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**Superpave---Where
have we Been, Where
are we Going**

**It's about time to put emphasis
on HMA not Superpave**

**Some People are about pigged
out on Superpave**



The Mix that we place is HMA

**We Design the Mix using
Superpave Techniques**

**Superpave had to be
Emphasized to Optimize
Accomplishments**

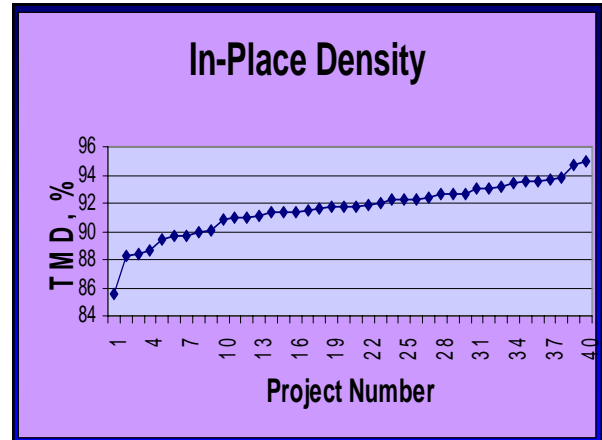
**Rutting was biggest Problem
before Superpave**

- Poor Aggregate Quality
- Low in-place Air Voids
- Very little Info on Grade of AC to use

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Durability is Likely to be Biggest Problem after Superpave

- Low Asphalt Content
- High in-place Air Voids
- Mix Permeability



What have we Learned from Superpave???

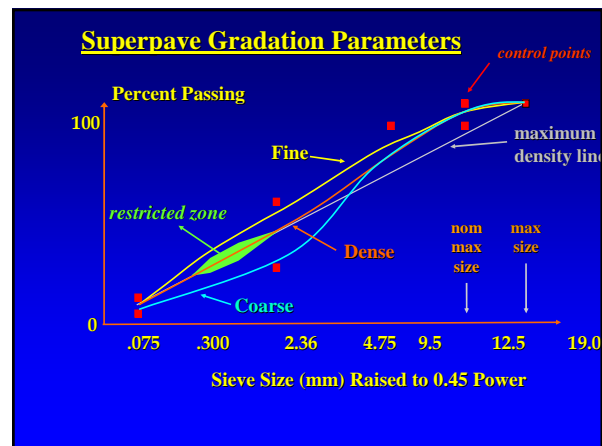


Improvements made as a Result of Work to Develop Superpave

- Less Rutting
- Better Aggregate Properties
- More Modified Asphalts Used
- Better Method to Characterize Properties of Modified Asphalts
- Better AC Classification System
- More Interaction between all Players---User-Producer Groups
- More Repeatable Lab Compaction
- More Emphasis on Performance Testing

Initial Changes to Superpave

- Consolidate Ndesign Table
- Age and Compact at same Temp
- Adjust Grade of AC from that Recommended by SHRP
- Adjust t/NMAS for best compaction
- Adjust Density Specs or Gradation to Minimize Permeability
- Some States has adjusted Number of Gyration



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N_{design} Table

Traffic Level	Compaction Level			
	N _{initial}			
	Gyrations	%G _{mm}	N _{design}	N _{maximum}
< 0.3	6	< 91.5	50	75
0.3 to < 3.0	7	< 90.5	75	115
3.0 to < 30.0	8	< 89.0	100	160
≥ 30.0	9	< 89.0	125	205

- ### Things that we can Expect to see with Superpave
- Less Emphasis on Superpave and more Emphasis on HMA
 - Adjustment of N_{design} Table
 - More Automation and Real-Time Testing
 - Gyrotory Angle Verification Requirement
 - Continued Modification of Binder Tests and Requirements
 - Utilization of Performance Testing
 - More Full Scale Accelerated Loading Tests
 - Continued User-Producer Group Meetings

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Automation and Real Time Testing must be Emphasized



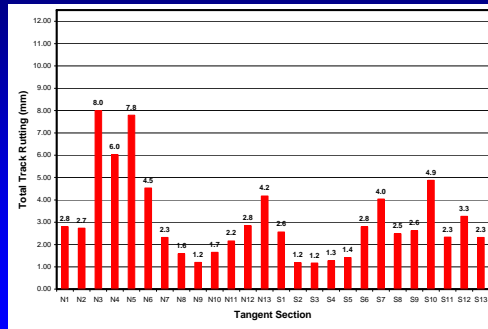
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Test Samples for SPT Tests

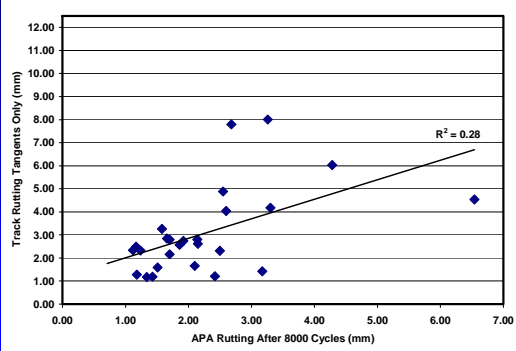


150 mm tall by 100 mm diameter, cored from SGC

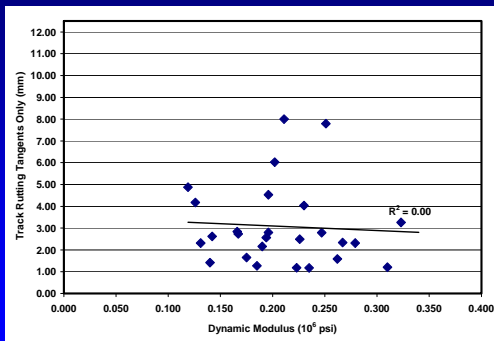
TANGENT RUTTING



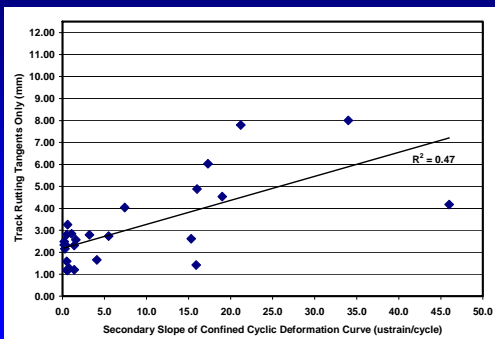
APA RUTTING



DYNAMIC MODULUS



REPEATED LOAD



Is there a better Alternative???



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Full Scale Testing

- Florida
- FHWA
- Louisiana
- MNRoad
- NCAT
- Texas
- Others

Accelerated Loading Tests are Essential for Development and Validation of Performance Tests



**Superpave Communications
ETG is Working to Provide
more Info about Superpave
Related Activities**

**The process of Establishing
Superpave has Resulted in
Improved Pavement
Performance**

**This Improvement should
Continue as we work Together
to Solve new Problems that
Occur**