2015 Flexible Pavement Condition Survey
Facts and Figures

FDOT Office
State Materials Office

Report Number
FL/DOT/SMO 15-573

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Date of Publication
September 2015
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- Alexander Mraz

This team's hard work in collecting and processing the data, and organizing this report is greatly appreciated.

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</table>
Executive Summary

The Pavement Condition Unit is one of three functional units of the Pavement Materials System Section, which represents one of four areas of expertise within the State Materials Office (SMO).

Since 1985, this unit has been collecting, processing, and analyzing the information on the condition and performance of the State Roadway System on an annual basis. The information provided by the Pavement Condition Survey (PCS) Program has been critical to the Department’s effort to support informed highway planning, policy, and decision making at the State and local levels. This includes the apportionment and allocation of funding needs to the Districts, as well as the determination of appropriate cost-effective strategies to rehabilitate and preserve existing highway transportation infrastructure.

All roadway sections are rated in terms of varying severity levels and extent of specific distresses, namely, (1) cracking, (2) rutting, and (3) ride quality. The PCS evaluates the pavement lane that has deteriorated most in each roadway direction. The beginning and ending of pavement sections to be rated are determined by construction limits or uniformity of conditions.

Once the survey in a particular county is completed, the Verification Report is forwarded to the appropriate district for review. Any concerns are addressed and resolved prior to the data reporting being finalized. The Central Office's Pavement Management Section is responsible for the data processing and analysis, and for making the data available for use by the Department, consultants, and others. The Central Program Development Office is responsible for reporting the condition of the State Highway System for Pavement Management purposes.

The present report provides essential information on the current condition of the flexible pavement sections of the Florida State Highway System as part of the PCS program. It also includes a summary of the historical condition rating data.

To obtain an electronic copy of this and other reports, and to learn more about our program, please visit the Pavement Materials Division at SMO’s website:

Intranet  http://materials.dot.state.fl.us/
Internet  http://www.dot.state.fl.us/statematerialsoffice/
Section I
Introduction

The Pavement Condition Unit is responsible for the Department’s Pavement Condition Survey. The survey is conducted on the entire State-maintained Highway System, on an annual basis. The survey is conducted by a highly-trained and experienced staff, and requires five area staff specialists about 25 weeks of travel each year to complete. Since 1986, the PCS program has seen close to a 30 percent increase in surveyed lane miles.

The annual PCS is used to accomplish the following main objectives:

- Determine the present condition of the State Roadway System
- Compare the present to past conditions
- Predict deterioration rates
- Predict rehabilitation funding needs
- Provide justification for project rehabilitation
- Provide justification for annual rehabilitation budget
- Provide justification for distribution of the funds to Districts

The PCS is conducted to monitor the following distress criteria, (1) cracking, (2) rutting, and (3) ride quality. For each distress type, the pavement sections are rated on a 0 to 10 scale, where a rating of 10 indicates a section in excellent condition. Currently, any section with a rating of 6 or less is eligible for rehabilitation.

Cracking is a subjective rating conducted visually from a windshield survey, from the roadway shoulder, or from pavement images. Rut and ride are measured using an automated vehicle-mounted profiling system that measures the longitudinal profile of the roadway. The ride quality is quantified in terms of Ride Number (RN), which is the mathematical processing of longitudinal profile measurements to produce an estimate of a user’s perception of ride quality in accordance with ASTM E1489 standard.

In order to ensure maximum accuracy and repeatability of the data collected, the testing equipment is well maintained and routinely calibrated. In addition, over 150 edit checks are used to test both the data accuracy and compliance with other known parameters. Comparisons of annual PCS data with earlier years to review trends and identify potential errors are also performed. When necessary, survey equipment and software is upgraded to improve the efficiency and effectiveness of data collection and processing. These types of improvements now allow in-depth analysis of any segment of the highway system and on-time completion of the PCS while maintaining a high level of accuracy.

For more detailed information about the Pavement Condition Surveys, please refer to the latest edition of the Rigid and Flexible Pavement Condition Survey Handbooks, which can be accessed online at:

http://materials.dot.state.fl.us/smo/pavement/performance/pcs/pavementconditionsurvey.htm

The facts and figures contained in this report are for flexible pavements only, which represent approximately 97% of the entire State Highway System.
Observations

The review and analysis of PCS historical Distress Ratings for flexible pavements have resulted in the following statewide observations:

1. The average Crack Rating has remained stable from 1998 to 2008 with a mean rating of 8.1 and a range of 8.0 to 8.3. Since then the rating has increased significantly and is now 8.7 in 2015. This change is largely due to an increase of the number of miles resurfaced beginning in 2008.

