STATE OF FLORIDA

2003
FLEXIBLE PAVEMENT CONDITION SURVEY FACTS & FIGURES

FL/DOT/SMO/03-459
April 2003

STATE MATERIALS OFFICE

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Executive Summary

Since 1985, the Pavement Condition Unit of the Pavement Systems Evaluation Section has been annually collecting, processing and analyzing the information on the condition and performance of the State Roadway System. The information provided by such a Pavement Condition Survey (PCS) program has been critical to the Department's effort to support informed highway planning, policy and decision making at State and local levels. This includes the apportionment and allocation of funding needs as well as the determination of appropriate cost-effective strategies to rehabilitate and preserve existing highway transportation infrastructure.

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

The Survey data is collected, reviewed, processed, and analyzed by the Pavement Systems Evaluation Section of the State Materials Office. The survey data for each county is forwarded to the appropriate District responsible for review and any concerns are addressed prior to the data collection being finalized. Once the data collection process is complete, the Central Pavement Management Office is responsible for the processing, analysis and making the data available for use by the Department, consultants and others. Thereafter, the Central Program Development Office becomes 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 Florida roadway system collected as part of the PCS program. It also includes a summary of the historical condition rating data.

SECTION I

Introduction

The Pavement Systems Evaluation Section of the State Materials Office is responsible for the Department's Annual 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 each of the four area staff specialists about 25 weeks of travel each year to complete. Since its inception the PCS program has seen over 20 percent increase in surveyed lane miles (refer to Chart on page 5) while the number of the Pavement Condition Survey staff has decreased.

The annual PCS is used to accomplish the following main objectives

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

The condition survey is conducted in accordance to three (3) specific distress criteria, namely, (1) ride quality, (2) rutting, and (3) cracking. For each distress type, the pavement sections are rated on a zero to ten scale, where a rating of ten indicates a section in excellent condition. Currently, any section with a rating of six or less becomes eligible for rehabilitation.

Cracking is a subjective rating conducted visually either from windshield survey or from the shoulder. Rut and Ride are measured using an automated vehicle-mounted instrument called a Profiler that measures the longitudinal profile of the roadway. The ride quality is quantified in terms of Ride Number (RN). Ride Number is a mathematical processing of longitudinal profile measurements to produce an estimate of ride quality or user perception in accordance with ASTM Standard E1489.

In order to ensure a maximum accuracy and repeatability of the data collected, the testing equipment must be well maintained and routinely calibrated. In addition, over 150 edit checks are currently implemented to test both the data accuracy and compliance with other parameters of the Pavement Management System. Comparisons of annual survey data to that of earlier years to review trends and identify potential errors are also performed. Furthermore, team members (raters) annually complete a comparative distress rating evaluation on selected pavement sections to enhance uniformity of the subjective crack rating. When necessary, and as appropriate, efforts have been made to upgrade the survey equipment and to improve the data analysis software resulting in increased speed of data collection and substantially improved accuracy of the survey results. 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://www.dot.state.fl.us/statematerialsoffice/PavementEvaluation/reports.htm

Since the mileage of flexible pavements represents approximately 97% of the entire System, the facts and figures contained in this report are for flexible pavements only unless otherwise noted.

Observations

The review and analysis of PCS data have resulted into the following observations:

- Crack ratings have remained stable for the past twelve years with a mean rating of approximately 8 (range of 8.02 to 8.21).
- Rut ratings have improved from an average rating of 8 (or 8.35) in 1992 to 9 (or 8.85) in 2003.
- Ride ratings have remained constant with a mean rating of approximately 8 (range of 8.02 to 8.24).
- 89.0% of the pavement sections rated this year for Cracking were within one point compared to the previous year's ratings. (*)
- 99.7% of the pavement sections rated this year for Rutting were within one point compared to the previous year's ratings. (*)
- 99.8% of the pavement sections rated this year for Ride were within one point compared to the previous year's ratings. (*)
- Laser sensors were implemented beginning with the 1999 survey, along with the use of Ride Number as a method for calculating Ride Ratings. This may explain the increase in serviceability observed thereafter.

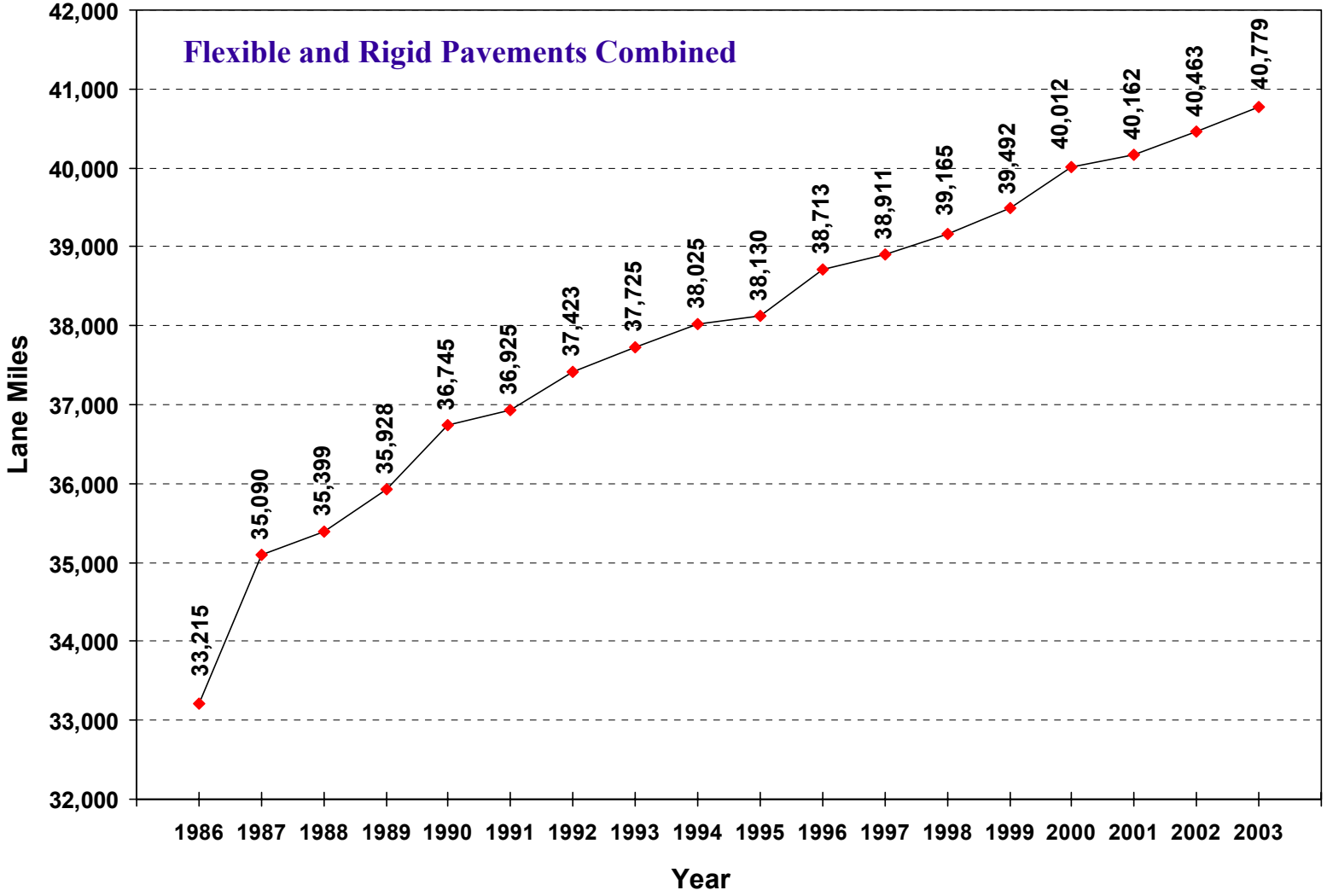
* Note: Sections that had undergone notable changes such as new construction, or total rehabilitation were excluded from the analysis.

General Notes

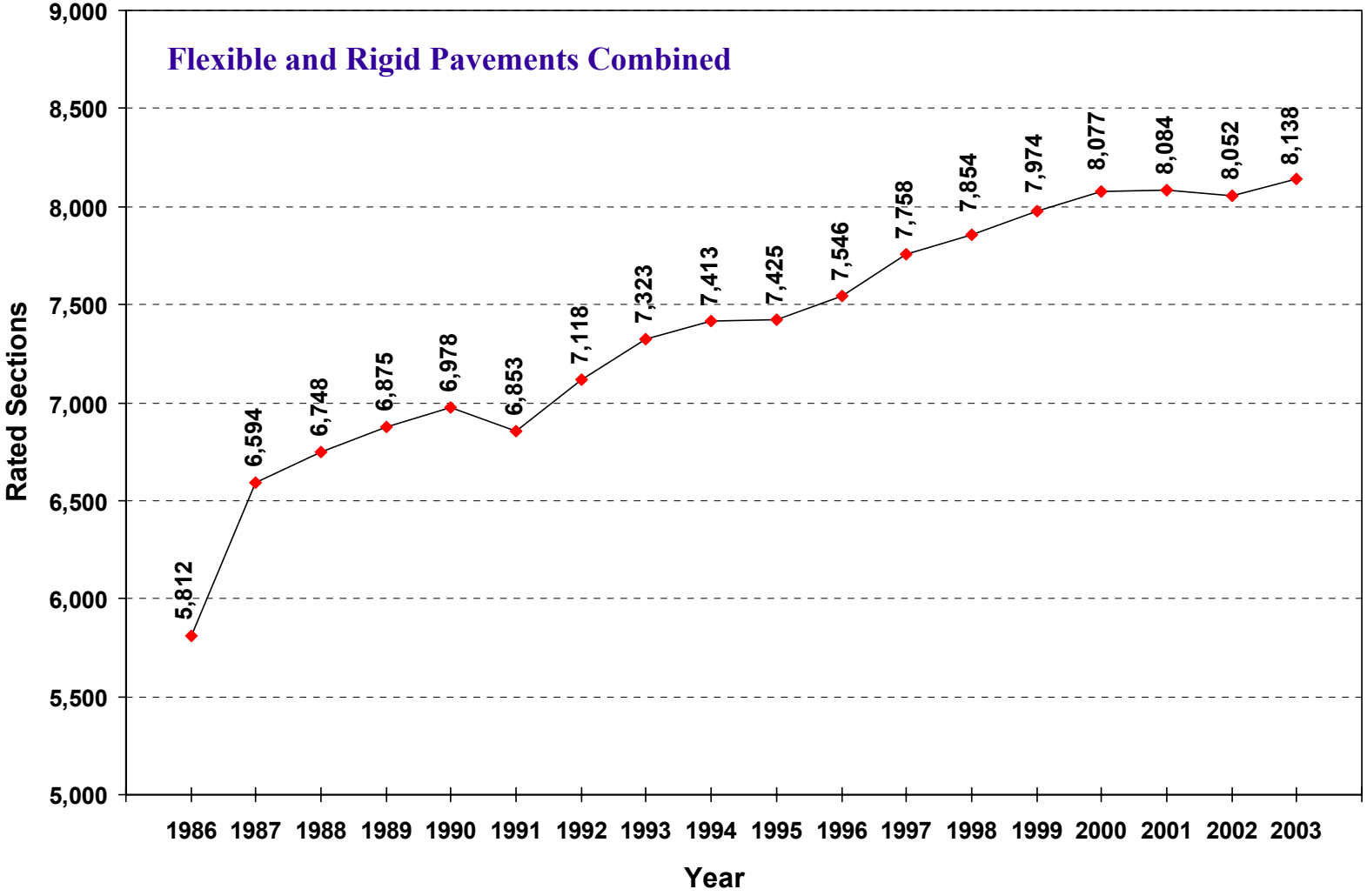
- For multi-lane roadways: The worst lane in each direction is rated (normally the outermost traffic lane).
- For two lane roadways: The worst lane is rated (normally the same lane tested the previous year).
- Rated sections are determined by construction limits or significant changes in visual condition of the pavement.
- Ride rating and Rut rating data are collected using four identical roadway profiler units.
- Crack rating is subjective and collected visually (performed from windshield or roadway shoulder).
- Cracking is rated based on the severity and extent of the distress for area inside and outside the wheel paths.

Production History

Lane Miles



Production History
Rated Sections

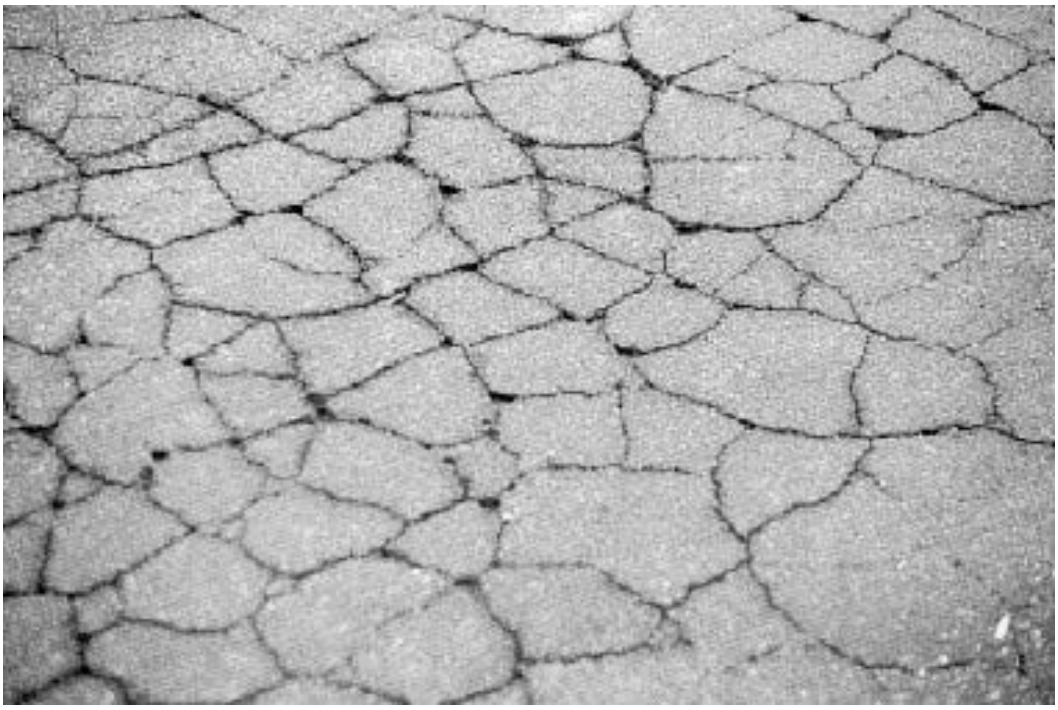


SECTION II

CRACK RATING

BY

SYSTEM AND DISTRICT



SECTION II

Crack Rating by System and District

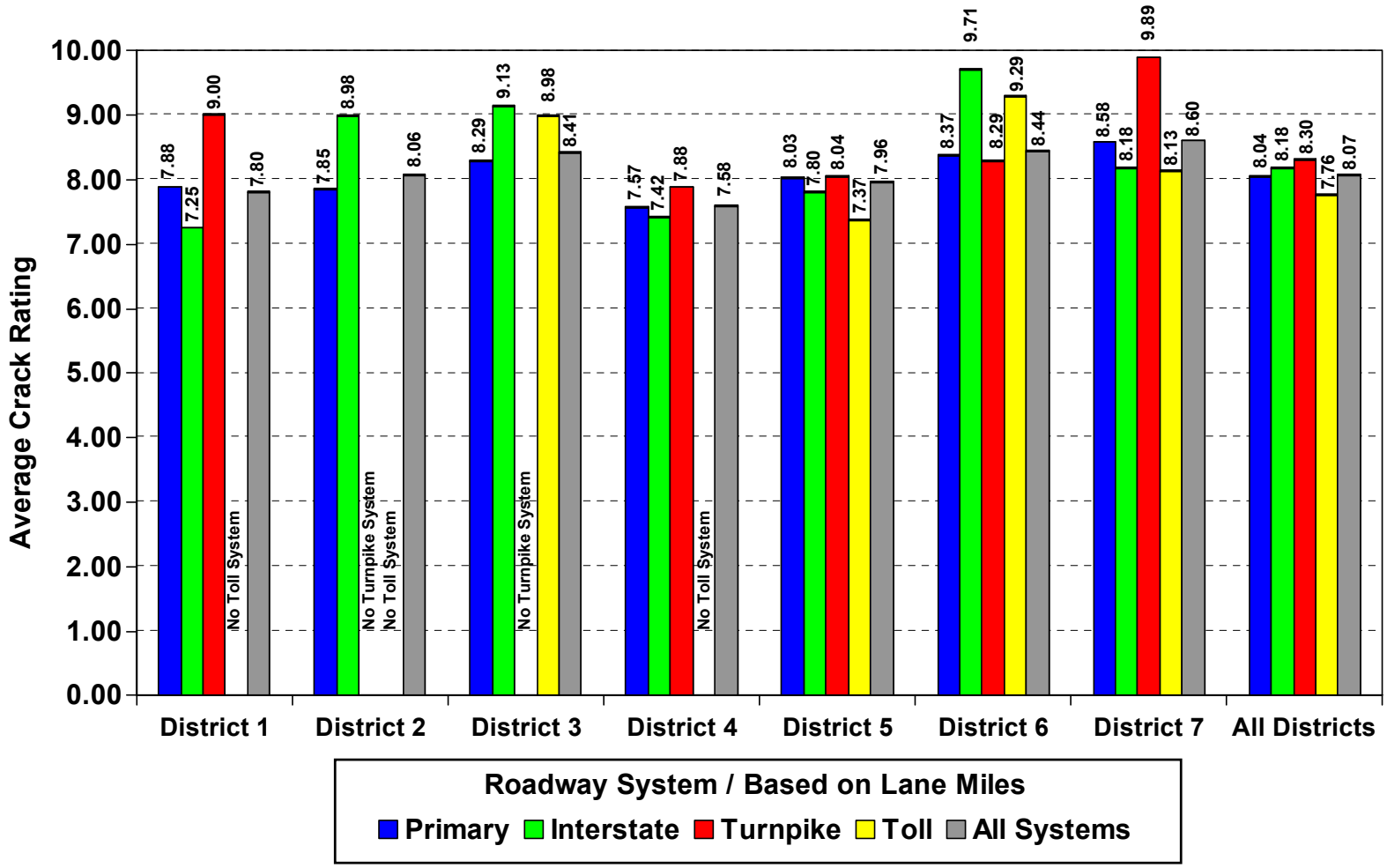
Crack Rating Criteria

- Cracking is estimated as percentages of distressed areas within the wheel paths (CW) and outside of the wheel paths (CO). These percentages are estimated separately for each of the two areas.
- There are three classes of cracking which are based on the severity level (1B, II and III).
- Only the predominate type of cracking is used to establish the crack rating. However, the percentages of all types of cracking are used to calculate the overall percentage of cracked pavement.
- Cracking deficiency 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.
- The Crack Rating is subtracted from a perfect score of 10.

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

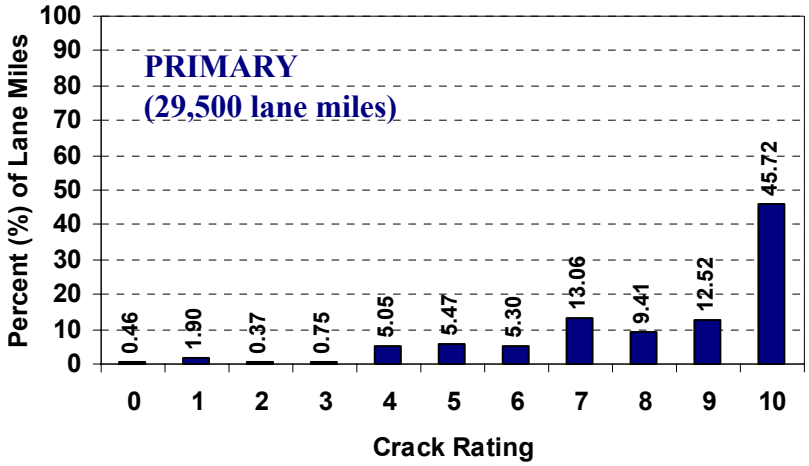
Where: CW and CO are numerical factors for Cracking within the wheel paths (CW) and outside of the wheel paths (CO). These factors are based on the severity and extent of the type of cracking.

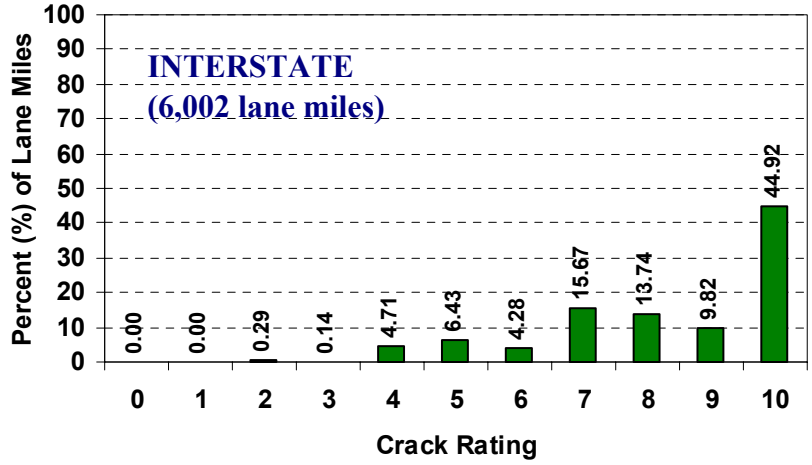
2003 Crack Rating by System and District

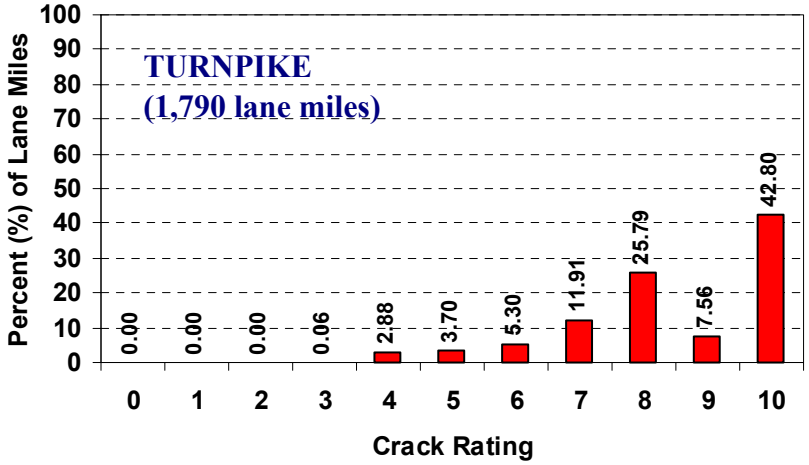


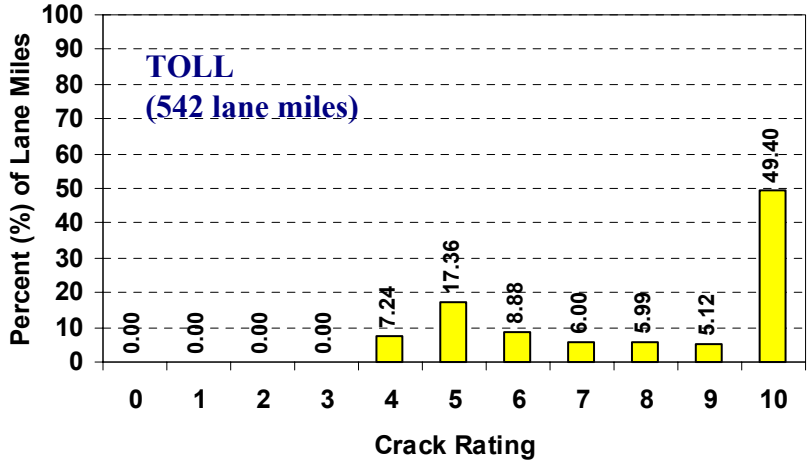
2003 Crack Distribution by System

Statewide



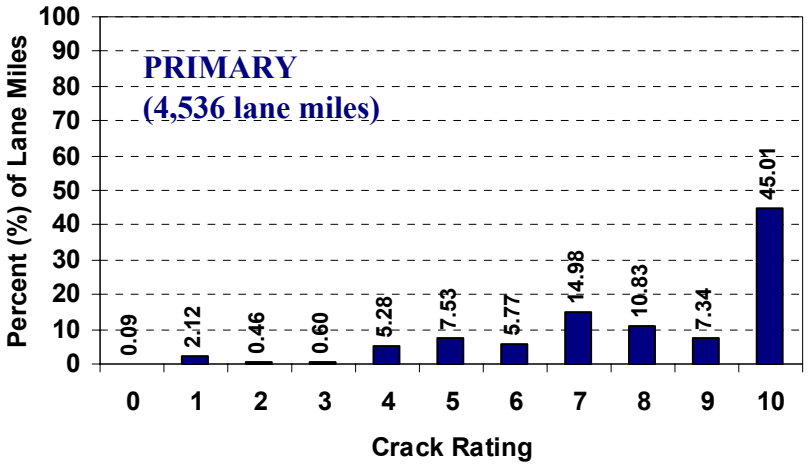


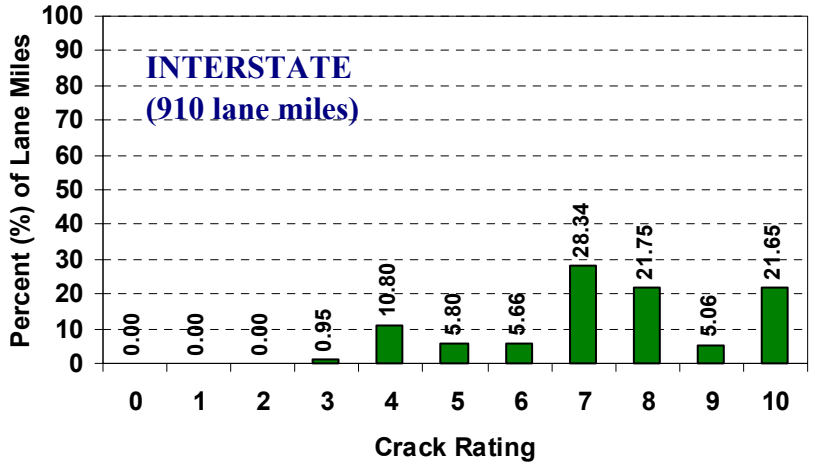


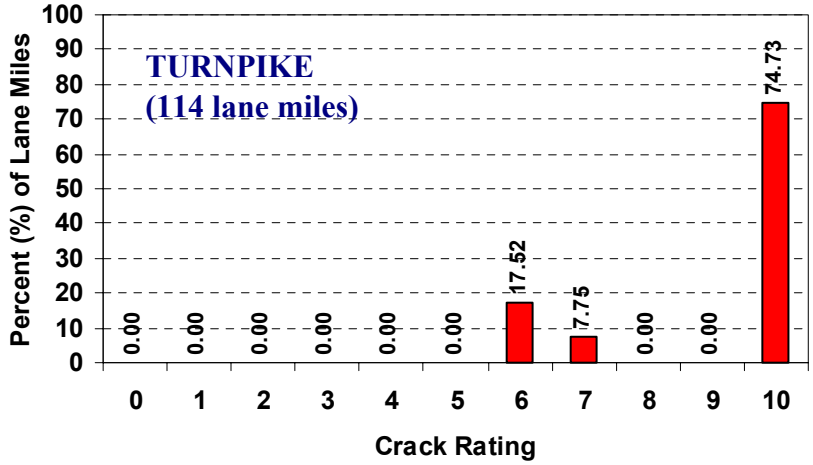


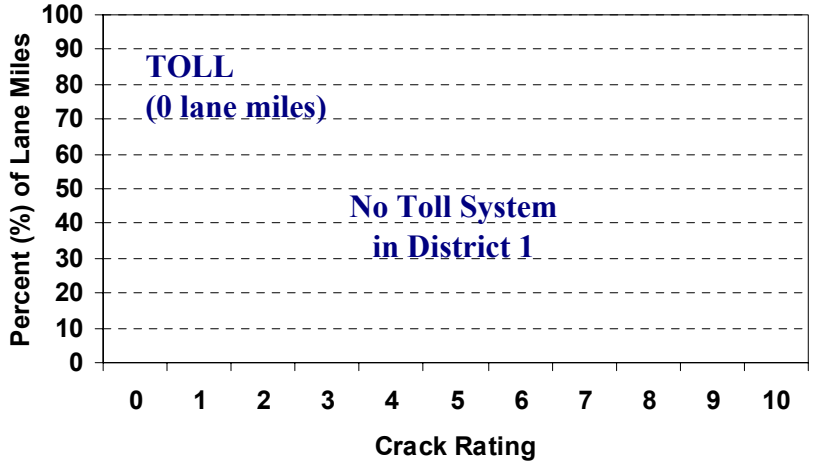
2003 Crack Distribution by System

District 1









2003 Crack Distribution by System

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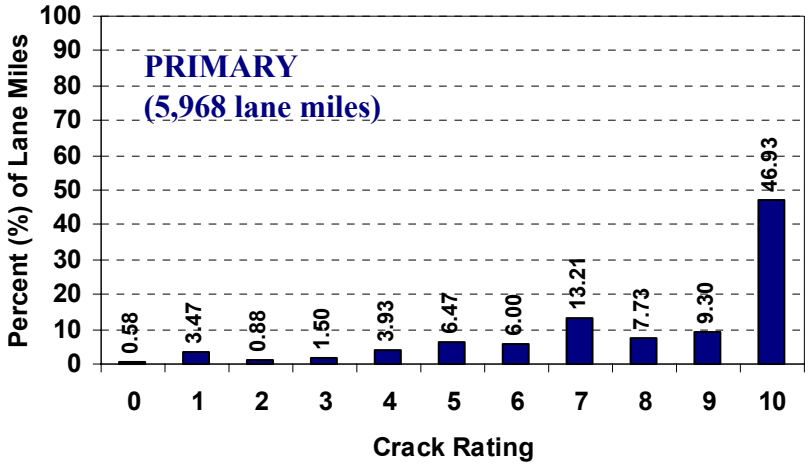
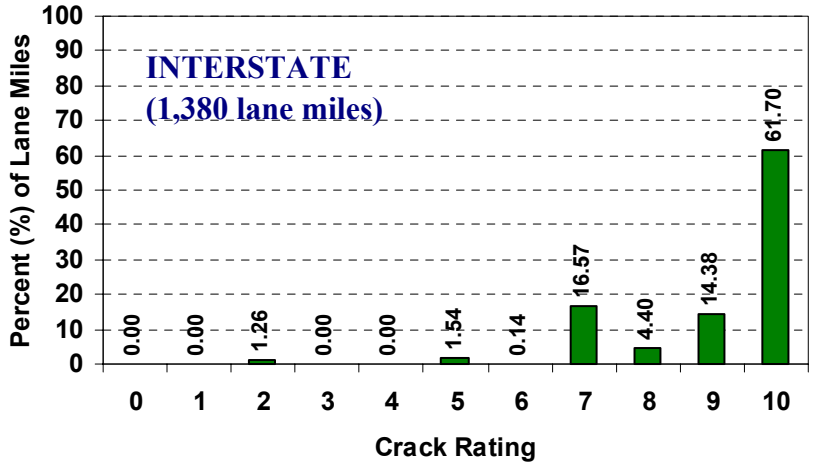
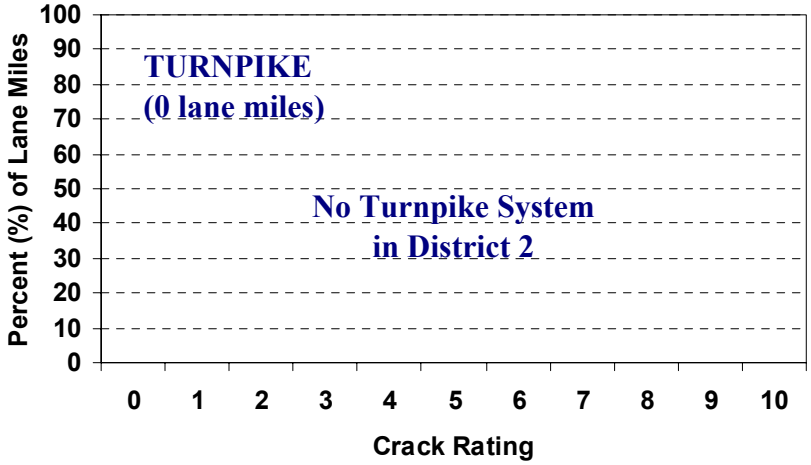
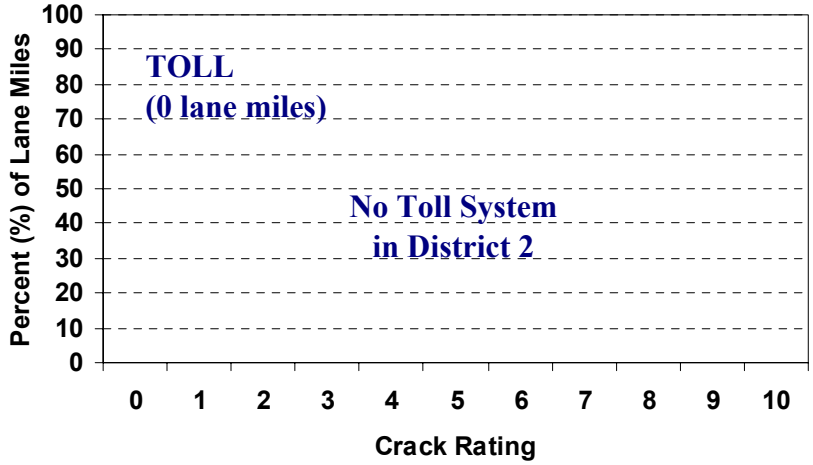


