TEXAS DEPARTMENT OF TRANSPORTATION

Condition of Texas Pavements

PMIS Annual Report FY 2011–2014

Condition of Texas Pavements

Pavement Management Information Systems (PMIS)

Annual Report | FY 2011–2014

MAINTENANCE DIVISION | PAVEMENT PRESERVATION BRANCH

June 6, 2014

How Data Was Analyzed In This Report

Data for this report is based on all PMIS sections, mainlanes and frontage roads, Condition Scores greater than 0, excluding sections under construction. Annual Reports published before FY 2009 used mainlanes only, so some of the results from those reports might not match values shown in this report.

Cover Photo

Here is a unique view from the top of Red Ball Cut on I-10 at mile marker 334 in western Crockett county (west of Ozona). This is looking back to the east from the top of the cut. The nickname Red Ball Cut is from the red balls that hang on the power line above the cut to warn aircraft.

Photo by Matthew C. Heinze, Crockett County Maintenance Supervisor, TxDOT.

Table of Contents

Condition of Texas Pavements Summary

PMIS Annual Report, FY 2011–2014

This report describes the condition of Texas pavements in Fiscal Year 2014 and during the four-year FY 2011–2014 period, based on analysis of Pavement Management Information System (PMIS) distress ratings and ride quality measurements. The report includes the percentage of lane miles in "Good" or better condition, trends for the major highway systems (IH, US, SH and FM) and pavement types (ACP, CRCP and JCP), trends for pavement distress types and maintenance level of service information.

PMIS pavement evaluations are conducted during the Fall and Winter months of each fiscal year.

Percentage of Lane Miles in "Good" or Better Condition *(Chapter 1)*

87.19 percent of Texas pavements are in "Good" or better condition, down from **88.30 percent** in FY 2013. This is the second drop in pavement condition percentage in the last four years but is the third highest percentage of pavement in "Good" or better condition since FY 2002 when the Texas Transportation Commission established the statewide pavement condition goal.

Substandard Condition Scores *(Chapter 2)*

Substandard Condition Score reports show distress types that need to be fixed to increase the percentage of lane miles in "Good" or better condition. Although the overall Ride Quality improved, ACP Ride Quality was the biggest cause of mileage not being in "Good" or better condition in 2014.

Substandard mileage of ACP Longitudinal Cracking, ACP Block Cracking, ACP Transverse Cracking, and ACP Deep Rutting increased in FY 2014. All CRCP distress types had less substandard lane mileage in FY 2014.

Statewide Trends Based on Percentage "Good" or Better: FY 2013–2014 *(Chapter 3)*

Fiscal Year 2013–2014	Condition Score	Ride Score	Distress Score	Shallow Distress	Deep Distress
Statewide	↓	↑	↓	↓	↓
IH	↑	↑	↑	↑	↑
US	↓	↑	↓	↓	↓
SH	↓	↓	↓	↓	↓
FM	↓	↑	↓	↓	↓
ACP	↓	↑	↓	↓	↓
CRCP	↓	↓	↑	↓	↑
JCP	↓	↓	↓	↓	↑

Pavement Distress Trends for FY 2013–2014 *(Chapter 4)*

Pavement Type	Distress	Percentage of Lane Miles with Distress
ACP	Shallow Rutting	More
	Deep Rutting	More
	Alligator Cracking	More
	Failures	Less
	Longitudinal Cracking	More
	Transverse Cracking	More
	Block Cracking	More
	Patching	Less
CRCP	Spalled Cracks	Less
	Punchouts	Less
	Asphalt Patches	Less
	Concrete Patches	More
JCP	Failed Joints and Cracks	More
	Failures	Less
	Shattered Slabs	Less
	Slabs with Longitudinal Cracks	More
	Concrete Patches	More

Maintenance Level of Service Trends for FY 2014 *(Chapter 5)*

The overall "Combined" level of service maintained on Texas flexible (ACP) pavements got worse in FY 2014 because of increases in the amount of Rutting, and decreases in Ride Quality.

Please note that the level of service definitions in this report were changed to treat one percent Rutting the same as zero percent Rutting. This was done to account for sensor "noise" typically observed in the acoustic sensors used to measure Rutting. This change reduced—but did not reverse—the increase in the amount of Rutting.

PMIS Total Lane Miles and Data Storage Sample *(Chapter 6)*

The total number of lane miles in PMIS slightly decreased in FY 2014 because of the designation of the existing roadway segments as I-69. PMIS contained 197,143.1 lane miles in FY 2014, up from 196,322.4 lane miles in FY 2011.

PMIS contained Condition Score data on approximately 96.78 percent of all TxDOT-maintained lane miles in FY 2014. This percentage is the second lowest in the last four years.

Discussion

Overview

The statewide percentage of lane miles in "Good" or better condition decreased from 88.30 in FY 2013 to 87.19 in FY 2014. This is the second decline in pavement condition percentage in the last four years and is the third highest in pavement condition percentage since FY 2002 when the Texas Transportation Commission established the statewide pavement condition goal.

Overall pavement condition declined in FY 2014, primarily because of the increases in the amount of surface distress. Overall pavement distress worsened, but overall ride quality improved. Pavement condition, distress, and ride quality improved for the Interstate Highways (IH), but all scores for the State Highways (SH) declined. The condition on the United States (US) and Farm to Market (FM) highways also declined due to the increase in the amount of surface distress, despite the improved ride quality.

The oil and gas field development traffic continued to impact our transportation infrastructure in FY 2014. TxDOT managed to maintain the overall good pavement condition by continuing improvements in pavement management practices and increasing pavement preservation investment.

Increased Oil and Gas Field Development

Texas continued to experience an increase in the exploration and production of energy resources in FY 2014. According to the Railroad Commission of Texas, the total number of completed oil and gas wells almost tripled since 2010 as shown in Figure 1. The oil production per day from the Eagle Ford Shale has increased more than five folds in the last four years.

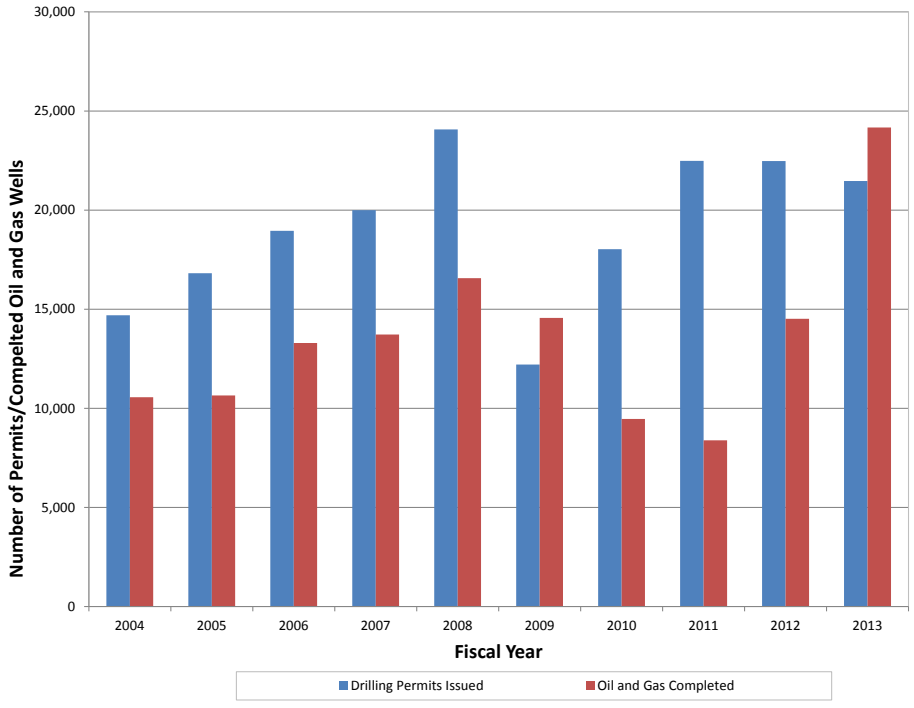

Figure 1. Drilling Permits vs. Completed Oil and Gas Wells

The exploration and production of oil and gas generated large numbers of heavy truck traffic on the roads which were not designed to handle this type of load. Over time, the large volumes of heavy truck traffic damaged the roads and reduced pavement service life. As a result, the following counties experienced a more than 10 percent drop in their percentage of lane miles in “Good” or better condition in just one year: Loving, McMullen, Somervell and Hood. Figure 2 shows the change in the percent of lane miles “Good” or better between FY 2011 andFY 2014.

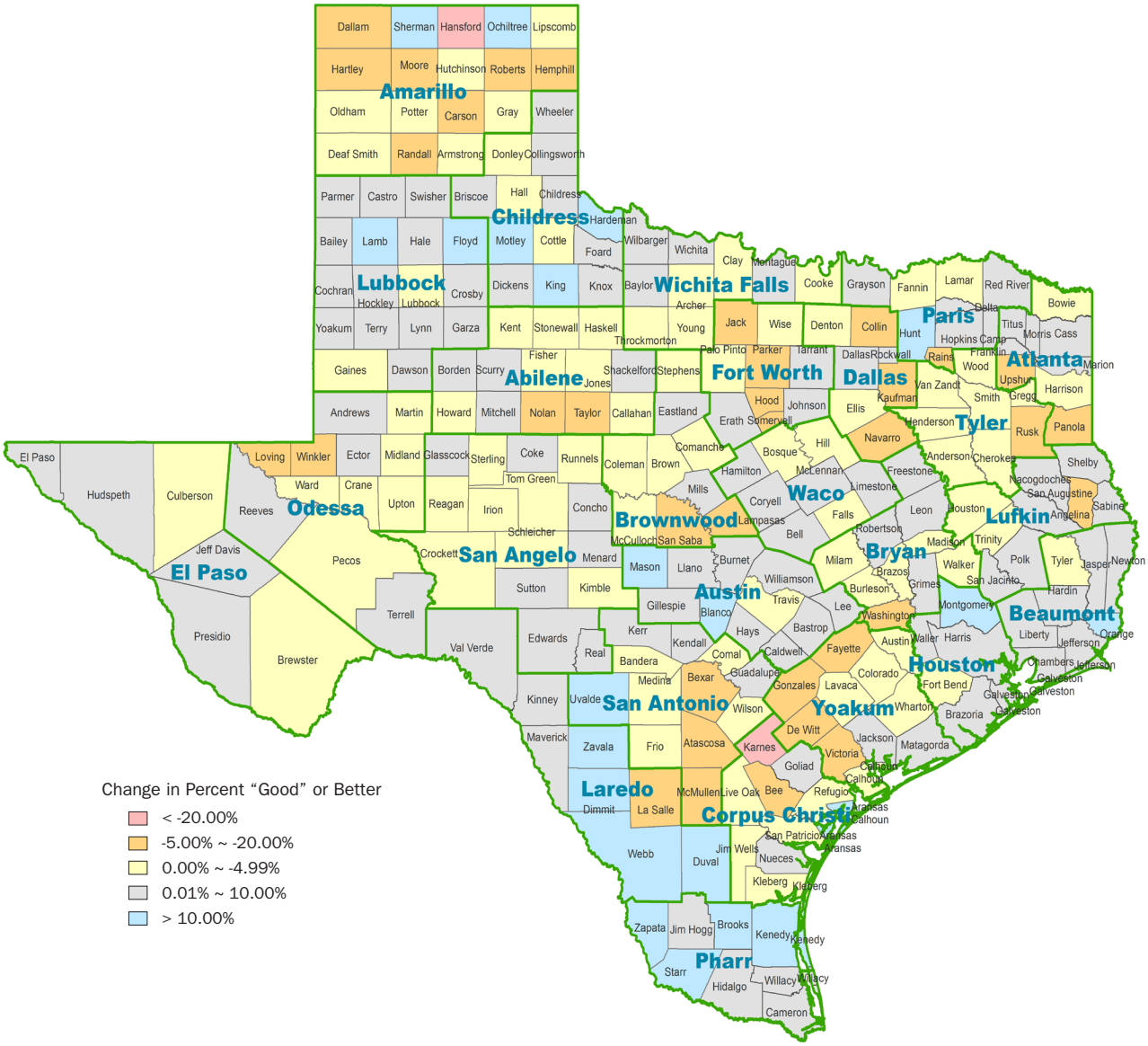

Figure 2. Texas County Percent “Good” or Better Change in FY 2011–2014

Continuing Improvements in Pavement Management Practices

TxDOT continued to improve pavement management, maintenance and rehabilitation techniques. These management efforts allowed TxDOT to treat additional lane miles with the same available funding, kept the pavement network in overall good condition and (more importantly) reduced the long-term cost of maintaining pavements. Specific details about these efforts are provided below:

- Starting in FY 2008, TxDOT required each district to produce a **Four-Year Pavement Management Plan** each year that includes all aspects of pavement-related work. These are project-specific and financially constrained plans which map out the pavement work needed, along with expected changes in pavement condition. This has had the immediate benefit of giving districts a tool to plan out the pavement preservation and maintenance work rather than being reactive to it.
- TxDOT continued its **Focus Maintenance Funding on Pavements** instead of on other areas, to get the greatest possible pavement benefit from limited funding. TxDOT districts have embraced this initiative and have found innovative ways to "stretch" limited pavement dollars.
- TxDOT also continued a series of **Peer Reviews** of each district's pavement maintenance program that it began in FY 2009. The Peer Reviews have made it easier for districts to share "best practices" to use resources to improve the effectiveness of pavement maintenance.

Increased Investment in Pavement Management

In addition to improving the pavement management practices, TxDOT also continued to increase pavement maintenance investment in FY 2014. Figure 3 shows the pavement maintenance expenditure and the percentage of lane miles in "Good" or better condition since FY 2005. The pavement preservation spending includes the pavement project expenditures from category 1 and routine maintenance pavement related expenditures. The steadily increased pavement preservation expenditures keep Texas roads in good condition.

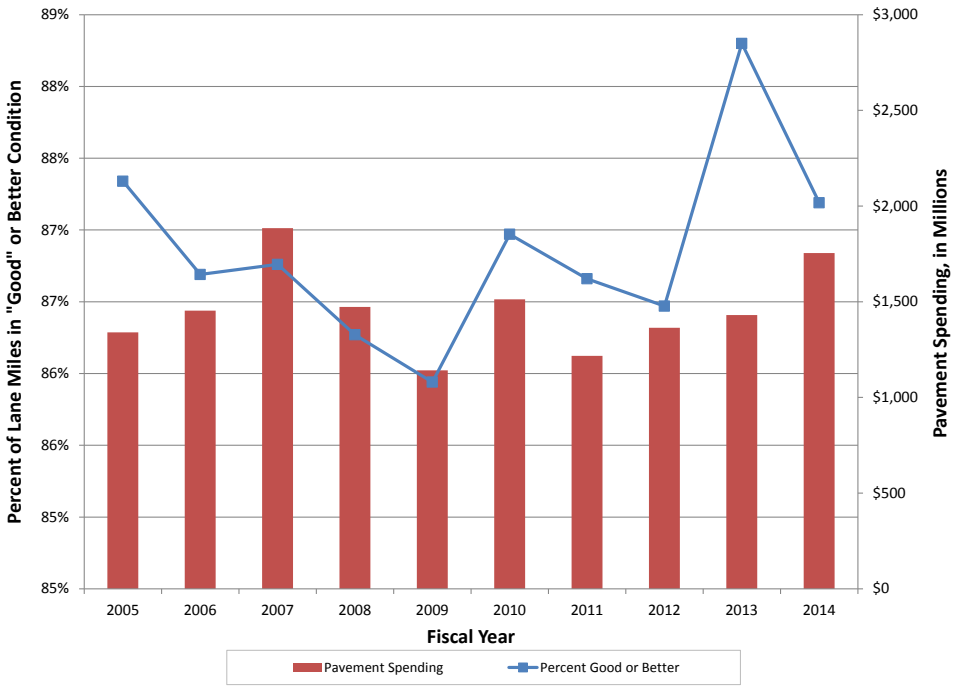

Figure 3. Statewide Percentage "Good" or Better and Maintenance Expenditure in FY 2005–2014

Definitions

"Distress," "Ride Quality," and "Condition" Definitions

Distress refers to various types of pavement deterioration (such as ruts, cracks, potholes/failures and patches). It can be subdivided into "Shallow Distress" and "Deep Distress."