2. The average Rut Rating has gradually improved from 8.8 in 1998 to 9.2 in 2015. The mean rating over this period is 9.0, or about 0.1 inches average rutting for the entire state maintained highway system.

3. The average Ride Rating remained stable from 1998 to 2003 having a mean rating of 8.2. Prior to the 2004 PCS, Ride data was collected at 12 inch sample intervals. Beginning with the 2004 PCS, Ride data was collected at 6 inch sample intervals. This explains the decrease in Ride Rating from 8.1 in 2003 to 7.6 in 2004. The Ride Rating has remained constant for the last 12 years with an average of 7.7.

4. 96% of the pavement sections rated in 2015 for cracking were within one point compared to the 2014 ratings.*

5. 100% of the pavement sections rated in 2015 for rutting were within one point compared to the 2014 ratings.*

6. 100% of the pavement sections rated in 2015 for ride were within one point compared to the 2014 ratings.*

* Note: Sections that had undergone notable changes such as new construction, or total rehabilitation were excluded from the analysis.

General Notes

1. Multi-lane roadways: The worst lane in each direction is rated (normally the outermost traffic lane).
2. Two lane roadways: The worst lane is rated (normally the same lane tested the previous year).
3. Rated sections are determined by construction limits or significant changes in visual condition of the pavement.
4. Crack Rating is subjective and collected visually, as a windshield survey or from the roadway shoulder. It is also rated based on the severity and extent of the distress for area inside and outside the wheel paths.
5. Flexible Pavement Condition Survey Production History (p. 4) is based on total lane miles, including the structures and sections under construction. All other graphs and tables are based on lane miles where given rating index (crack, rut, or ride) was measured.
6. Historical Distress Ratings by District (Section V) and by System (Section VI) are based on Lane Miles for Crack Rating.
Flexible Pavement Condition Survey
Production History
Lane Miles / Rated Sections

Year
Lane Miles
33,000
34,000
35,000
36,000
37,000
38,000
39,000
40,000
41,000
42,000
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

Rated Sections
6,250
6,500
6,750
7,000
7,250
7,500
7,750
8,000
8,250
8,500
8,750
9,000
9,250
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Section II
Crack Rating
By
System and District
Section II
Crack Rating by System and District

Crack Rating Criteria

1. Cracking is estimated as the combined percentage of distressed areas within the wheel paths (CW) and percentage of distressed areas outside of the wheel paths (CO). These percentages are estimated separately for each of the two areas.

2. There are three classes of cracking, the ratings of which are based upon severity level: 1B, II and III.

3. Only predominante class of cracking is used to establish a Crack Rating. However, the combination of individual percentages of all types of cracking is used to calculate the overall percentage of cracked pavement.

4. Crack Rating is rated on a 0 to 10 scale, where a rating of 10 represents a pavement in perfect condition. Currently, a rating of 6 or less makes pavement segments eligible for rehabilitation.

5. The Crack Rating is subtracted from a perfect score of 10.

\[ \text{Crack Rating} = 10 - (CW + CO) \]

Where: CW and CO are numerical factors for cracking within the wheel paths (CW) and outside of the wheel paths (CO). These factors are based on the severity and extent of the type of cracking.
### 2015 Crack Rating by System and District

#### Lane Miles

<table>
<thead>
<tr>
<th>System</th>
<th>District-1</th>
<th>District-2</th>
<th>District-3</th>
<th>District-4</th>
<th>District-5</th>
<th>District-6</th>
<th>District-7</th>
<th>Statewide</th>
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</thead>
<tbody>
<tr>
<td>Primary</td>
<td>4,901</td>
<td>5,938</td>
<td>5,272</td>
<td>4,113</td>
<td>5,150</td>
<td>2,150</td>
<td>2,867</td>
<td>30,392</td>
</tr>
<tr>
<td>Interstate</td>
<td>949</td>
<td>1,628</td>
<td>975</td>
<td>1,123</td>
<td>1,211</td>
<td>61</td>
<td>380</td>
<td>6,326</td>
</tr>
<tr>
<td>Turnpike</td>
<td>119</td>
<td>0</td>
<td>0</td>
<td>763</td>
<td>708</td>
<td>199</td>
<td>114</td>
<td>1,904</td>
</tr>
<tr>
<td>Toll</td>
<td>0</td>
<td>0</td>
<td>33</td>
<td>0</td>
<td>490</td>
<td>155</td>
<td>85</td>
<td>763</td>
</tr>
<tr>
<td>Total</td>
<td>5,969</td>
<td>7,566</td>
<td>6,281</td>
<td>5,999</td>
<td>7,559</td>
<td>2,566</td>
<td>3,445</td>
<td>39,384</td>
</tr>
</tbody>
</table>