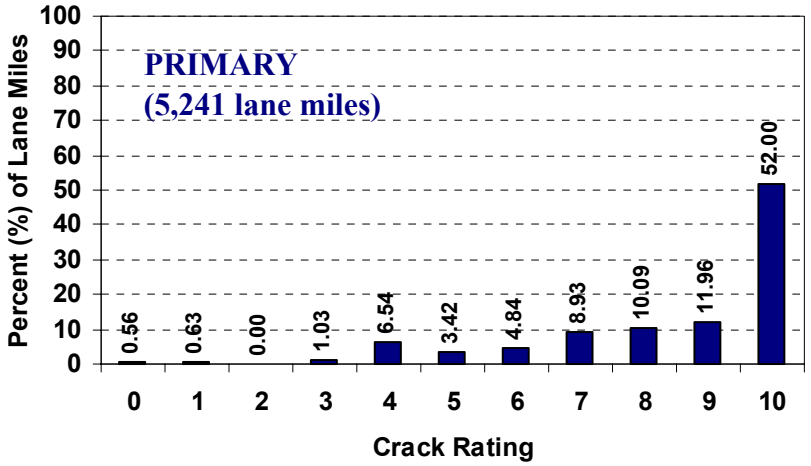


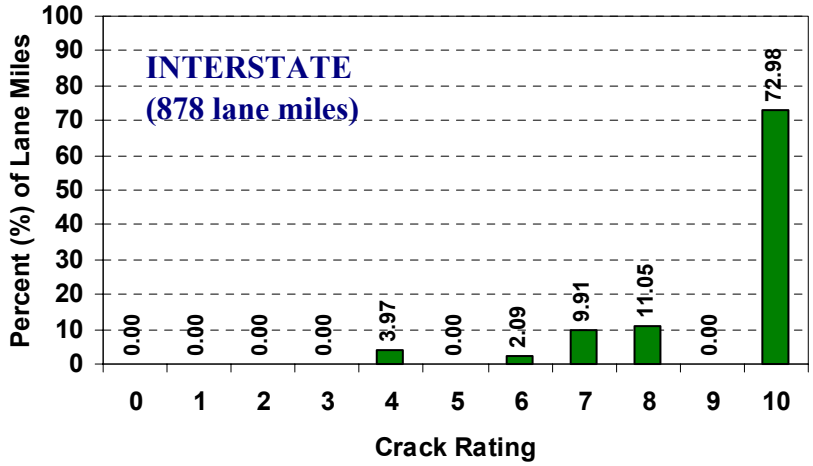


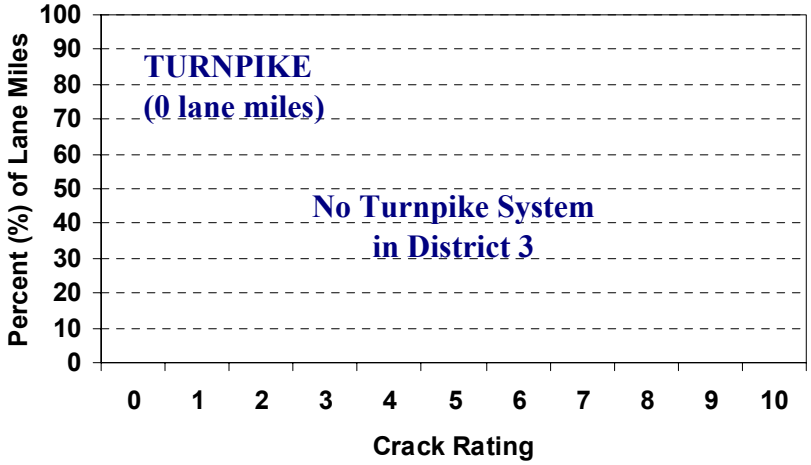


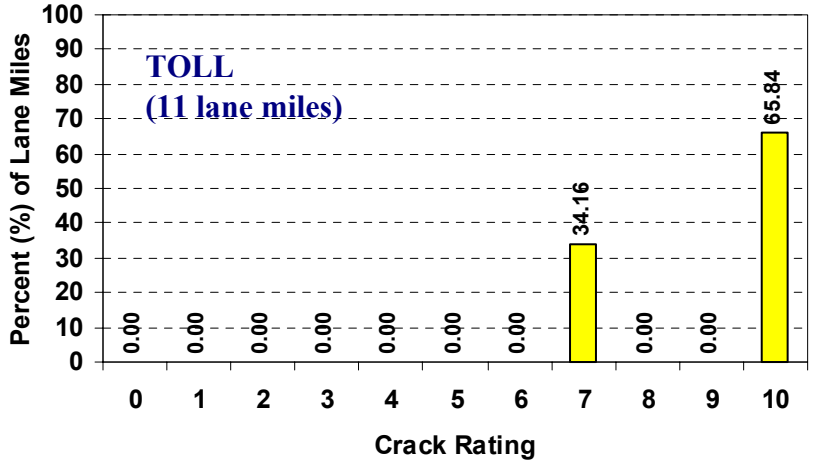
2003 Crack Distribution by System

District 3



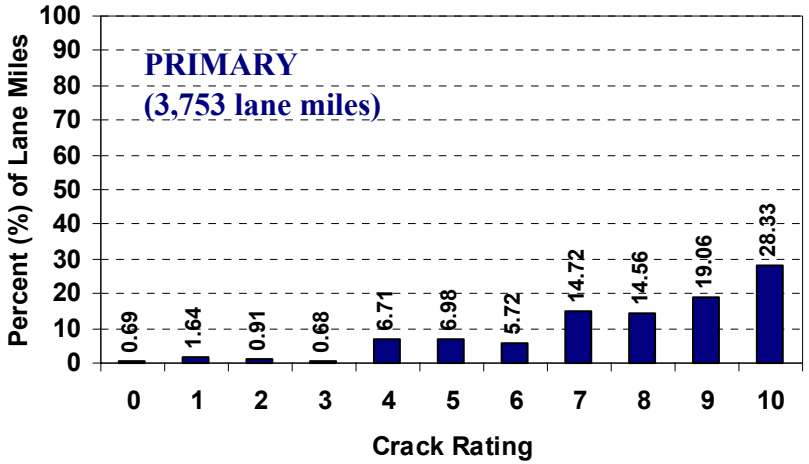


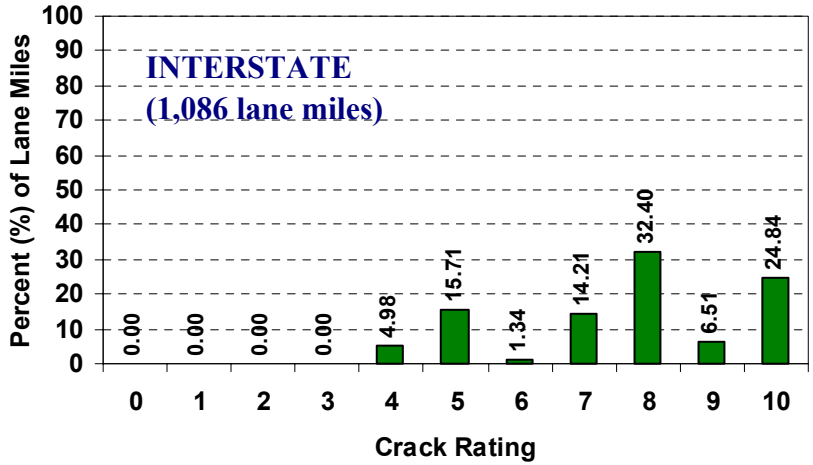


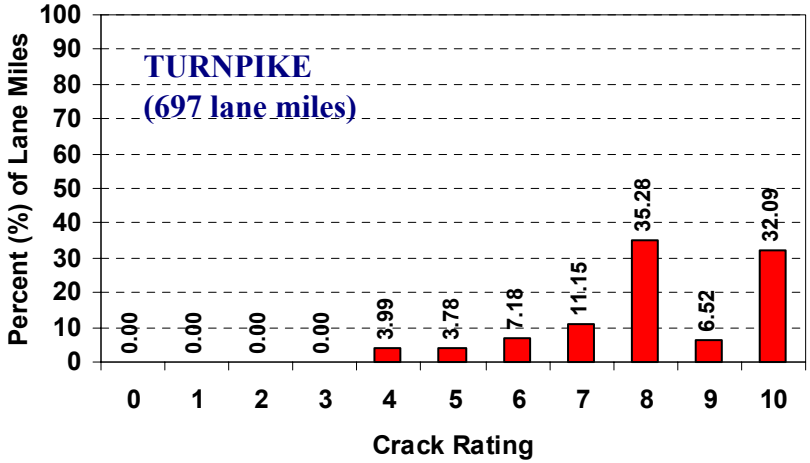


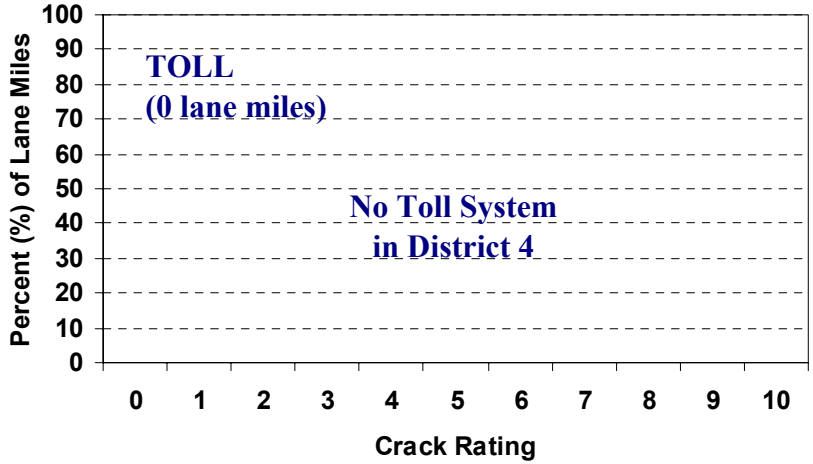
2003 Crack Distribution by System

District 4



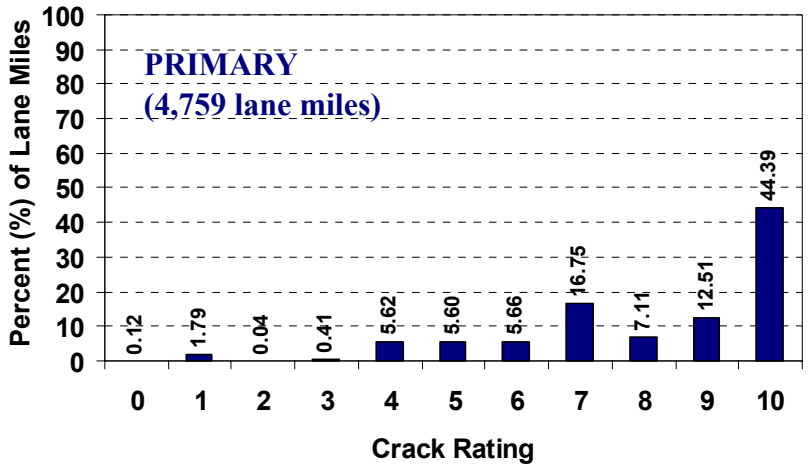


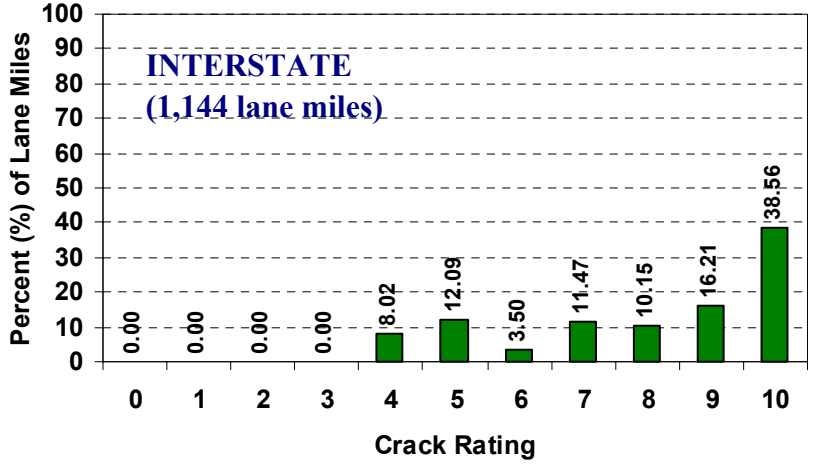


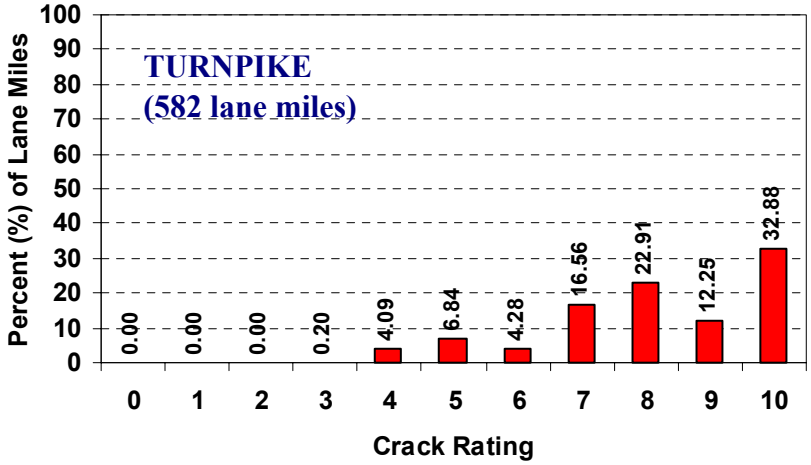


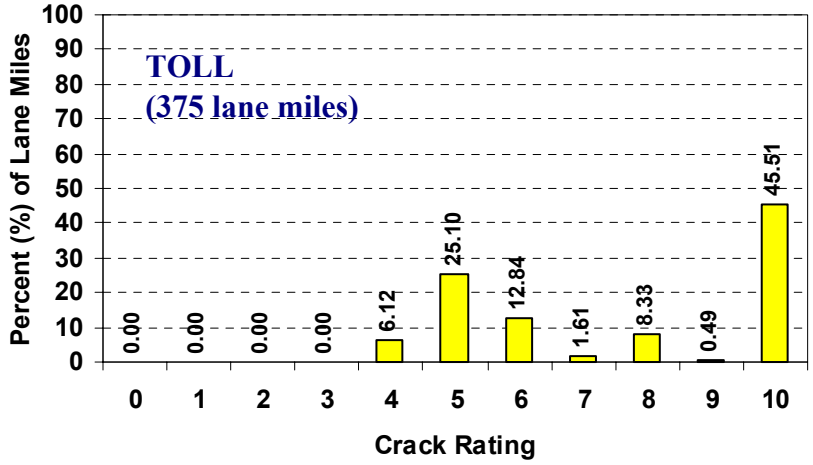
2003 Crack Distribution by System

District 5



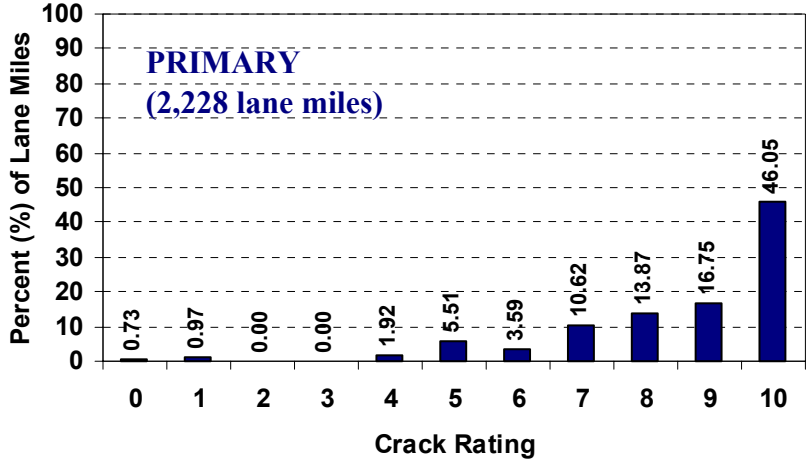


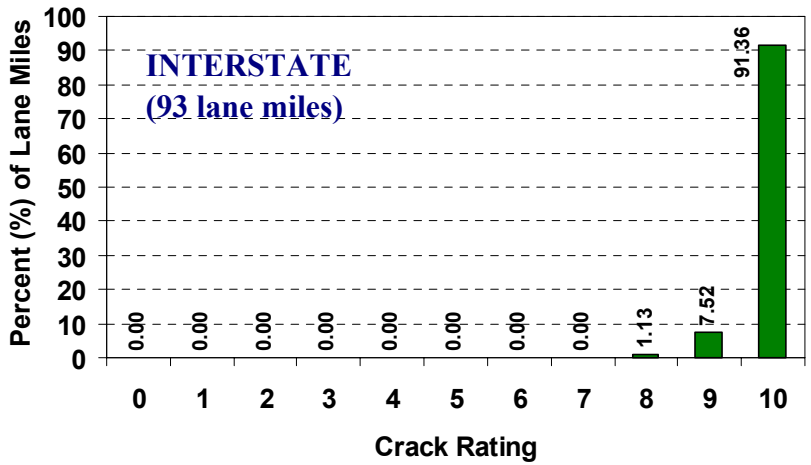


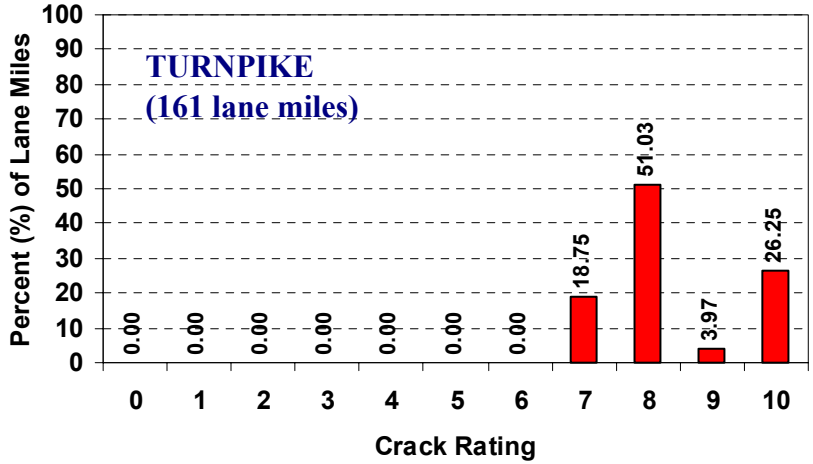


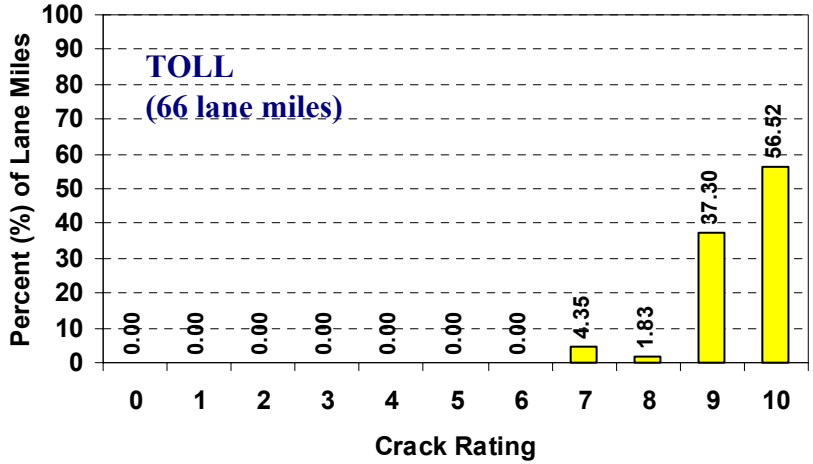
2003 Crack Distribution by System

District 6



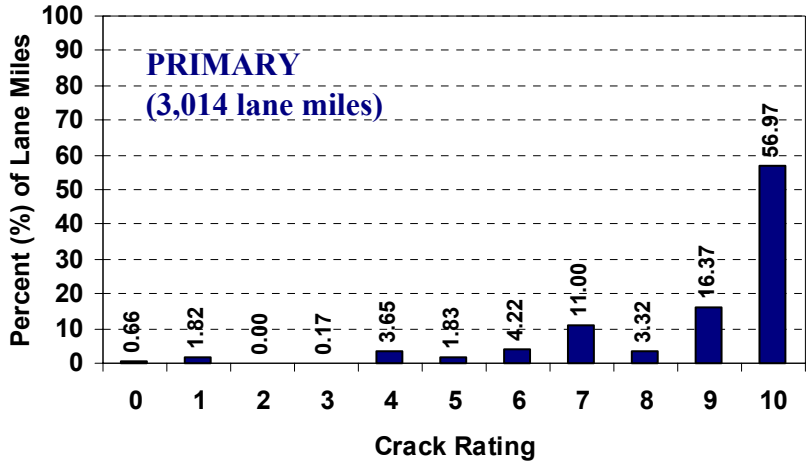


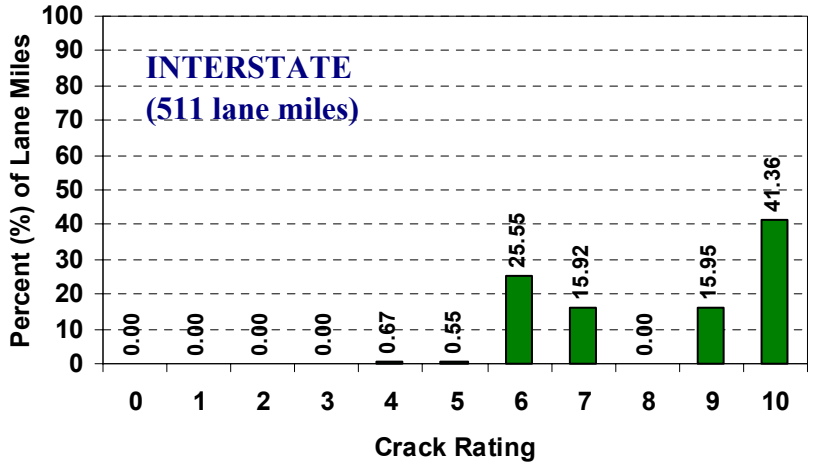


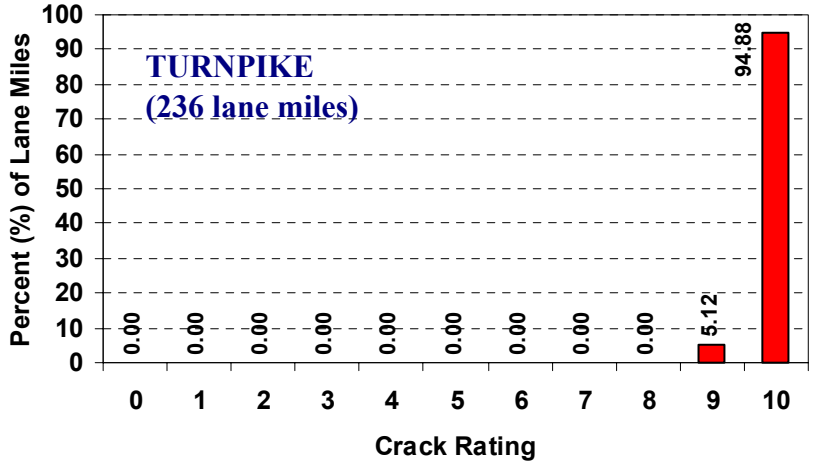


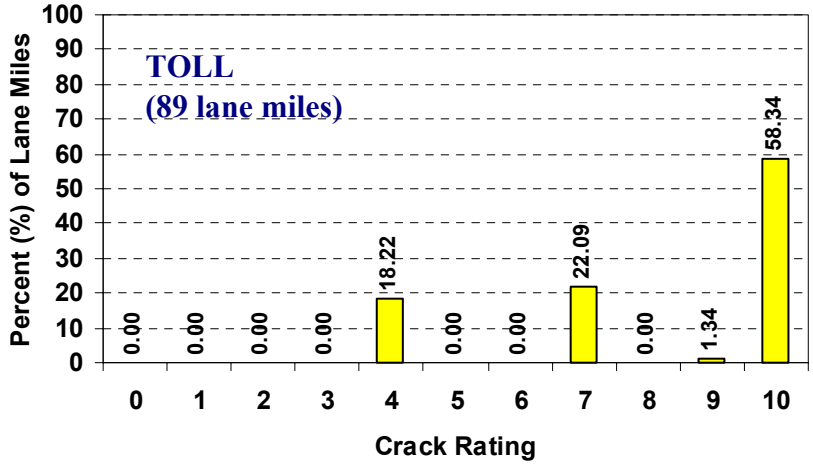
2003 Crack Distribution by System

District 7









SECTION III

RUT RATING

BY

SYSTEM AND DISTRICT

SECTION III

Rut Rating by System and District

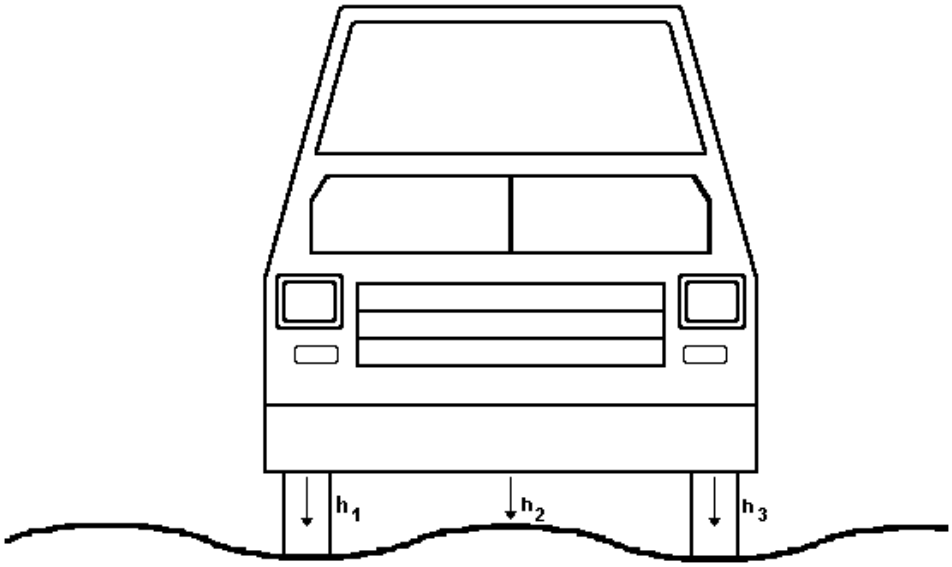
Rut Rating Criteria

- 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 path.
- A Rut Depth is defined herein as the difference in elevations between the center of the wheel path and the center of the travel lane.
- Rut Depth is measured simultaneously with the Ride values using a roadway profiler. See illustration on next page.
- The profiler measures Rut Depth at a frequency of 30 readings per inch when traveling at 60 mph. The measurements are then stored on 6 inch intervals for the survey.
- The average Rut Depth for both wheel paths is recorded and then converted to a one point deduct for every eighth (1/8) of an inch.
- Rut Depth is rated on a 0 to 10 scale, where a 10 represents a pavement with no rutting, while a 6 indicates 1/2 inch of rutting. Currently, pavement sections with ratings of 6 or less are eligible for rehabilitation.
- Rut Depth for each measurement is calculated using the following equation:

$$\textbf{Rut Depth} = \frac{(h_1 - h_2) + (h_3 - h_2)}{2}$$

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 on next page.