Shallow Distress refers to distress types which can usually be repaired by surface-type preventive maintenance. "Shallow" distress types are:

Shallow Distress Types, by Pavement Type		
ACP	**CRCP**	**JCP**
Shallow Rutting	Spalled Cracks	Failed joints and Cracks
Patching	Concrete Patches	Concrete Patches
Block Cracking		
Transverse Cracking		

Deep Distress refers to distress types which usually require sub-surface rehabilitation. "Deep" distress types are:

Deep Distress Types, by Pavement Type		
ACP	**CRCP**	**JCP**
Deep Rutting	Punchouts	Failures
Failures	Asphalt Patches	Shattered Slabs
Alligator Cracking		Slabs with Longitudinal Cracks
Longitudinal Cracking		

Chapter 4 gives more information about pavement distress types.

Ride Quality refers to the smoothness of the pavement surface.

Condition is a mathematical combination of the "Distress" and "Ride Quality" data that describes perception of pavement quality.

PMIS Score Definitions

Category	Distress Score	Ride Score	Condition Score
	describes "distress"	**describes "ride"**	**describes "condition"**
"Very Good"	90 to 100	4.0 to 5.0	90 to 100
"Good"	80 to 89	3.0 to 3.9	70 to 89
"Fair"	70 to 79	2.0 to 2.9	50 to 69
"Poor"	60 to 69	1.0 to 1.9	35 to 49
"Very Poor"	1 to 59	0.1 to 0.9	1 to 34

Please note: A pavement section with a Condition Score of 70 or above is considered to be in "Good" or better condition.

History of PMIS Changes (FY 1993–2001)

FY 1993 PMIS begins (uses 0.5-mile sections, 100 percent IH sample, 50 percent non-IH sample); first estimates of statewide pavement needs (lane miles and dollars).

FY 1996 First automated rut measurements. PMIS Shallow Rutting and Deep Rutting values increased because the automated equipment was able to "see" ruts that raters missed.

Increased Shallow Rutting and Deep Rutting values; lowered Distress Scores and Condition Scores.

FY 1997 Automated rut measurements much higher than FY 1996 because of "old" acoustic sensors that had been used in the previous year (sensors replaced every year afterwards because of this problem). Also, beginning of ride quality equipment conversion to laser profiler (IRI) that was completed in FY 1999.

Increased Shallow Rutting and Deep Rutting values; lowered Distress Scores. Conversion to laser profiler lowered Ride Scores. Mixed effect on Condition Scores.

FY 1998 Second third of ride quality equipment converted to laser profiler (IRI).

Lowered Ride Scores and Condition Scores.

FY 1999 Remainder of ride quality equipment converted to laser profiler (IRI).

Lowered Ride Scores and Condition Scores.

FY 2000 CRCP Spalled Cracks definition changed to count only large spalled cracks (3-inch instead of 1-inch); Distress Score weighting factors ("utility values") changed from percentage spalled to number per mile.

Definition change increased Distress Scores and Condition Scores. Weighting factor change decreased Distress Scores and Condition Scores. Mixed effect on Distress Scores and Condition Scores overall.

FY 2001 Switch to distress ratings done by contractors; sample increased to 100 percent of all mileage, which raised the actual rating sample to about 95 percent (some mileage is not rated because of construction or other issues); rutting definitions changed (Shallow Rutting changed from ½-1 inch to ¼-½ inch, Deep Rutting changed from 1-3 inch to ½-1 inch; Severe Rutting added as 1-2 inch; Failure Rutting added as greater than 3-inch; rut gap left from 2-3 inch); Texas Transportation Commission proposes statewide pavement condition goal (90 percent "Good" or better in ten years).

Minimal effect on PMIS distress data, Distress Scores, and Condition Scores.

History of PMIS Changes (FY 2002–2014)

FY 2002

Rut gap from 2–3 inches closed, Failure Rutting changed from greater than 3-inch to greater than 2-inch; two- and 10-year district goals established to meet Texas Transportation Commission's statewide pavement condition goal.

Affected Failure Rutting results, but they are not used in PMIS Score definitions, so no effect on Distress Scores or Condition Scores.

FY 2006

Changed Rutbar dynamic calibration procedure to produce truer "zero" rut depths on concrete at highway speeds, but then subtracted 0.1 inches from each rut depth measurement to reduce effects of signal noise.

Mixed effect on Shallow Rutting and Deep Rutting; minimal effect on Distress Scores and Condition Scores. Calibration procedure produced large increases in Shallow Rutting and Deep Rutting, but subtraction of 0.1 inches from rut depth measurements more or less cancelled out the calibration procedure increases.

FY 2007

Changed maintenance level of service definition for Rutting to move one percent Rutting from the "Acceptable" category to the "Desirable" category to account for sensor "noise" typically observed in the acoustic sensors used to measure Rutting.

No change in PMIS Scores, but increases in the amount of "Acceptable" and "Desirable" Rutting.

FY 2010

TxDOT certifies all of its laser profilers for use in the statewide smoothness (ride quality) specification.

Slight increase in Ride Scores and Condition Scores.

FY 2014

TxDOT replaced the acoustic sensors with more robust sensors on the profiler fleet.

Increased Shallow and Deep Rutting values; Slightly lowered Distress Scores and Condition Scores.

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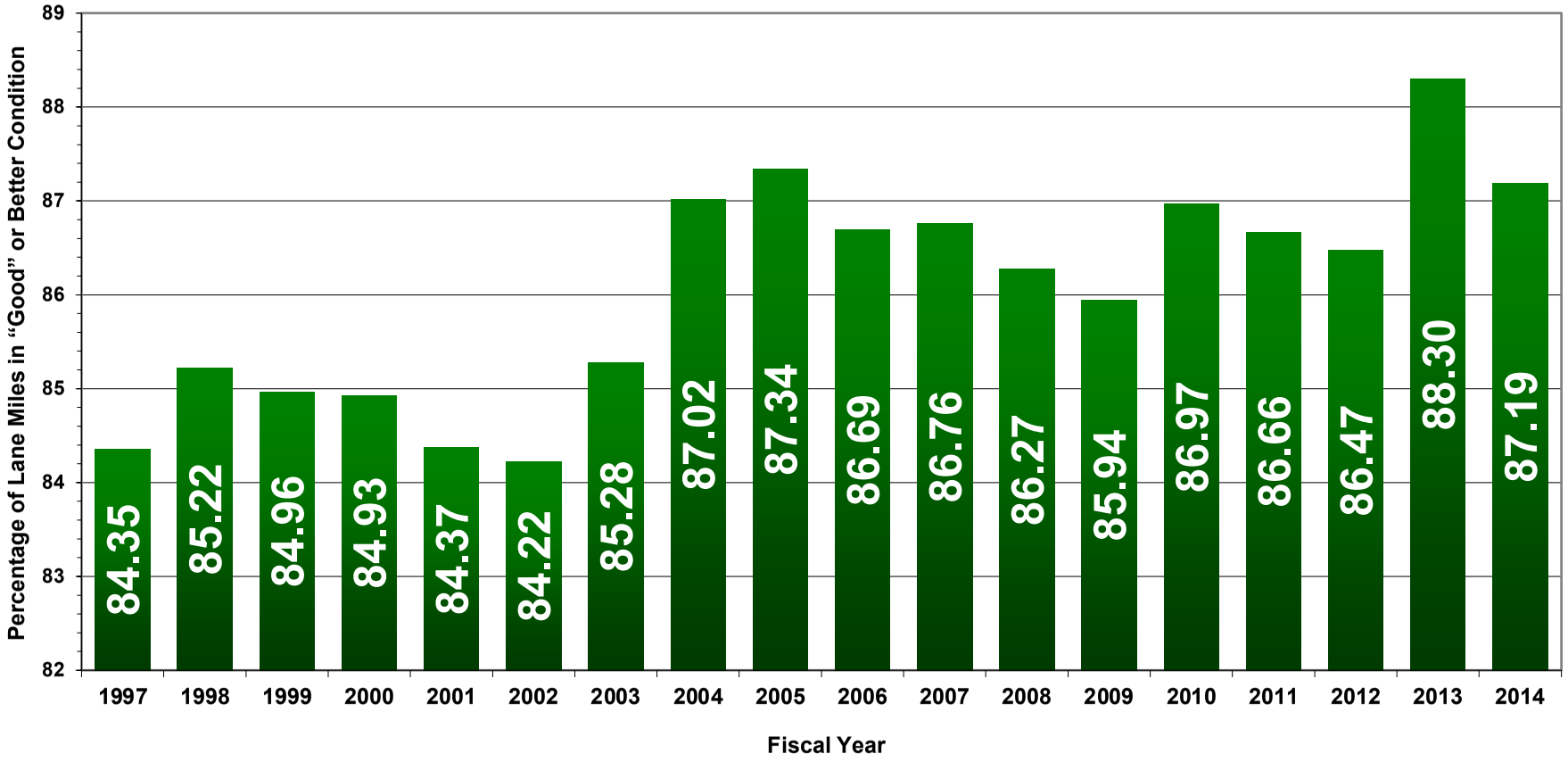
Chapter 1 — **Status of Statewide Pavement Condition Goal**