#### Crack Rating

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<tr>
<th>System</th>
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<th>District-3</th>
<th>District-4</th>
<th>District-5</th>
<th>District-6</th>
<th>District-7</th>
<th>Statewide</th>
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<td>8.8</td>
<td>8.4</td>
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<td>8.7</td>
<td>8.6</td>
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<td>8.6</td>
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<tr>
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<td>8.5</td>
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<td>8.9</td>
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<tr>
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<td>9.3</td>
<td>9.4</td>
<td>9.2</td>
<td>9.0</td>
<td>10.0</td>
<td>8.5</td>
<td>9.1</td>
<td>9.3</td>
</tr>
<tr>
<td>Toll</td>
<td>9.5</td>
<td>9.1</td>
<td>9.7</td>
<td>8.5</td>
<td>9.1</td>
<td>8.8</td>
<td>8.1</td>
<td>9.1</td>
</tr>
<tr>
<td>Average</td>
<td>8.9</td>
<td>8.6</td>
<td>8.4</td>
<td>9.0</td>
<td>8.7</td>
<td>8.7</td>
<td>8.8</td>
<td>8.7</td>
</tr>
</tbody>
</table>
2015 Crack Distribution by System - Statewide

**Primary**

- 30392 Lane Miles, Mean = 8.6

**Interstate**

- 6326 Lane Miles, Mean = 8.9

**Turnpike**

- 1904 Lane Miles, Mean = 9.3

**Toll**

- 763 Lane Miles, Mean = 9.1

**Statewide**

- 39384 Lane Miles, Mean = 8.7
2015 Crack Distribution by System - District 1

### Primary Interstate

- **4901 Lane Miles, Mean = 8.8**

### Interstate

- **949 Lane Miles, Mean = 9.3**

### Turnpike

- **119 Lane Miles, Mean = 9.3**

### Toll

- **No Toll System**

### Toll

- **0 Lane Miles, Mean = N/A**
2015 Crack Distribution by System - District 2

**Primary**

- Total: 5938 Lane Miles, Mean = 8.4

**Interstate**

- Total: 1628 Lane Miles, Mean = 9.3

**Turnpike**

- Total: 0 Lane Miles, Mean = N/A

**Toll**

- Total: 0 Lane Miles, Mean = N/A
2015 Crack Distribution by System - District 3

**Primary**

- Turnpike: 5272 Lane Miles, Mean = 8.4
- Toll: 975 Lane Miles, Mean = 8.5

**Interstate**

- Turnpike: 975 Lane Miles, Mean = 8.5
- Toll: 33 Lane Miles, Mean = 9.5

No Turnpike System
2015 Crack Distribution by System - District 4

Primary

Interstate

Turnpike

Toll

4113 Lane Miles, Mean = 8.9

1123 Lane Miles, Mean = 9.1

763 Lane Miles, Mean = 9.4

0 Lane Miles, Mean = N/A
2015 Crack Distribution by System - District 5

**Primary Interstate**

- 5150 Lane Miles, Mean = 8.7

**Turnpike**

- 708 Lane Miles, Mean = 9.2

**Interstate**

- 1211 Lane Miles, Mean = 8.1

**Toll**

- 490 Lane Miles, Mean = 9.1
2015 Crack Distribution by System - District 6

**Primary Interstate**
- 2150 Lane Miles, Mean = 8.6

**Interstate**
- 61 Lane Miles, Mean = 10.0

**Turnpike**
- 199 Lane Miles, Mean = 9.0

**Toll**
- 155 Lane Miles, Mean = 9.7
2015 Crack Distribution by System - District 7

**Primary**

- 2867 Lane Miles, Mean = 8.7

**Interstate**

- 380 Lane Miles, Mean = 9.0

**Turnpike**

- 114 Lane Miles, Mean = 10.0

**Toll**

- 85 Lane Miles, Mean = 8.5
Section III
Rut Rating
By
System and District
Section III
Rut Rating by System and District

Rut Rating Criteria

1. A rut is a continuous longitudinal depression deviating from a surface plane defined by transverse cross slope and longitudinal profile. This depression normally occurs in the wheel paths.

2. A rut depth is defined as the difference in elevation between the center of the wheel path and the center of the travel lane.