ROAD PROFILER

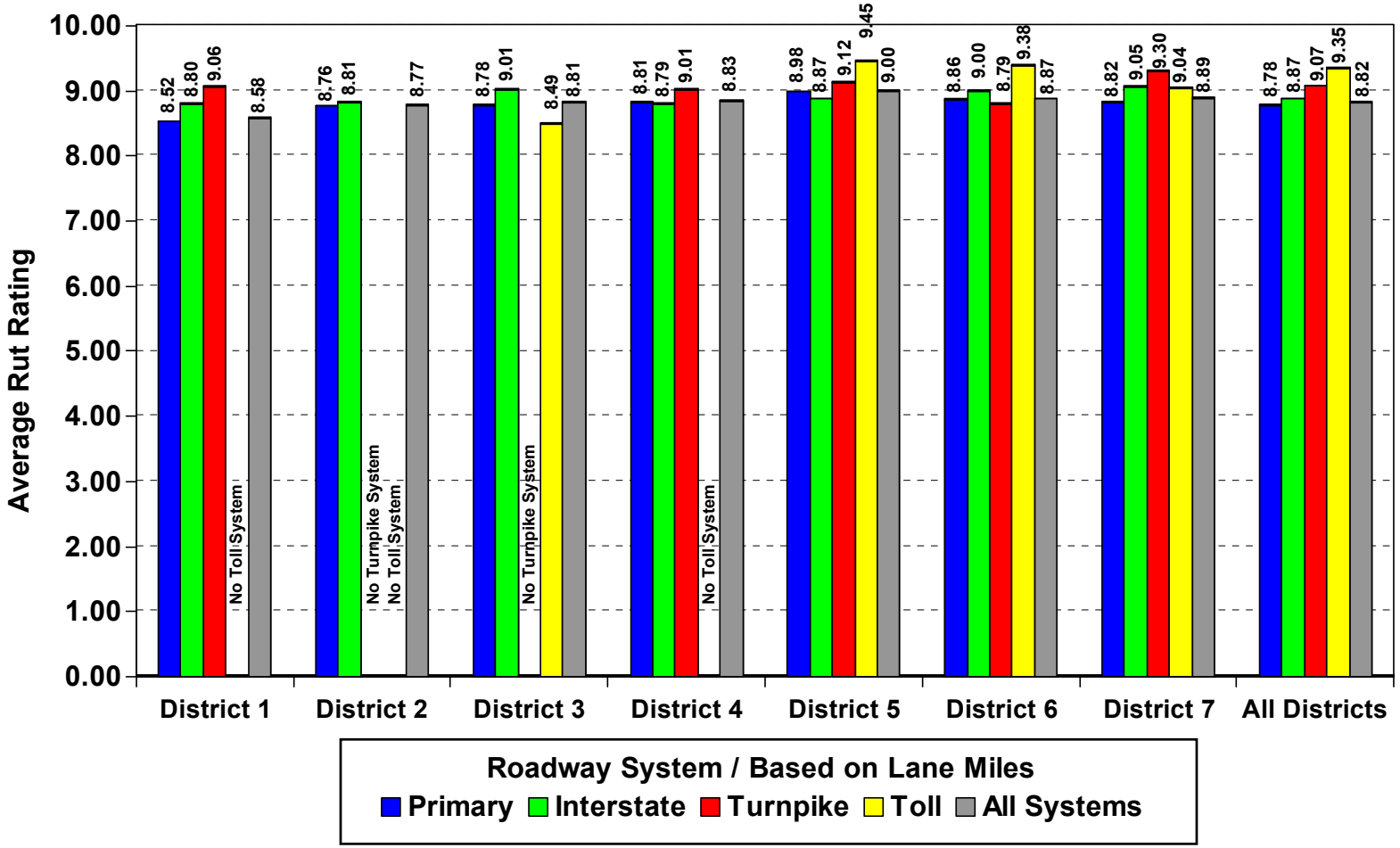


FRONT VIEW

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

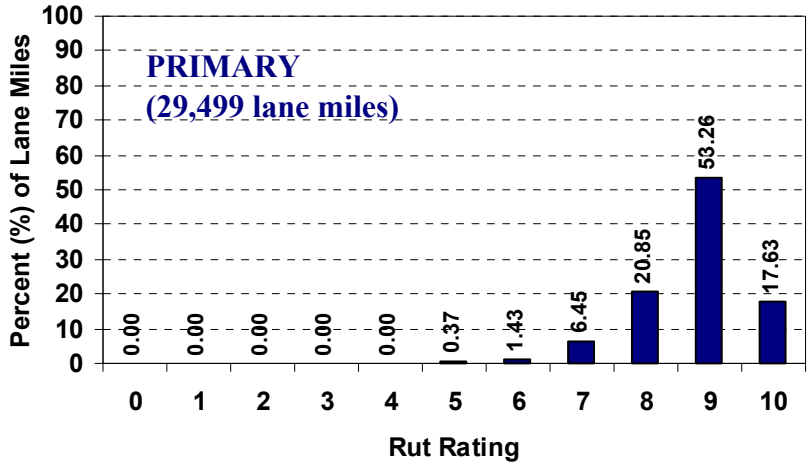
The Profiler has three sensors (to measure ride and rut), combined with two accelerometers and a data acquisition system (computer) that monitors the pavement's longitudinal and transverse profiles while in motion.

