concrete
- Thickness of the existing asphalt
- K-value of the subgrade/subbase

Once these variables are specified, and the user has chosen metric or English units of measure, the axle-load category – light or medium – is specified. The calculator will then determine the number of trucks that the UTW pavement will be able to service during its lifetime. By projecting the number of trucks predicted to travel the pavement per year, an approximate design life for the UTW can be estimated.

The website calculator can be found at: http://www.pavement.com/UTW/UTWCalc.asp

More information on concrete pavement can found on the ACPA website at:
http://www.pavement.com

AMERICAN CONCRETE PAVEMENT ASSOCIATION
ACPA

Visit the UTW Load-Carrying Capacity Calculator at:
http://www.pavement.com/UTW/UTWCalc.asp

Ultra-Thin Whitetopping

Load-Carrying Capacity Calculator

This website calculates the load-carrying capacity of an ultra-thin whitetopping (UTW) pavement in terms of the total number of trucks that can be carried during its service life. The calculations are based on a comprehensive mechanistic analysis and correlation to UTW performance data. For more information, see ACPA publication IS100P - Ultra-thin Whitetopping.

Unit of Measure		
English		Select unit of measure for inputs and outputs. [click for more info]
Axle-Load Category		
Category A		This is the axle-load category. [click for more info]
Portland Cement Concrete Inputs		
Thickness (inches, mm)	12	This is the thickness of the UTW. [click for more info]
Joint Spacing (feet, meters)	12	This is the amount of space between the slab joints. [click for more info]
Flexural Strength (psi, MPa)	700	This is the average flexural strength of the concrete. [click for more info]
Asphalt Concrete Inputs		
Thickness (inches, mm)	3	This is the thickness of the existing asphalt concrete. [click for more info]
Other Inputs		
k-value (pci, MPa/m)	100	This is the subgrade/subbase k-value. [click for more info]
Calculate Allowable Trucks Per Lane		

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