3. Rut depth is measured simultaneously with the ride values using an inertial profiler.

4. FDOT inertial profilers measure rut depth at a frequency of 30 readings per in. when traveling at 60 mph. The measurements are then stored in 6 in. intervals for the survey.

5. The average rut depth for both wheel paths is recorded and then converted to a rating with a one point deduction for every eighth (1/8) in. rut depth.

6. Rut depth is rated on a 0 to 10 scale, where a 10 represents a pavement with no rutting, while a rating of 6 indicates 1/2 in. of rutting. Currently, pavement sections with rut ratings of 6 or less are eligible for rehabilitation.

Rut depth for each measurement is calculated using the following equation:

\[
\text{Rut Depth} = \frac{(h_1 - h_2) + (h_3 - h_2)}{2}
\]

Where: \(h_1\), \(h_2\), and \(h_3\), are the respective distances between the sensor locations and the roadway surface directly below each sensor (see diagram below).

FDOT inertial profilers have three laser sensors (to measure ride and rut), combined with two accelerometers and a data acquisition computer system that measures and stores a pavement’s longitudinal and transverse profiles while in motion.
2015 Rut Rating by System and District

<table>
<thead>
<tr>
<th>System</th>
<th>District-1</th>
<th>District-2</th>
<th>District-3</th>
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<td>2,150</td>
<td>2,867</td>
<td>30,392</td>
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<tr>
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<td>975</td>
<td>1,123</td>
<td>1,211</td>
<td>61</td>
<td>380</td>
<td>6,326</td>
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<tr>
<td>Turnpike</td>
<td>119</td>
<td>0</td>
<td>0</td>
<td>763</td>
<td>708</td>
<td>199</td>
<td>114</td>
<td>1,904</td>
</tr>
<tr>
<td>Toll</td>
<td>0</td>
<td>0</td>
<td>33</td>
<td>0</td>
<td>490</td>
<td>155</td>
<td>85</td>
<td>763</td>
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<th>District-6</th>
<th>District-7</th>
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<td>9.3</td>
<td>9.3</td>
<td>9.2</td>
<td>9.2</td>
</tr>
</tbody>
</table>

Lane Miles

Rut Rating
2015 Rut Distribution by System - Statewide

**Primary**

- Rut Rating: 0.0%
- Percent of Lane Miles: 0%

**Interstate**

- Rut Rating: 0.0%
- Percent of Lane Miles: 0%

**Turnpike**

- Rut Rating: 0.0%
- Percent of Lane Miles: 0%

**Toll**

- Rut Rating: 0.0%
- Percent of Lane Miles: 0%

**Statewide**

- Rut Rating: 0.0%
- Percent of Lane Miles: 0%

30392 Lane Miles, Mean = 9.1

6326 Lane Miles, Mean = 9.2

1904 Lane Miles, Mean = 9.5

763 Lane Miles, Mean = 9.5

Statewide

39384 Lane Miles, Mean = 9.2

19
2015 Rut Distribution by System - District 1

**Primary Interstate**

- Rut Rating 0: 0.0%
- Rut Rating 1: 0.0%
- Rut Rating 2: 0.0%
- Rut Rating 3: 0.0%
- Rut Rating 4: 0.5%
- Rut Rating 5: 16.4%
- Rut Rating 6: 48.5%
- Rut Rating 7: 31.4%
- Rut Rating 8: 0.0%
- Rut Rating 9: 0.0%
- Rut Rating 10: 0.0%

- 4901 Lane Miles, Mean = 9.1

**Interstate**

- Rut Rating 0: 0.0%
- Rut Rating 1: 0.0%
- Rut Rating 2: 0.0%
- Rut Rating 3: 0.0%
- Rut Rating 4: 0.0%
- Rut Rating 5: 0.0%
- Rut Rating 6: 0.0%
- Rut Rating 7: 0.5%
- Rut Rating 8: 0.4%
- Rut Rating 9: 2.8%
- Rut Rating 10: 16.4%

- 949 Lane Miles, Mean = 9.3

**Turnpike**

- Rut Rating 0: 0.0%
- Rut Rating 1: 0.0%
- Rut Rating 2: 0.0%
- Rut Rating 3: 0.0%
- Rut Rating 4: 0.0%
- Rut Rating 5: 0.0%
- Rut Rating 6: 0.0%
- Rut Rating 7: 0.0%
- Rut Rating 8: 49.8%
- Rut Rating 9: 50.2%