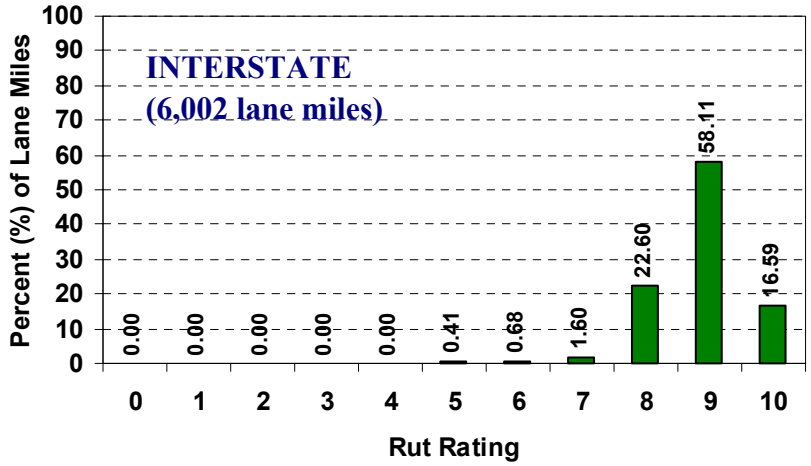
2003 Rut Rating by System and District

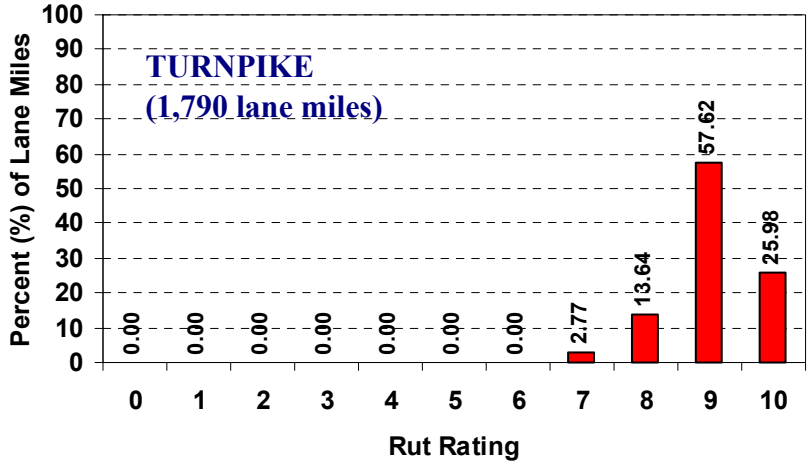


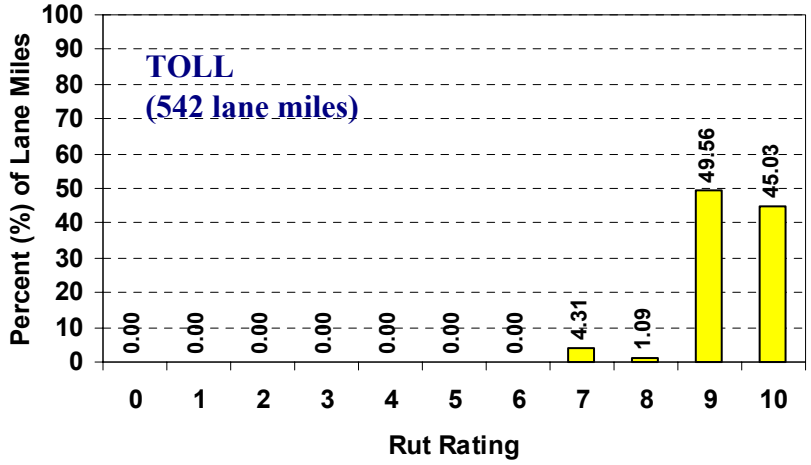
2003 Rut Distribution by System

Statewide



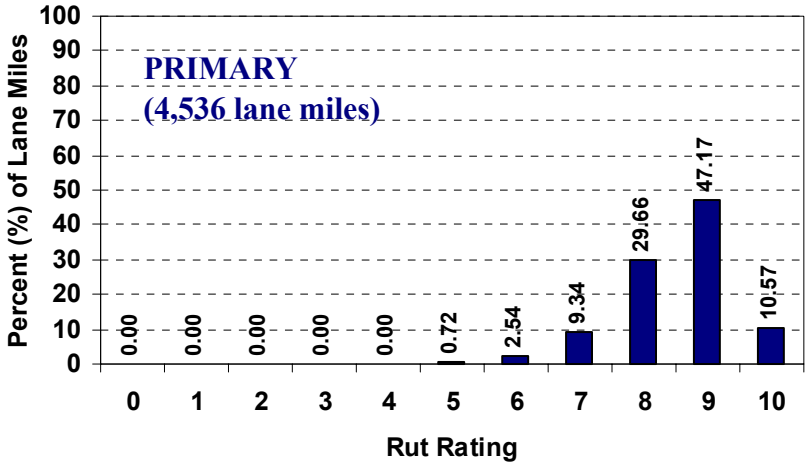


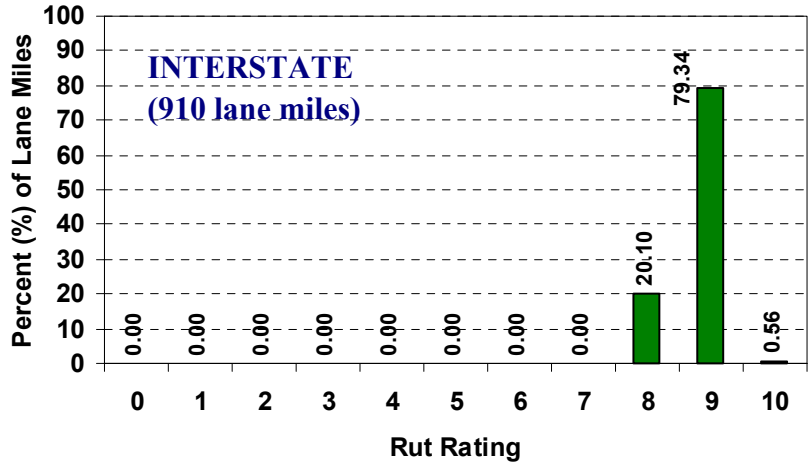


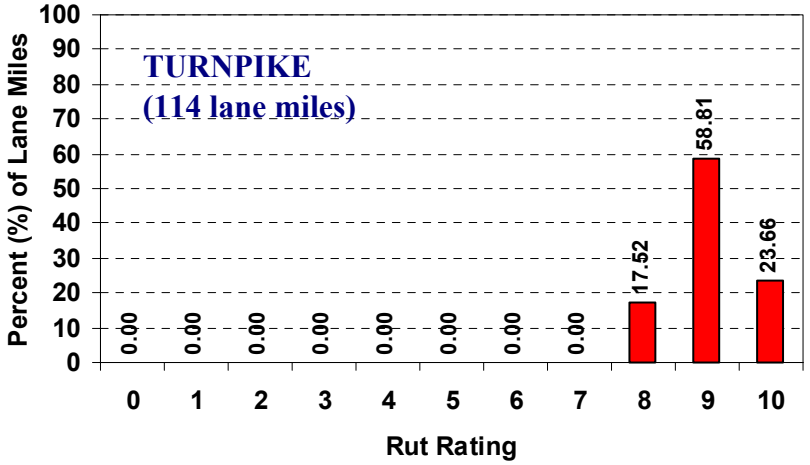


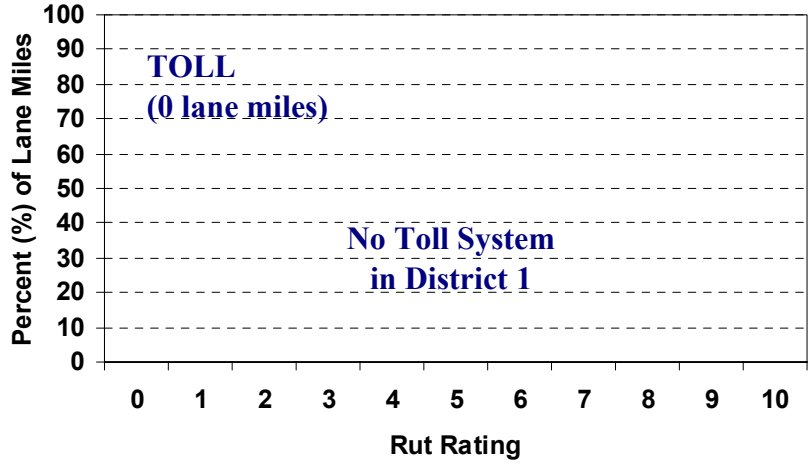
2003 Rut Distribution by System

District 1



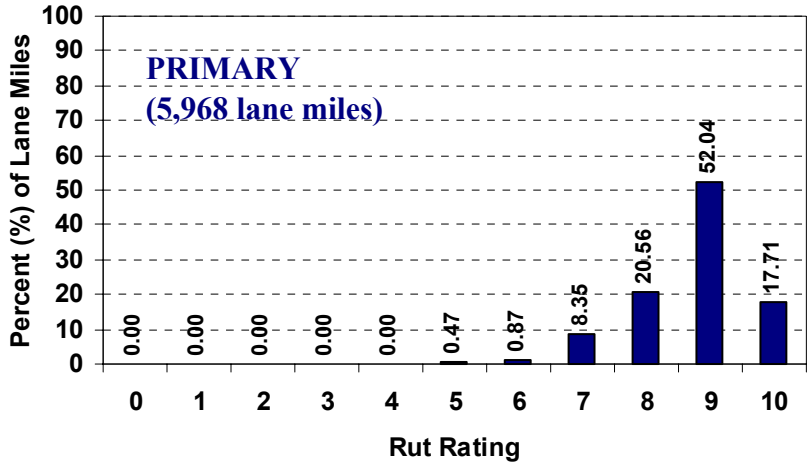


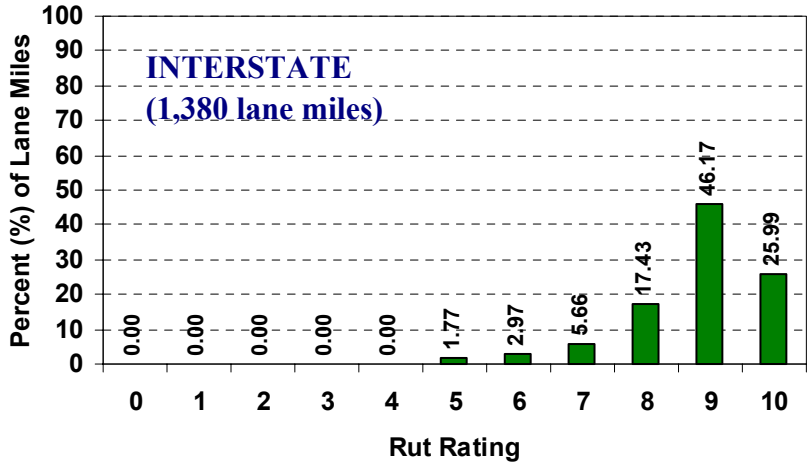


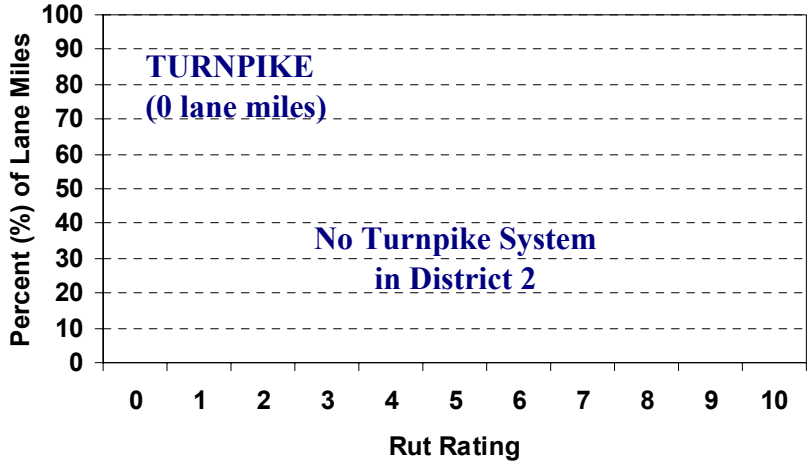


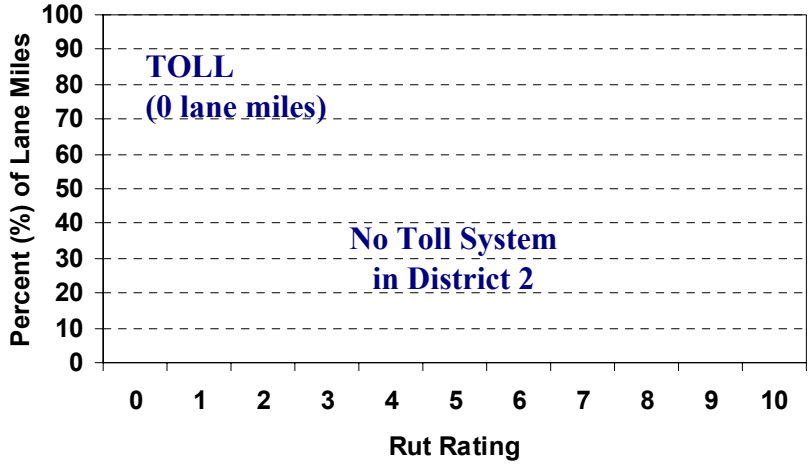
2003 Rut Distribution by System

District 2



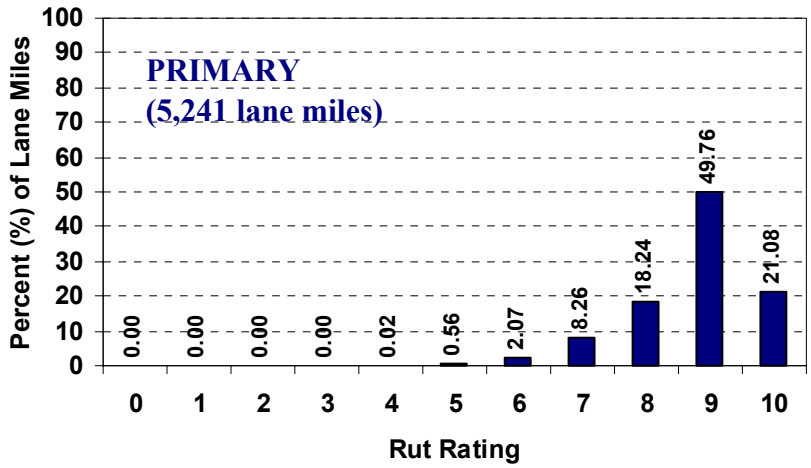


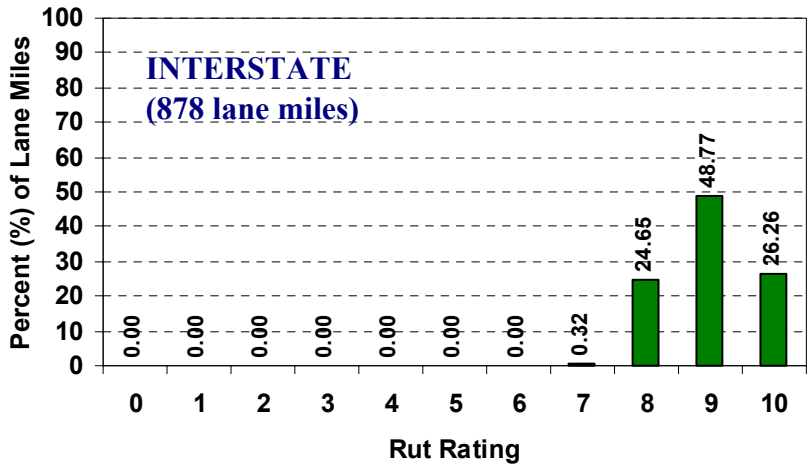


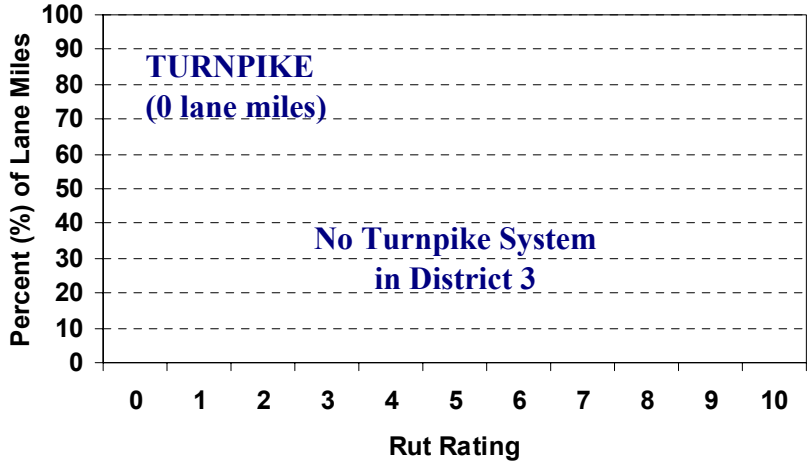


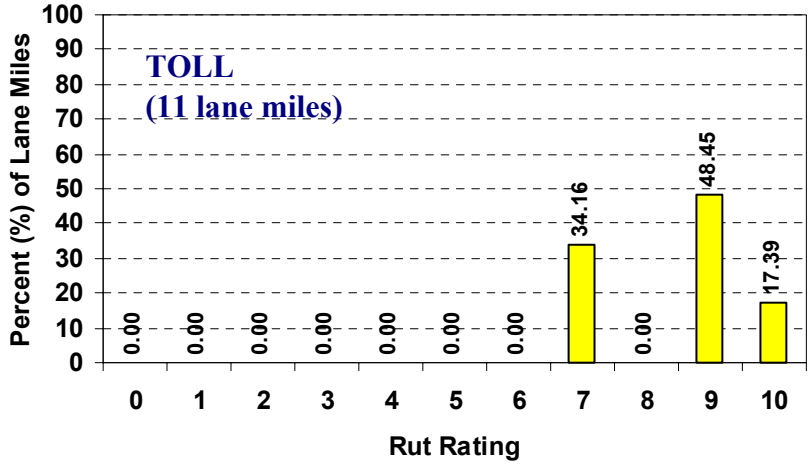
2003 Rut Distribution by System

District 3



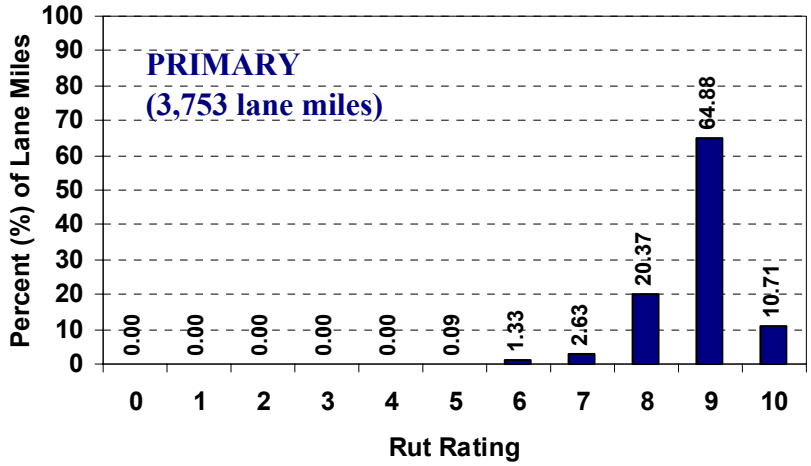


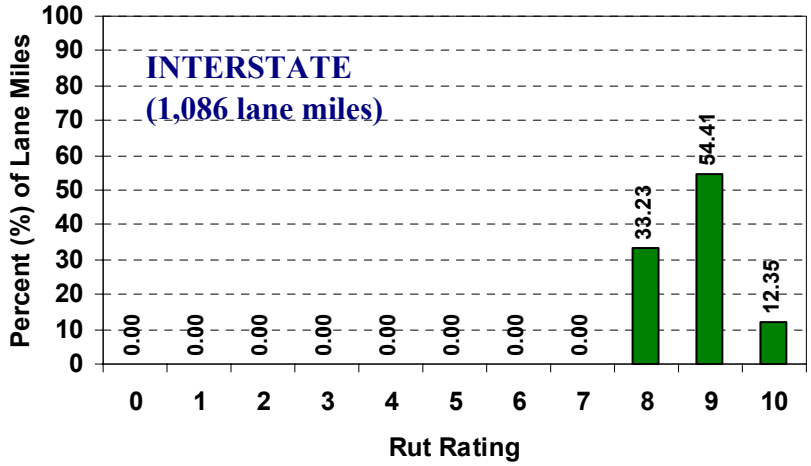


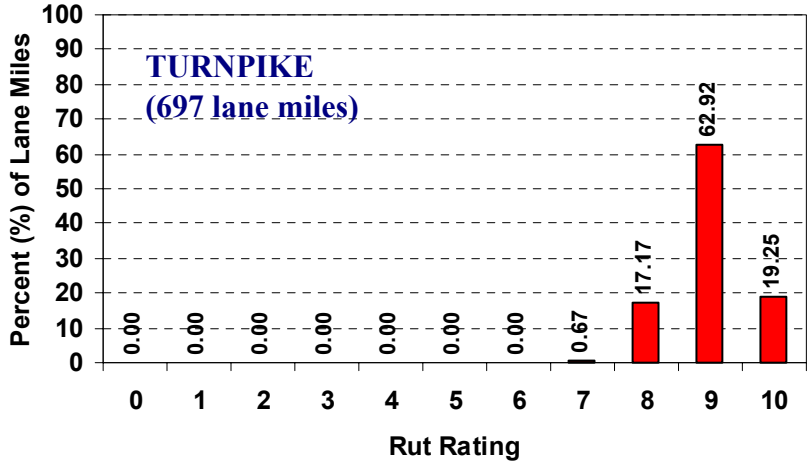


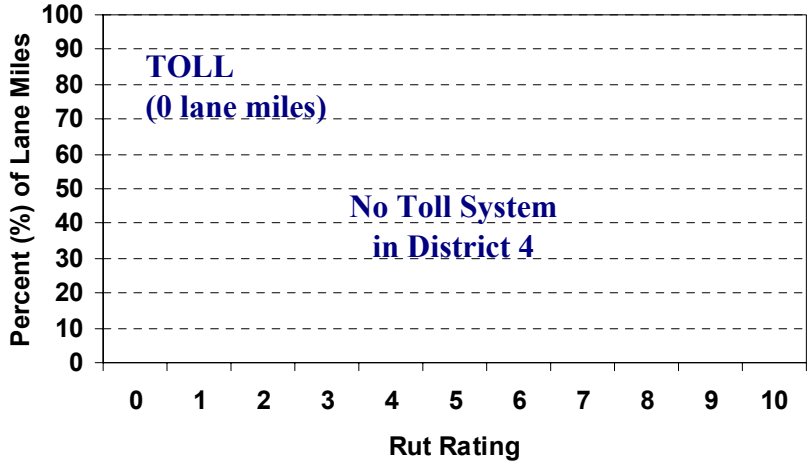
2003 Rut Distribution by System

District 4



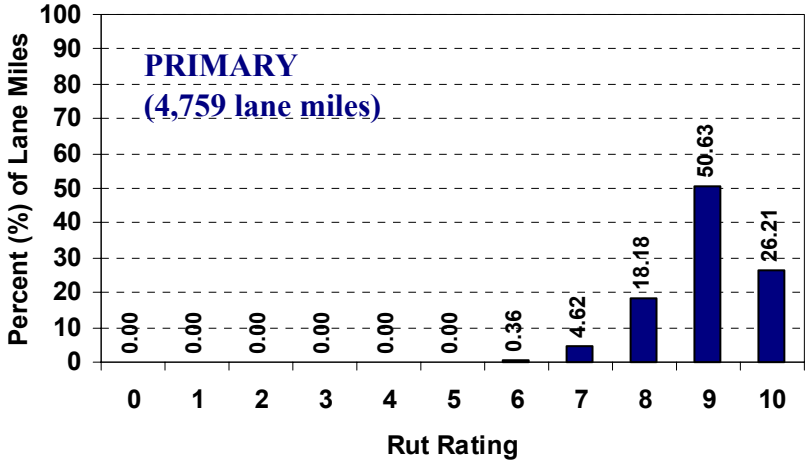


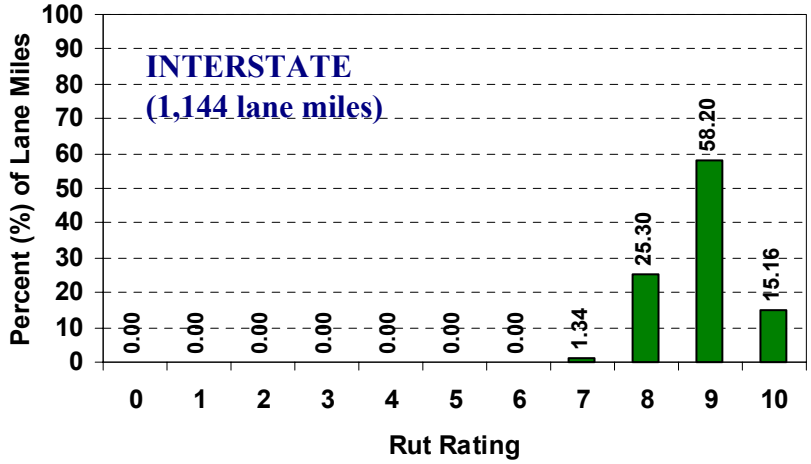


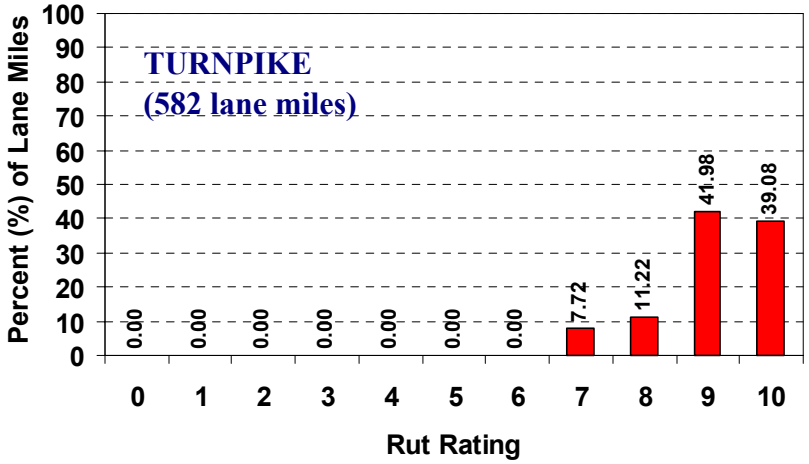


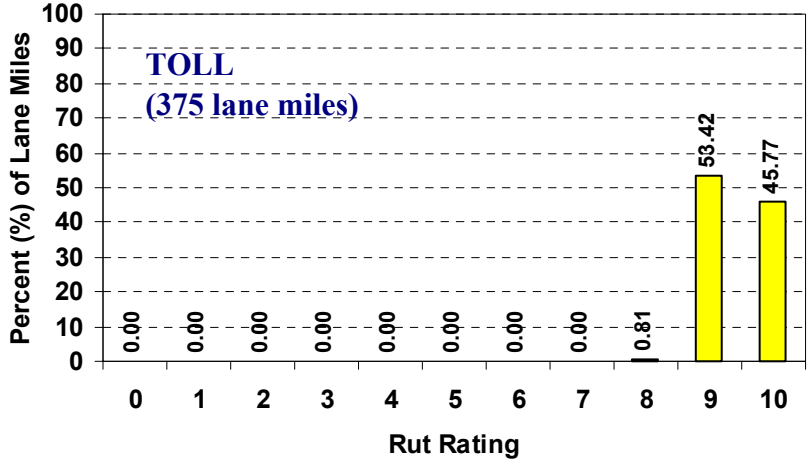
2003 Rut Distribution by System

District 5



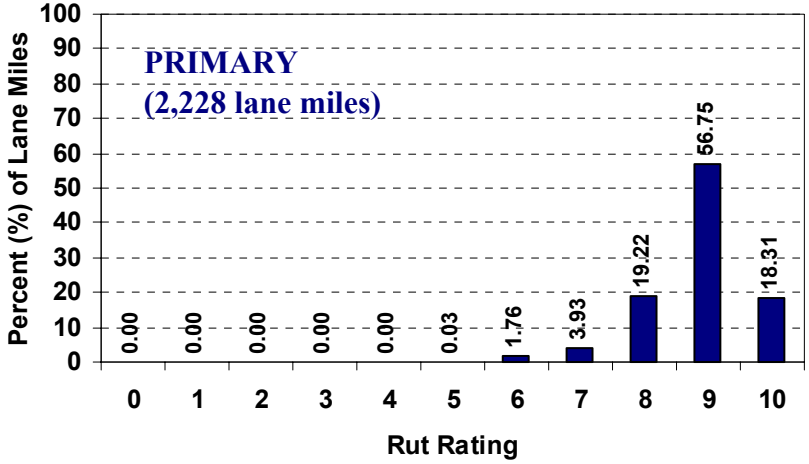


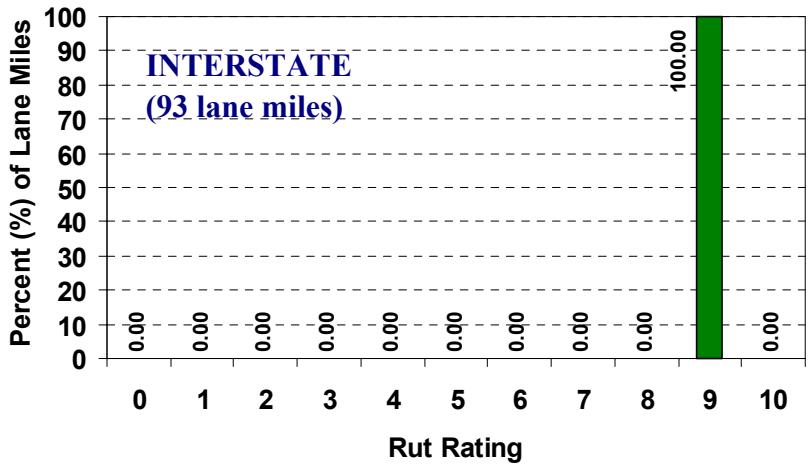


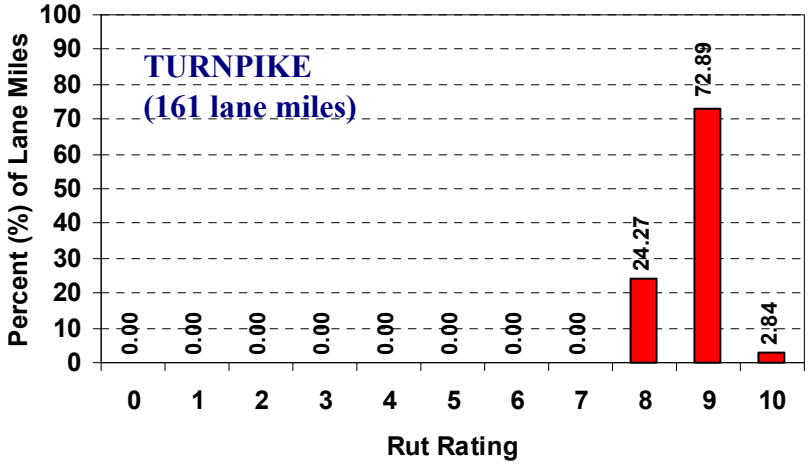


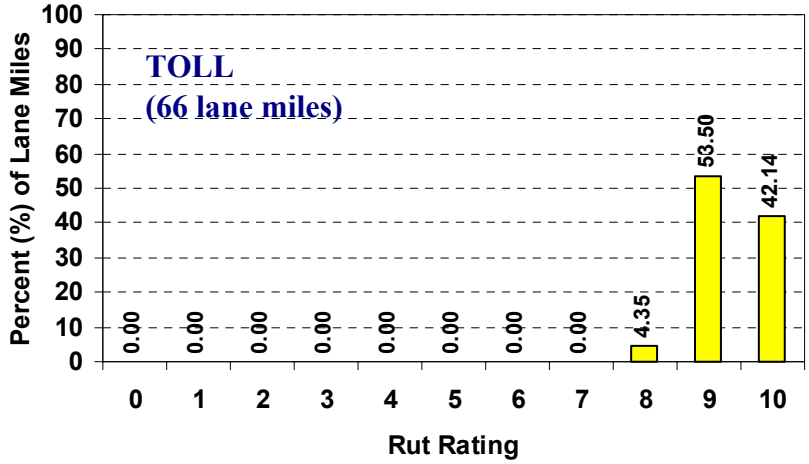
2003 Rut Distribution by System

District 6



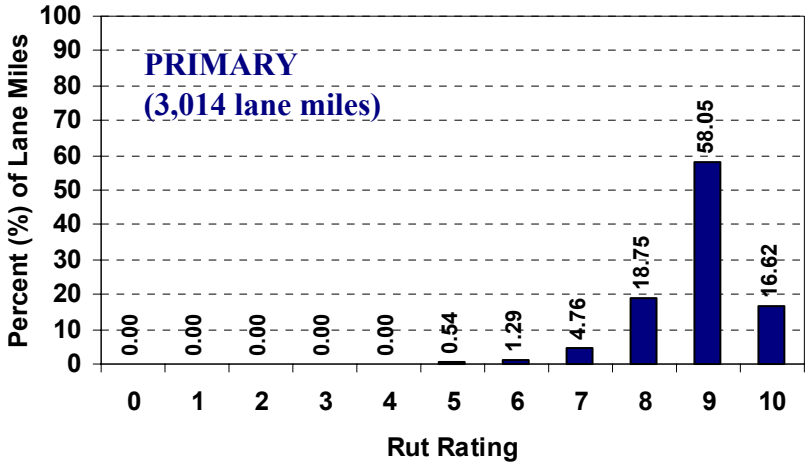


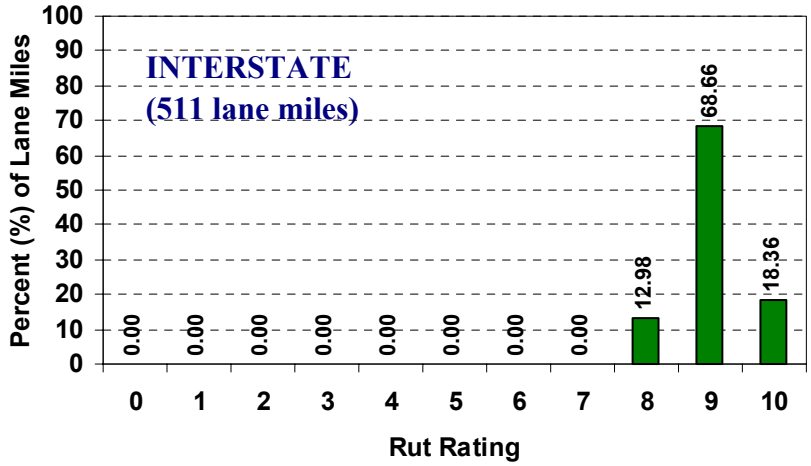


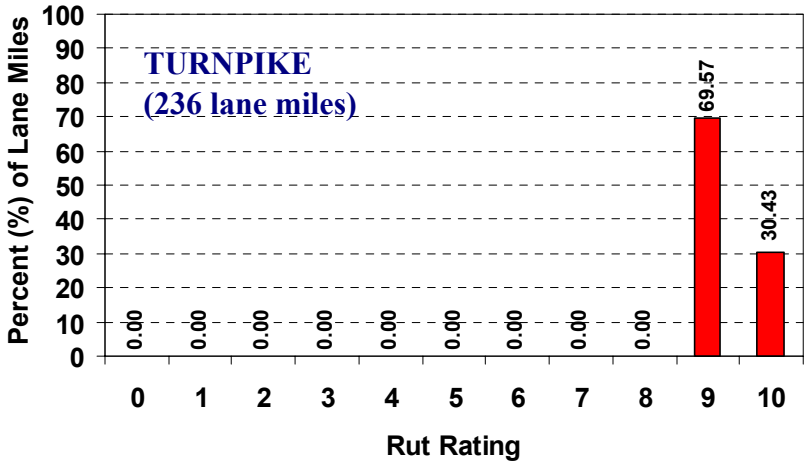


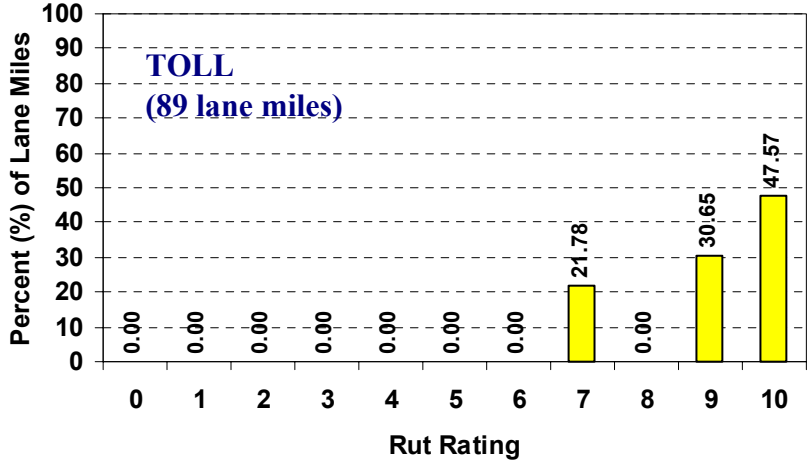
2003 Rut Distribution by System

District 7









SECTION IV

RIDE RATING

BY

SYSTEM AND DISTRICT

SECTION IV

Ride Rating by System and District

Ride Rating Criteria

- Ride Ratings measure the ride quality of a pavement section. It is an indication of the degree of smoothness or roughness of the wearing surface.

- Ride Ratings are calculated from Ride Number (ASTM E-1489).

  Ride Number x 2 = Ride Rating

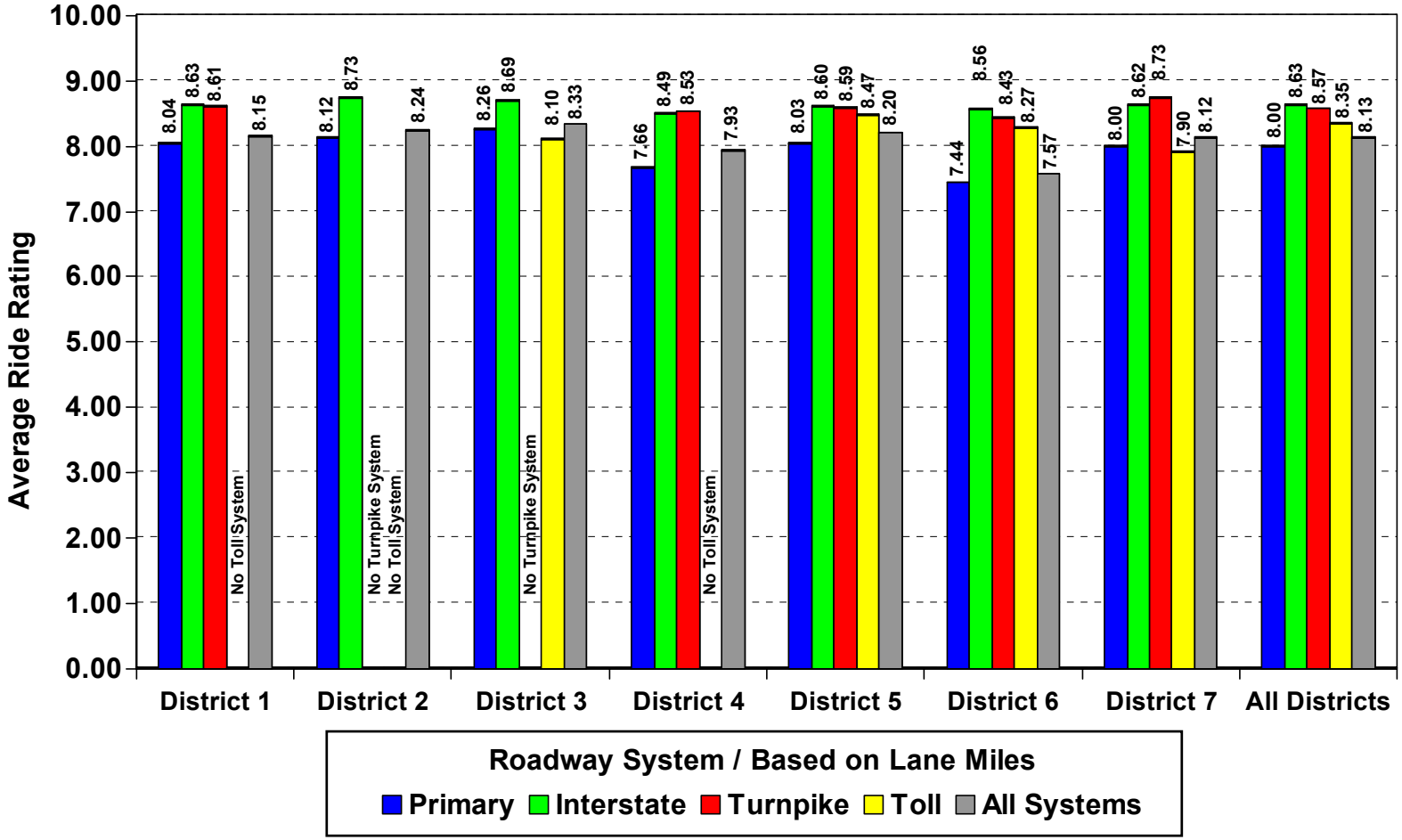
  Ride Number is a mathematical processing of longitudinal profile measurements to produce an estimate of a drivers subjective perception of the ride quality of a roadway. The Ride Number is based on an algorithm published in National Cooperative Highway Research Project (NCHRP) 1-23. Ride Number is defined in ASTM Standard E-1489.

- Rideability is greatly affected by factors that include the following:

  - Original pavement profile
  - Profiles from intersecting roads
  - Utility patches and manhole covers, and
  - Surface and structural deterioration

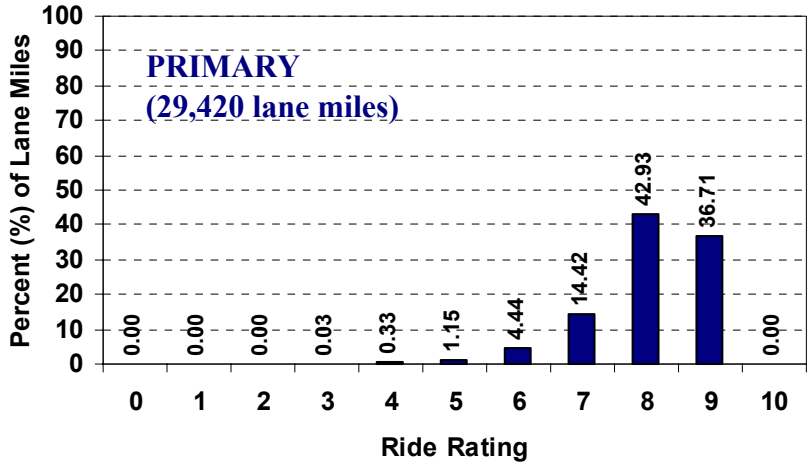
- Ride deficiency is rated on a 0 to 10 scale, where 10 represents a pavement with no roughness while ratings of 6 or less represent a pavement with an undesirable ride quality.

