How we got started
It’s the pavement management data that provides the information to develop the criteria and of equal importance, the means to defend the criteria.
Pavement Condition Data

The Department annually determines the condition of the pavements by surveying the outside lane of their entire system and reporting ride, rut and cracking for HMA pavements.
Pavement Condition

- Annual Pavement Condition survey
  - Worst lane, normally outside lane
  - Rut and ride are automated data collection
  - Cracking, potholes, bleeding, etc., are by observation
Performance Analysis

- Marshall
- Superpave
- Superpave with PWL
- Superpave with PWL and PG 76-22
Known poor performers

- Established a criteria to ensure that the projects which had premature failures would be detected.

Rutting Criteria
Cracking

- Normally no cracks appear in a pavement that is less than five years old
- Field surveys and engineering judgment
FDOT Involvement - JMF verification
Sampling & Testing

Length of warranty
## Long Range Plan

<table>
<thead>
<tr>
<th></th>
<th>Full time Plant Inspector</th>
<th>FDOT sampling and testing</th>
<th>Accepted based on contractor certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Year VAAP HMA (5 yr DB)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>10-15 year warranty (TBD)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
History

- First warranty was SR 60 in 1999
- US 27 in 2000
  - Marshall mix
  - Less RAP
  - Less local sand
  - Both anticipated returning
Contractor Guaranteed Asphalt Pavement (CGAP)

- No job mix verification by the department
- Basically no acceptance testing by the Department
- No pay incentive or disincentives
Where we are now

- Since January of 2004 all structural HMA is covered by a three year warranty
- All PCC is covered by a five year warranty
- Except….
Specification - PCC

- Five year warranty
- Ride
- Cracking
- Spalling (wheel path and BWP)
- Shattered slabs
# PCC Pavements

<table>
<thead>
<tr>
<th>DEFICIENCY TYPE</th>
<th>THRESHOLD LEVEL</th>
<th>REMEDIAL ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rideability</td>
<td>Ride Number &lt; 3.70</td>
<td>Grind all deficient LOT(s) in accordance with Section 352</td>
</tr>
<tr>
<td>Spalling in the wheel path</td>
<td>Four areas in any Lane Mile exceeding 1 inch in width and exceeding 6 inches in length OR any single area exceeding 3 inches in width.</td>
<td>Full depth slab replacement for a minimum of 6 feet in length and the full width of the slab.</td>
</tr>
<tr>
<td>Spalling outside the wheel path</td>
<td>Four areas in any Lane Mile exceeding 1 1/2 inches in width and 12 inches in length OR any single area exceeding 3 inches in width and 12 inches in length.</td>
<td>Full depth slab replacement for a minimum of 6 feet in length and the full width of the slab.</td>
</tr>
</tbody>
</table>
PCC

- Cracking and shattered slabs were also included in the distress tables
- Assignment of “Responsible Party” not allowed
HMA

Use the present specification which uses the contractor's quality control data in the acceptance decision
Specification - HMA

- Three year warranty
- Rut 0.25"
- Ride 3.5 RN
- Cracking 30’ over 1/8” in width (tenth mile lots)
HMA continued

- Surface defects (bleeding, raveling, potholes, etc.)
- Responsible Party
- No Bond is required for the warranty
- Must repair or lose prequalification to bid
Surface deficiencies

- Raveling, Delamination, Pot holes, Slippage: As defined and determined by the Engineer in accordance with the examples displayed at the following URL:
  http://www11.myflorida.com/specificationsoffice/pavement.htm
Blowup of raveled area

Example photograph of raveling that would require remedial action per table 338-1
Length: 10 foot or greater

Minimum width = 1 foot

Example Photo of Bleeding exceeding Table 338-1 (10 foot length, min. 1 foot width)
Controlling factors
(contractor not responsible)

- Pavement design
- Traffic
- Underlying layers
- Third Party
Threshold Levels

The amount and type of distress is dependent on the category of pavement.
Category of roadways

- Mainline with design speed of 45 mph and greater and access roads, frontage roads, etc., are category one.
- Category 2 are < 45 mph and rest areas, parking areas, etc.
- Category 3 includes median crossovers, shoulders, etc.
District Warranty Coordinator

Manage projects for which a warranty was required. Including pavement markings, signalization, lighting, etc., in addition to pavements.
Warranty Procedures

- Outlines the roles and responsibly of the District Coordinators and Project Administrators
  - Contact for projects with warranty features
  - Manage/monitor projects with warranty items
Warranty Procedures

- Flowchart to describe the means of assessing the distress
  - The District Bituminous Engineer is a critical aspect and their involvement in determining the potential contractor liability
Last Survey

- Final Survey will be run 45 days before the end of the warranty period
- All lanes are presently run by the Pavement Evaluation Section
Pavement Management Office has developed a program where the Districts can check on the status based on the annual pavement condition survey results. *Sort by rut depth and number of contiguous sections*
Tracking

SiteManager, the Department’s construction manage system is used to keep track of the features covered by the warranty.

Once construction is complete the PM will enter info into the system.
Districts will perform a final inspection prior to the end of the warranty period.
The District may request the Pavement Evaluation Section to run the automated survey for ride and rut.
District Bituminous Engineer review.
Tracking

Performance concerns can be brought to the Warranty Coordinators attention by anyone, construction, maintenance and the traveling public
DRB

- Statewide Warranty Dispute Board
- Experts selected jointed by Department and Industry
Design/Build

- Five Year HMA VAAP option
  - Five year w/o ride
  - Rutting at 0.30”
  - Settlement
- Higher technical score on the Firm’s proposal
Five Year Analysis

- Performance differed based on speed
- Facilities with posted speeds greater than or equal to 50 mph had less rutting than those with slower speeds
- Average rut depth >= 50 mph was 0.1”
- Average rut depth < 50 mph was 0.15”
How is it working?

- In 1999 and 2000 two pilots projects were let with the CGAP
- SR 60 completed and no remedial work required as a result of the warranty
- US 27 completed with twelve lots out of 304 or 4% required remedial work.
US 27

- One lot with rutting (9 mm or 0.35”)
- Two lots with slippage
- Two lots with raveling
- Seven lots with cracking
  (lot is 0.2 km or 656’)

How is it working?

- SR 16 warranty without any formal request
- I-75 agricultural inspection station
Why is it working?

- Defendable criteria
  - Many Years of pavement condition survey
  - Peers capable of producing and therefore the workmankships and contractor’s means ands methods are responsible of poor performance
- Other factors (skid, prequalification)
Recent Analysis

The five year criteria for rutting should be 0.30” (Previous requirement was 0.35”)
Job Average Performance

Rutting
Projects with PWL

- Implementation of a PWL specification
- “This difference is considered to be extremely statistically significant” using the t test and a 95 % confidence interval
Future

- Develop warranties of equal length (10-15 years) to go along with bidding alternate pavement types.
- Reduce or eliminate acceptance sampling and testing and have a five year warranty.
Thank you