- 119 Lane Miles, Mean = 9.5

**Toll**

- Rut Rating 0: 0.0%
- Rut Rating 1: 0.0%
- Rut Rating 2: 0.0%
- Rut Rating 3: 0.0%
- Rut Rating 4: 0.0%
- Rut Rating 5: 0.0%
- Rut Rating 6: 0.0%
- Rut Rating 7: 0.0%
- Rut Rating 8: 0.0%
- Rut Rating 9: 0.0%
- Rut Rating 10: 0.0%

- 0 Lane Miles, Mean = N/A

---

20
2015 Rut Distribution by System - District 2

**Primary Interstate**

<table>
<thead>
<tr>
<th>Rut Rating</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<th>8</th>
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<th>10</th>
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<tbody>
<tr>
<td>Percent</td>
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<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.9%</td>
<td>20.8%</td>
<td>44.3%</td>
<td>28.7%</td>
</tr>
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</table>

5938 Lane Miles, Mean = 8.9

**Interstate**

<table>
<thead>
<tr>
<th>Rut Rating</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>10</th>
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</thead>
<tbody>
<tr>
<td>Percent</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
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<td>0.0%</td>
<td>0.0%</td>
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1628 Lane Miles, Mean = 9.1

**Turnpike**

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<td>20%</td>
<td>40%</td>
<td>60%</td>
<td>80%</td>
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No Turnpike System

0 Lane Miles, Mean = N/A

**Toll**

<table>
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<tr>
<th>Rut Rating</th>
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<th>2</th>
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<tbody>
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</tr>
</tbody>
</table>

No Toll System

0 Lane Miles, Mean = N/A
2015 Rut Distribution by System - District 3

**Primary**

- Rut Rating: 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.3% 0.7% 7.4% 17.5% 36.5% 37.7% 0.0%
- Percent of Lane Miles: 0% 20% 40% 60% 80% 100%

5272 Lane Miles, Mean = 9.0

**Interstate**

- Rut Rating: 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 2.1% 29.1% 56.7% 12.1% 0.0%
- Percent of Lane Miles: 0% 20% 40% 60% 80% 100%

975 Lane Miles, Mean = 8.8

**Turnpike**

- Rut Rating: 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 87.7% 0.0%
- Percent of Lane Miles: 0% 20% 40% 60% 80% 100%

0 Lane Miles, Mean = N/A

**Toll**

- Rut Rating: 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 6.9% 5.3% 5.0% 87.7% 0.0%
- Percent of Lane Miles: 0% 20% 40% 60% 80% 100%

33 Lane Miles, Mean = 9.7
2015 Rut Distribution by System - District 4

Primary

- Primary Interstate
  - 1123 Lane Miles, Mean = 9.5

Turnpike

- Turnpike
  - 763 Lane Miles, Mean = 9.5

Interstate

- Turnpike Toll
  - 4113 Lane Miles, Mean = 9.4

Toll

- Toll
  - 0 Lane Miles, Mean = N/A
2015 Rut Distribution by System - District 5

Primary

Interstate

Turnpike

Toll

5150 Lane Miles, Mean = 9.2  
1211 Lane Miles, Mean = 9.2  
708 Lane Miles, Mean = 9.4  
490 Lane Miles, Mean = 9.5
2015 Rut Distribution by System - District 6

**Primary**

- 2150 Lane Miles, Mean = 9.2

**Interstate**

- 61 Lane Miles, Mean = 9.4

**Turnpike**

- 199 Lane Miles, Mean = 9.5

**Toll**

- 155 Lane Miles, Mean = 9.7
2015 Rut Distribution by System - District 7

Primary

<table>
<thead>
<tr>
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2867 Lane Miles, Mean = 9.1

Interstate

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380 Lane Miles, Mean = 9.4

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Turnpike

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114 Lane Miles, Mean = 9.8

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Toll

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<th>Percent of Lane Miles</th>
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<tr>
<td>9</td>
<td>3.3%</td>
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<tr>
<td>10</td>
<td>43.4%</td>
</tr>
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</table>

85 Lane Miles, Mean = 9.5
Section IV
Ride Rating
By
System and District
Section IV
Ride Rating by System and District

Ride Rating Criteria

1. A Ride Rating represents the ride quality of a pavement section. It is an indication of the degree of smoothness or roughness of the wearing surface.

2. A Ride Rating is calculated from Ride Number (RN). **Ride Rating = RN * 2**
   RN is a mathematical processing of longitudinal profile measurements to produce an estimate of a driver’s subjective perception of the ride quality of a roadway. The RN is based on an algorithm published in National Cooperative Highway Research Project (NCHRP) 1-23. RN is defined in ASTM Standard E-1489.