90 Percent of Lane Miles in "Good" or Better Condition by FY 2014

Statewide Pavement Condition, FY 1997–2014

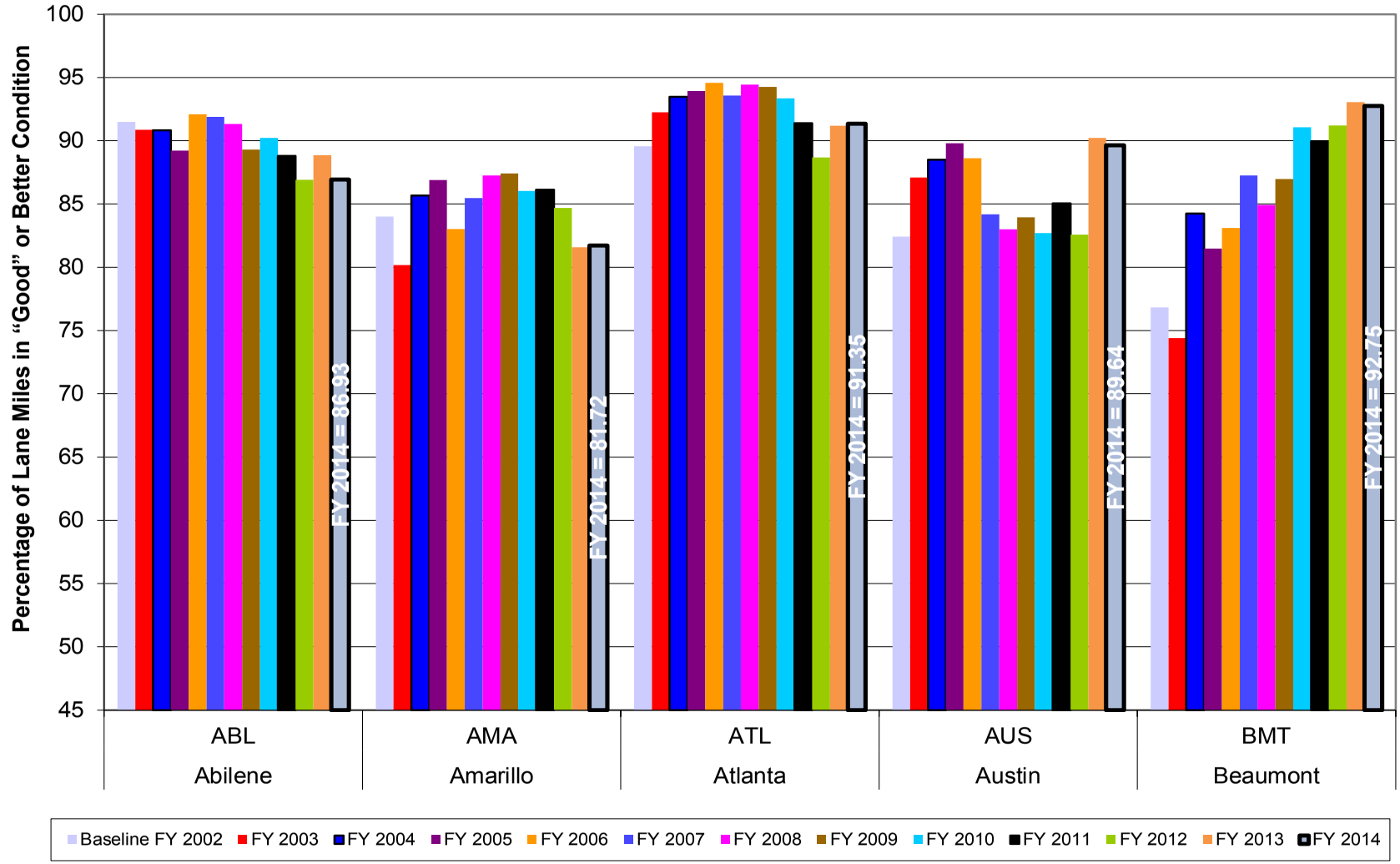


Status of Statewide Pavement Condition Goal, FY 2002–2014

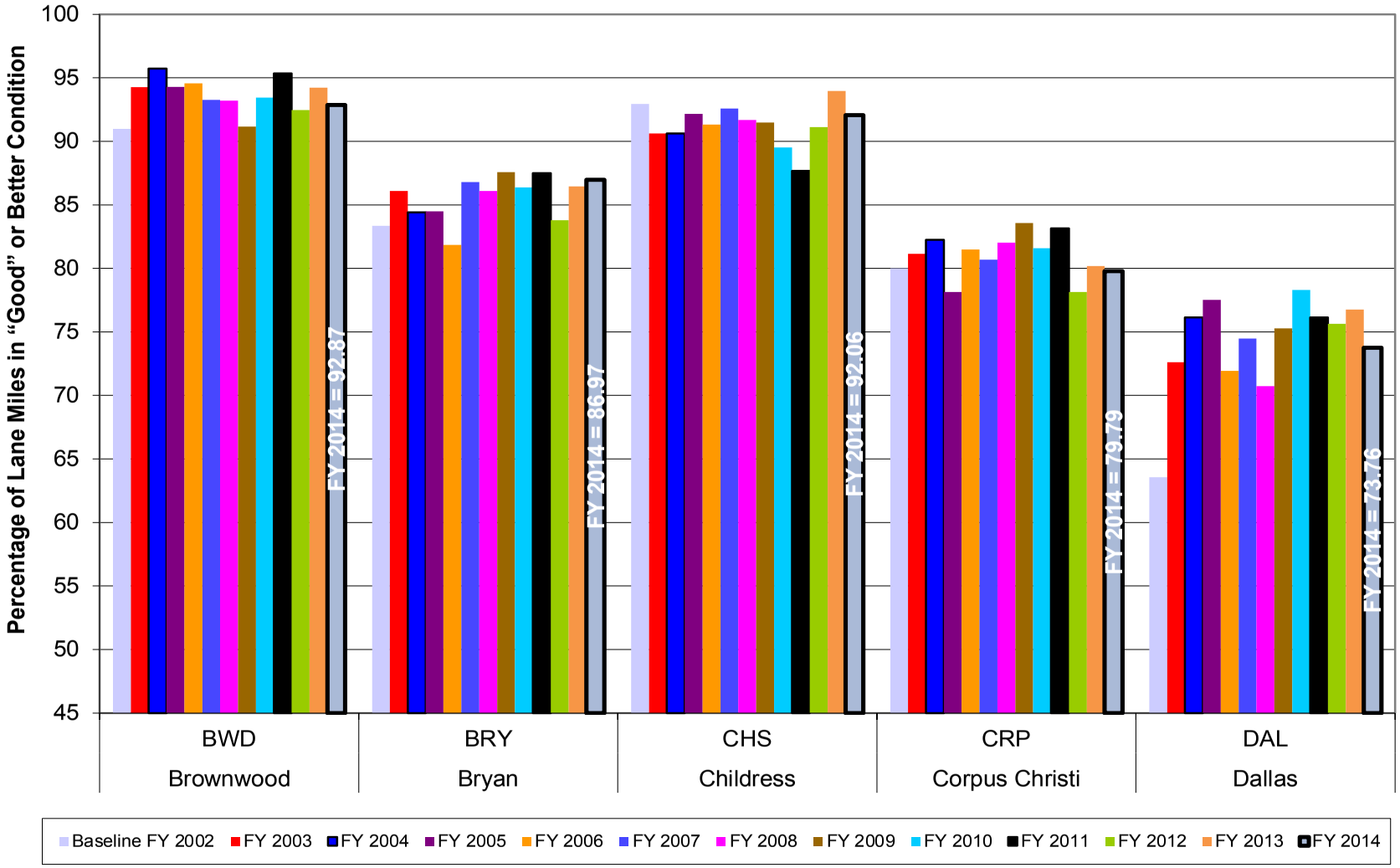
District		Baseline FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Change FY 2013–2014
Abilene	ABL	91.49	90.87	90.83	89.23	92.09	91.89	91.32	89.31	90.22	88.79	86.91	88.86	86.93	-1.93
Amarillo	AMA	84.01	80.17	85.67	86.89	83.02	85.46	87.25	87.41	86.04	86.13	84.69	81.57	81.72	0.15
Atlanta	ATL	89.56	92.24	93.48	93.94	94.57	93.57	94.43	94.25	93.35	91.38	88.68	91.18	91.35	0.17
Austin	AUS	82.42	87.10	88.50	89.81	88.62	84.18	83.00	83.95	82.71	85.04	82.58	90.23	89.64	-0.59
Beaumont	BMT	76.83	74.40	84.24	81.47	83.10	87.25	84.93	86.98	91.06	89.97	91.21	93.06	92.75	-0.31
Brownwood	BWD	90.98	94.27	95.74	94.28	94.56	93.27	93.21	91.17	93.44	95.34	92.47	94.22	92.87	-1.35
Bryan	BRY	83.36	86.09	84.42	84.50	81.85	86.80	86.10	87.57	86.38	87.49	83.80	86.46	86.97	0.51
Childress	CHS	92.95	90.63	90.62	92.17	91.33	92.59	91.69	91.48	89.53	87.67	91.12	93.96	92.06	-1.90
Corpus Christi	CRP	80.01	81.14	82.24	78.15	81.48	80.68	82.02	83.57	81.58	83.15	78.15	80.19	79.79	-0.40
Dallas	DAL	63.55	72.62	76.14	77.53	71.93	74.48	70.74	75.27	78.31	76.13	75.63	76.76	73.76	-3.00
El Paso	ELP	84.66	85.03	87.99	83.36	83.76	90.17	87.12	87.35	89.01	90.54	90.34	91.79	90.71	-1.08
Fort Worth	FTW	86.84	85.81	85.41	84.75	85.50	83.41	83.01	81.44	85.52	86.70	87.79	89.76	86.51	-3.25
Houston	HOU	75.14	73.82	73.51	77.54	77.93	80.14	79.71	75.80	76.01	75.09	79.75	83.84	80.57	-3.27
Laredo	LRD	82.73	80.42	83.43	83.30	84.60	86.89	85.37	85.37	85.69	74.64	81.78	80.35	84.48	4.13
Lubbock	LBB	84.18	86.13	88.68	89.82	90.03	91.39	88.83	86.40	87.36	86.40	87.90	88.73	90.96	2.23
Lufkin	LFK	83.12	85.99	86.21	87.25	88.65	88.26	88.94	87.87	89.30	88.62	88.96	92.01	90.28	-1.73
Odessa	ODA	94.96	96.15	95.04	95.55	94.83	96.15	94.15	93.33	93.33	94.14	95.45	94.26	93.66	-0.60
Paris	PAR	78.57	82.24	86.07	85.60	85.11	77.26	72.68	74.92	80.60	82.68	81.36	87.15	85.58	-1.57
Pharr	PHR	89.44	90.66	90.26	88.43	87.93	83.77	80.95	80.38	84.07	82.64	86.55	88.78	89.67	0.89
San Angelo	SJT	92.35	94.10	95.27	95.93	96.42	94.89	94.63	94.58	95.23	95.11	95.15	95.45	94.71	-0.74
San Antonio	SAT	83.69	84.94	83.64	82.98	85.08	81.76	87.27	83.03	84.82	86.51	84.67	86.09	81.41	-4.68
Tyler	TYL	85.18	81.34	88.75	90.88	86.17	89.91	86.33	92.28	93.85	94.77	93.75	94.32	91.57	-2.75
Waco	WAC	88.13	87.98	90.14	91.55	92.04	90.90	90.95	86.72	87.54	85.95	84.76	88.10	88.37	0.27
Wichita Falls	WFS	87.59	90.39	91.05	93.00	90.38	91.76	93.40	92.98	93.18	92.60	92.43	93.20	92.76	-0.44
Yoakum	YKM	83.51	85.31	87.88	90.54	83.81	81.94	86.03	86.08	87.86	88.17	86.63	87.63	84.29	-3.34
Statewide	ALL	84.22	85.28	87.02	87.34	86.69	86.76	86.27	85.94	86.97	86.66	86.47	88.30	87.19	-1.11

Note: "Good or better condition" is Pavement Management Information System (PMIS) Condition Score greater than or equal to 70.

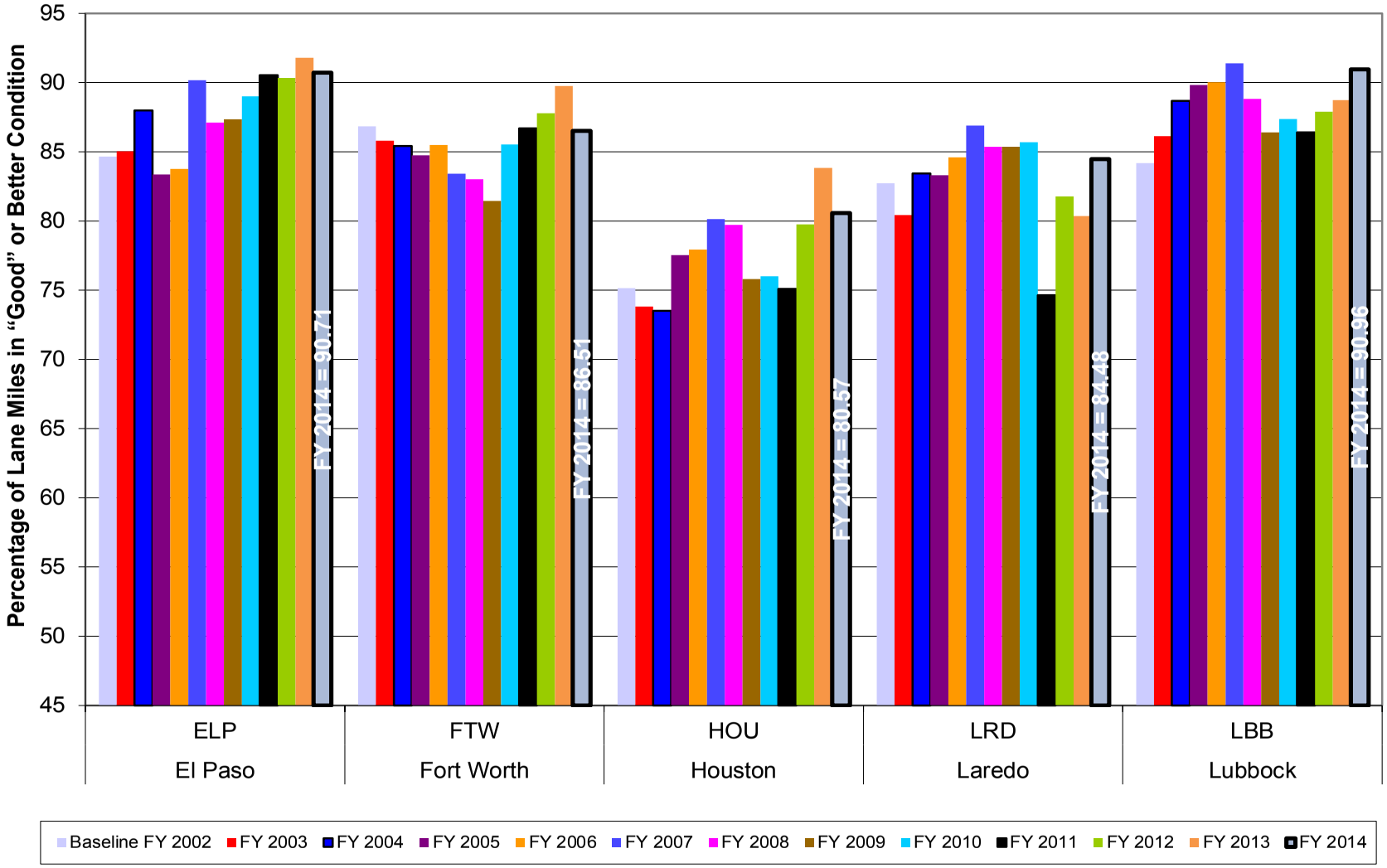
Pavement Condition Trends, by District, FY 2002–2014
(Abilene through Beaumont)



Pavement Condition Trends, by District, FY 2002–2014
(Brownwood through Dallas)

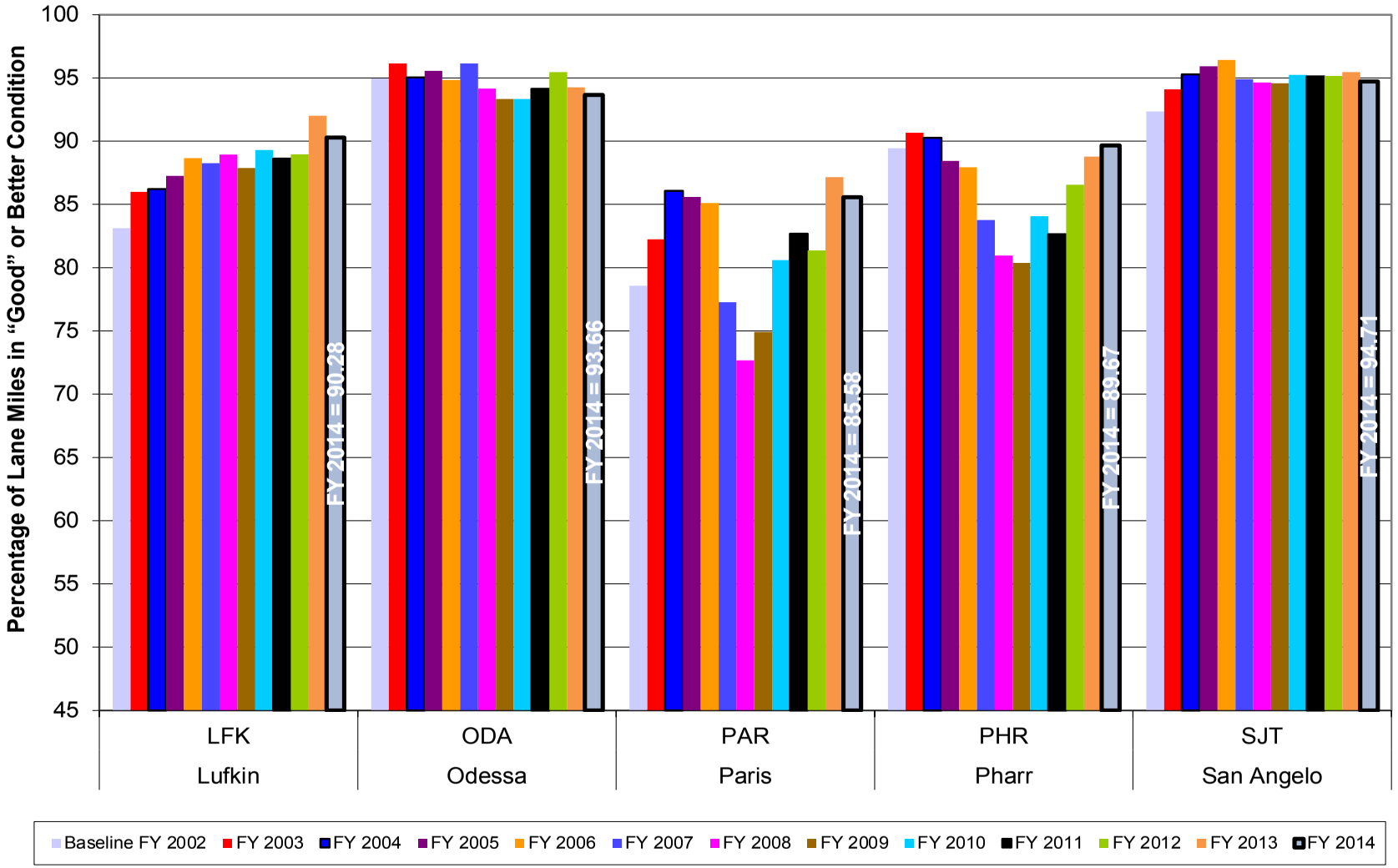


Pavement Condition Trends, by District, FY 2002–2014
(El Paso through Lubbock)



