

## Specifiers Checklist for Flexible Pavement Design

## Alternate/ "Or Equal" Performance Testing Evaluation for Flexible Pavements

Project Name:  
Project Location:  
Project Number:  
Owner:

Engineer of Record:  
Original Specified Product(s):  
Alternate/"or Equal" Product Under Review:  
Company Name/Person Proposing Alternate:

### Original Geogrid Design Parameters

1. Traffic Capacity
2. Subgrade Strength
3. Currently Approved Geogrid
4. Asphalt Thickness
5. Asphalt Thickness Reduction (%)
6. Aggregate Thickness
7. Aggregate Thickness Reduction (%)
8. Increased Traffic Capacity
9. Cost Saving(%)
10. Material Savings(CY)
11. Time Savings(days)

### Alternate/"Or Equal" Design Parameters

1. Traffic Capacity
2. Subgrade Strength
3. Alternate Geosynthetic
4. Asphalt Thickness
5. Asphalt Thickness Reduction (%(APT - Required)
6. Aggregate Thickness
7. Aggregate Thickness Reduction (%(APT Required)
8. Increased Traffic Capacity
9. Cost Saving(%)
10. Material Savings(CY)
11. Time Savings(days)

### Alternate/"Or Equal" Performance Evaluation *(Calibration, Validation, and Verification Required)* Calibration: Accelerated Pavement Testing (APT) in compliance with NCHRP Report 512 and Synthesis 325

YES NO

1. 3rd Party testing conducted in the United States at an NCHRP accredited APT facility (see attached list)?
2. Specific proposed alternate product included in APT testing?
3. Environmentally controlled APT test chamber?
4. Standard highway moving wheel loads?
5. Thin asphalt concrete geogrid pavement section compared to thicker asphalt concrete control section?
6. Thinner aggregate base pavement section compared to thicker aggregate base control section?
7. Pavement testing involved comparisons over soft (CBR <4) and firm (CBR >5) subgrade conditions?
8. Geogrid section trafficked more than 100,000 ESALs with rut depths less 1/2 inch.
9. Test data normalized for variances in AB/AC thicknesses and subgrade strength differences between test sections?
10. Quantifiable percent reduction of asphalt concrete and/or aggregate base assumed in original design?
11. Structural benefits outlined of the geogrid stabilized section?
12. Testing results published and/or independently reviewed?(optional)



**Validation: In-ground performance testing in \_\_\_\_\_ to validate calibrated design in compliance with AASHTO R50.**

YES NO

1. 10 or more in-situ automated cyclic plate load tests conducted, in compliance with AASHTO T221- 90 (2012), on geogrid stabilized aggregate base, where the results confirmed that the structural requirements of the pavement foundation were achieved for the product being recommended.
2. Testing completed under the supervision of a licensed Engineer?
3. Testing completed over a range of subgrade strengths?
4. At a minimum, 2 of the tests must show results for 10,000 cycles and demonstrate near-linear elastic behavior?

**Verification: Independent review and verification of supporting research, data, design assumptions and analyses. Name of independent reviewer: \_\_\_\_\_**

YES NO

1. Independent review of calibration and validation research?
2. Independent review of data normalization, product performance, and range of subgrade conditions?
3. Independent review of design assumptions and variations with AC and AB thickness, subgrade strength, and aggregate quality?
4. Independent review of design methodology and design calculations?
5. Independent verification of product-specific design boundary conditions(Allowable AC thickness, AB thickness and subgrade strength)

**Alternate/"Or Equal" Approval Status**

Approved

1. Alternate product has been properly calibrated, validated and independently reviewed as shown above. ("Yes" to all performance qualifiers)
2. Percent AB and/or AC reduction or increased traffic capacity confirmed to meet the original design.

Rejected

1. Insufficient information provided to evaluate product performance
2. Alternate product has **NOT** been properly calibrated, validated and independently reviewed as shown above. ("No" to one or more of the performance qualifiers)

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## Accelerated Pavement Testing (APT) Facilities outlined in NCHRP Report 512

Report Purpose: Provide guidelines and definitions for better compatibility and interpretation of data.

Facilities: APT facilities sites considered were those locations where full-scale wheel loads are utilized on full-scale pavement structures. These facilities were visited, and tests were conducted at these research facilities to understand operating characteristics, processes of data acquisition and storage, data captured, process for construction and design of test sections, and the materials used.

Sponsoring Agencies: American Association of State Highway and Transportation Officials and Federal Highway Administration.

<b>Facility Name and Location</b>	<b>Facility Designation</b>	<b>Owner Agency</b>
Advanced Transportation Research and Engineering Laboratory (ATREL); Rantoul, IL	ATREL	University of Illinois at Urbana-Champaign
Caltrans Accelerated Pavement Testing (CAL-APT) Heavy-Vehicle-Simulator (HVS) Program; Richmond, CA	CAL-APT	California Department of Transportation
U.S. Army Cold Regions Research and Engineering Laboratory (CRREL), Frost Effects Research Facility; Hanover, NH	CRREL-HVS	Cold Regions Research and Engineering Laboratory
FHWA Pavement Test Facility (PTF); McLean, VA	FHWA-PTF	Federal Highway Administration
Florida-Accelerated Pavement Testing and Research Facility <sup>a</sup> (APTRF); Gainesville, FL	FL-APTRF	Florida Department of Transportation
Indiana DOT/Purdue APT Facility; West Lafayette, IN	INDOT/Purdue	Indiana Department of Transportation
Kansas-Accelerated Pavement Testing (APT); Manhattan, KS	KS-APT	Kansas State University
Louisiana Transportation Research Center (LTRC) Pavement Research Facility (PRF); Port Allen, LA	LTRC-PRF	Louisiana Transportation Research Center
Minnesota Road Research Project (Mn/ROAD); Minneapolis, MN	Mn/ROAD	Minnesota Department of Transportation
National Center for Asphalt Technology (NCAT) Pavement Test Track (PTT); Auburn University, AL	NCAT-PTT	National Center for Asphalt Technology
Ohio-Accelerated Pavement Loading Facility (APLF); Lancaster, OH	OH-APLF	Ohio University/Ohio State University
Penn State (PS) Pavement Durability Facility <sup>b</sup> (PDF); College Park, PA	PS-PDF	Pennsylvania State University
Texas Mobile Load Simulator (TxMLS); Austin, TX	TxMLS	Texas Department of Transportation
U.S. Army Corps of Engineers Waterways Experiment Station (WES) HVS; Vicksburg, MS	WES-HVS	Engineers Research and Development Center
WesTrack <sup>c</sup> ; Reno, NV	WesTrack	Nevada Automotive Test Center

<sup>a</sup> under construction, <sup>b</sup> inactive facility, <sup>c</sup> not in operation

Reference:

NCHRP Report 512 Accelerated Pavement Testing: Data Guidelines, Transportation Research Board, Washington, DC, 2003 (Table 1, page 5).