Accelerated Pavement Testing and Research Program

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What is Accelerated Pavement Testing?

- Investigation and evaluation of pavement systems subjected to accelerated loading.

- Accelerated loading must be applied in a realistic manner.

- We now have the capability to simulate years of traffic loading in a matter of weeks.
APT Advantages

- Time
- Control of Variables
- Economy
- Flexibility
Objectives of the APT Program

- Focus on the Florida’s most critical issues
- Determine solutions
- Facilitate implementation

Objectives Include:

- Validation of existing methods / materials
- Validation of innovative methods / materials
- Long-range research
- Trouble-shooting type problem solving
APT Assets

Tools available to conduct accelerated pavement testing:

- Dedicated test track
- Dedicated test pits
- Full laboratory capabilities
- Heavy Vehicle Simulator
Test Track Facility
Test Pit Facility
Test Pit
Heavy Vehicle Simulator

- Weight: 50+ tons
- Length: 75 feet
- Height: 13 feet
- Width: 12 feet
Testing and Loading Capabilities

- Wheel loading from 7 to 45 kips
- Maximum wheel speed: 8 mph
- Sinusoidal loading
- Maximum passes/day:
  - 29,000 for bi-directional testing
  - 14,000 for uni-directional testing
Testing and Loading Capabilities

- Test Track Length: 20’
- Wander From 0 – 30”
- Super-Single vs. Dual
- Maximum Rut Depth: 4”
Rut Examples

- Bi-Directional, No Wander
- Uni-Directional, No Wander
Uni-Directional Testing
Bi-Directional Testing
Laser Profiling
Temperature Control
Performance-to-Date

- Put into service 10/25/00
- Over 5 million loaded passes to date.
- Average daily “down” time for scheduled preventative maintenance is roughly 1 hour.
- Very pleased with the reliability.
Performance Comparison

- Rut comparison study
- Identical Super-pave mix - except for the binder
- PG 67-22 vs. PG 76-22
Initial Results

Initial Rut Comparison
67-22 (Unmodified) vs. 76-22 (Modified) Binders

Rut Depth (mm)

Number of Passes (9000 pound load)

- 76-22 Binder (Modified)
- 67-22 Binder (Unmodified)