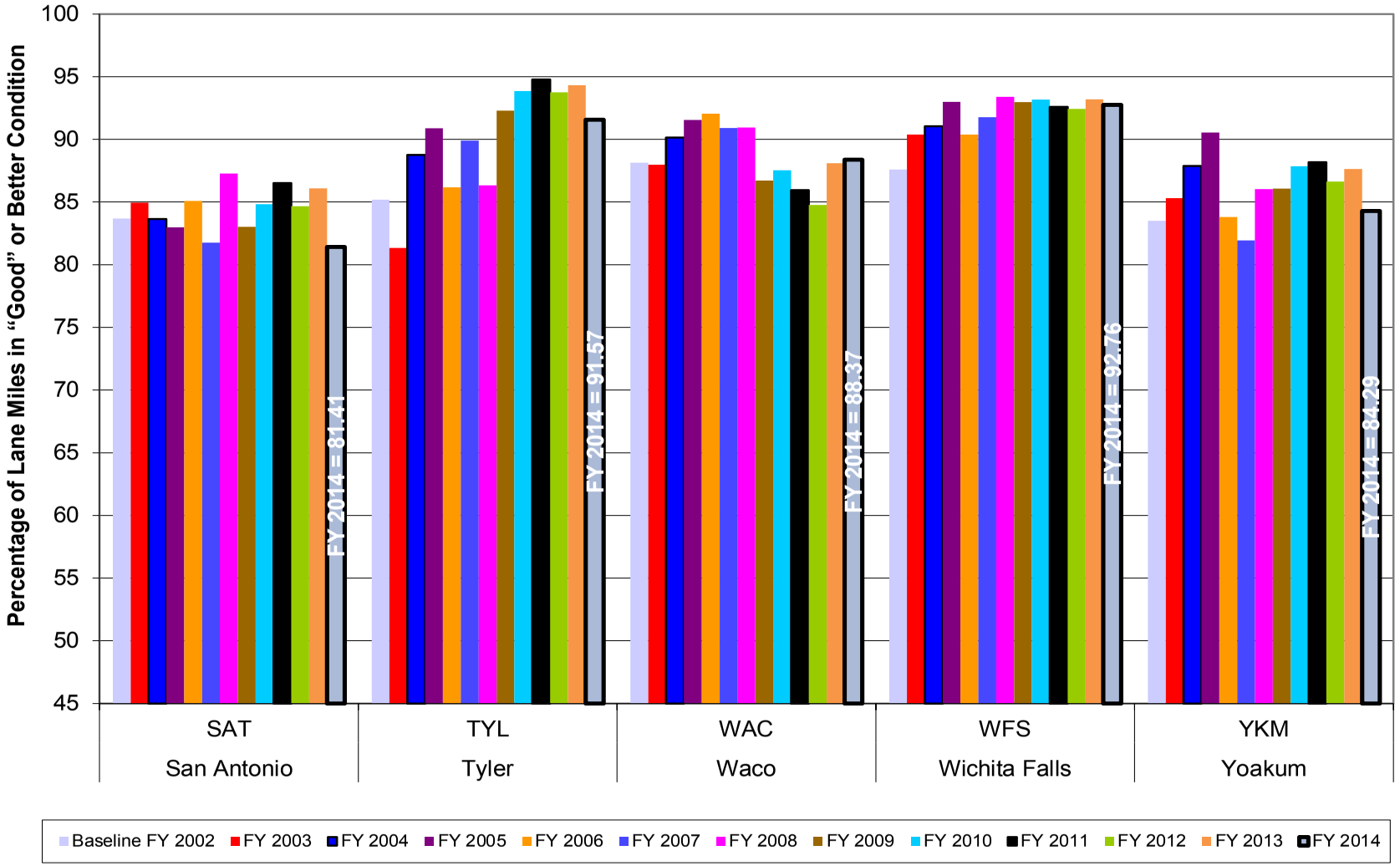
Pavement Condition Trends, by District, FY 2002–2014

(Lufkin through San Angelo)



Pavement Condition Trends, by District, FY 2002–2014

(San Antonio through Yoakum)



The first construction under the supervision of the Texas Highway Department was a 20-mile section of untreated flexible base 16 feet wide between Falfurrias and Encino. Work began in October 1918, and was completed in June 1920. The corridor was along present-day US 281 in what is now the Pharr district.

Chapter 2 — **Substandard Condition Scores**

This chapter contains the FY 2011–2014 summary version of the Substandard Condition Reports that were used in previous Status of Statewide Pavement Condition Goal reports. The summary reports show distress types, in order of importance, that need to be fixed to increase the percentage of lane miles in "Good" or better condition.

PMIS Condition Score of 70 or above is the "Good" or better condition standard established by the Texas Transportation Commission in August 2001. We have 87.19 percent of pavements meeting this standard in FY 2014. In order to meet the Commission's goal to have 90 percent of Texas pavements in "Good" or better condition, we need to identify sections with distresses that need to be fixed. The summary version of the Substandard Condition report is created to serve this purpose.

The Substandard Condition report can appear overly complex at first glance. Therefore a brief explanation is given below.

A pavement section can have a PMIS Condition Score of less than 70 because of too much distress or too much roughness or both. For example, an ACP section can have too much Deep Rutting or too many Failures; a CRCP section can have too many Punchouts; or a JCP section can be too rough. Each pavement distress type (and ride quality) has weighting factors which lower the Condition Score as the distress or ride quality worsens.

These weighting factors are known as "utility values" in PMIS. "Utility" may be thought of as the value of the service provided by the pavement in use with a particular level of damage. PMIS utility values range from 0.0 (least valuable) to 1.0 (most valuable). All other things being equal, whenever the utility value for one distress type or ride quality on a PMIS section drops below 0.7, that section will have a Condition Score below 70 and thus fall below the "Good" or better condition standard.

The simplest approach is to search for any PMIS section that has a single distress type or ride quality utility value below 0.7. "Fixing" that distress type or ride quality will raise the PMIS section's Condition Score above 70 and thus make progress towards the 90 percent goal. Fixing enough of these sections statewide (or in a district) will meet the pavement condition goal.

It is possible for a PMIS section to have multiple distress types—none of which have utility values below 0.7—that combine to drop the Condition Score below 70. These reports do not consider "fixing" these sections. Usually these sections are less than 10 percent of the total lane mileage, so the 90 percent "Good" or better goal can be met without fixing those sections.

PMIS Condition Scores are also influenced by traffic and speed limit, so those factors must be considered when estimating funding needs. It typically takes more expensive treatments to repair distress or ride quality under high traffic because of the increased traffic loading.

These detailed reports are developed using the simplest approach to show the distress types and their lane mileages that need to be fixed to increase the percentage of lane miles in "Good" or better condition.

TEXAS DEPARTMENT OF TRANSPORTATION
Pavement Management Information System (PMIS)

Statewide FY 2011
PMIS Substandard Condition Scores (Less Than 70)

Highway Systems: All
Mainlane Roadbeds:
All Roadbeds: IH, US, SH, BR, FM, PR, PA
Construction project Limits Used: No
ACP Patching Used: Yes
Federal Funding: Both Eligible and Ineligible
Rating Cycle: Annual

Utility	Overall Utility Average	Substandard Utility (<0.70) Lane Miles	Traffic Utility Average (ADT*Speed Limit)			Highway Systems Utility Average						
			1-27,500 LOW	27,501-165,000 MEDIUM	>165,000 HIGH	IH	US	SH	BR	FM	PR	PA
ACP Patching	86.51	5,874.0	82.95	84.68	89.50	88.23	84.13	88.24	95.94	85.73	92.73	100.00
ACP Ride	85.10	5,134.4	91.78	86.38	80.91	87.67	88.69	83.51	70.80	84.96	73.26	49.98
JCP Ride	56.36	1,173.5	90.63	63.92	54.45	62.83	57.51	54.20	53.46	47.18		47.80
ACP Alligator Cracking	89.45	3,950.3	92.03	90.21	87.65	92.29	87.58	87.67	88.65	90.47	92.35	99.78
CRCP Ride	67.67	1,085.9	80.20	75.51	67.21	72.35	66.25	62.60	63.04	65.18		53.07
ACP Failures	93.16	3,031.4	87.06	92.61	96.60	89.93	97.34	96.01	96.07	90.67	93.00	100.00
CRCP Portland Concrete Patching	80.58	704.2	73.61	66.77	81.26	75.14	81.10	88.26	84.50	79.20		100.00
JCP Portland Concrete Patching	77.65	534.2	87.03	71.67	78.07	78.21	75.42	75.49	88.18	87.58		100.00
ACP Longitudinal Cracking	95.95	865.5	98.73	97.69	93.41	92.58	94.31	94.49	93.18	98.01	96.70	92.55
JCP Failures	87.83	230.8	51.21	83.24	89.47	84.83	88.70	88.18	86.24	92.21		100.00
CRCP Punchouts	92.58	189.0	92.34	85.69	92.90	91.36	94.31	92.79	95.87	93.32		100.00
ACP Block Cracking	98.87	446.6	99.62	98.91	98.47	98.66	98.39	98.48	95.39	99.50	99.21	100.00
CRCP Asphalt Concrete Patching	98.09	57.5	91.52	100.00	98.05	98.39	98.31	97.00	100.00	100.00		100.00
ACP Transverse Cracking	99.02	58.3	99.43	99.15	98.73	98.62	98.67	98.64	97.36	99.50	99.92	100.00
CRCP Spalled Cracks	98.38	27.4	95.07	94.63	98.57	98.28	99.15	97.97	99.95	97.95		100.00
ACP Deep Rutting	99.67	57.2	99.41	99.54	99.88	99.90	99.87	99.78	99.97	99.47	99.99	100.00
JCP Failed Joints And Cracks	98.24	7.3	93.27	97.31	98.50	98.43	98.00	97.85	99.48	99.68		100.00
JCP Longitudinal Cracks	99.45	0.6	99.09	98.90	99.53	98.79	99.65	99.68	99.66	99.57		100.00
ACP Shallow Rutting	99.49	0.0	99.35	99.41	99.62	99.73	99.58	99.59	99.49	99.37	99.78	100.00
JCP Shattered Slabs	100.00	0.0	99.96	99.98	100.00	100.00	99.99	100.00	100.00	100.00		100.00

	Lane Miles				Percent
Pavement Type	Rated		Substandard		Substandard
Asphalt Concrete	174,344.5	91.39%	21,879.1	86.00%	12.55%
Continuously Reinforced Concrete	12,715.0	6.67%	1,969.8	7.74%	15.49%
Jointed Concrete	3,699.9	1.94%	1,591.9	6.26%	43.03%
Total:	190,759.4		25,440.8		13.34%

86.66 Percent of Lane Miles in "Good" or Better Condition

Average includes all lane miles with Condition Scores below 70.

Substandard Utility Lane Miles are totaled lane miles of PMIS sections that have Condition Score below 70 and a utility value less than 0.70.

TEXAS DEPARTMENT OF TRANSPORTATION
Pavement Management Information System (PMIS)

Statewide FY 2012
PMIS Substandard Condition Scores (Less Than 70)

Highway Systems: All
Mainlane Roadbeds:
All Roadbeds: IH, US, SH, BR, FM, PR, PA
Construction project Limits Used: No
ACP Patching Used: Yes
Federal Funding: Both Eligible and Ineligible
Rating Cycle: Annual

Utility	Overall Utility Average	Substandard Utility (<0.70) Lane Miles	Traffic Utility Average (ADT*Speed Limit)			Highway Systems Utility Average						
			1-27,500 LOW	27,501-165,000 MEDIUM	>165,000 HIGH	IH	US	SH	BR	FM	PR	PA
ACP Ride	84.01	5,682.4	89.59	85.79	79.48	85.67	88.51	80.45	72.57	84.31	64.58	82.68
ACP Patching	86.36	6,071.2	82.64	84.13	90.17	90.71	84.64	89.08	95.41	84.63	96.17	100.00
JCP Ride	56.64	1,182.1	91.46	60.92	55.24	63.23	56.57	54.91	56.36	48.36		51.87
CRCP Ride	69.68	1,014.1	85.18	73.07	69.38	73.78	70.37	64.18	58.58	62.30		61.84
ACP Alligator Cracking	91.27	3,034.6	92.71	91.65	90.17	92.17	89.56	90.17	89.77	92.26	89.14	99.39
ACP Failures	92.63	3,374.7	87.66	91.45	96.37	90.03	96.83	95.73	98.62	90.06	89.97	100.00
CRCP Portland Concrete Patching	77.82	746.4	76.11	66.80	78.37	72.31	75.89	87.77	73.09	82.51		100.00
JCP Portland Concrete Patching	73.84	629.2	89.83	66.47	74.26	73.75	67.27	72.39	83.49	94.25		100.00
ACP Longitudinal Cracking	95.46	1,031.7	98.45	97.41	92.28	91.79	93.00	93.52	91.40	97.89	97.42	74.81
CRCP Punchouts	93.57	154.9	90.18	92.95	93.63	93.06	92.76	95.18	100.00	92.21		100.00
JCP Failures	95.05	84.5	50.14	96.60	96.06	92.62	95.51	95.10	96.14	99.32		100.00
ACP Block Cracking	99.32	251.2	99.85	99.44	98.92	98.56	99.16	98.81	97.52	99.79	100.00	100.00
CRCP Asphalt Concrete Patching	98.11	51.9	95.18	100.00	98.04	97.27	99.75	97.94	100.00	99.80		100.00
ACP Transverse Cracking	98.93	75.9	99.47	99.18	98.44	98.25	98.37	98.43	96.51	99.57	100.00	100.00
CRCP Spalled Cracks	98.45	28.6	95.10	94.63	98.66	99.02	98.90	97.05	100.00	98.62		100.00
JCP Failed Joints And Cracks	98.25	10.4	93.60	97.48	98.46	98.59	98.40	97.58	98.93	99.85		100.00
ACP Deep Rutting	99.67	25.8	99.50	99.62	99.81	99.80	99.69	99.64	99.91	99.64	100.00	100.00
ACP Shallow Rutting	99.29	0.0	99.16	99.30	99.36	99.53	99.21	99.35	99.52	99.24	99.79	99.92
JCP Longitudinal Cracks	99.97	0.0	99.99	99.86	99.98	99.94	99.98	99.99	100.00	99.89		100.00
JCP Shattered Slabs	99.99	0.0	99.68	100.00	100.00	99.97	100.00	100.00	100.00	100.00		100.00

	Lane Miles				Percent
Pavement Type	Rated		Substandard		Substandard
Asphalt Concrete	174,498.6	91.40%	22,370.9	86.61%	12.82%
Continuously Reinforced Concrete	12,798.9	6.70%	1,898.7	7.35%	14.83%
Jointed Concrete	3,620.7	1.90%	1,558.5	6.03%	43.04%
Total:	190,918.2		25,828.1		13.53%

86.47 Percent of Lane Miles in "Good" or Better Condition

Average includes all lane miles with Condition Scores below 70.

Substandard Utility Lane Miles are totaled lane miles of PMIS sections that have Condition Score below 70 and a utility value less than 0.70.