3. The ride quality of a roadway is greatly affected by, but not limited to, factors that include the following:
   - Original pavement profile
   - Profiles of intersecting roads
   - Utility patches and manhole covers
   - Surface and structural deterioration and deformation

4. Ride Rating is rated on a 0 to 10 scale, where 10 represents a pavement that is perfectly smooth, while a rating of 6 or less represents a relatively rough pavement.

5. Note that with the start of the 2004 PCS, the profile data was collected using a sampling rate of 6 in. compared to a 12 in. sample interval used in previous years.
2015 Ride Rating by System and District

![Graph showing ride ratings by system and district]

**Lane Miles**

<table>
<thead>
<tr>
<th>System</th>
<th>District-1</th>
<th>District-2</th>
<th>District-3</th>
<th>District-4</th>
<th>District-5</th>
<th>District-6</th>
<th>District-7</th>
<th>Statewide</th>
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<tbody>
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<td>Primary</td>
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<td>5,923</td>
<td>5,256</td>
<td>4,097</td>
<td>5,133</td>
<td>2,134</td>
<td>2,843</td>
<td>30,279</td>
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<td>Interstate</td>
<td>949</td>
<td>1,628</td>
<td>975</td>
<td>1,123</td>
<td>1,211</td>
<td>61</td>
<td>380</td>
<td>6,326</td>
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<td>Turnpike</td>
<td>119</td>
<td>0</td>
<td>0</td>
<td>763</td>
<td>708</td>
<td>199</td>
<td>114</td>
<td>1,904</td>
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<td>0</td>
<td>0</td>
<td>33</td>
<td>0</td>
<td>490</td>
<td>154</td>
<td>85</td>
<td>762</td>
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<td>Total</td>
<td>5,959</td>
<td>7,552</td>
<td>6,264</td>
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<td>7,542</td>
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**Ride Rating**

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<td>7.1</td>
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</table>

29
2015 Ride Distribution by System - Statewide

**Primary Interstate**

- 30279 Lane Miles, Mean = 7.6

**Turnpike**

- 1904 Lane Miles, Mean = 7.9

**Statewide**

- 39270 Lane Miles, Mean = 7.6

**Interstate**

- 6326 Lane Miles, Mean = 7.8

**Toll**

- 762 Lane Miles, Mean = 7.9
2015 Ride Distribution by System - District 1

**Primary**

- Ride Rating: 0-10
- Percent of Lane Miles:
  - Ride Rating 1: 0.0%
  - Ride Rating 2: 0.0%
  - Ride Rating 3: 0.0%
  - Ride Rating 4: 0.0%
  - Ride Rating 5: 4.3%
  - Ride Rating 6: 28.5%
  - Ride Rating 7: 64.6%
  - Ride Rating 8: 0.0%
  - Ride Rating 9: 0.0%
  - Ride Rating 10: 0.0%

- Mean Ride Rating: 7.6

**Interstate**

- Ride Rating: 0-10
- Percent of Lane Miles:
  - Ride Rating 1: 0.0%
  - Ride Rating 2: 0.0%
  - Ride Rating 3: 0.0%
  - Ride Rating 4: 0.0%
  - Ride Rating 5: 0.0%
  - Ride Rating 6: 6.9%
  - Ride Rating 7: 93.1%
  - Ride Rating 8: 0.0%
  - Ride Rating 9: 0.0%
  - Ride Rating 10: 0.0%

- Mean Ride Rating: 7.9

**Turnpike**

- Ride Rating: 0-10
- Percent of Lane Miles:
  - Ride Rating 1: 0.0%
  - Ride Rating 2: 0.0%
  - Ride Rating 3: 0.0%
  - Ride Rating 4: 0.0%
  - Ride Rating 5: 0.0%
  - Ride Rating 6: 0.0%
  - Ride Rating 7: 15.7%
  - Ride Rating 8: 84.3%
  - Ride Rating 9: 0.0%
  - Ride Rating 10: 0.0%

- Mean Ride Rating: 7.8

**Toll**

- Ride Rating: 0-10
- Percent of Lane Miles:
  - Ride Rating 1: 0.0%
  - Ride Rating 2: 0.0%
  - Ride Rating 3: 0.0%
  - Ride Rating 4: 0.0%
  - Ride Rating 5: 0.0%
  - Ride Rating 6: 0.0%
  - Ride Rating 7: 0.0%
  - Ride Rating 8: 0.0%
  - Ride Rating 9: 0.0%
  - Ride Rating 10: 0.0%