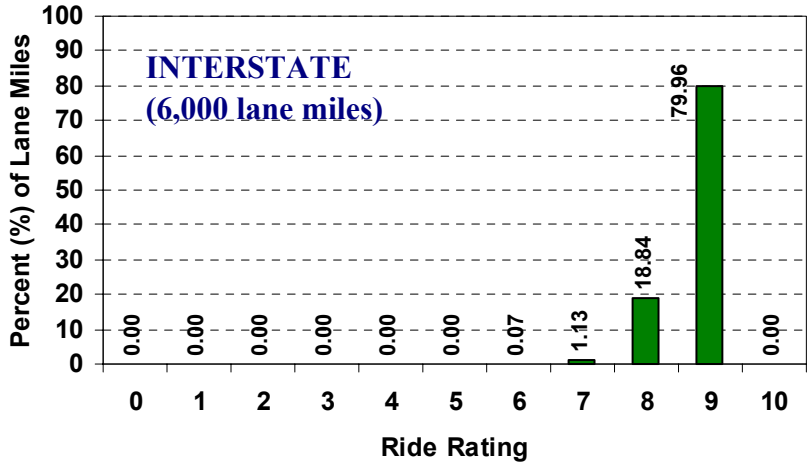
2003 Ride Rating by System and District

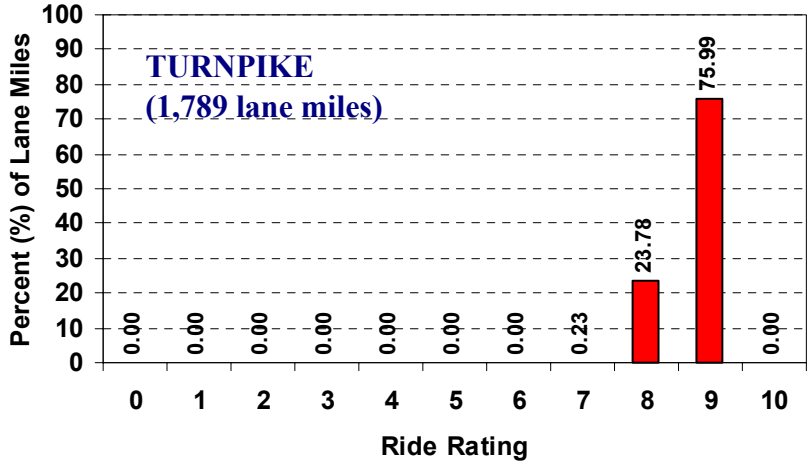


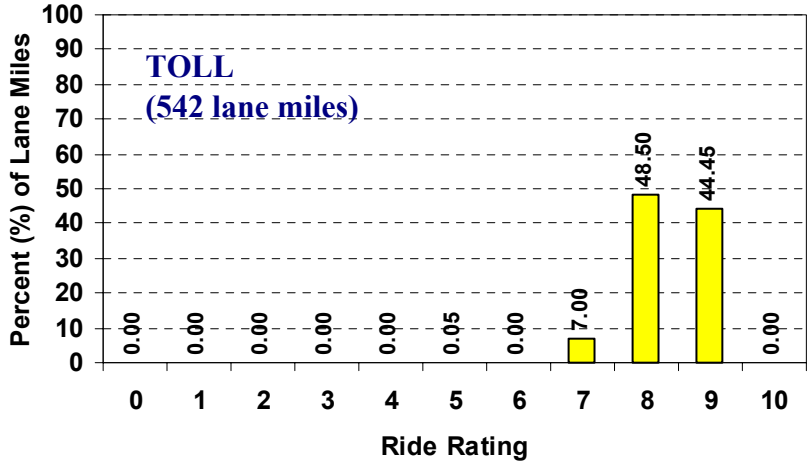
2003 Ride Distribution by System

Statewide



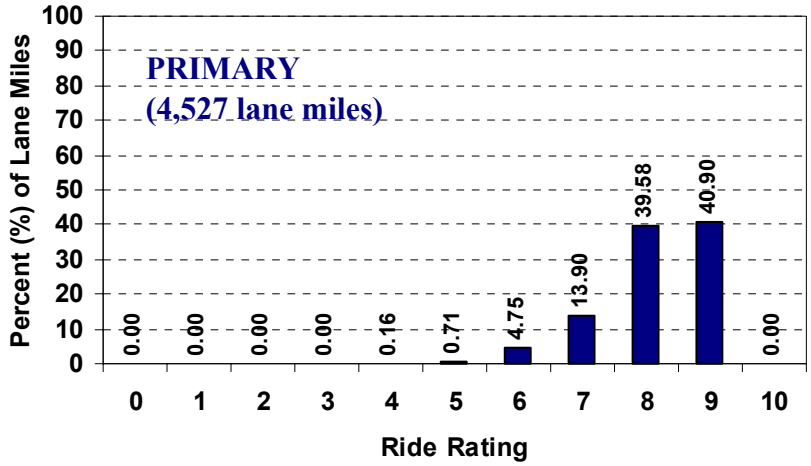


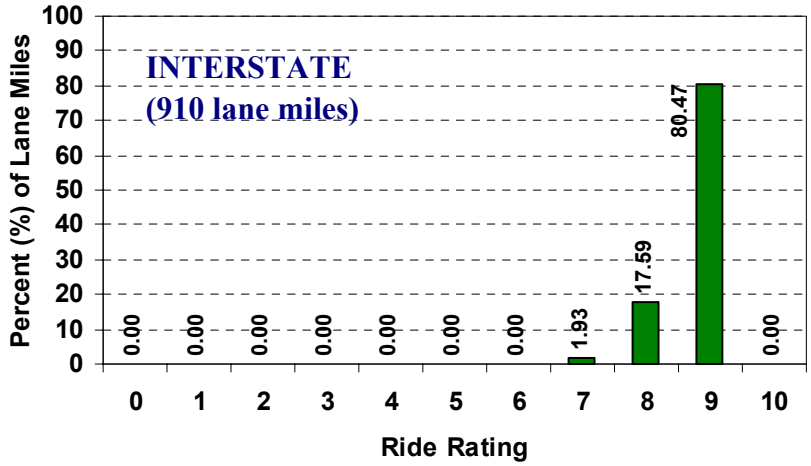


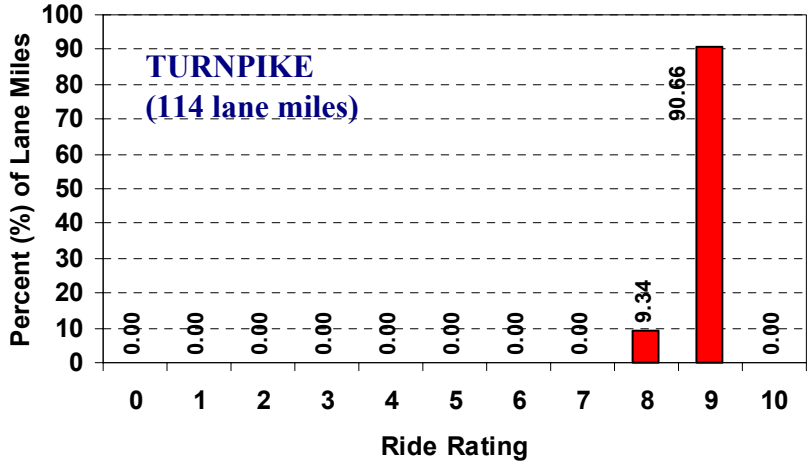


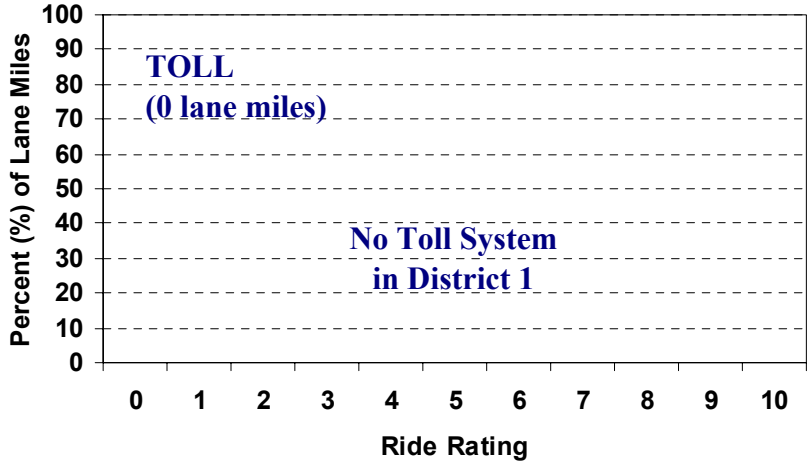
2003 Ride Distribution by System

District 1



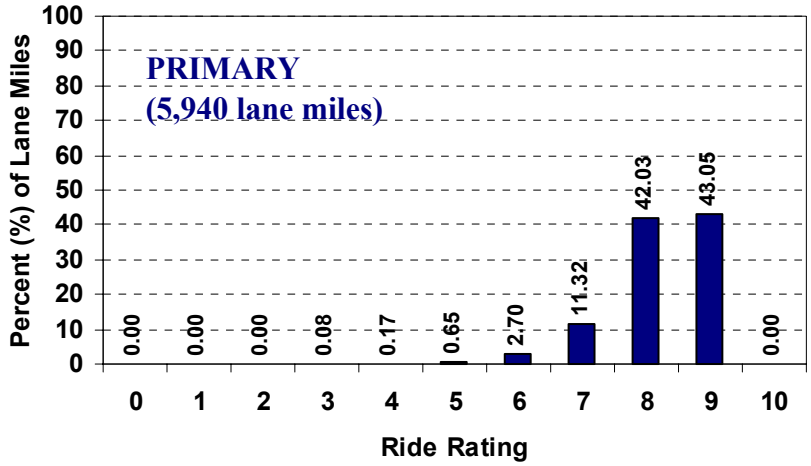


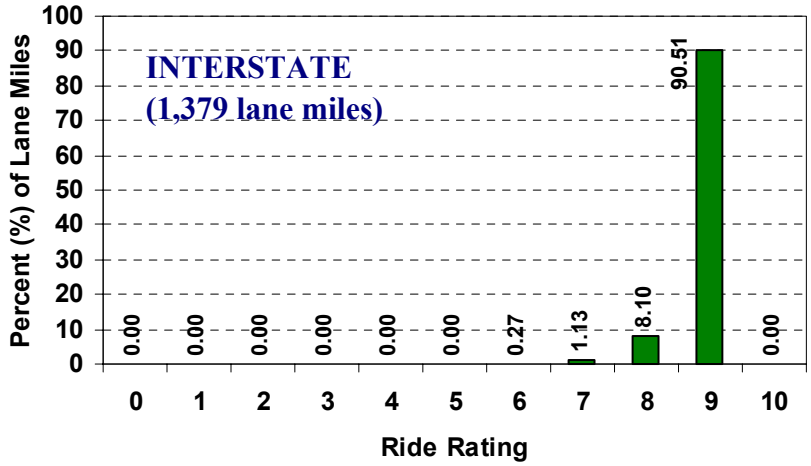


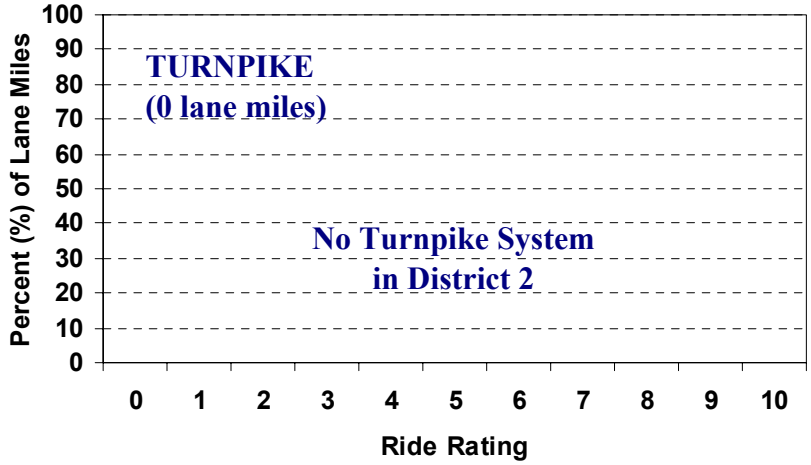


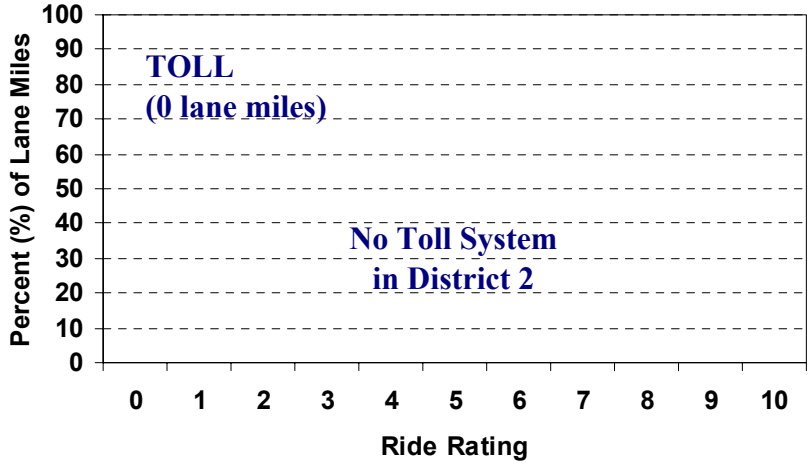
2003 Ride Distribution by System

District 2



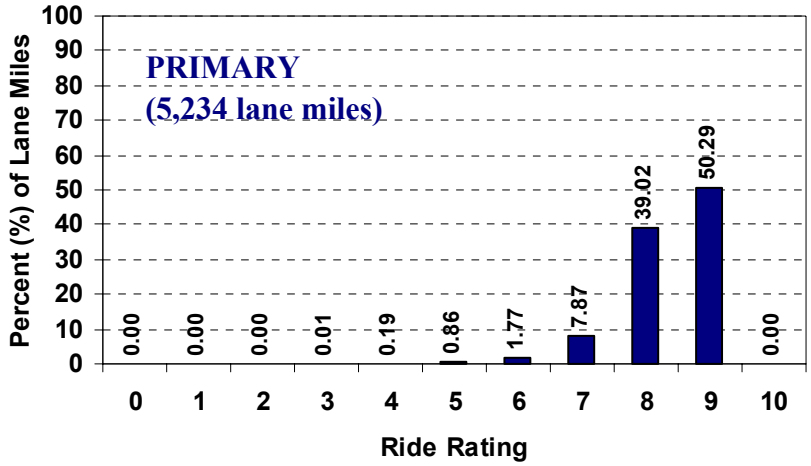


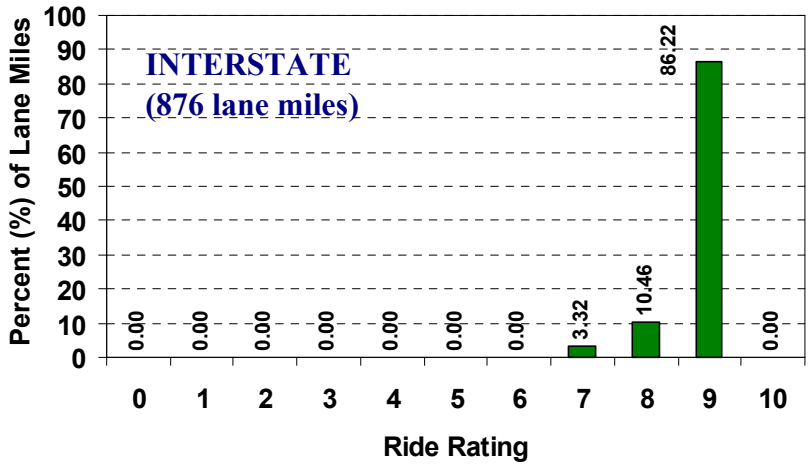


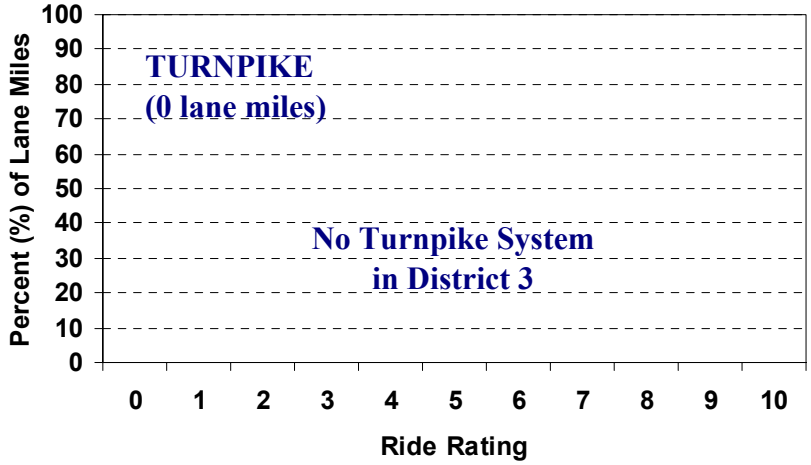


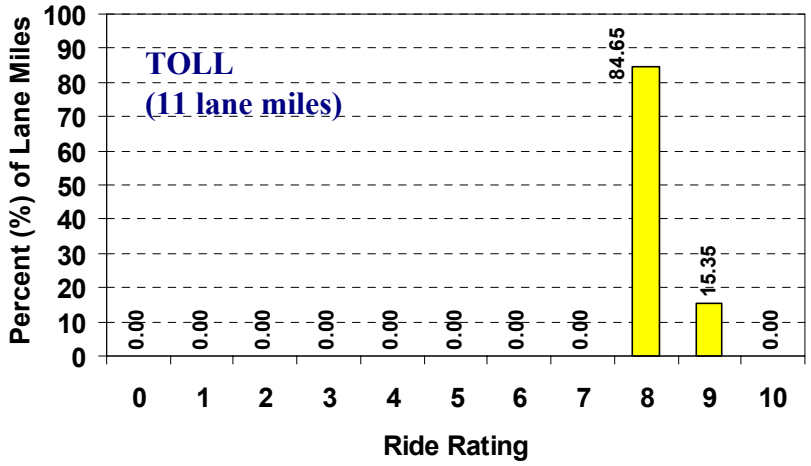
2003 Ride Distribution by System

District 3



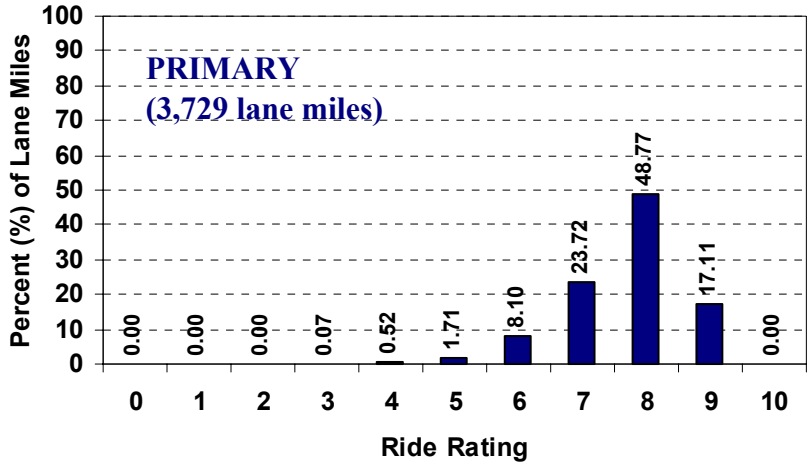


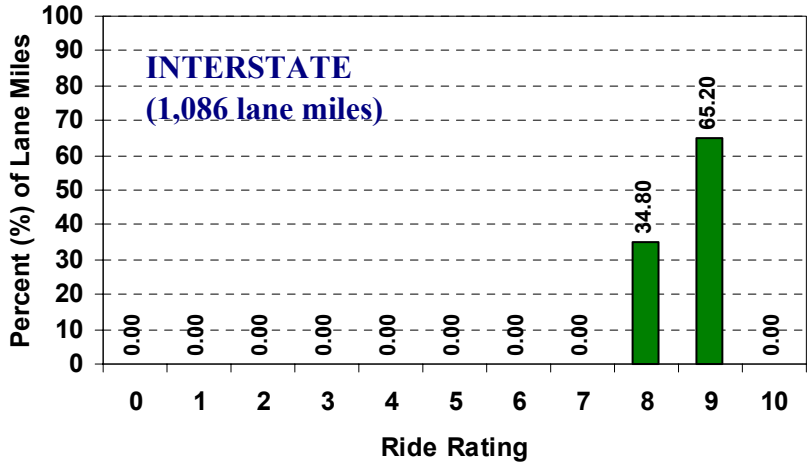


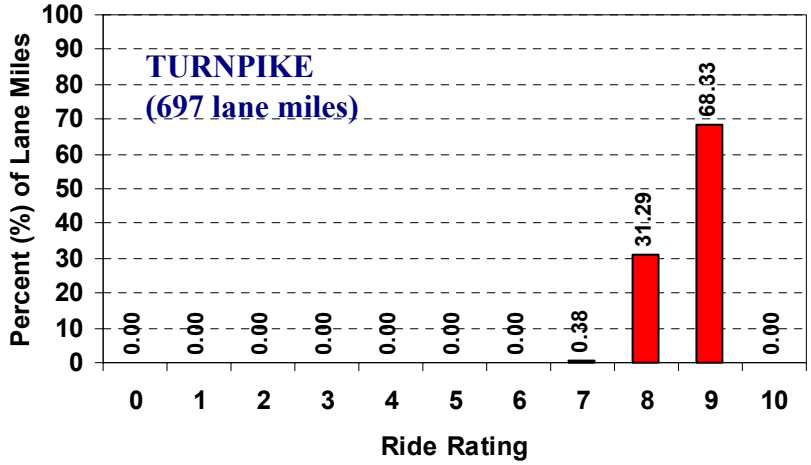


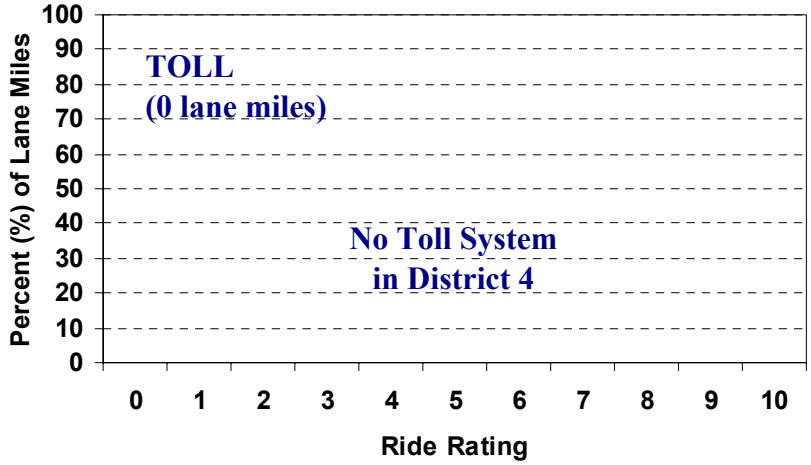
2003 Ride Distribution by System

District 4



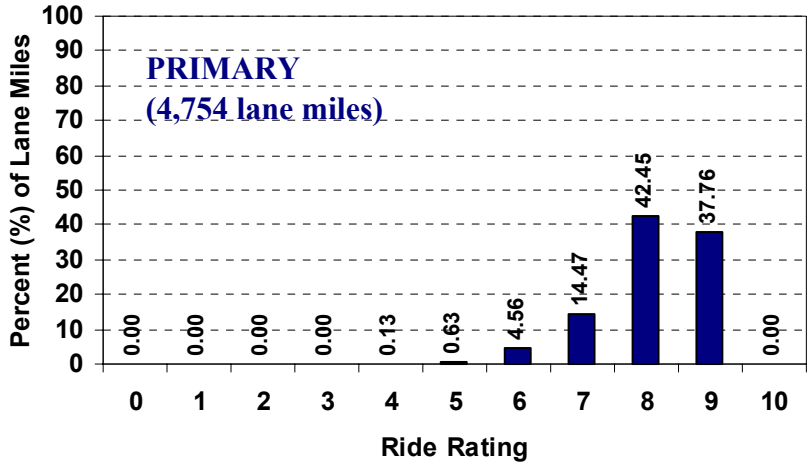


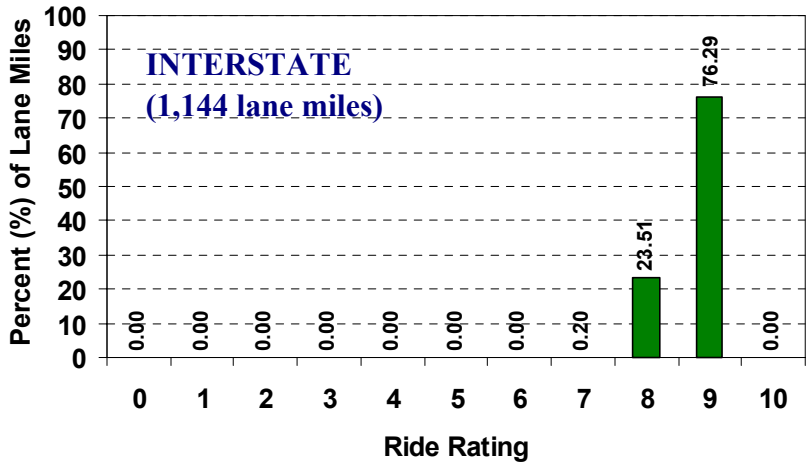


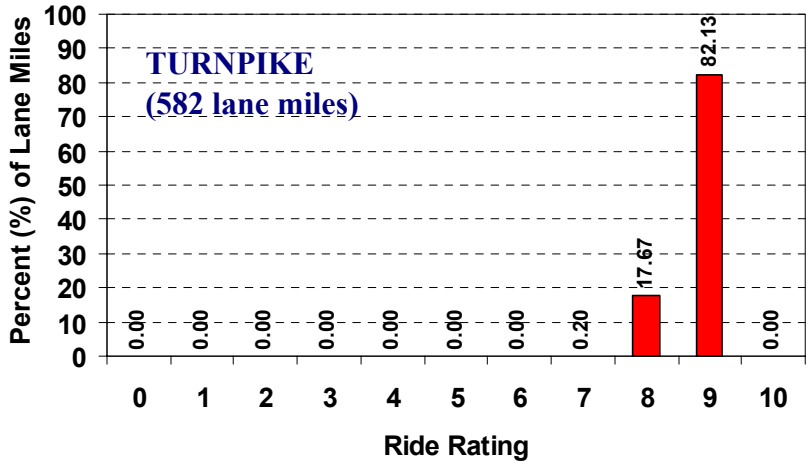


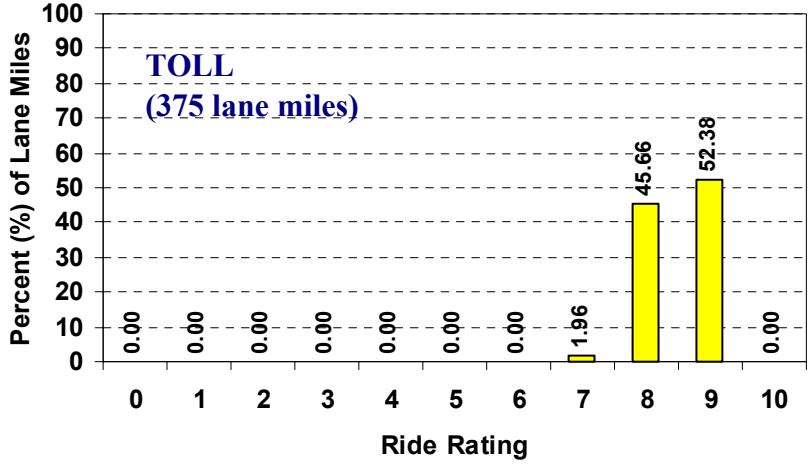
2003 Ride Distribution by System

District 5



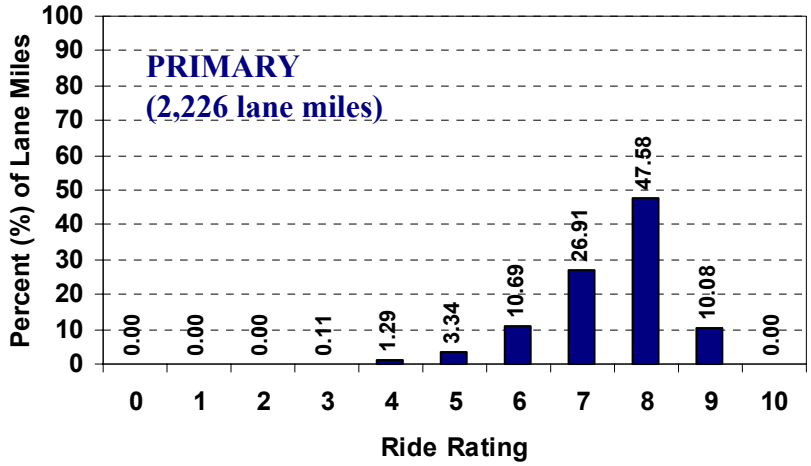


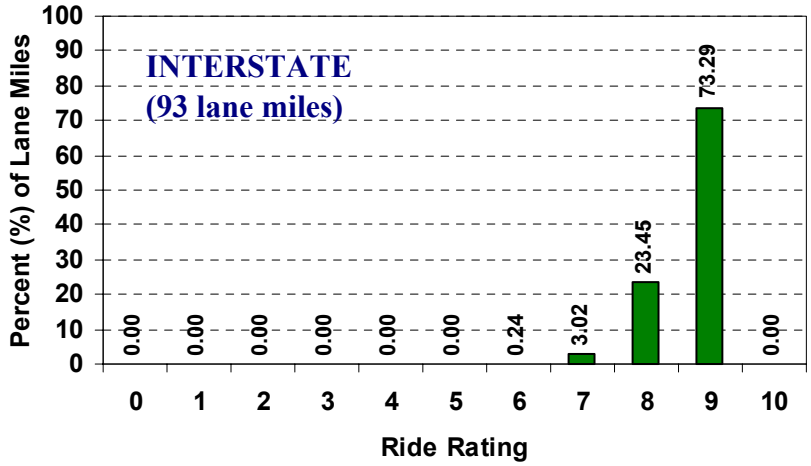


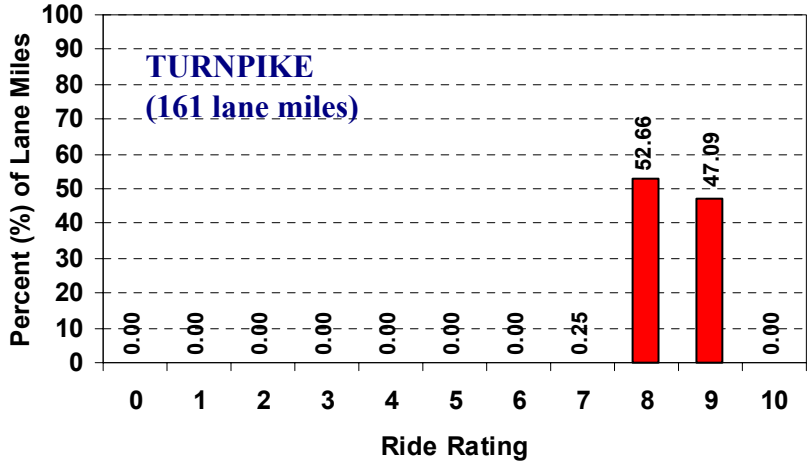


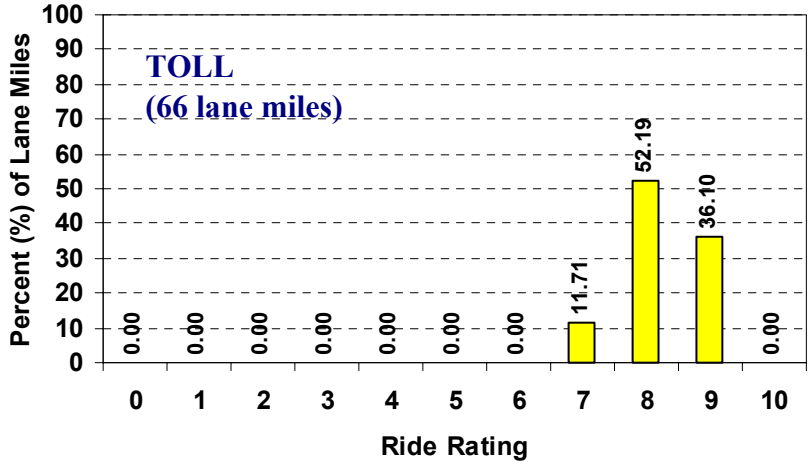
2003 Ride Distribution by System

District 6



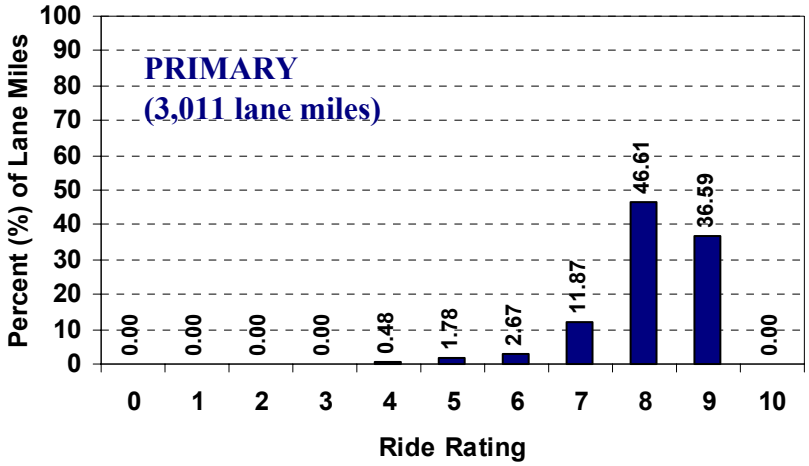


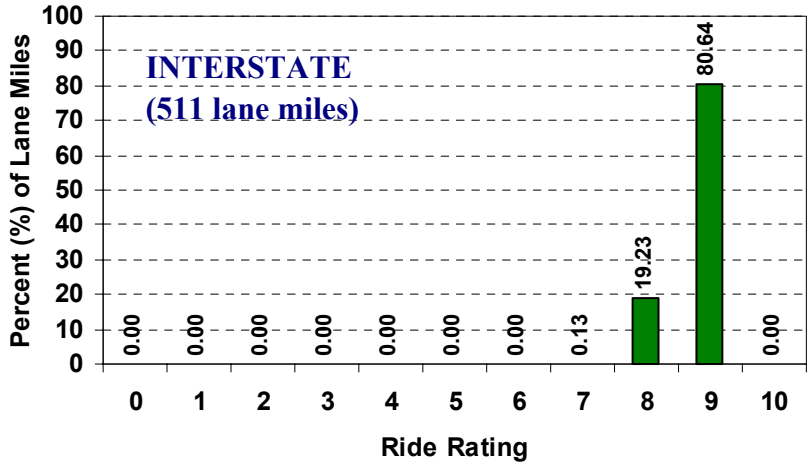


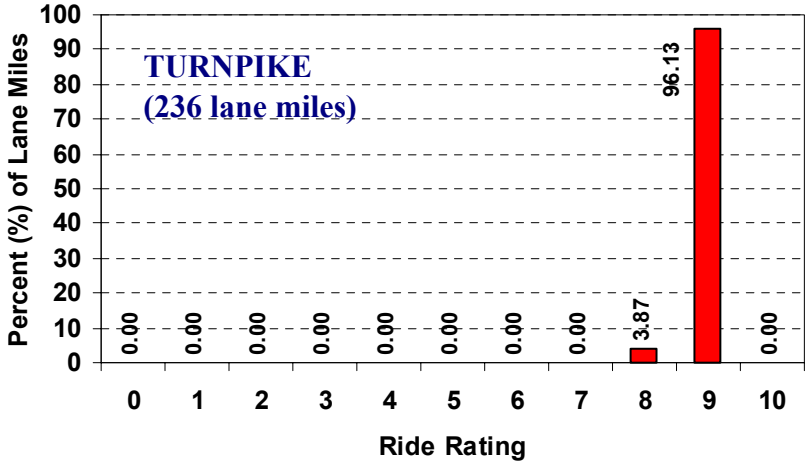


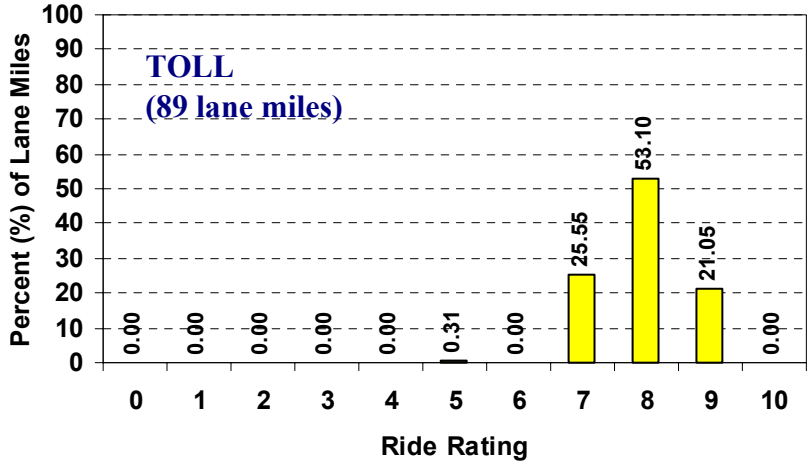
2003 Ride Distribution by System

District 7









SECTION V

CRACK, RUT AND RIDE

DISTRIBUTIONS

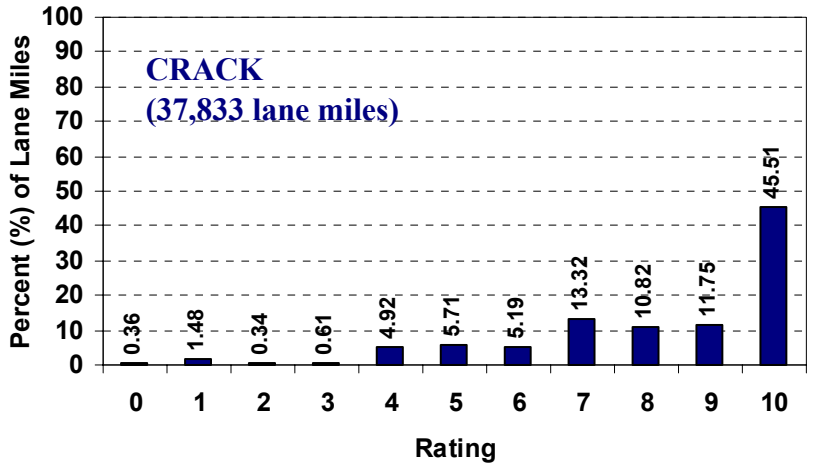
BY

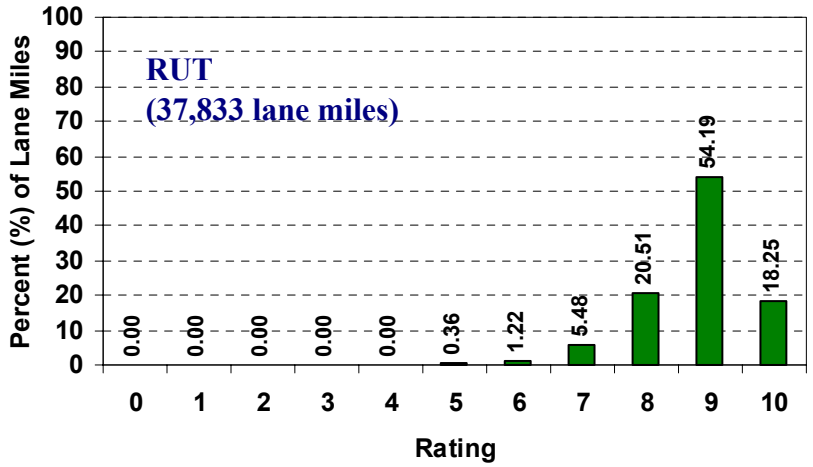
DISTRICT

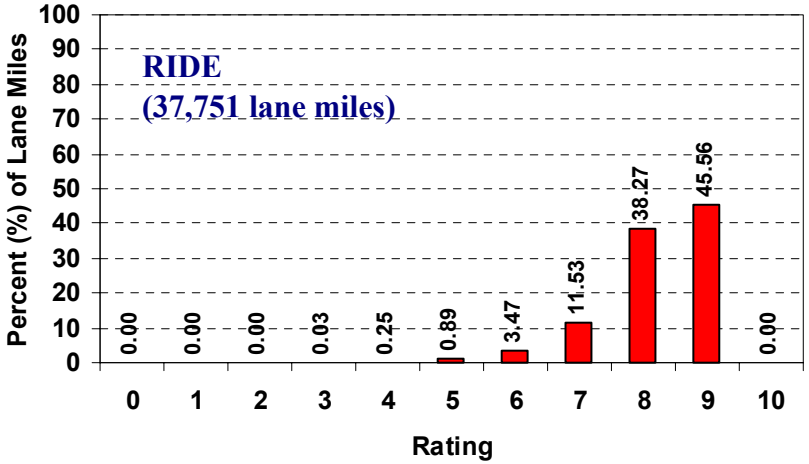
(ALL SYSTEMS COMBINED)