TEXAS DEPARTMENT OF TRANSPORTATION
Pavement Management Information System (PMIS)

Statewide FY 2013
PMIS Substandard Condition Scores (Less Than 70)

Highway Systems: All
Mainlane Roadbeds:
All Roadbeds: IH, US, SH, BR, FM, PR, PA
Construction project Limits Used: No
ACP Patching Used: Yes
Federal Funding: Both Eligible and Ineligible
Rating Cycle: Annual

Utility	Overall Utility Average	Substandard Utility (<0.70) Lane Miles	Traffic Utility Average (ADT*Speed Limit)			Highway Systems Utility Average						
			1-27,500 LOW	27,501-165,000 MEDIUM	>165,000 HIGH	IH	US	SH	BR	FM	PR	PA
ACP Ride	83.98	4,826.2	90.98	86.13	78.61	84.77	88.12	81.47	70.24	84.41	68.39	37.22
ACP Patching	86.01	5,377.3	80.98	83.61	90.54	90.65	85.33	88.15	96.27	83.83	91.97	100.00
JCP Ride	58.66	976.7	84.59	64.38	57.46	64.80	57.93	57.90	57.55	50.12		55.77
ACP Alligator Cracking	90.89	2,765.3	92.34	90.74	90.24	92.21	88.17	90.14	90.13	91.97	94.94	99.89
CRCP Ride	72.42	887.6	90.14	73.83	72.17	77.21	71.66	65.83	57.64	66.82		47.77
CRCP Portland Concrete Patching	76.41	779.4	73.68	66.55	77.01	71.10	76.04	86.63	77.88	78.26		100.00
JCP Portland Concrete Patching	72.24	580.8	72.22	66.86	72.89	67.96	66.68	72.48	84.74	90.43		100.00
ACP Failures	93.84	2,372.2	90.76	92.20	96.74	89.76	96.57	96.46	97.78	92.18	96.13	100.00
ACP Longitudinal Cracking	95.71	821.5	98.24	97.41	93.05	91.91	93.86	94.74	92.60	97.70	94.90	97.23
CRCP Punchouts	92.51	163.5	86.62	90.98	92.66	90.80	92.03	95.12	99.70	95.48		100.00
JCP Failures	93.01	115.1	84.96	93.08	93.15	94.83	92.77	91.61	90.63	96.39		99.06
ACP Block Cracking	99.35	198.7	99.83	99.69	98.84	98.61	99.28	98.79	97.73	99.84	99.94	100.00
CRCP Asphalt Concrete Patching	98.60	32.7	100.00	99.92	98.51	98.30	99.07	98.50	99.70	99.66		100.00
ACP Transverse Cracking	98.96	41.1	99.31	99.18	98.59	98.37	98.44	98.86	97.16	99.39	99.99	100.00
CRCP Spalled Cracks	98.59	22.4	98.56	95.37	98.78	98.91	99.14	97.38	100.00	98.74		100.00
JCP Failed Joints And Cracks	98.56	12.2	95.83	98.07	98.67	99.03	98.01	98.31	99.27	99.76		100.00
ACP Deep Rutting	99.67	24.6	99.59	99.54	99.81	99.83	99.78	99.80	99.90	99.52	100.00	100.00
ACP Shallow Rutting	99.25	0.0	99.21	99.08	99.40	99.48	99.31	99.35	99.63	99.11	99.69	99.63
JCP Longitudinal Cracks	99.62	0.0	99.74	99.69	99.61	99.25	99.77	99.67	100.00	99.74		99.96
JCP Shattered Slabs	100.00	0.0	99.83	100.00	100.00	99.99	100.00	100.00	100.00	100.00		100.00

	Lane Miles				Percent
Pavement Type	Rated		Substandard		Substandard
Asphalt Concrete	173,742.8	91.20%	19,075.0	85.61%	10.98%
Continuously Reinforced Concrete	13,227.4	6.94%	1,832.4	8.22%	13.85%
Jointed Concrete	3,530.9	1.85%	1,374.7	6.17%	38.93%
Total:	190,501.1		22,282.1		11.70%

88.30 Percent of Lane Miles in "Good" or Better Condition

Average includes all lane miles with Condition Scores below 70.

Substandard Utility Lane Miles are totaled lane miles of PMIS sections that have Condition Score below 70 and a utility value less than 0.70.

TEXAS DEPARTMENT OF TRANSPORTATION
Pavement Management Information System (PMIS)

Statewide FY 2014
PMIS Substandard Condition Scores (Less Than 70)

Highway Systems: All
Mainlane Roadbeds:
All Roadbeds: IH, US, SH, BR, FM, PR, PA
Construction project Limits Used: No
ACP Patching Used: Yes
Federal Funding: Both Eligible and Ineligible
Rating Cycle: Annual

Utility	Overall Utility Average	Substandard Utility (<0.70) Lane Miles	Traffic Utility Average (ADT*Speed Limit)			Highway Systems Utility Average						
			1-27,500 LOW	27,501-165,000 MEDIUM	>165,000 HIGH	IH	US	SH	BR	FM	PR	PA
ACP Ride	83.09	5,474.1	90.60	84.43	78.66	83.98	86.78	81.24	72.13	83.44	66.08	68.30
ACP Patching	87.39	4,996.7	82.49	85.10	91.29	92.32	86.37	89.29	95.99	85.39	94.73	99.85
JCP Ride	56.73	1,086.1	85.05	60.57	55.63	65.68	57.75	54.94	55.83	44.49		47.97
CRCP Ride	69.10	1,050.7	84.04	67.68	69.07	75.05	70.58	61.34	55.88	61.32		58.81
ACP Alligator Cracking	91.72	2,663.4	93.57	92.31	90.44	92.01	90.12	90.76	89.79	92.80	91.70	98.04
CRCP Portland Concrete Patching	77.62	771.4	77.78	71.72	77.90	69.31	77.96	89.35	91.68	82.82		100.00
JCP Portland Concrete Patching	73.31	585.3	83.95	69.92	73.50	70.11	68.78	72.56	85.08	90.15		89.53
ACP Failures	94.38	2,275.4	91.16	93.18	96.72	91.21	97.22	96.48	96.94	92.77	93.25	100.00
ACP Longitudinal Cracking	95.16	1,147.9	98.35	97.38	92.11	90.69	93.10	92.86	93.36	97.80	94.02	87.25
CRCP Punchouts	94.17	139.3	85.32	90.02	94.42	93.03	92.52	95.95	97.14	97.08		100.00
JCP Failures	94.57	95.4	72.92	94.18	95.09	93.78	92.45	95.20	99.75	97.65		99.45
ACP Deep Rutting	98.72	161.4	98.45	98.10	99.28	98.99	99.34	99.04	99.62	98.23	99.55	94.31
ACP Block Cracking	99.36	217.7	99.82	99.58	98.99	98.77	99.20	99.14	97.43	99.74	100.00	99.93
ACP Transverse Cracking	98.82	77.6	99.19	99.12	98.44	98.07	98.10	98.72	96.69	99.40	99.31	100.00
CRCP Spalled Cracks	98.78	16.9	94.39	94.60	99.01	98.98	99.33	97.69	100.00	99.53		100.00
JCP Failed Joints And Cracks	98.56	11.5	97.56	98.07	98.64	99.14	98.30	98.13	97.37	99.89		100.00
CRCP Asphalt Concrete Patching	99.26	17.6	100.00	99.91	99.23	98.90	99.10	99.78	100.00	99.73		100.00
ACP Shallow Rutting	96.61	0.0	95.99	95.67	97.57	97.40	97.58	97.15	98.36	95.76	97.02	97.64
JCP Longitudinal Cracks	99.82	0.0	99.98	99.85	99.82	99.53	99.96	99.85	99.98	99.88		99.98
JCP Shattered Slabs	99.97	0.0	99.79	99.92	99.98	99.98	99.93	100.00	100.00	99.91		100.00

	Lane Miles				Percent
Pavement Type	Rated		Substandard		Substand
Asphalt Concrete	174,472.2	91.44%	21,033.8	86.04%	12.06%
Continuously Reinforced Concrete	12,839.1	6.73%	1,921.1	7.86%	14.96%
Jointed Concrete	3,487.8	1.83%	1,490.8	6.10%	42.74%
Total:	190,799.1		24,445.7		12.81%

87.19 Percent of Lane Miles in "Good" or Better Condition

Average includes all lane miles with Condition Scores below 70.

Substandard Utility Lane Miles are totaled lane miles of PMIS sections that have Condition Score below 70 and a utility value less than 0.70.

Texas' first urban expressway was the Gulf Freeway (IH 45) in Houston. The first major portion of this road opened in 1952.

Chapter 3 — **PMIS Score Trends**

This Chapter shows FY 2011–2014 statewide trends for PMIS Scores using two methods:

Percentage of Lane Miles "Good" or Better

This method shows the percentage of Texas lane miles above an arbitrary "Good" value. This is basically a "pass/fail" value—it does not describe how far the mileage is above "passing" or below "failing."

For example, in FY 2014, **87.19 percent** of Texas lane miles were in "Good" or better condition—that is, had a PMIS Condition Score of 70 or above. However, all of that mileage could have had Condition Score of 70 or 100, and the percentage (87.19 percent) would have been the same.

This is the method used in the statewide pavement condition goal (90 percent of lane miles in "Good" or better condition).

PMIS Score Classes

This method shows how Texas lane miles fall within the range of a PMIS Score value. For example, PMIS Condition Score ranges from 1 (worst) to 100 (best), but all mileage does not have the same value. The PMIS Score Classes method defines five "classes" for each PMIS Score—as shown in the tables below—and then shows the percentage of Texas lane miles that fall within each class.

In FY 2014, the percentage of lane miles in the "Very Good" (90 to 100) Condition Score class decreased, while the percentage of lane miles in all other Condition Score classes increased. The increase of Condition Score classes in the "Fair" and "Poor," and "Very Poor" classes lowered the statewide percentage of lane miles in "Good" or better condition.

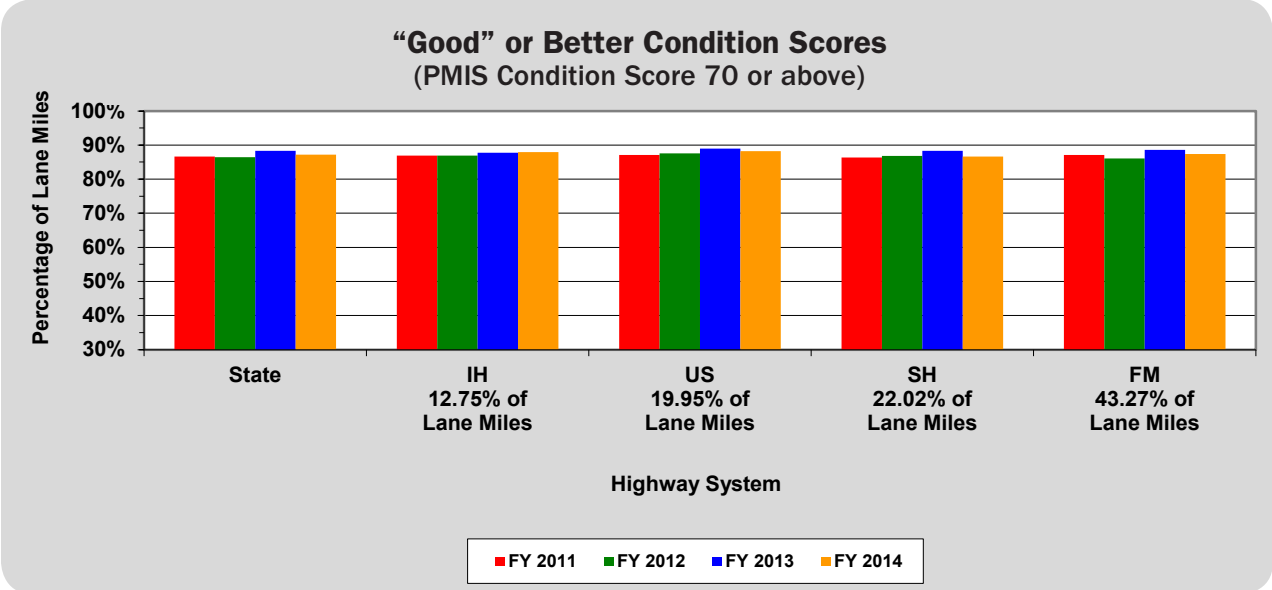
Category	Distress Score	Ride Score	Condition Score
	describes "distress"	describes "ride"	describes "condition"
"Very Good"	90 to 100	4.0 to 5.0	90 to 100
"Good"	80 to 89	3.0 to 3.9	70 to 89
"Fair"	70 to 79	2.0 to 2.9	50 to 69
"Poor"	60 to 69	1.0 to 1.9	35 to 49
"Very Poor"	1 to 59	0.1 to 0.9	1 to 34

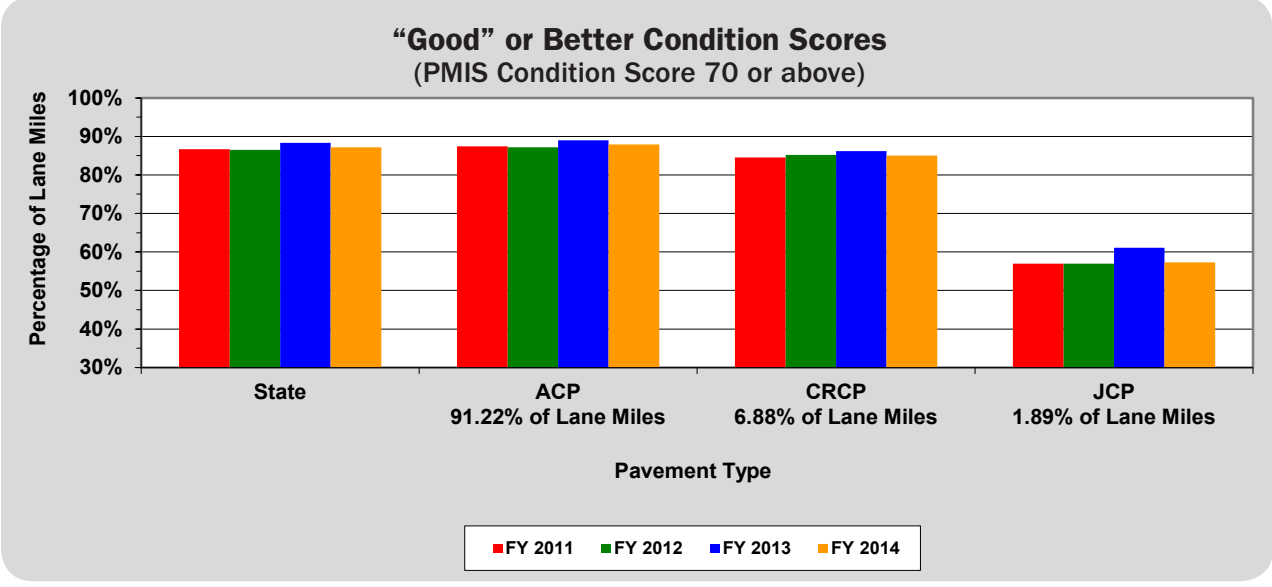
Category	Distress Score	Shallow Distress Score	Deep Distress Score
	describes "distress"	describes need for surface repair	describes need for sub-surface repair
"Very Good"	90 to 100	90 to 100	90 to 100
"Good"	80 to 89	80 to 89	80 to 89
"Fair"	70 to 79	70 to 79	70 to 79
"Poor"	60 to 69	60 to 69	60 to 69
"Very Poor"	1 to 59	1 to 59	1 to 59

Pavement Condition (Condition Scores)

Percentage of Lane Miles "Good" or Better—PMIS Condition Score 70 or above

Fiscal Year	Percentage of Lane Miles With "Good" or Better Condition Scores										
	State	IH	US	SH	FM	ACP	CRCP	JCP	IH ACP	IH CRCP	IH JCP
2011	86.66%	86.92%	87.07%	86.32%	87.05%	87.45%	84.51%	56.97%	89.14%	84.19%	64.03%
2012	86.47%	86.89%	87.57%	86.85%	86.05%	87.18%	85.17%	56.96%	89.37%	82.99%	64.42%
2013	88.30%	87.76%	88.97%	88.31%	88.55%	89.02%	86.15%	61.07%	90.23%	83.02%	69.26%
2014	87.19%	87.92%	88.20%	86.65%	87.36%	87.94%	85.04%	57.26%	90.10%	84.70%	67.60%
2013–2014 Change	-1.11%	+0.16%	-0.77%	-1.66%	-1.19%	-1.08%	-1.11%	-3.81%	-0.13%	+1.68%	-1.66%