- Mean Ride Rating: N/A

4891 Lane Miles, Mean = 7.6

949 Lane Miles, Mean = 7.9

119 Lane Miles, Mean = 7.8

0 Lane Miles, Mean = N/A
2015 Ride Distribution by System - District 2

Primary

Turnpike
0 Lane Miles, Mean = N/A

Interstate

Toll
0 Lane Miles, Mean = N/A

5923 Lane Miles, Mean = 7.7
1628 Lane Miles, Mean = 7.9
2015 Ride Distribution by System - District 3

Primary

5256 Lane Miles, Mean = 7.8

Interstate

975 Lane Miles, Mean = 7.9

Turnpike

0 Lane Miles, Mean = N/A

Toll

33 Lane Miles, Mean = 8.0
2015 Ride Distribution by System - District 4

**Primary**

- **Turnpike**: 4097 Lane Miles, Mean = 7.4
- **Toll**: 1123 Lane Miles, Mean = 7.8

**Interstate**

- **Turnpike**: 763 Lane Miles, Mean = 7.8
- **Toll**: 0 Lane Miles, Mean = N/A

---

No Toll System
2015 Ride Distribution by System - District 5

**Primary Interstate**

- Ride Rating: 0.0% 0.0% 0.1% 0.8% 3.9% 27.6% 1.9% 0.0% 0.0% 0.0%
- Percent of Lane Miles: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
- 5133 Lane Miles, Mean = 7.6

**Interstate**

- Ride Rating: 0.0% 0.0% 0.0% 0.0% 0.1% 6.1% 93.8% 0.0% 0.0% 0.0%
- Percent of Lane Miles: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
- 1211 Lane Miles, Mean = 7.6

**Turnpike**

- Ride Rating: 0.0% 0.0% 0.0% 0.0% 6.3% 0.0% 0.0% 0% 0% 0%
- Percent of Lane Miles: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
- 708 Lane Miles, Mean = 7.9

**Toll**

- Ride Rating: 0.0% 0.0% 0.0% 0.0% 0.0% 8.8% 90.6% 0.6% 0.0% 0.0%
- Percent of Lane Miles: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
- 490 Lane Miles, Mean = 8.0
2015 Ride Distribution by System - District 6

**Primary**

- 2134 Lane Miles, Mean = 6.9

**Interstate**

- 61 Lane Miles, Mean = 7.8

**Turnpike**

- 199 Lane Miles, Mean = 7.8

**Toll**

- 154 Lane Miles, Mean = 7.9
2015 Ride Distribution by System - District 7

Primary

<table>
<thead>
<tr>
<th>Ride Rating</th>
<th>Percent of Lane Miles</th>
</tr>
</thead>
<tbody>
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Turnpike

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<tr>
<td>9</td>
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2843 Lane Miles, Mean = 7.4

Interstate

<table>
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</tr>
<tr>
<td>2</td>
<td>0.0%</td>
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380 Lane Miles, Mean = 7.8

Toll

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<td>10</td>
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</table>

114 Lane Miles, Mean = 8.3

85 Lane Miles, Mean = 7.4
Section V
Historical Distress Ratings
By District
1998 - 2015

38
Note that with the start of the 2004 PCS, the profile data was collected using a sampling rate of 6 in. compared to a 12 in. sample interval used in previous years.
Note that with the start of the 2004 PCS, the profile data was collected using a sampling rate of 6 in. compared to a 12 in. sample interval used in previous years.
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Historical Distress Ratings - District 5
All Systems

Note that with the start of the 2004 PCS, the profile data was collected using a sampling rate of 6 in. compared to a 12 in. sample interval used in previous years.
Historical Distress Ratings - District 6
All Systems

Note that with the start of the 2004 PCS, the profile data was collected using a sampling rate of 6 in. compared to a 12 in. sample interval used in previous years.
Note that with the start of the 2004 PCS, the profile data was collected using a sampling rate of 6 in. compared to a 12 in. sample interval used in previous years.
Section VI
Historical Distress Ratings
By System
1998 - 2015
Note that with the start of the 2004 PCS, the profile data was collected using a sampling rate of 6 in. compared to a 12 in. sample interval used in previous years.
Note that with the start of the 2004 PCS, the profile data was collected using a sampling rate of 6 in. compared to a 12 in. sample interval used in previous years.
Historical Distress Ratings - Interstate System

All Districts

Note that with the start of the 2004 PCS, the profile data was collected using a sampling rate of 6 in. compared to a 12 in. sample interval used in previous years.
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Section VII
Raveling Distribution
By District and System
1998 - 2015
Section VII

Raveling

Raveling Rating Criteria

1. Raveling is the wearing away of the pavement surface caused by the dislodging of aggregate particles and the loss of asphalt binder due to weathering.