2003 Crack, Rut and Ride Distribution

Statewide (All Systems)

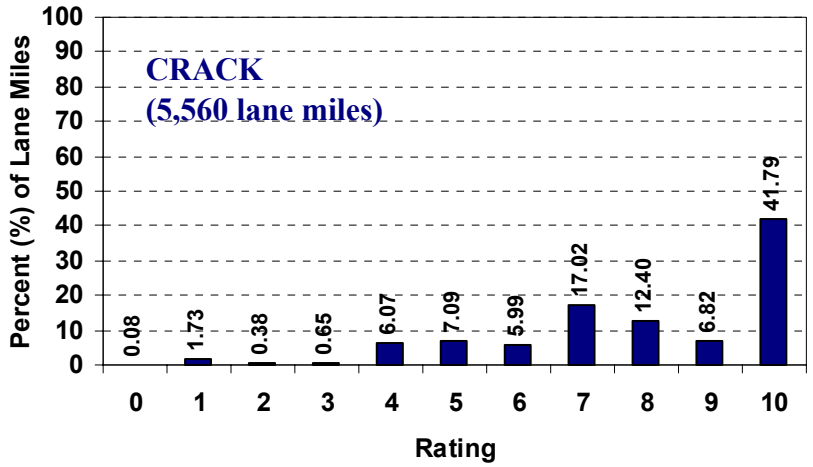


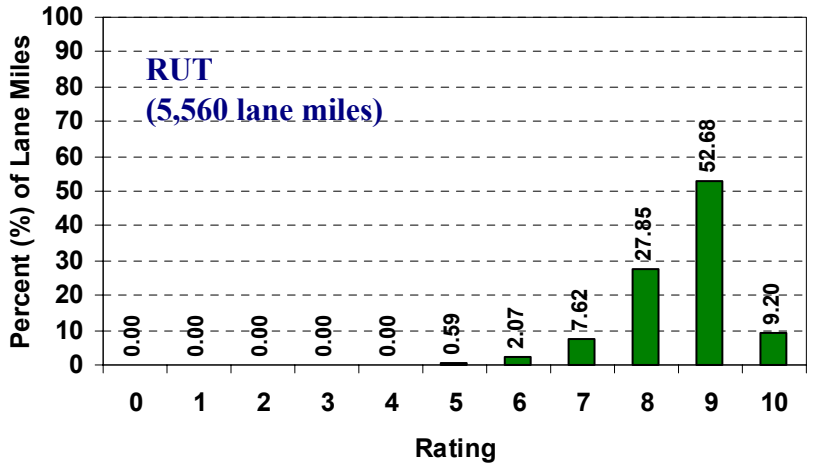


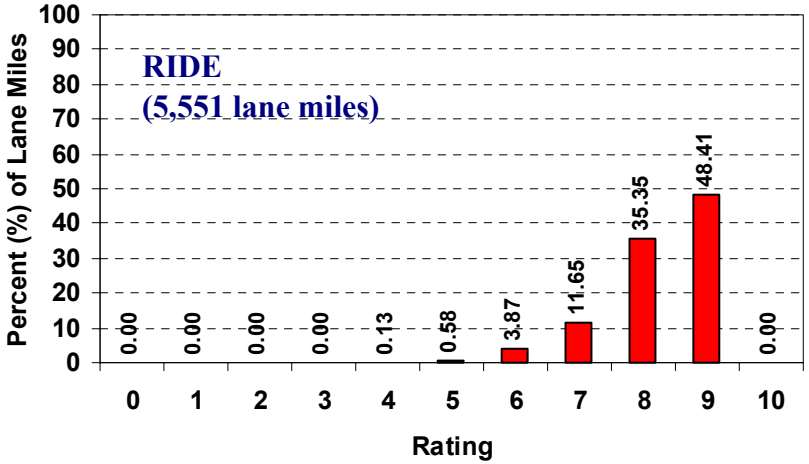


2003 Crack, Rut and Ride Distribution

District 1 (All Systems)

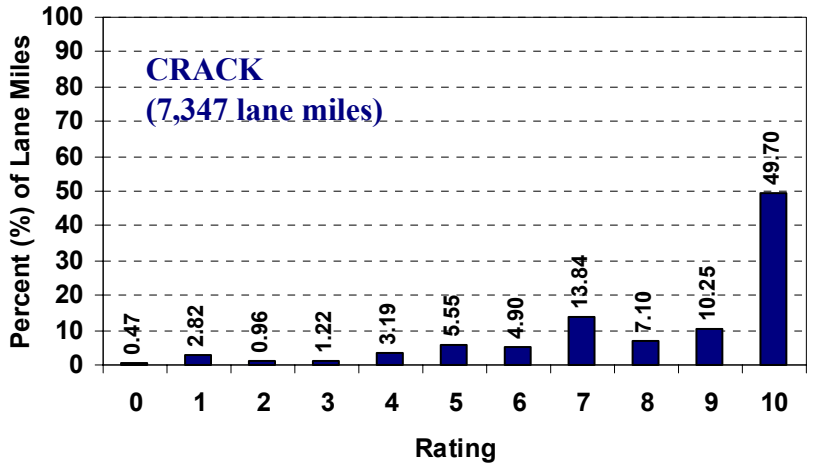


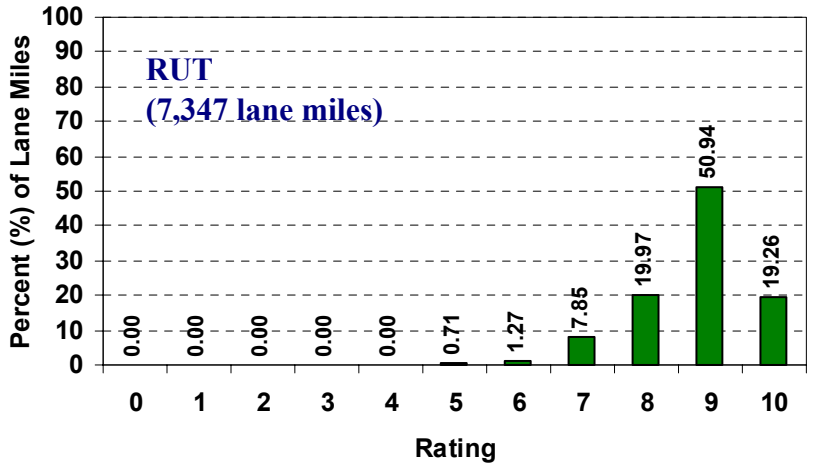


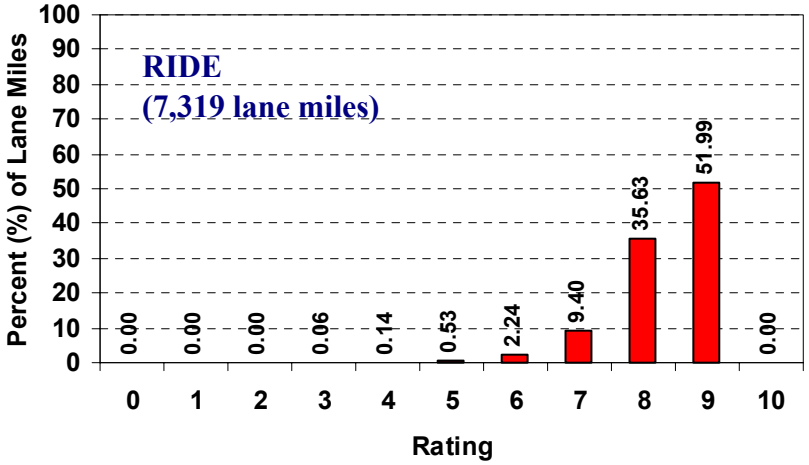


2003 Crack, Rut and Ride Distribution

District 2 (All Systems)

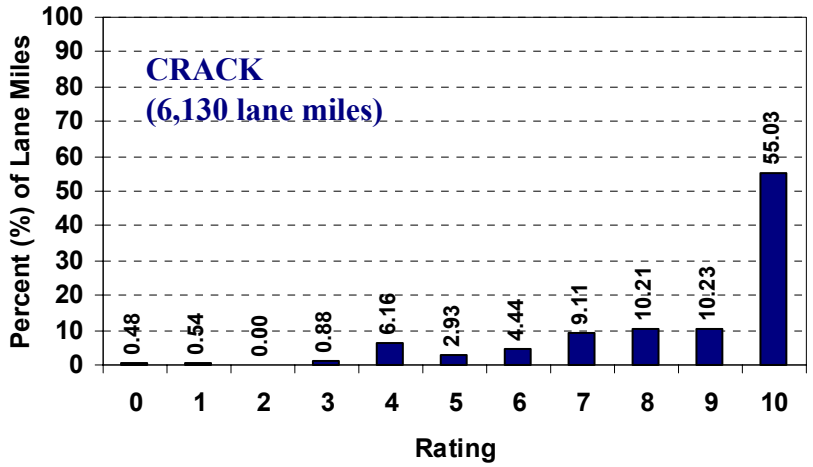


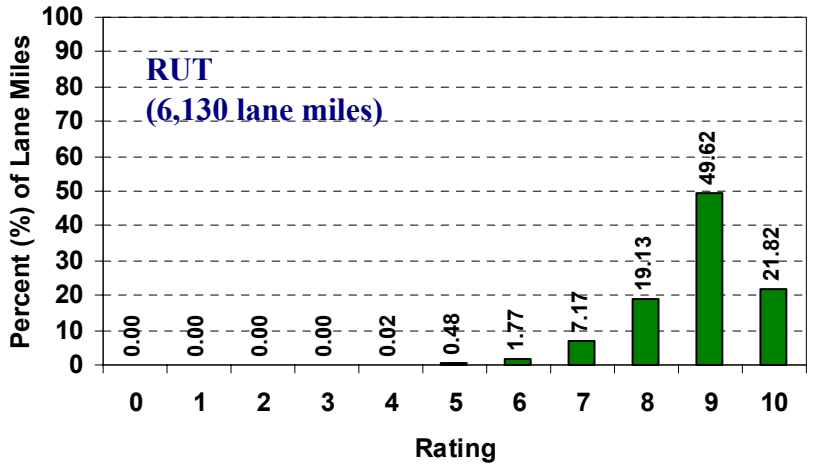


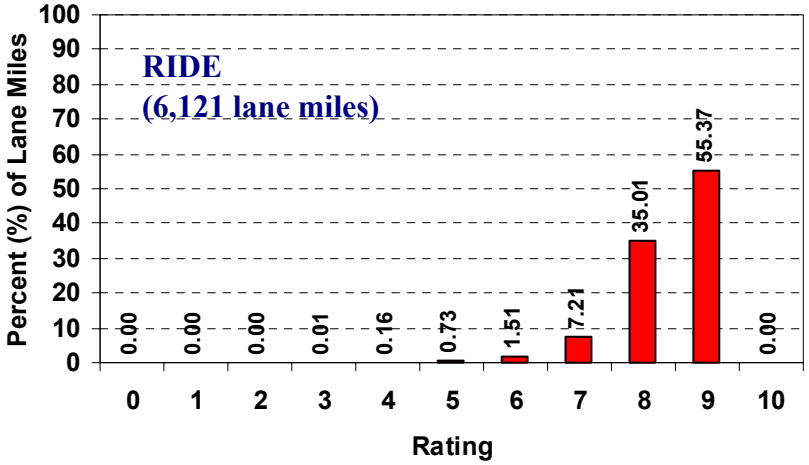


2003 Crack, Rut and Ride Distribution

District 3 (All Systems)

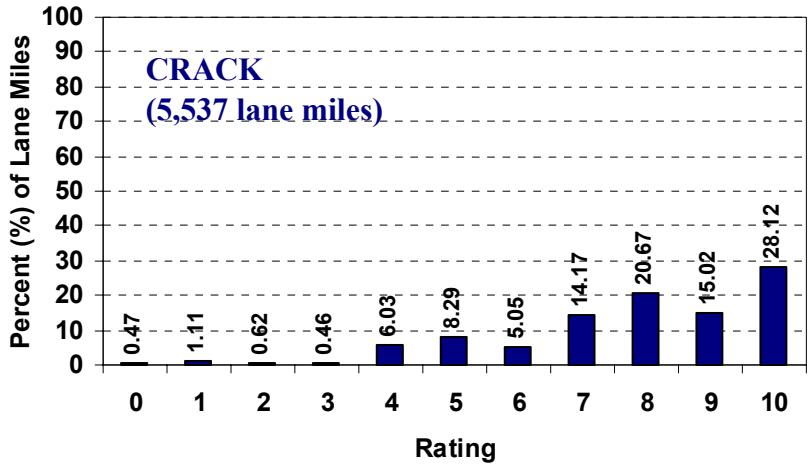


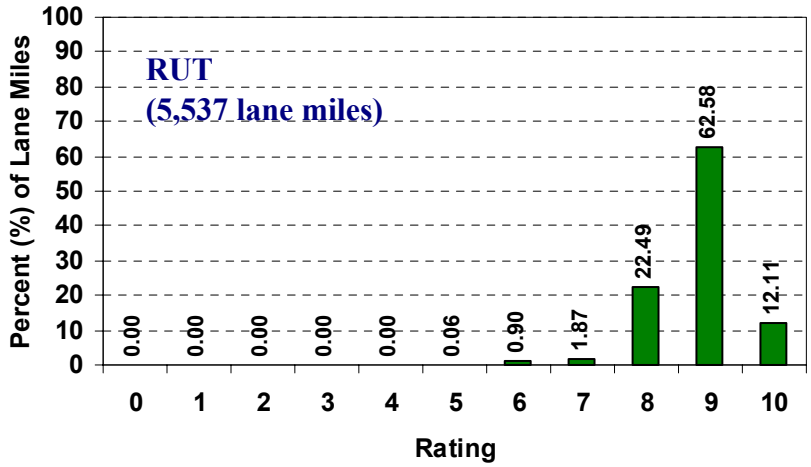


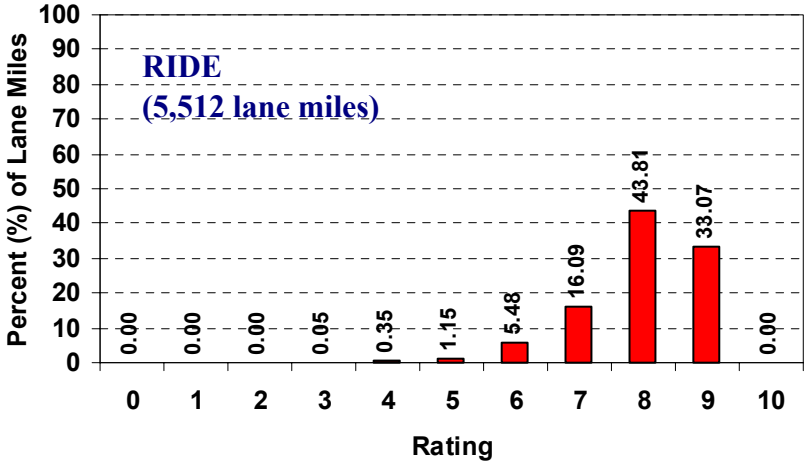


2003 Crack, Rut and Ride Distribution

District 4 (All Systems)

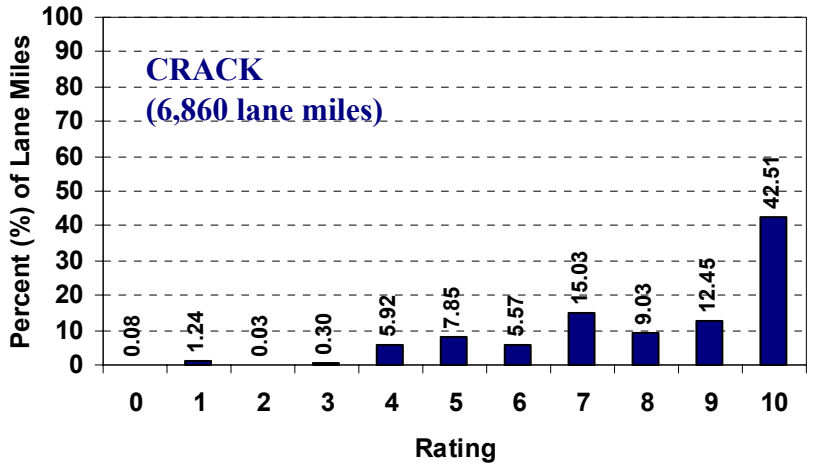


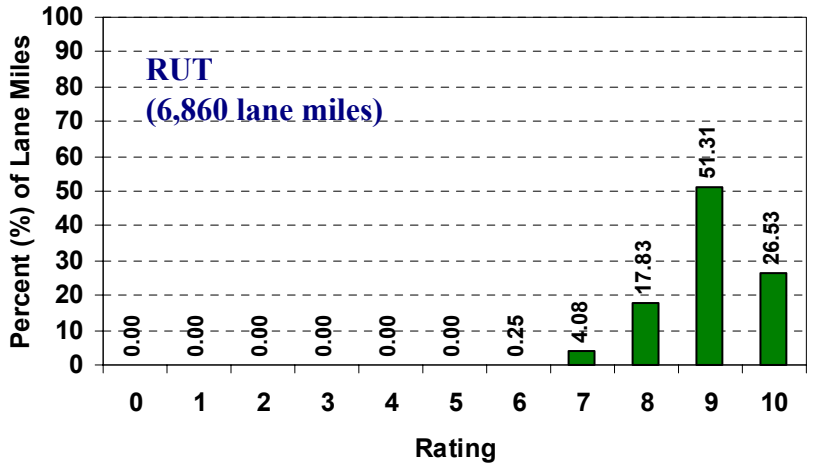


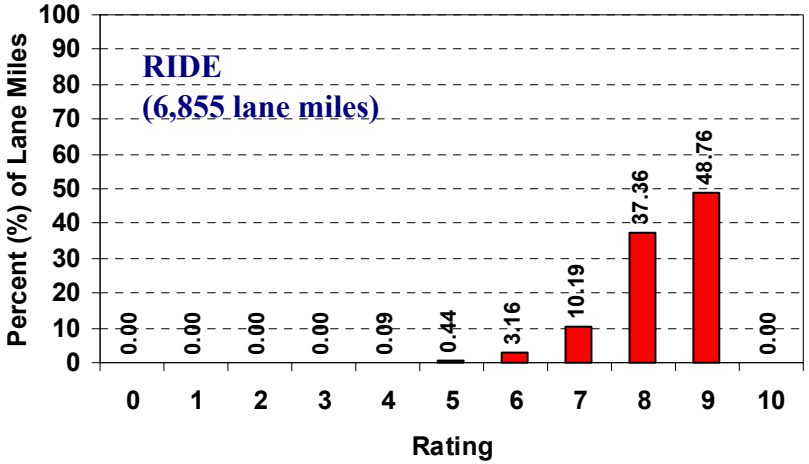


2003 Crack, Rut and Ride Distribution

District 5 (All Systems)

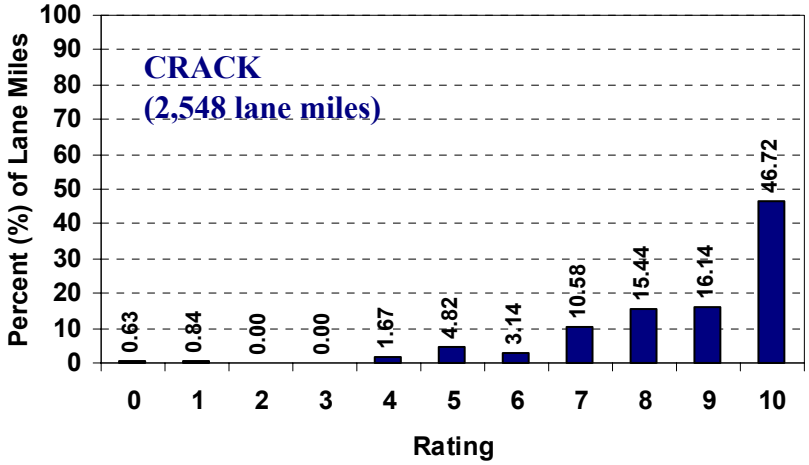


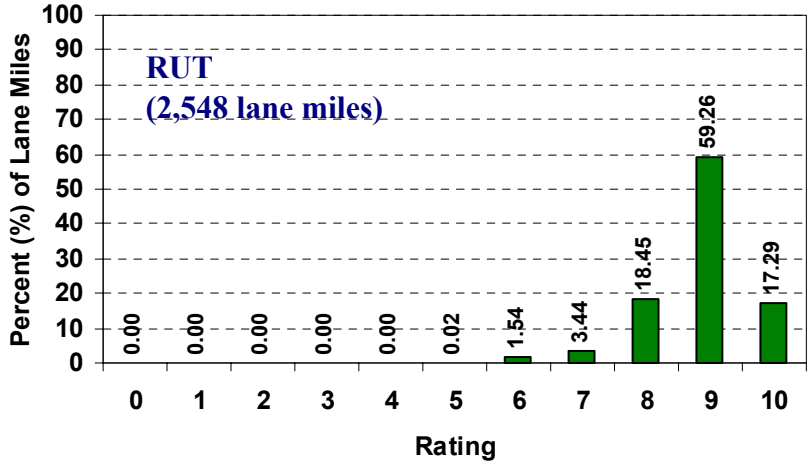


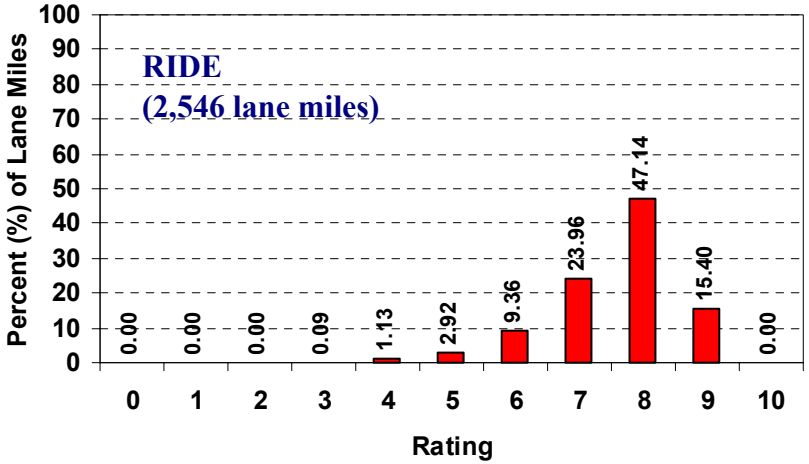


2003 Crack, Rut and Ride Distribution

District 6 (All Systems)

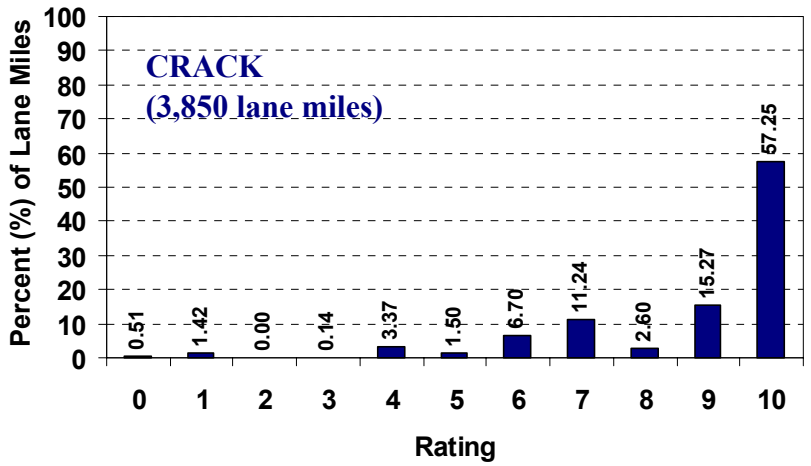


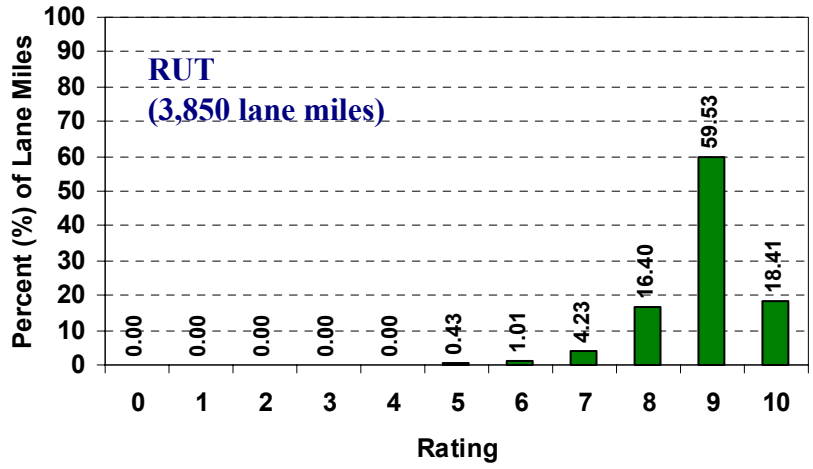


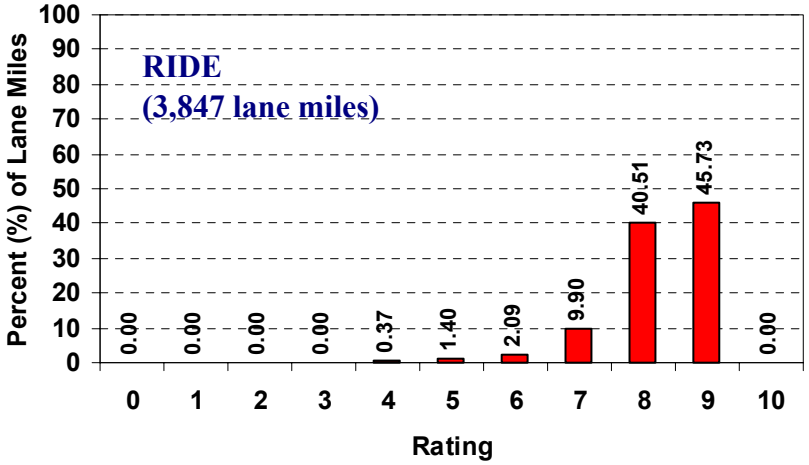


2003 Crack, Rut and Ride Distribution

District 7 (All Systems)