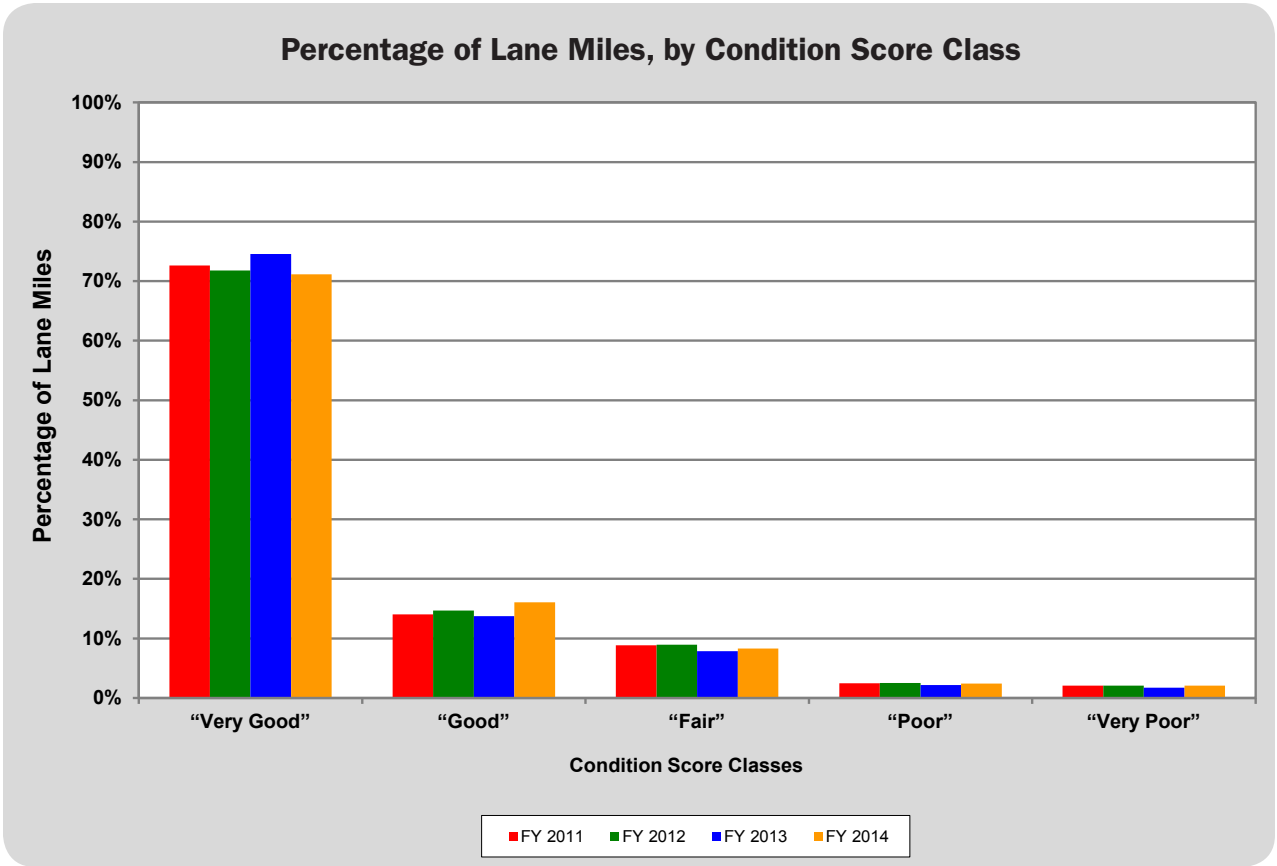




Pavement Condition (Condition Scores)

Percentage of Lane Miles, by Condition Score Class

Fiscal Year	Percentage of Lane Miles, by Condition Score Class				
	"Very Good"	"Good"	"Fair"	"Poor"	"Very Poor"
2011	72.64%	14.02%	8.84%	2.44%	2.06%
2012	71.78%	14.69%	8.96%	2.52%	2.05%
2013	74.56%	13.74%	7.85%	2.15%	1.70%
2014	71.15%	16.04%	8.32%	2.41%	2.08%
2013–2014 Change	-3.41%	+2.30%	+0.47%	+0.26%	+0.38%

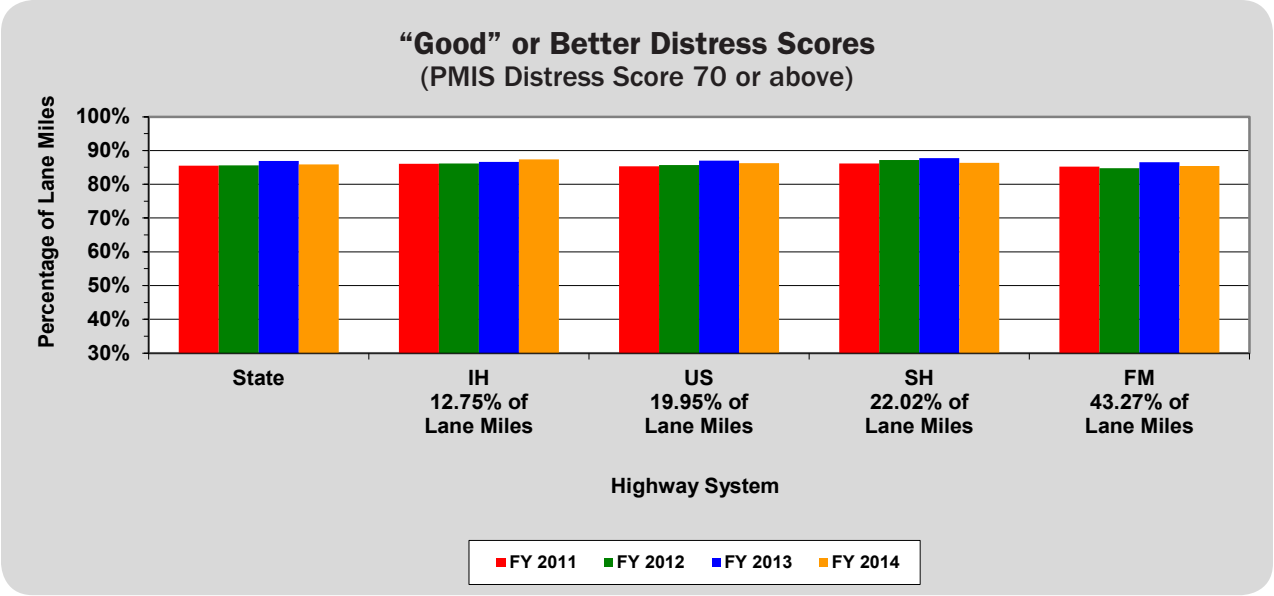


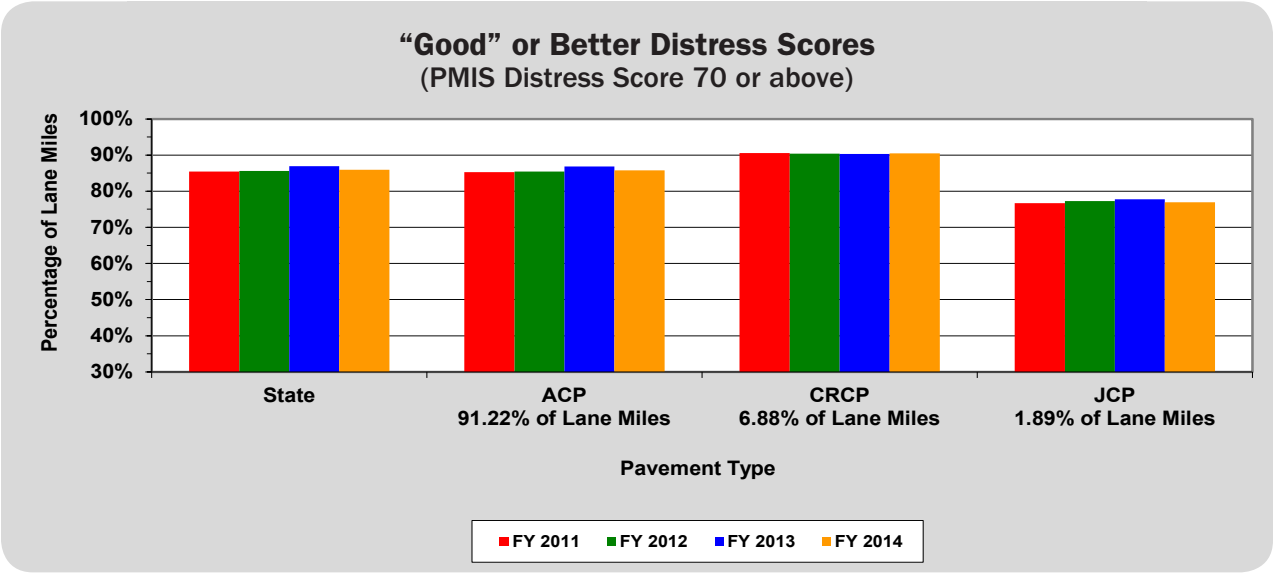
Condition Score	Class
90-100	**"Very Good"**
70-89	**"Good"**
50-69	"Fair"
35-49	"Poor"
1-34	"Very Poor"

Pavement Distress (Distress Scores)

Percentage of Lane Miles "Good" or Better – PMIS Distress Score 80 or above

Fiscal Year	Percentage of Lane Miles With "Good" or Better Distress Scores										
	State	IH	US	SH	FM	ACP	CRCP	JCP	IH ACP	IH CRCP	IH JCP
2011	85.47%	86.03%	85.35%	86.20%	85.25%	85.28%	90.56%	76.71%	85.72%	88.63%	78.20%
2012	85.60%	86.19%	85.71%	87.19%	84.74%	85.42%	90.35%	77.23%	86.25%	87.37%	79.08%
2013	86.89%	86.67%	86.98%	87.78%	86.57%	86.81%	90.29%	77.76%	87.09%	86.60%	79.60%
2014	85.91%	87.33%	86.23%	86.34%	85.38%	85.75%	90.50%	76.94%	87.64%	87.98%	77.63%
2013–2014 Change	-0.98%	+0.66%	-0.75%	-1.44%	-1.19%	-1.06%	+0.21%	-0.82%	+0.55%	+1.38%	-1.97%

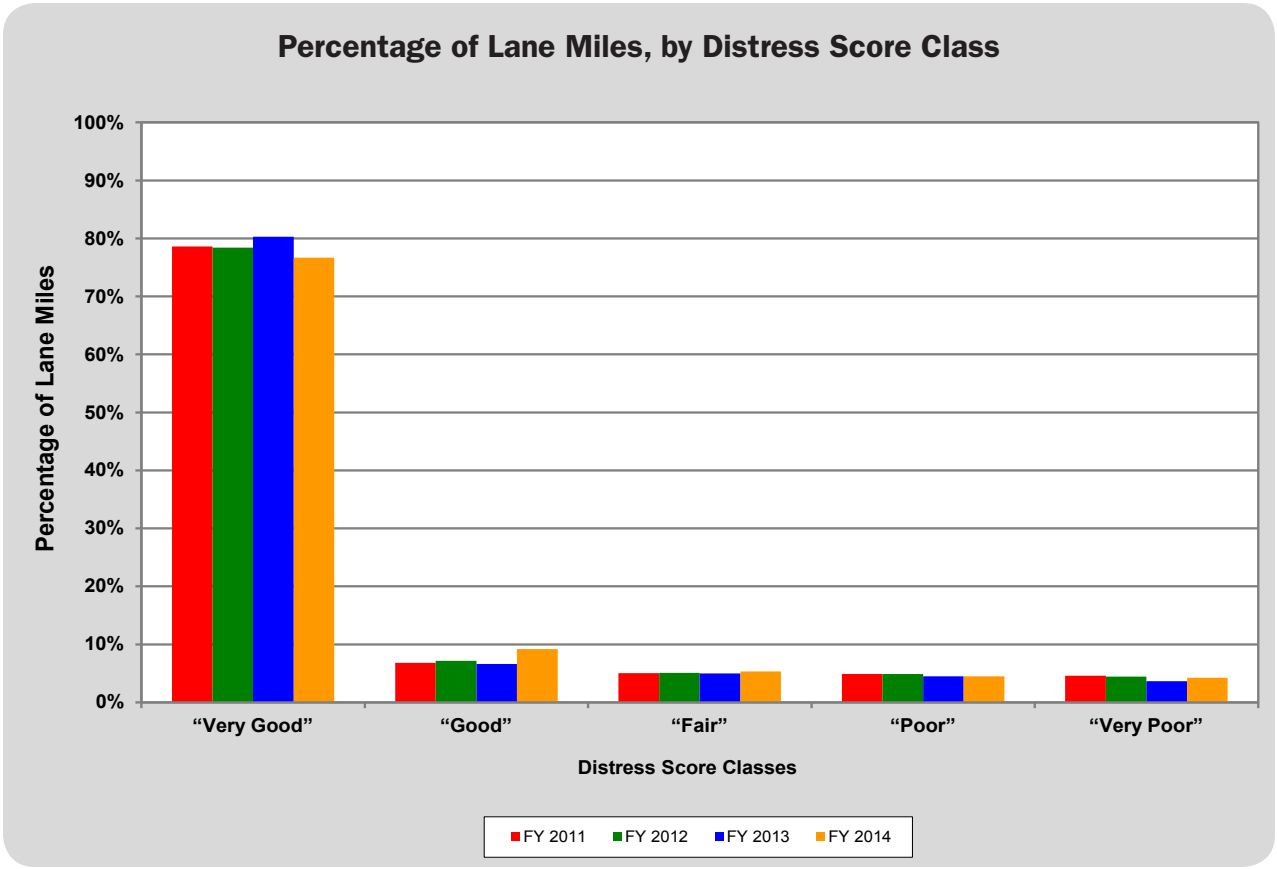




Pavement Distress (Distress Scores)

Percentage of Lane Miles, by Distress Score Class

Fiscal Year	Percentage of Lane Miles, by Distress Score Class				
	"Very Good"	"Good"	"Fair"	"Poor"	"Very Poor"
2011	78.63%	6.84%	5.06%	4.87%	4.59%
2012	78.42%	7.18%	5.07%	4.89%	4.44%
2013	80.29%	6.60%	5.00%	4.48%	3.63%
2014	76.70%	9.20%	5.34%	4.51%	4.24%
2013–2014 Change	-3.59%	+2.60%	+0.34%	+0.03%	+0.61%