2. Raveling for a rated section is combined with the Crack Rating.

3. Raveling and weathering may be caused by:
   - Hardening of the asphalt binder
   - Low adhesion of the asphalt binder
   - Low wear resistant aggregate in the mix or poor asphalt mix (dirty aggregate in the mix)
   - Water sensitive asphalt-aggregate mixture
   - Any combination of the above factors

4. Raveling became a noticeable defect by raters and was required to be listed in their comments as of 1992.

5. Since 1995, Raveling was rated by severity level (light, moderate, and severe) and percent of affected area, where only predominate severity level was recorded.
   - **Light Raveling** occurs when the aggregate and/or binder has begun to wear away but has not progressed significantly. Some loss of fine aggregate is present.
   - **Moderate Raveling** occurs when the aggregate and/or binder has worn away and the surface texture is becoming rough and pitted, loose particles generally exist, and loss of fine aggregate and some loss of coarse aggregate exists.
   - **Severe Raveling** occurs when the aggregate and/or binder have worn away and the surface texture is very rough and pitted; loss of coarse aggregate is very noticeable.
2015 Raveling Survey by District

All Systems

<table>
<thead>
<tr>
<th>District</th>
<th>Light</th>
<th>Moderate</th>
<th>Severe</th>
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</thead>
<tbody>
<tr>
<td>District-1</td>
<td>1.5%</td>
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<tr>
<td>District-2</td>
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<tr>
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2015 Raveling Survey by System
All Districts

Percent of Lane Miles Raveled

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## Raveling Survey History

### All Systems and All Districts Combined

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</table>
Section VIII
Distress Ratings
Comparison
2014 vs. 2015
Section VIII

Crack, Rut, and Ride Ratings Comparison

Rating Comparison Criteria

Only Type 1 Flexible Pavements are included in the comparison. The following pavement types have been omitted from this comparison since they exhibit notable changes to the pavement surface as indicated below:

Type 0 - Pavement sections not State-maintained, duplicated under another county section number, or added under the Rigid PCS.

Type 2 - Surface Treatment or pavement improvement without new construction, such as intersection improvements, wheel path leveling, bridge approach or area resurfacing.

Type 3 - Skin Patch

Type 4 - Rigid Pavements

Type 5 - New Construction

Type 6 - No Ride taken for this section (normally because of length constraint)

Type 7 - New Pavement (Overlays)

Type 8 - Under Construction

Type 9 - Structures or exceptions that are State-maintained
Crack, Rut, and Ride Rating Changes

2014 compared to 2015

96% of the 2015 lane miles were within +/- 1 point compared to 2014 survey

100% of the 2015 lane miles were within +/-1 point compared to 2014 survey

100% of the 2015 lane miles were within +/-1 point compared to 2014 survey

Negative values are indicative of the deterioration in the pavement and/or the variability in the data collection process. Positive values are indicative of the variability in the data collection process.
Section IX
Customer Service Survey
2015 Flexible Pavement Condition Survey

Facts and Figures

Customer Service Form

In an effort to continuously improve customer service, the Pavement Materials Section asks for your input by filling out and returning this survey form.

(Optional)

Name: ___________________________ Title: ___________________________

Company/Office: ___________________________ City/State/Zip: ___________________________

Address: ___________________________ Phone: ___________________________

E-mail: ___________________________

Please rate each of the following on the scale provided by circling the appropriate number. One corresponds to Very Poor, and Five corresponds to Excellent.

Usefulness of Content ................................................................. 1 2 3 4 5

Organization of Information.......................................................... 1 2 3 4 5

Clarity of Graphical Illustrations.................................................. 1 2 3 4 5

Format of Tables ................................................................. 1 2 3 4 5

Overall Value of this Report .................................................. 1 2 3 4 5

Please provide an answer to the following questions. Attach an additional sheet(s) if needed.

What was the most useful/informative part of this report?

_________________________________________________________________________________

What was the least useful/informative part of this report?

_________________________________________________________________________________

What changes do you recommend to improve this report?

_________________________________________________________________________________

Detach and mail to:
State Materials Office, Attention: Stacy Scott, 5007 NE 39th Ave., Gainesville, FL 32609 or send via email to: stacy.scott@dot.state.fl.us

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