SECTION VI

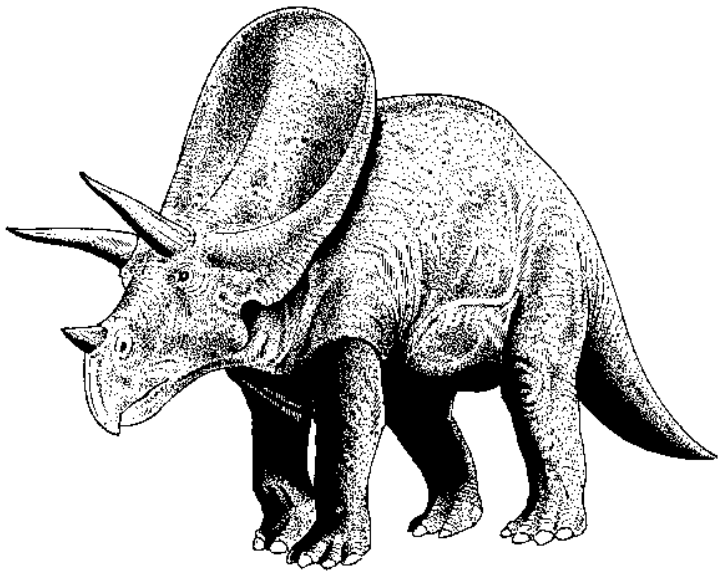
HISTORICAL

DISTRESS RATINGS

BY

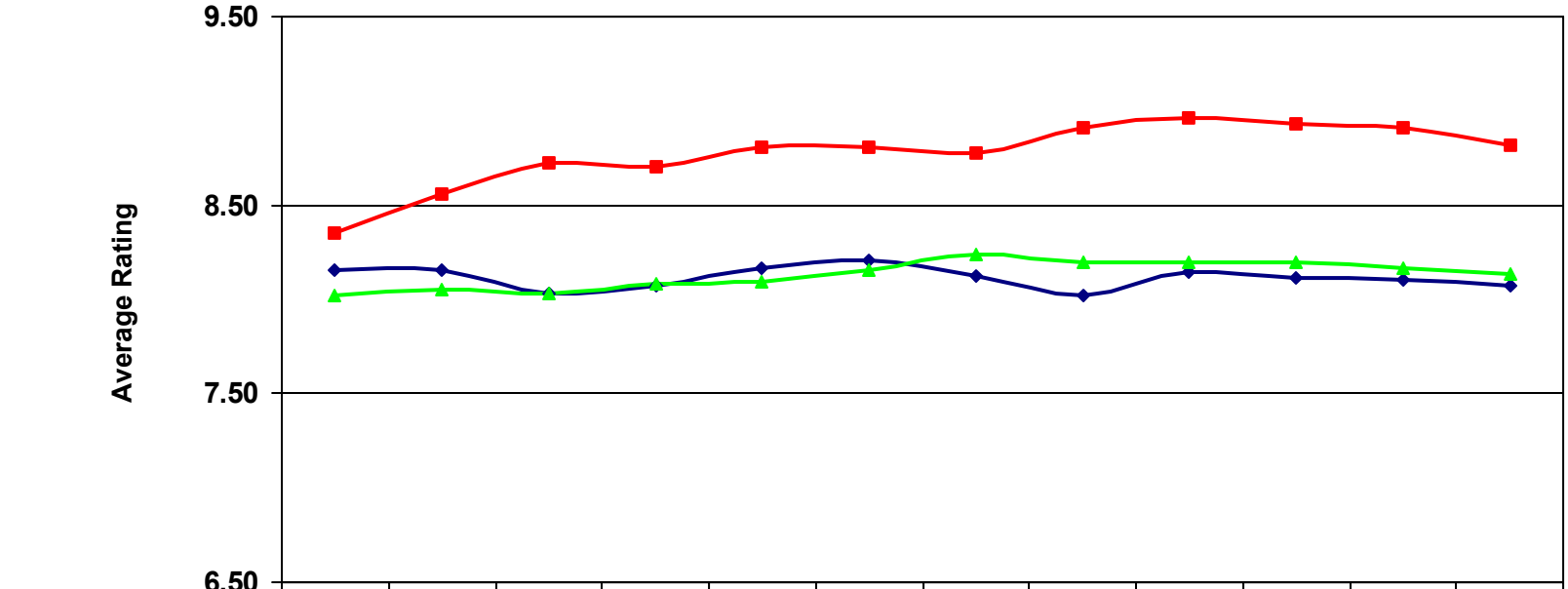
DISTRICT

(ALL SYSTEMS COMBINED)



Historical Distress Ratings

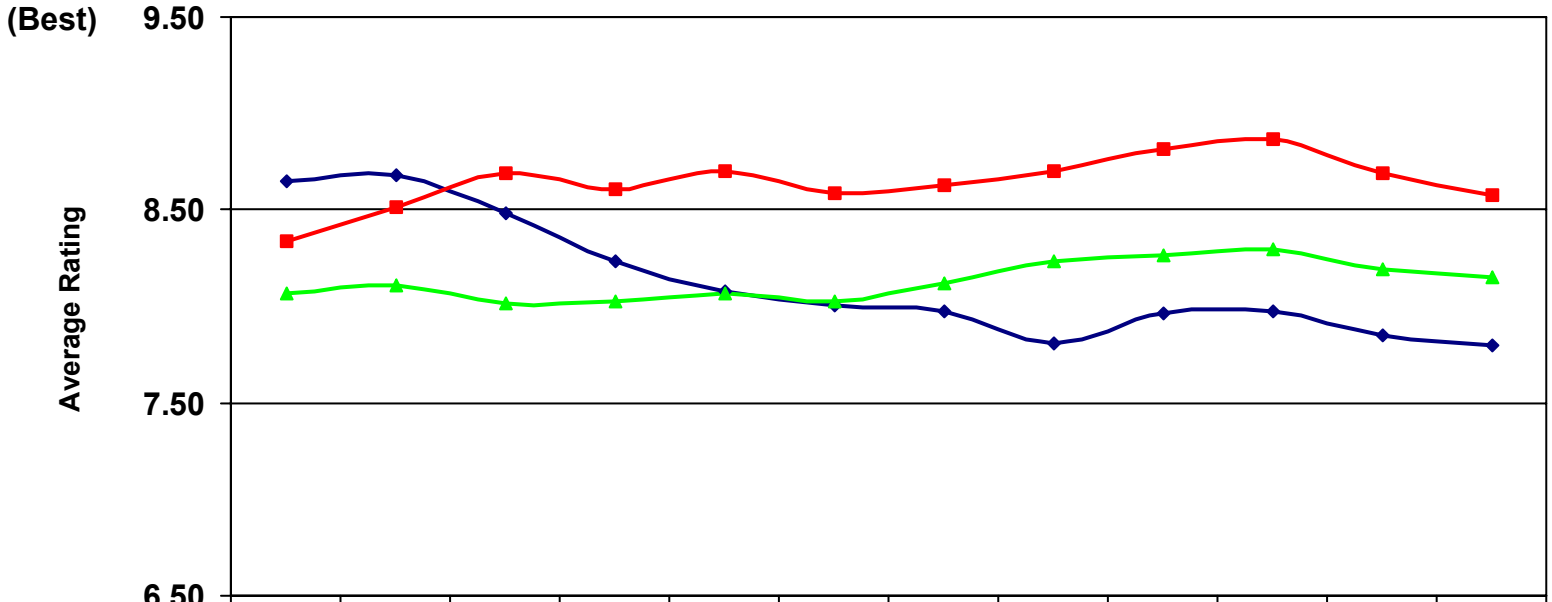
Statewide (All Systems)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.15	8.15	8.03	8.07	8.17	8.21	8.12	8.02	8.14	8.11	8.10	8.07
Rut Rating	8.35	8.56	8.72	8.70	8.81	8.81	8.78	8.91	8.96	8.93	8.91	8.82
Ride Rating	8.02	8.05	8.03	8.08	8.09	8.16	8.24	8.20	8.20	8.20	8.17	8.13

Historical Distress Ratings

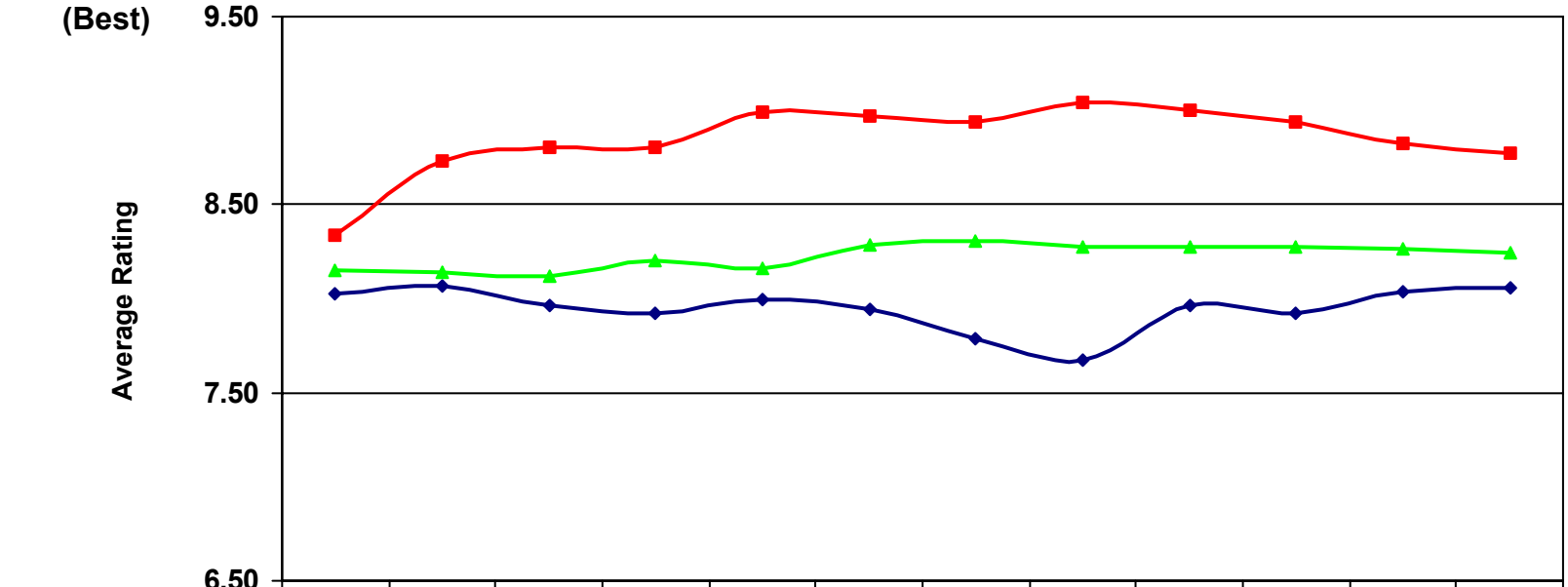
District 1 (All Systems)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.65	8.68	8.48	8.23	8.08	8.01	7.97	7.81	7.96	7.97	7.85	7.80
Rut Rating	8.34	8.51	8.69	8.61	8.70	8.59	8.63	8.70	8.81	8.87	8.69	8.58
Ride Rating	8.07	8.11	8.02	8.03	8.07	8.03	8.12	8.23	8.26	8.30	8.19	8.15

Historical Distress Ratings

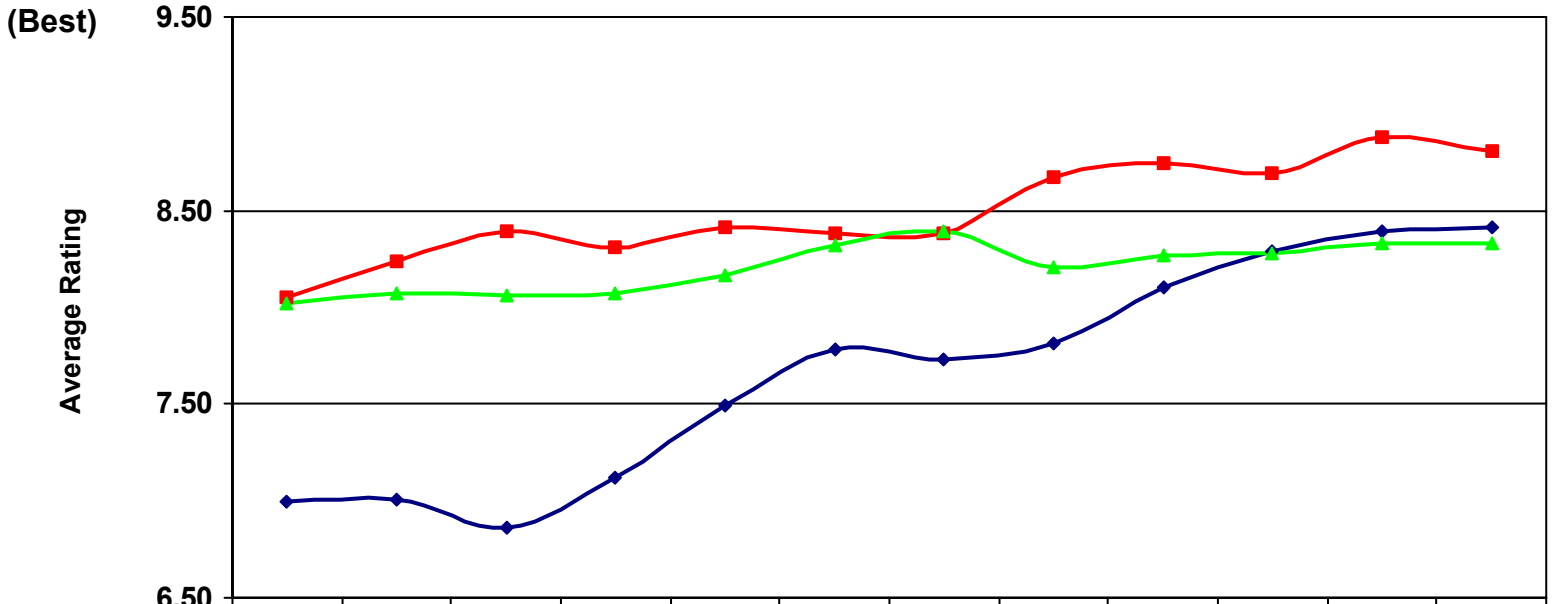
District 2 (All Systems)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.03	8.07	7.96	7.92	7.99	7.94	7.79	7.67	7.96	7.92	8.04	8.06
Rut Rating	8.34	8.73	8.80	8.80	8.99	8.97	8.94	9.04	9.00	8.94	8.83	8.77
Ride Rating	8.15	8.14	8.12	8.20	8.16	8.29	8.31	8.28	8.27	8.27	8.26	8.24

Historical Distress Ratings

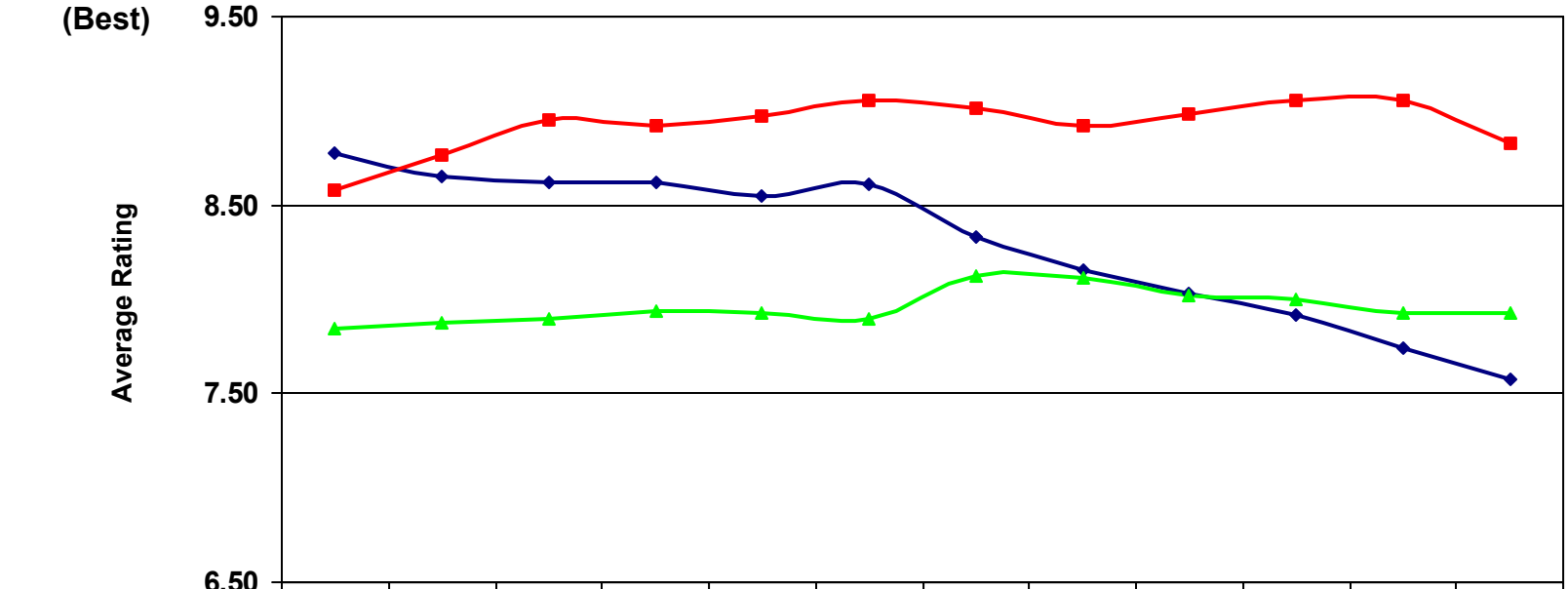
District 3 (All Systems)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	7.00	7.01	6.86	7.12	7.49	7.78	7.73	7.81	8.10	8.29	8.39	8.41
Rut Rating	8.05	8.24	8.39	8.31	8.41	8.38	8.38	8.67	8.75	8.69	8.88	8.81
Ride Rating	8.02	8.07	8.06	8.07	8.17	8.32	8.39	8.21	8.27	8.28	8.33	8.33

Historical Distress Ratings

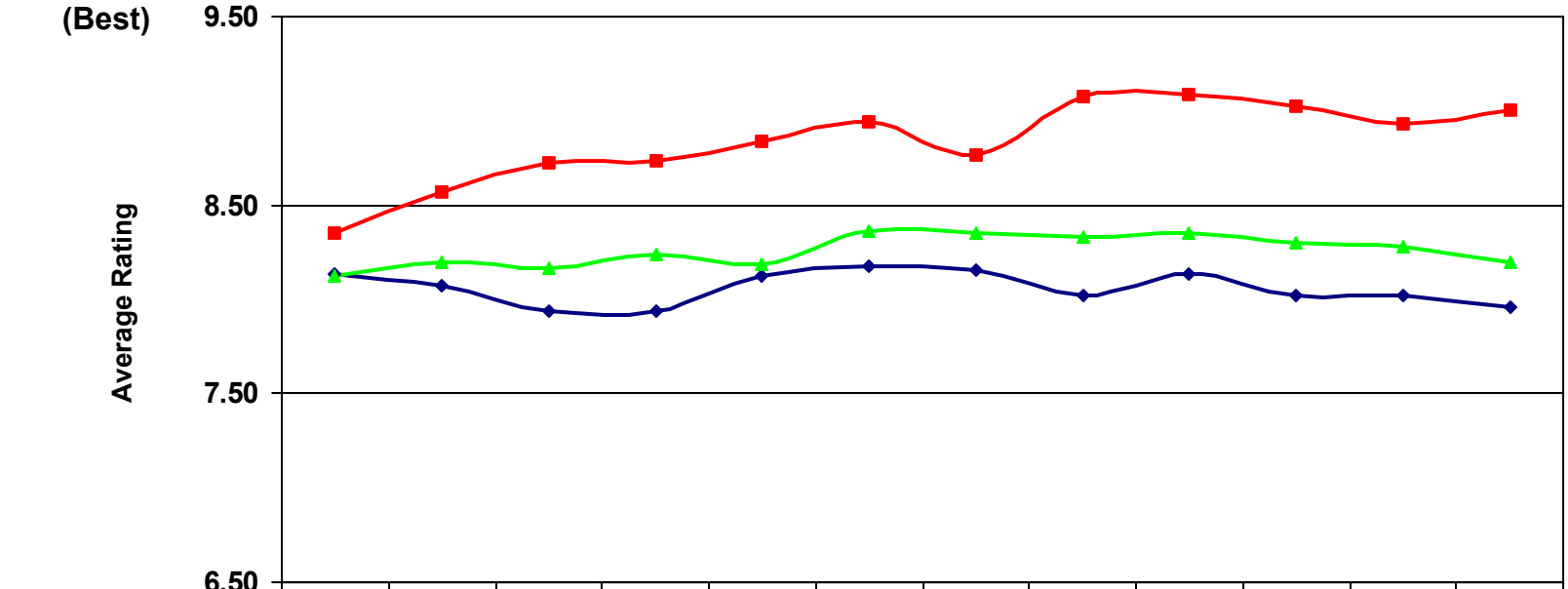
District 4 (All Systems)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.78	8.65	8.62	8.62	8.55	8.61	8.33	8.16	8.03	7.92	7.74	7.58
Rut Rating	8.58	8.77	8.95	8.92	8.97	9.05	9.01	8.92	8.98	9.05	9.05	8.83
Ride Rating	7.84	7.88	7.90	7.94	7.93	7.90	8.12	8.11	8.02	8.00	7.93	7.93

Historical Distress Ratings

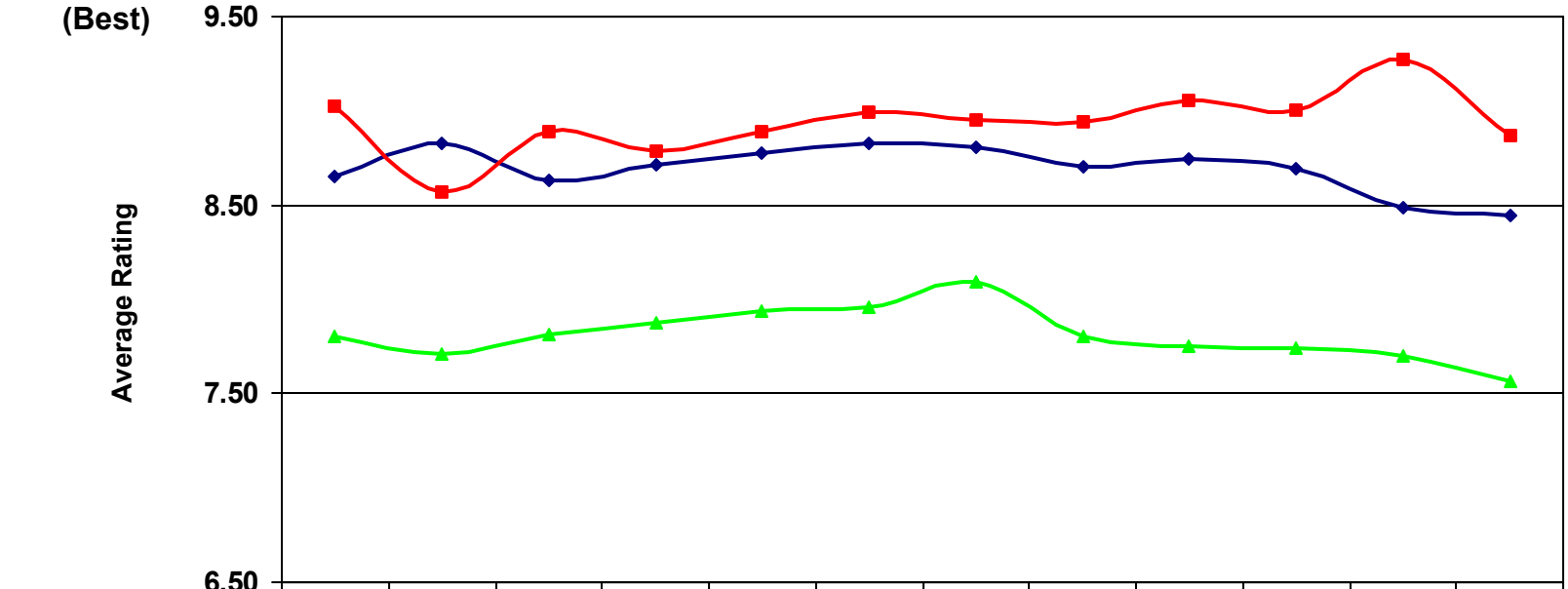
District 5 (All Systems)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.13	8.07	7.94	7.94	8.12	8.18	8.16	8.02	8.13	8.02	8.02	7.96
Rut Rating	8.35	8.57	8.72	8.73	8.84	8.94	8.77	9.08	9.09	9.02	8.93	9.00
Ride Rating	8.12	8.20	8.17	8.24	8.19	8.36	8.35	8.33	8.35	8.30	8.28	8.20

Historical Distress Ratings

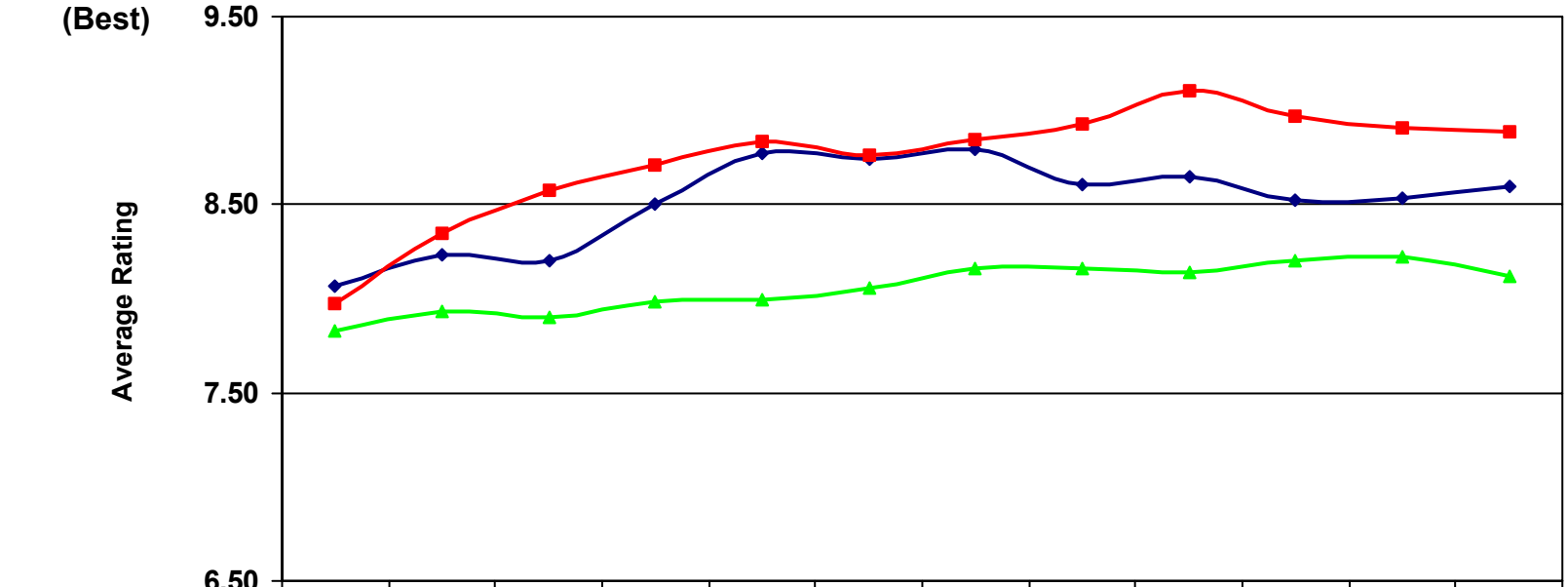
District 6 (All Systems)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.65	8.83	8.63	8.71	8.78	8.83	8.81	8.70	8.74	8.69	8.49	8.44
Rut Rating	9.02	8.57	8.89	8.79	8.89	8.99	8.95	8.94	9.06	9.00	9.27	8.87
Ride Rating	7.80	7.71	7.81	7.88	7.94	7.96	8.09	7.80	7.75	7.74	7.70	7.57

Historical Distress Ratings

District 7 (All Systems)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.07	8.23	8.20	8.50	8.77	8.74	8.79	8.61	8.65	8.52	8.53	8.60
Rut Rating	7.97	8.35	8.58	8.71	8.84	8.76	8.85	8.93	9.11	8.97	8.91	8.89
Ride Rating	7.83	7.93	7.90	7.98	8.00	8.06	8.16	8.16	8.14	8.20	8.22	8.12

SECTION VII

HISTORICAL

DISTRESS RATINGS

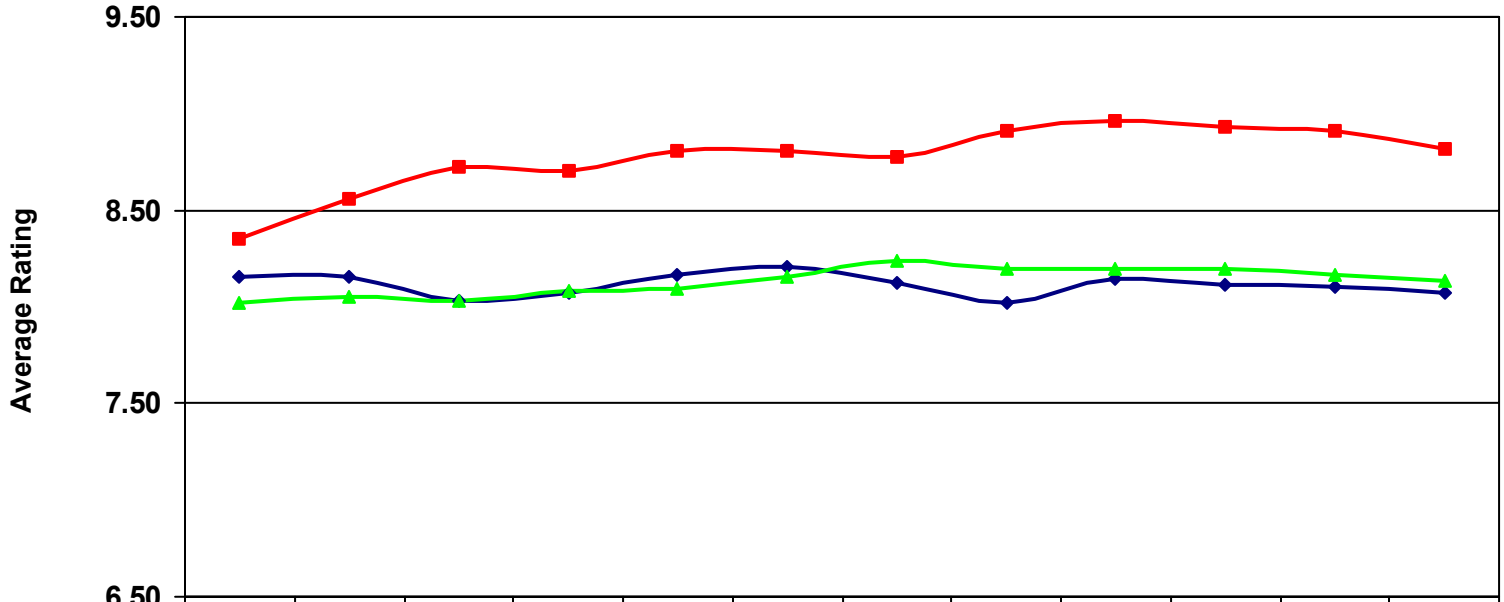
BY

SYSTEM

(ALL DISTRICTS COMBINED)