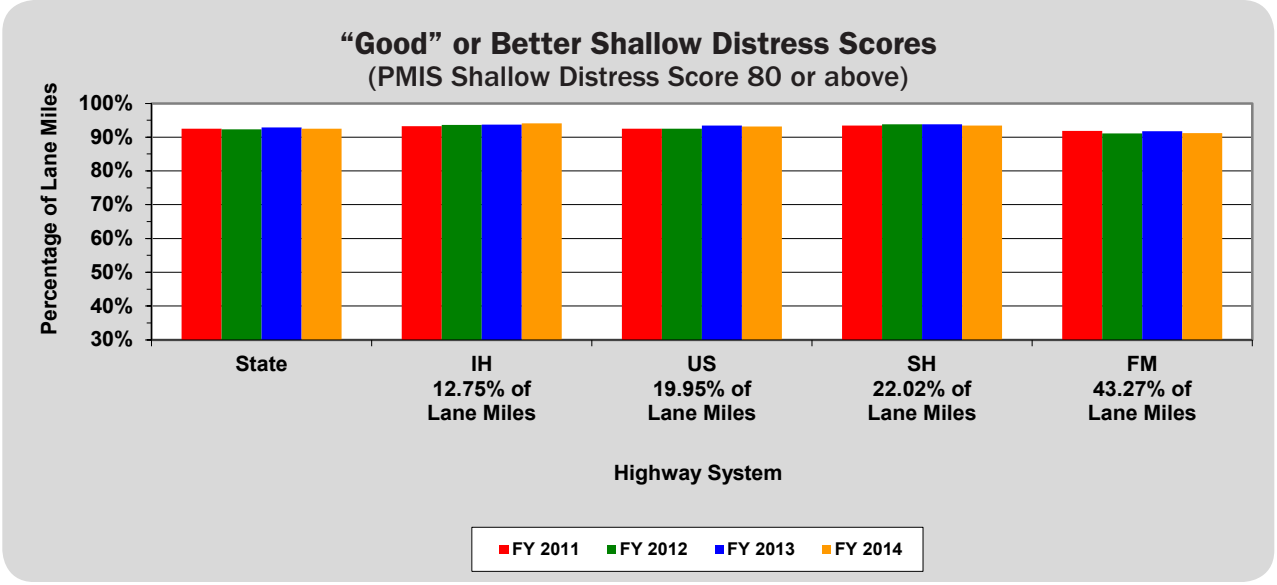


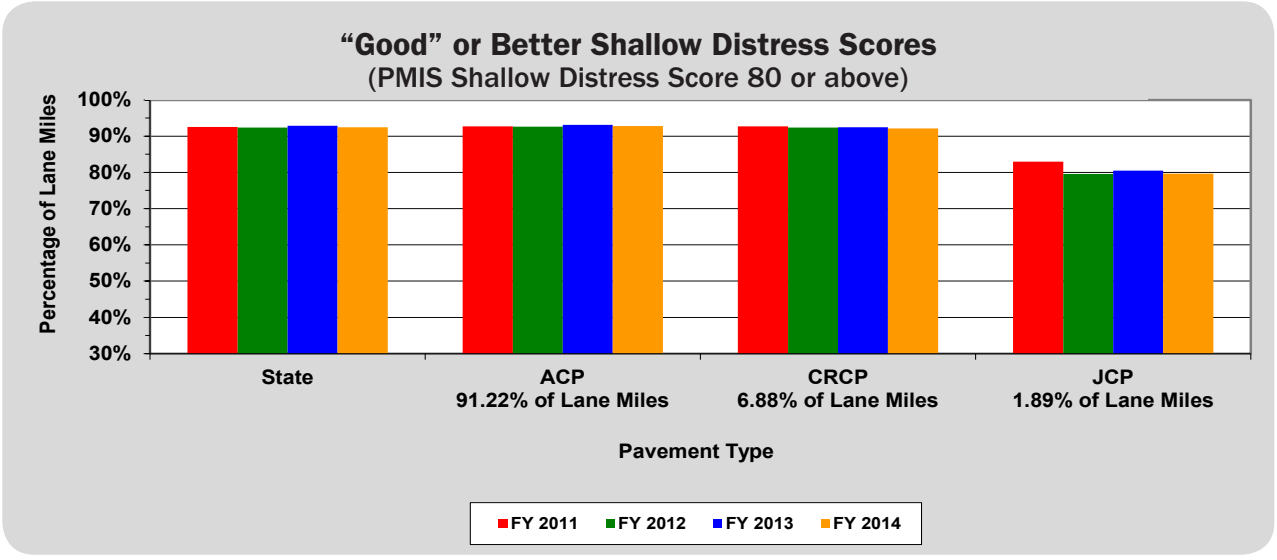
Distress Score	Class
90-100	**"Very Good"**
80-89	**"Good"**
70-79	"Fair"
60-69	"Poor"
1-59	"Very Poor"

Pavement Distress (Shallow Distress Scores)

Percentage of Lane Miles "Good" or Better—PMIS Shallow Distress Score 80 or above

Fiscal Year	Percentage of Lane Miles With "Good" or Better Shallow Distress Scores										
	State	IH	US	SH	FM	ACP	CRCP	JCP	IH ACP	IH CRCP	IH JCP
2011	92.52%	93.28%	92.50%	93.41%	91.81%	92.71%	92.71%	82.92%	94.42%	90.98%	86.00%
2012	92.35%	93.61%	92.53%	93.83%	91.08%	92.61%	92.35%	79.58%	95.35%	89.85%	83.18%
2013	92.87%	93.70%	93.45%	93.85%	91.77%	93.15%	92.49%	80.46%	95.56%	89.60%	82.67%
2014	92.49%	94.09%	93.15%	93.40%	91.22%	92.77%	92.11%	79.68%	96.19%	89.76%	82.22%
2013–2014 Change	-0.38%	+0.39%	-0.30%	-0.45%	-0.55%	-0.38%	-0.38%	-0.78%	+0.63%	+0.16%	-0.45%

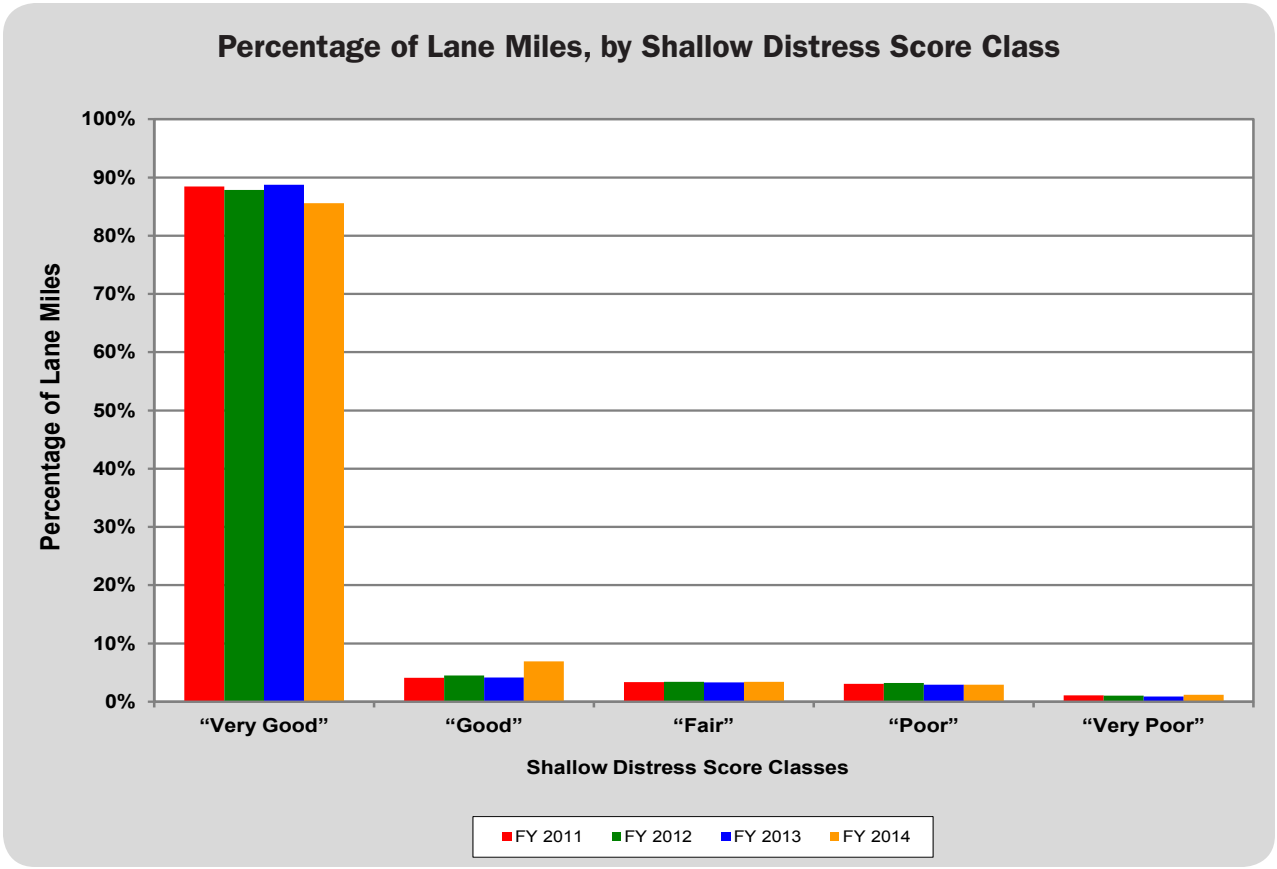




Pavement Distress (Shallow Distress Scores)

Percentage of Lane Miles, by Shallow Distress Score Class

Fiscal Year	Percentage of Lane Miles, by Shallow Distress Score Class				
	"Very Good"	"Good"	"Fair"	"Poor"	"Very Poor"
2011	88.44%	4.08%	3.33%	3.05%	1.10%
2012	87.87%	4.48%	3.38%	3.23%	1.04%
2013	88.74%	4.13%	3.31%	2.92%	0.90%
2014	85.56%	6.93%	3.41%	2.90%	1.20%
2013–2014 Change	-3.18%	+2.80%	+0.10%	-0.02%	+0.30%

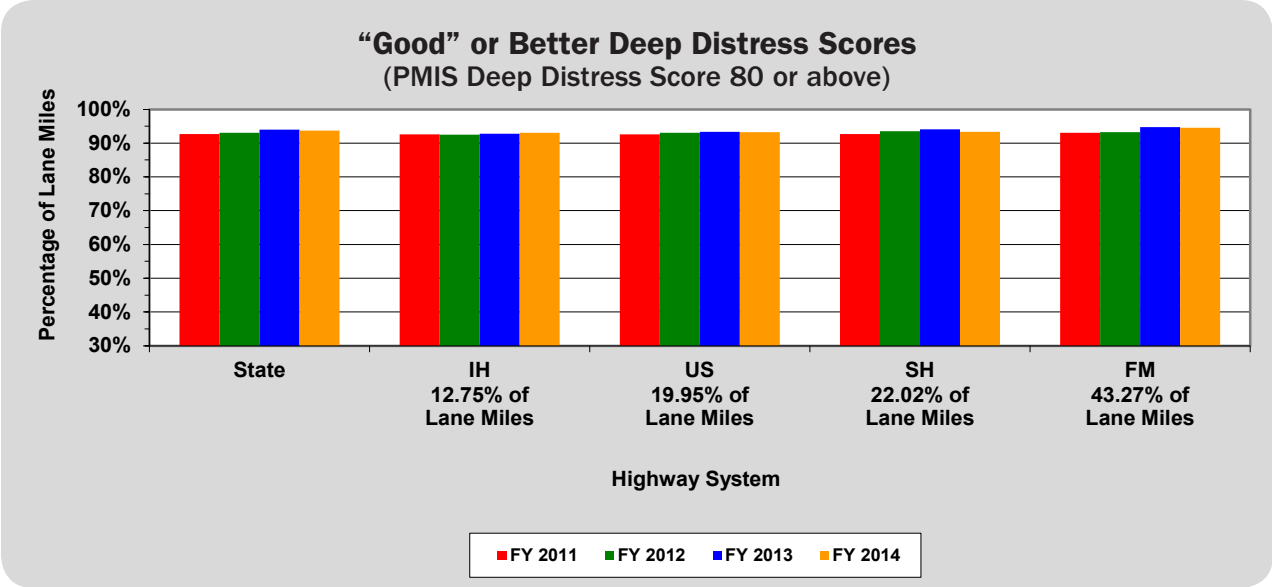


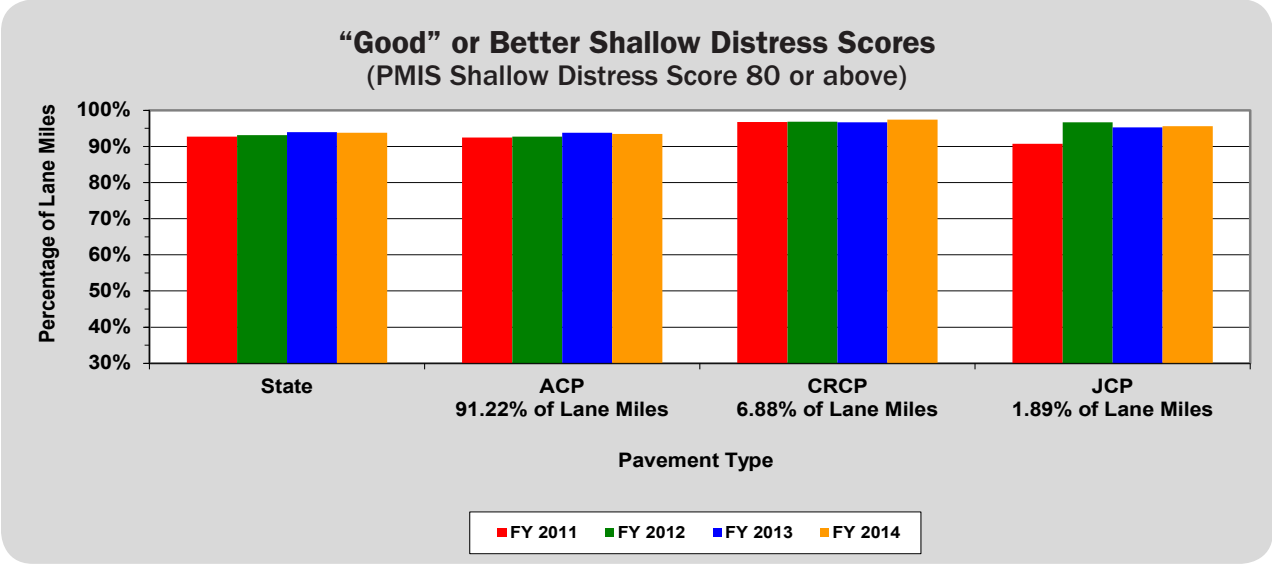
Shallow Distress Score	Class
90-100	**"Very Good"**
80-89	**"Good"**
70-79	"Fair"
60-69	"Poor"
1-59	"Very Poor"

Pavement Distress (Deep Distress Scores)

Percentage of Lane Miles "Good" or Better – PMIS Deep Distress Score 80 or above

Fiscal Year	Percentage of Lane Miles With "Good" or Better Deep Distress Scores										
	State	IH	US	SH	FM	ACP	CRCP	JCP	IH ACP	IH CRCP	IH JCP
2011	92.71%	92.56%	92.60%	92.68%	93.07%	92.46%	96.77%	90.73%	91.70%	95.88%	90.24%
2012	93.08%	92.51%	93.02%	93.50%	93.28%	92.73%	96.80%	96.66%	91.37%	95.68%	95.72%
2013	93.97%	92.75%	93.38%	94.08%	94.72%	93.74%	96.64%	95.28%	91.78%	95.29%	96.34%
2014	93.73%	93.09%	93.26%	93.32%	94.57%	93.42%	97.44%	95.59%	91.72%	96.77%	95.61%
2013–2014 Change	-0.24%	+0.34%	-0.12%	-0.76%	-0.15%	-0.32%	+0.80%	+0.31%	-0.06%	+1.48%	-0.73%