Historical Distress Ratings

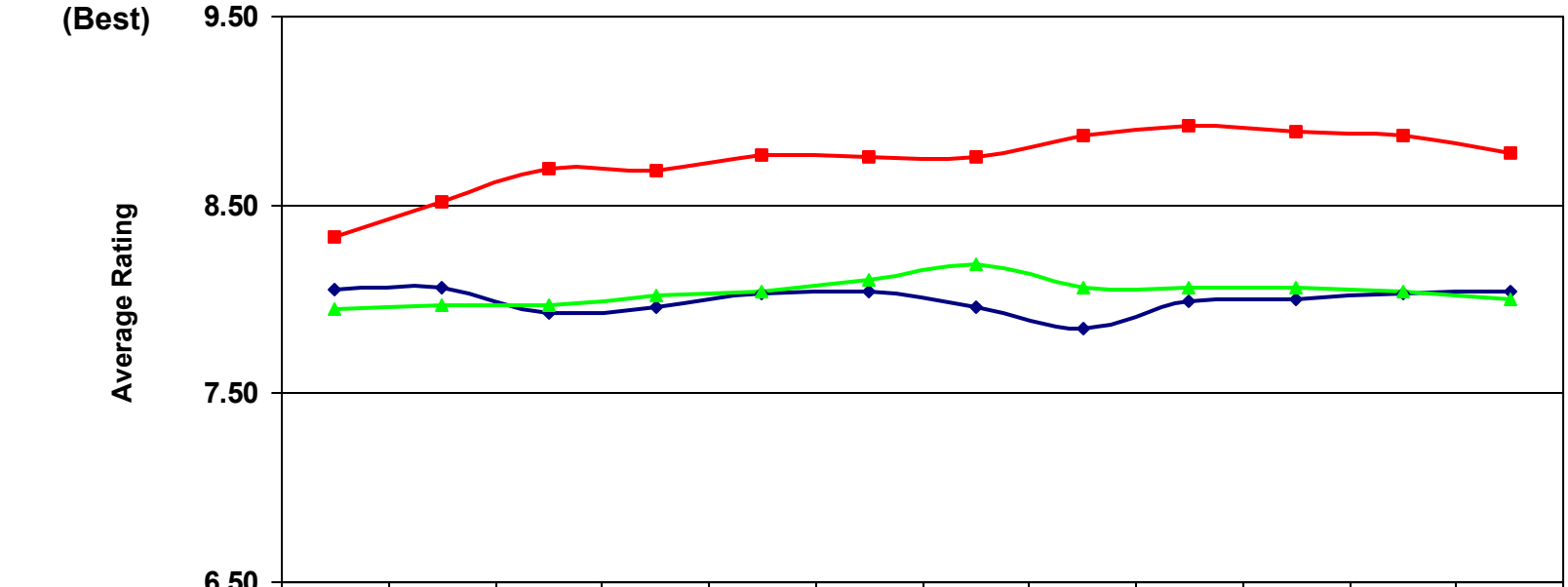
All Systems (All Districts)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.15	8.15	8.03	8.07	8.17	8.21	8.12	8.02	8.14	8.11	8.10	8.07
Rut Rating	8.35	8.56	8.72	8.70	8.81	8.81	8.78	8.91	8.96	8.93	8.91	8.82
Ride Rating	8.02	8.05	8.03	8.08	8.09	8.16	8.24	8.20	8.20	8.20	8.17	8.13

Historical Distress Ratings

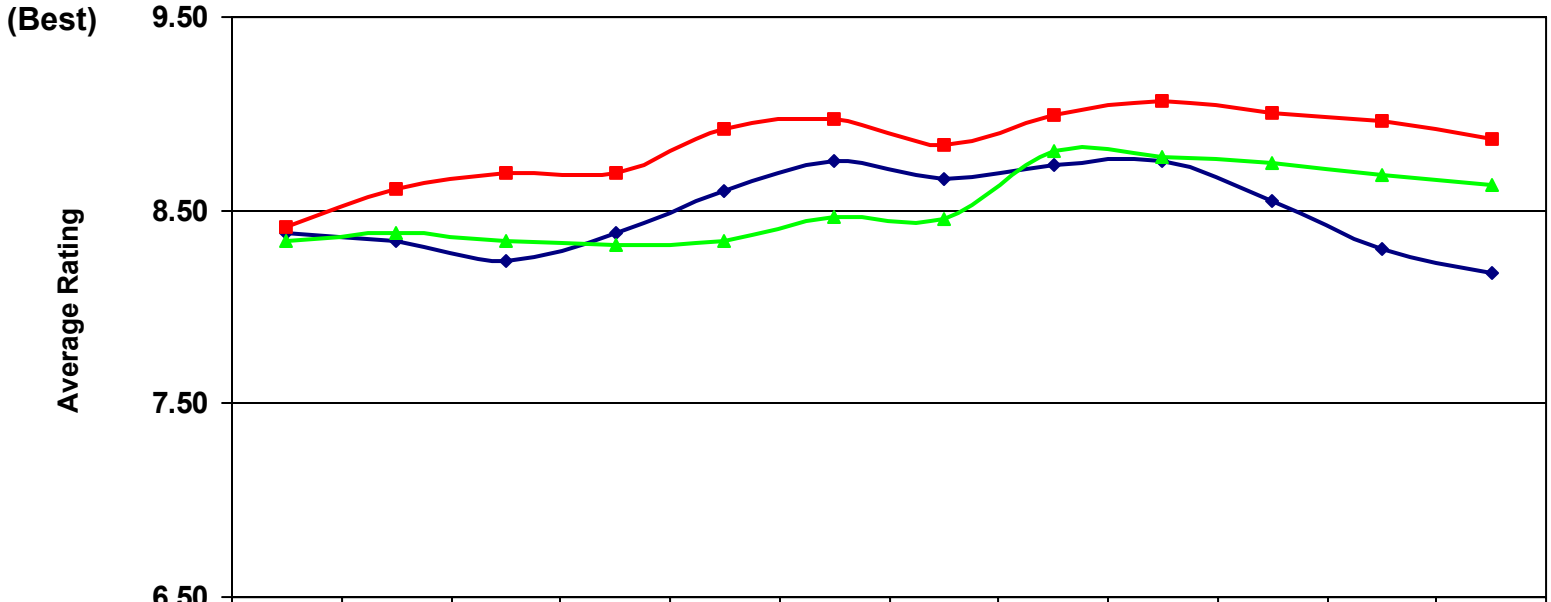
Primary System (All Districts)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.05	8.06	7.93	7.96	8.03	8.04	7.96	7.84	7.99	8.00	8.03	8.04
Rut Rating	8.33	8.52	8.69	8.68	8.77	8.76	8.76	8.87	8.92	8.89	8.87	8.78
Ride Rating	7.95	7.97	7.97	8.02	8.04	8.10	8.19	8.06	8.06	8.06	8.04	8.00

Historical Distress Ratings

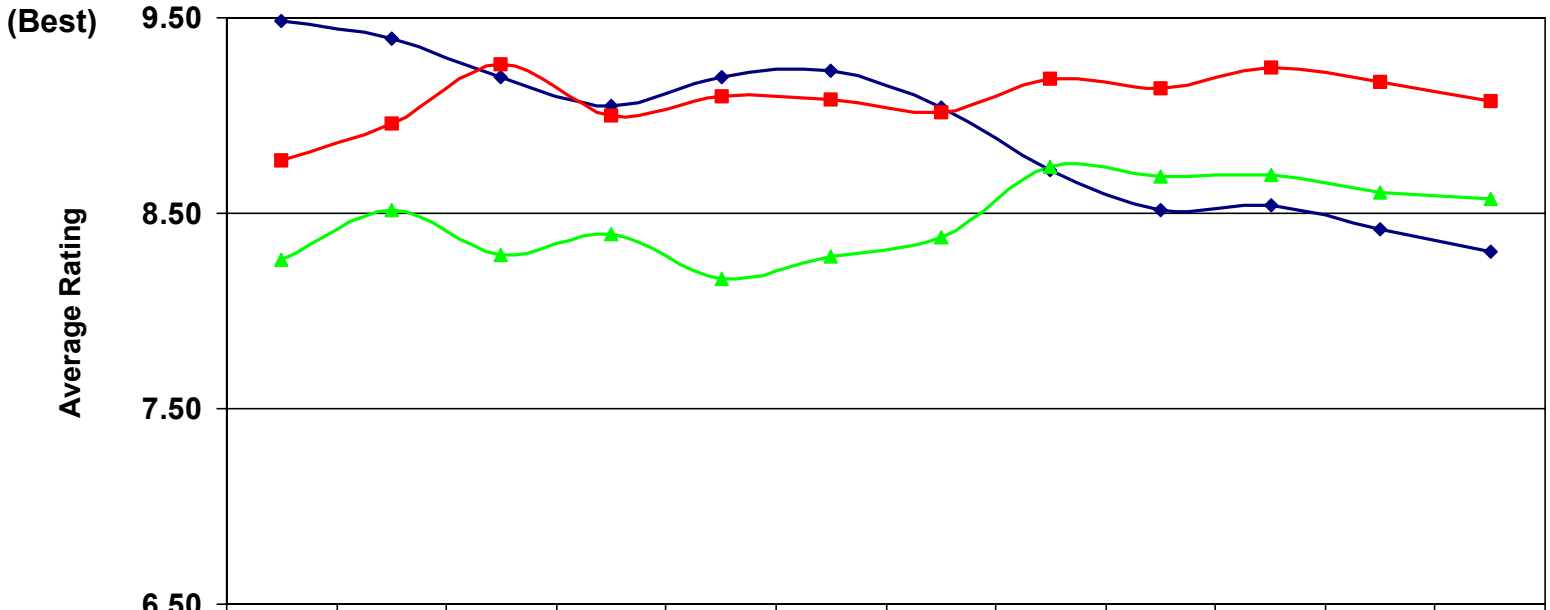
Interstate System (All Districts)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.38	8.34	8.24	8.38	8.60	8.76	8.66	8.73	8.76	8.55	8.30	8.18
Rut Rating	8.41	8.61	8.69	8.69	8.92	8.97	8.84	8.99	9.07	9.00	8.96	8.87
Ride Rating	8.34	8.38	8.34	8.32	8.34	8.47	8.46	8.81	8.78	8.74	8.68	8.63

Historical Distress Ratings

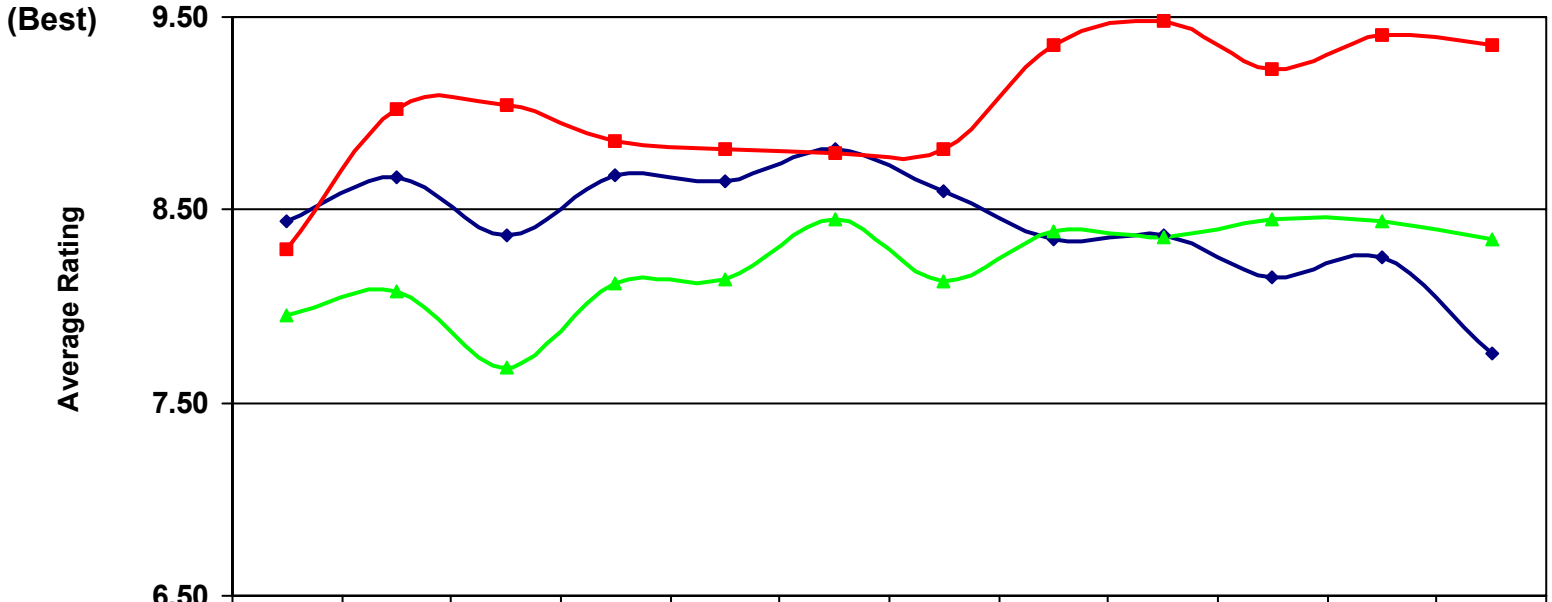
Turnpike System (All Districts)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	9.48	9.39	9.20	9.05	9.20	9.23	9.04	8.72	8.52	8.54	8.42	8.30
Rut Rating	8.77	8.96	9.26	9.00	9.10	9.08	9.02	9.19	9.14	9.25	9.17	9.07
Ride Rating	8.26	8.52	8.29	8.39	8.16	8.28	8.38	8.74	8.69	8.70	8.61	8.57

Historical Distress Ratings

Toll System (All Districts)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Crack Rating	8.44	8.67	8.37	8.68	8.65	8.82	8.60	8.35	8.37	8.15	8.25	7.76
Rut Rating	8.30	9.02	9.04	8.86	8.82	8.79	8.81	9.35	9.48	9.23	9.41	9.35
Ride Rating	7.95	8.08	7.68	8.12	8.14	8.45	8.13	8.39	8.36	8.45	8.44	8.35

SECTION VIII

RAVELING

INFORMATION

SECTION VIII

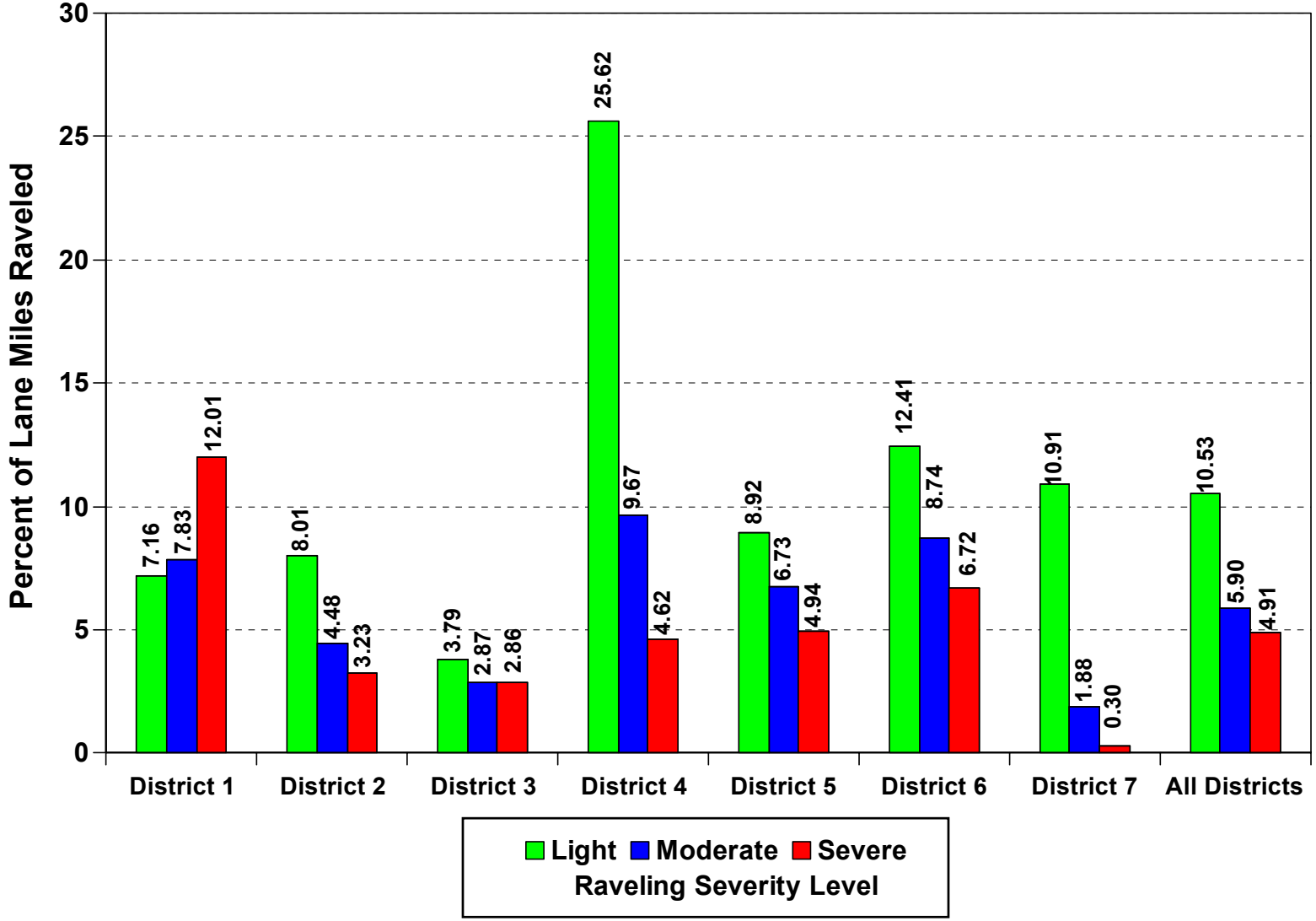
Raveling

Raveling Rating Criteria

- 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.
- Raveling for the rated section is accumulated in the crack ratings.
- 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 items
- Raveling became a noticeable defect by raters and was required to be listed in their comments as of 1992.
- Beginning in 1995, Raveling was rated by severity level (light, moderate, and severe) and percent of affected area, where only the 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; loss of fine aggregate and some loss of coarse aggregate exists.
    - Severe Raveling occurs when the aggregate and/or binder has worn away and the surface texture is very rough and pitted; loss of coarse aggregate is very noticeable.

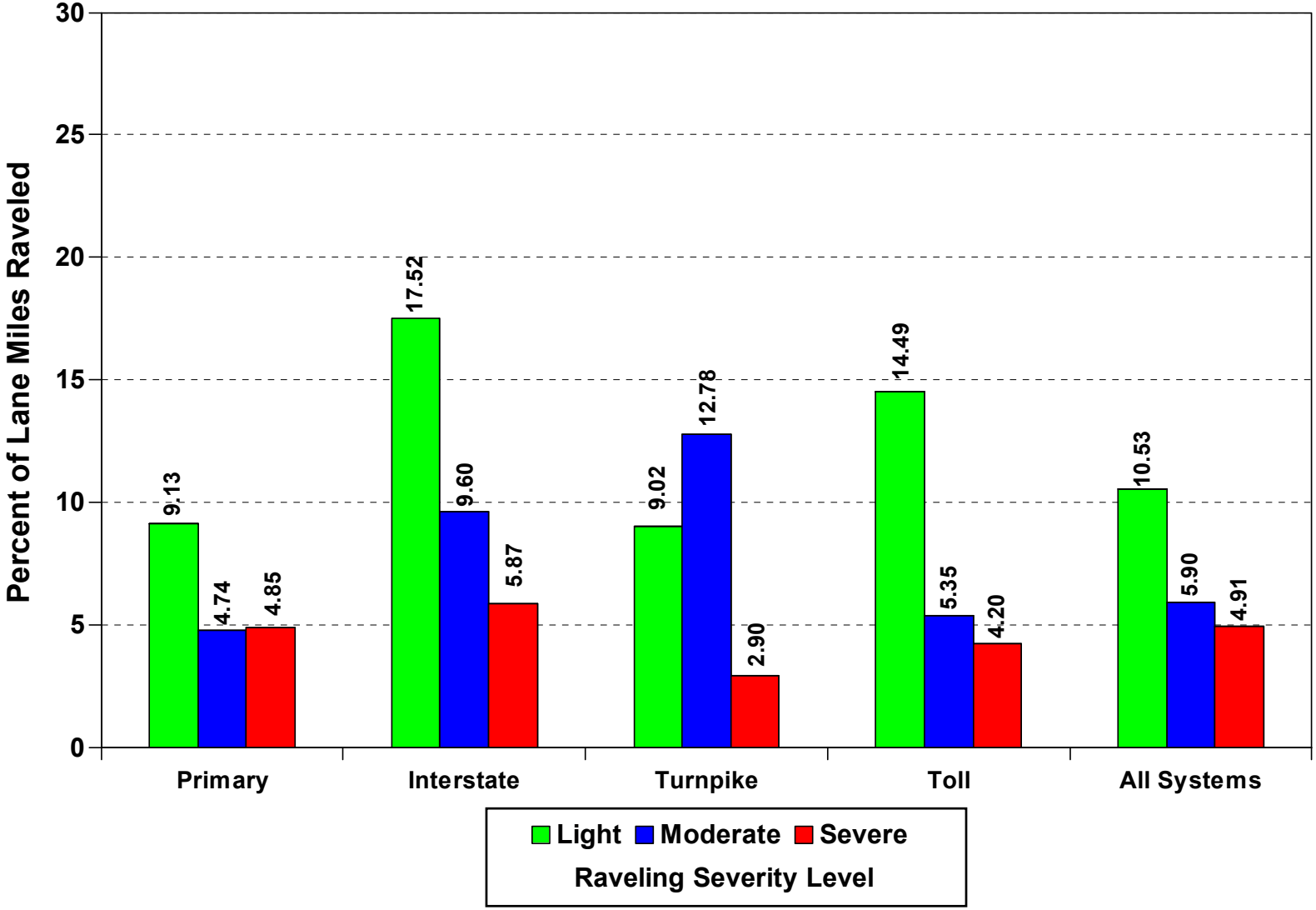
2003 Raveling Survey by District

All Systems



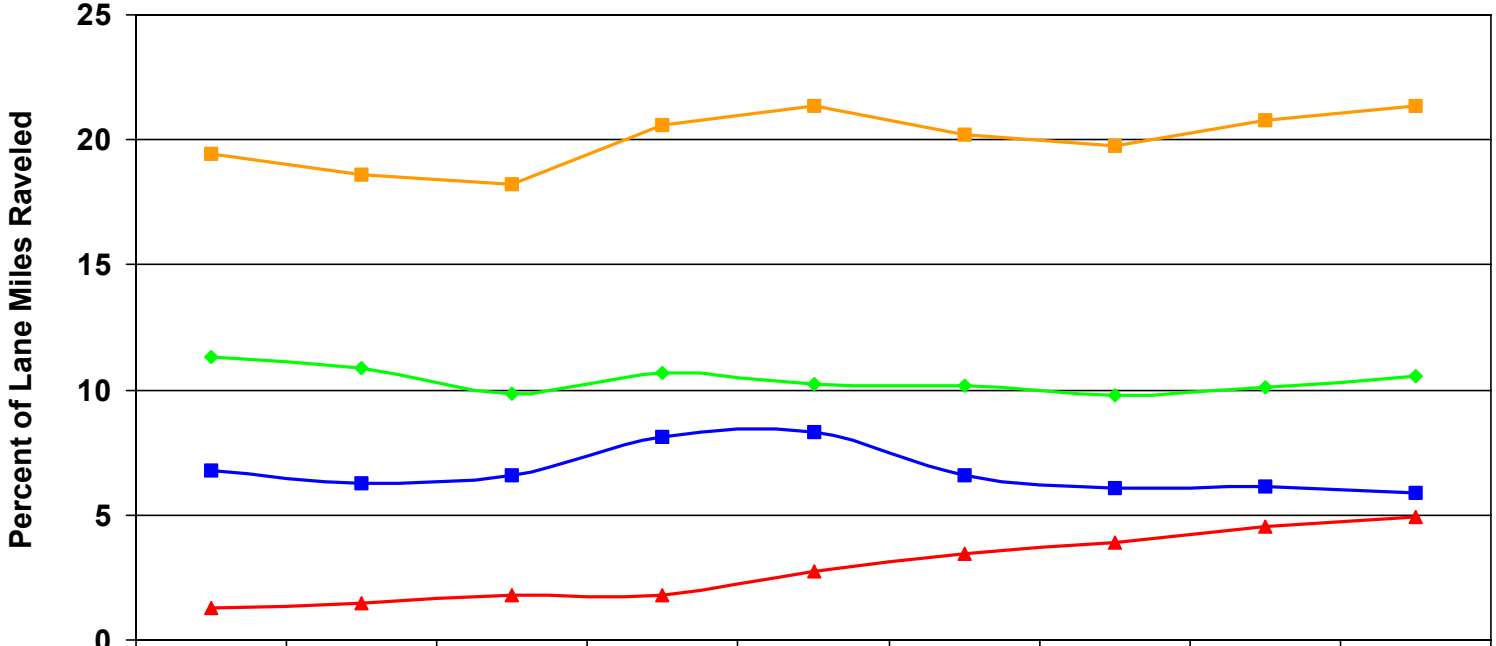
2003 Raveling Survey by System

All Districts



Raveling Survey History

All Systems Combined (All Districts)



	1995	1996	1997	1998	1999	2000	2001	2002	2003
Combined	19.42	18.62	18.22	20.59	21.33	20.21	19.74	20.76	21.34
Light	11.34	10.89	9.85	10.65	10.26	10.17	9.78	10.12	10.53
Moderate	6.79	6.28	6.59	8.14	8.34	6.60	6.08	6.11	5.90
Severe	1.29	1.45	1.78	1.80	2.73	3.44	3.88	4.53	4.91

SECTION IX

CRACK, RUT AND RIDE

RATINGS COMPARISON

BETWEEN

2003 AND 2002

SECTION IX

Crack, Rut, and Ride Ratings Comparison

Rating Comparison Criteria

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 pavement condition survey.

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

Type 4 - Rigid Pavements

Type 5 - New Construction

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

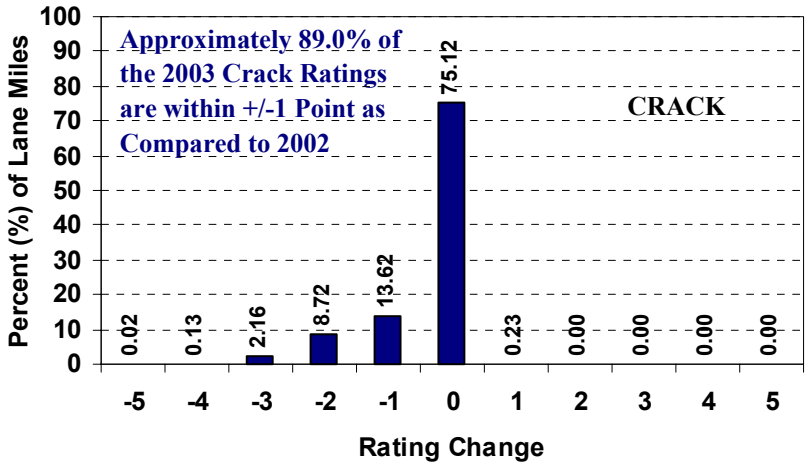
Type 7 - New Pavement (Overlays)

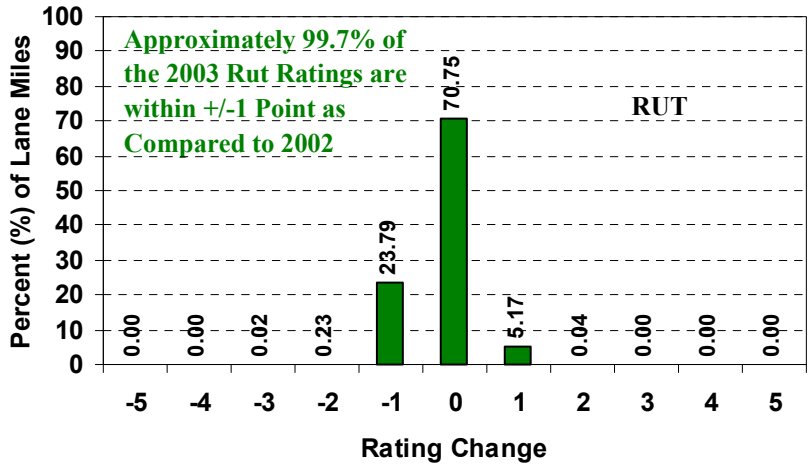
Type 8 - Under Construction

Type 9 - Structures or exceptions that are State-maintained

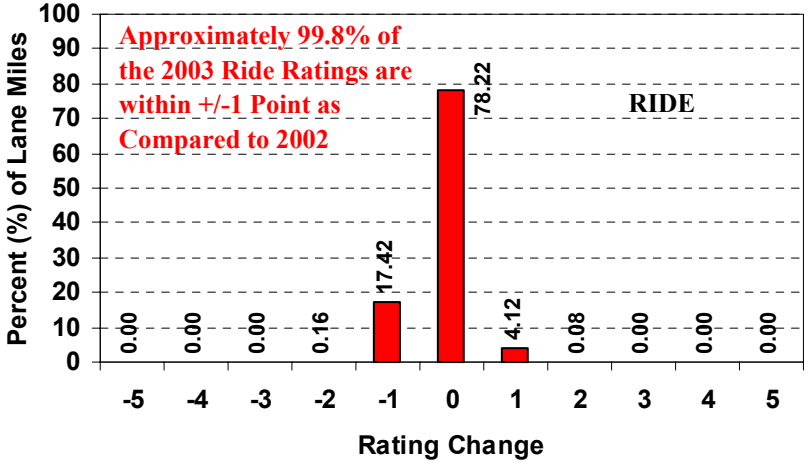
Crack, Rut and Ride Changes

2003 as Compared to 2002





NEGATIVE VALUES COULD INDICATE DETERIORATION IN THE PAVEMENT AND/OR VARIABILITY IN THE DATA COLLECTION PROCESS



POSITIVE VALUES COULD INDICATE VARIABILITY IN THE DATA COLLECTION PROCESS