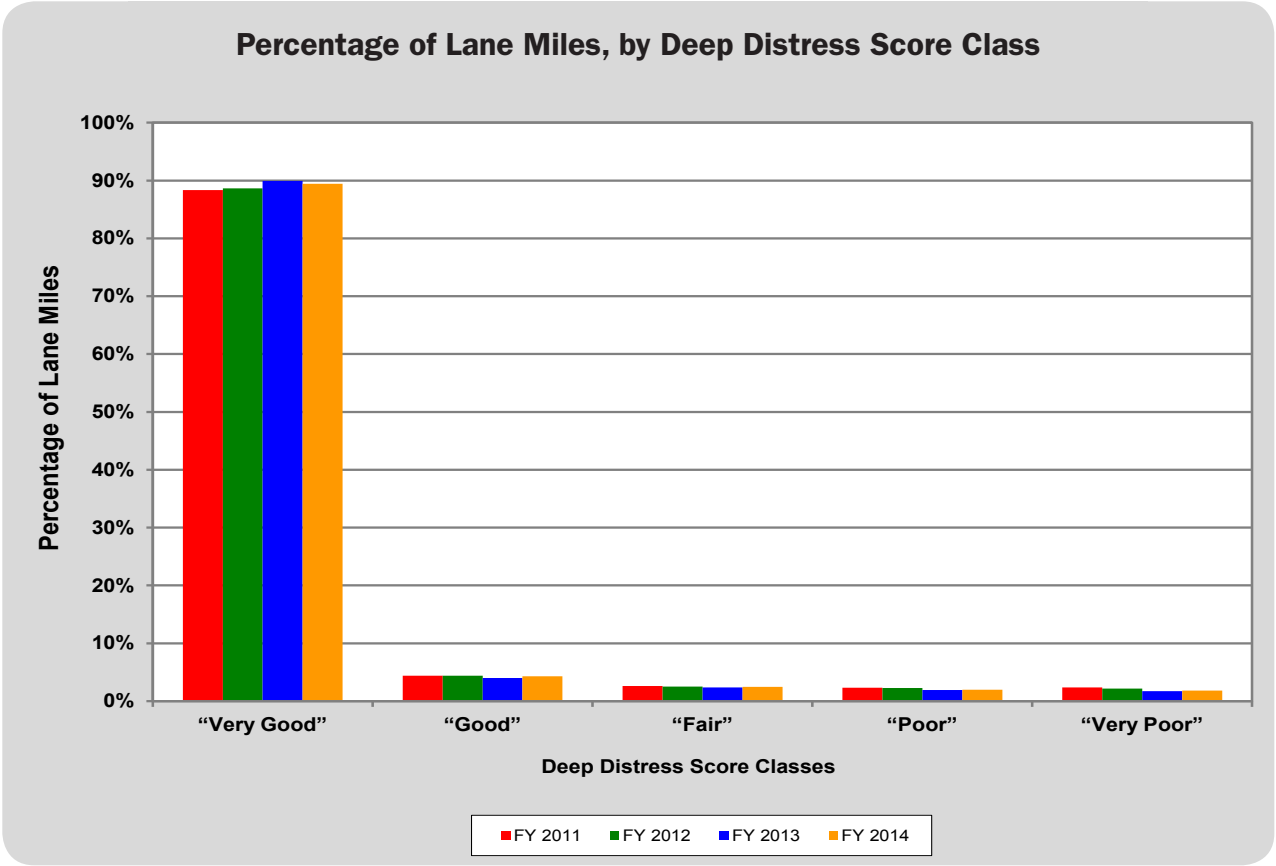




Pavement Distress (Deep Distress Scores)

Percentage of Lane Miles, by Deep Distress Score Class

Fiscal Year	Percentage of Lane Miles, by Deep Distress Score Class				
	"Very Good"	"Good"	"Fair"	"Poor"	"Very Poor"
2011	88.33%	4.38%	2.59%	2.33%	2.36%
2012	88.67%	4.41%	2.51%	2.25%	2.16%
2013	89.95%	4.02%	2.39%	1.94%	1.70%
2014	89.42%	4.31%	2.44%	1.99%	1.84%
2013–2014 Change	-0.53%	+0.29%	+0.05%	+0.05%	+0.14%

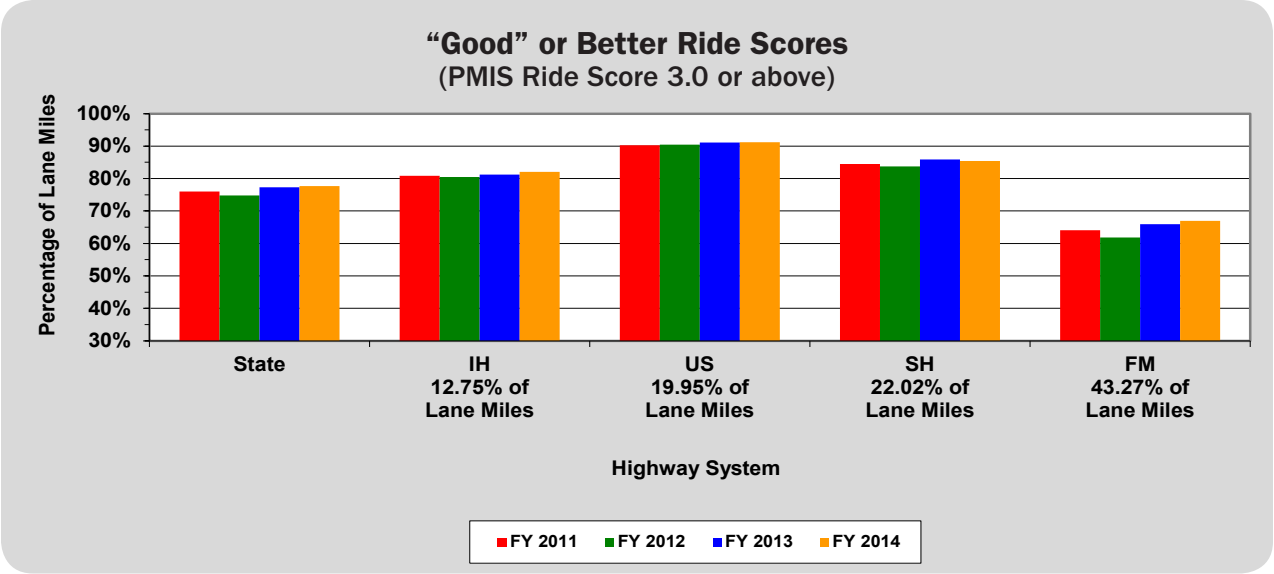


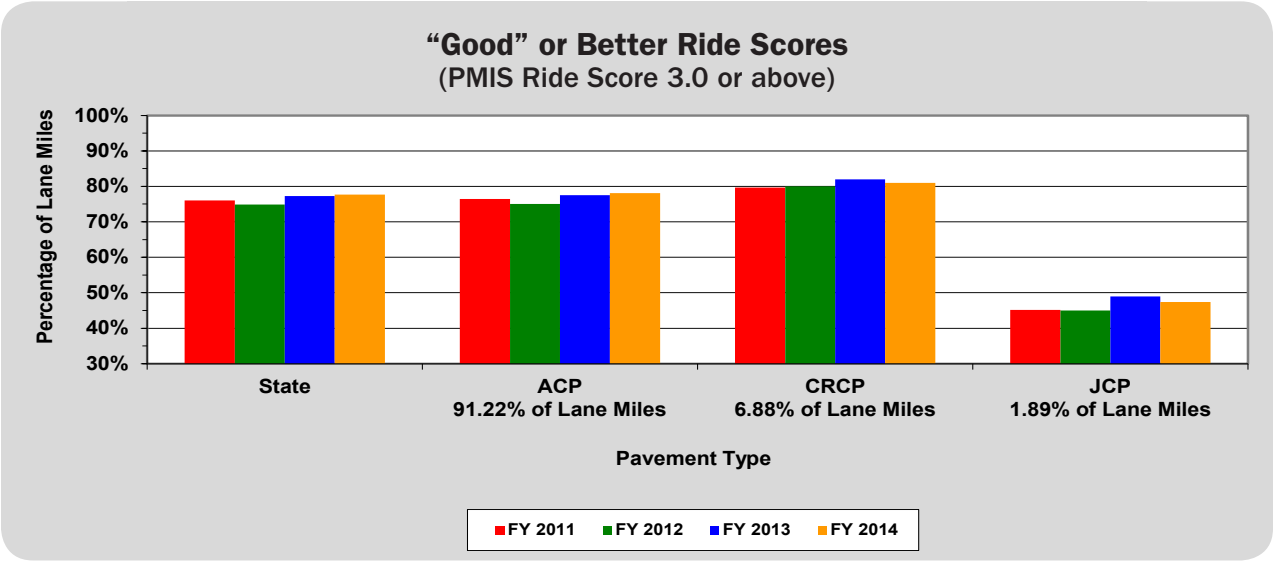
Deep Distress Score	Class
90-100	"Very Good"
80-89	"Good"
70-79	"Fair"
60-69	"Poor"
1-59	"Very Poor"

Pavement Ride Quality (Ride Scores)

Percentage of Lane Miles "Good" or Better – PMIS Ride Score 3.0 or above

Fiscal Year	Percentage of Lane Miles With "Good" or Better Ride Scores										
	State	IH	US	SH	FM	ACP	CRCP	JCP	IH ACP	IH CRCP	IH JCP
2011	76.01%	80.81%	90.24%	84.48%	64.11%	76.40%	79.64%	45.20%	81.94%	82.67%	52.92%
2012	74.83%	80.52%	90.45%	83.76%	61.82%	75.07%	80.02%	44.96%	81.79%	81.57%	52.91%
2013	77.30%	81.24%	91.12%	85.90%	65.89%	77.52%	81.99%	48.93%	81.99%	82.59%	60.09%
2014	77.69%	82.04%	91.18%	85.46%	66.96%	78.06%	80.96%	47.38%	82.28%	84.84%	60.19%
2013–2014 Change	**+0.39%**	**+0.80%**	**+0.06%**	**-0.44%**	**+1.07%**	**+0.54%**	**-1.03%**	**-1.55%**	**+0.29%**	**+2.25%**	**+0.10%**





Pavement Ride Quality (Ride Scores)

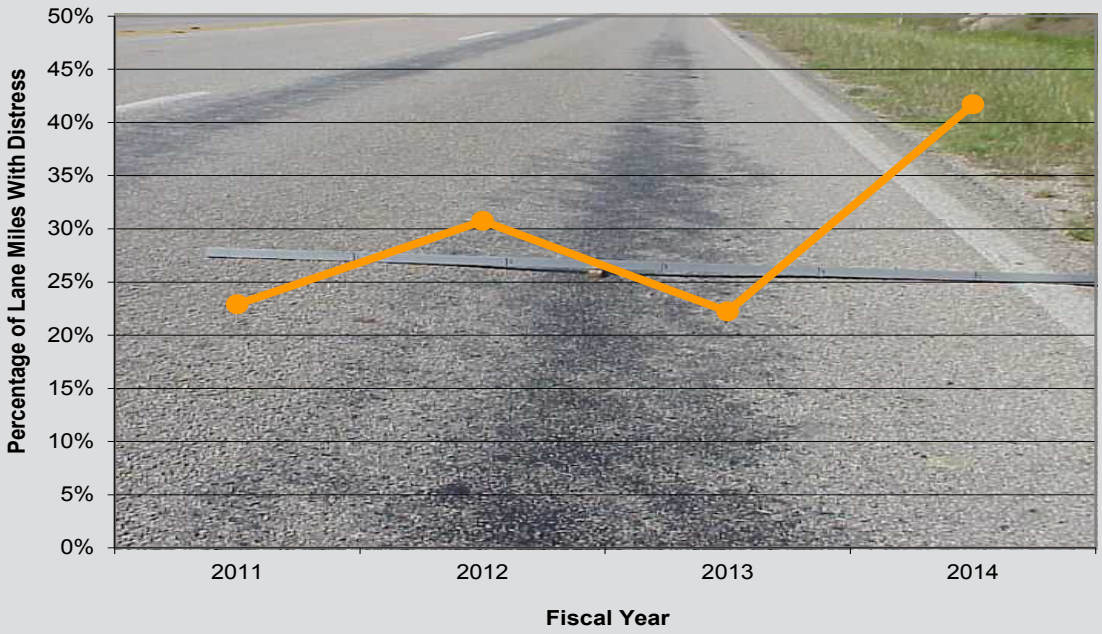
Percentage of Lane Miles, by Ride Score Class

Fiscal Year	Percentage of Lane Miles, by Ride Score Class				
	"Very Good"	"Good"	"Fair"	"Poor"	"Very Poor"
2011	25.32%	50.69%	22.20%	1.68%	0.10%
2012	24.91%	49.92%	23.09%	2.00%	0.08%
2013	25.82%	51.47%	21.12%	1.51%	0.07%
2014	27.32%	50.38%	20.53%	1.68%	0.09%
2013–2014 Change	**+1.50%**	**-1.09%**	**-0.59%**	**+0.17%**	**+0.02%**

Ride Score	Class
4.0-5.0	**"Very Good"**
3.0-3.9	**"Good"**
2.0-2.9	"Fair"
1.0-1.9	"Poor"
0.1-0.9	"Very Poor"

The Texas Highway Department assumed responsibility for maintenance on January 1, 1924. Before that, maintenance was a concern of each county. During the first year, costs reached $4.5 million. By 1930, the department's maintenance costs began to run about $1 million a month.

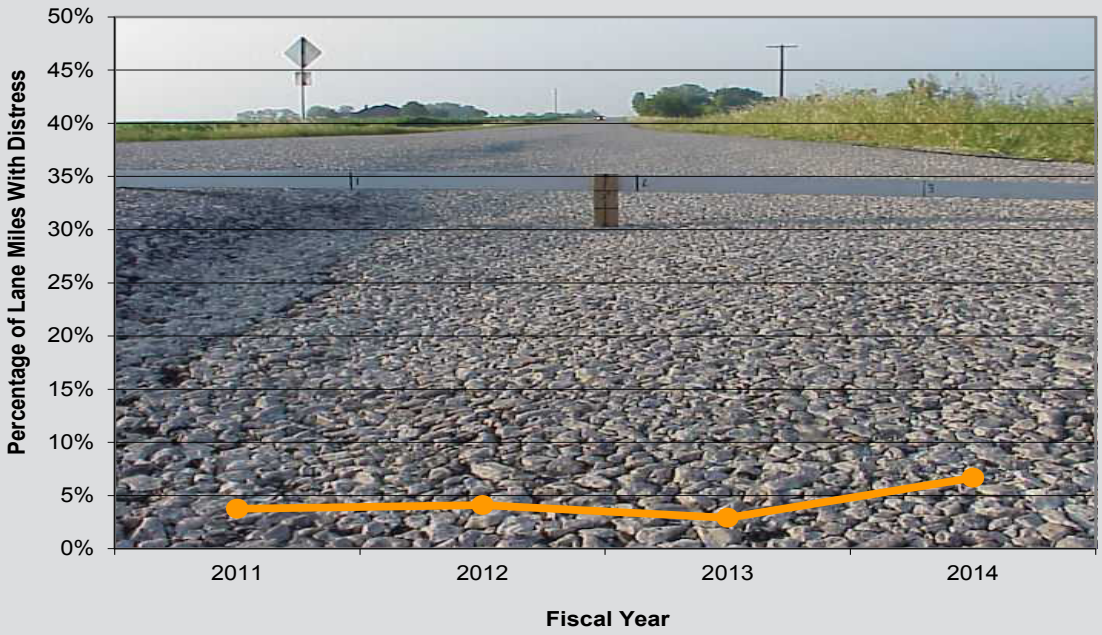
ACP Shallow Rutting (measured), FY 2011–2014



FY 2014 Trend: More

41.71 percent of the lane miles contained Shallow Rutting

ACP Deep Rutting (measured), FY 2011–2014



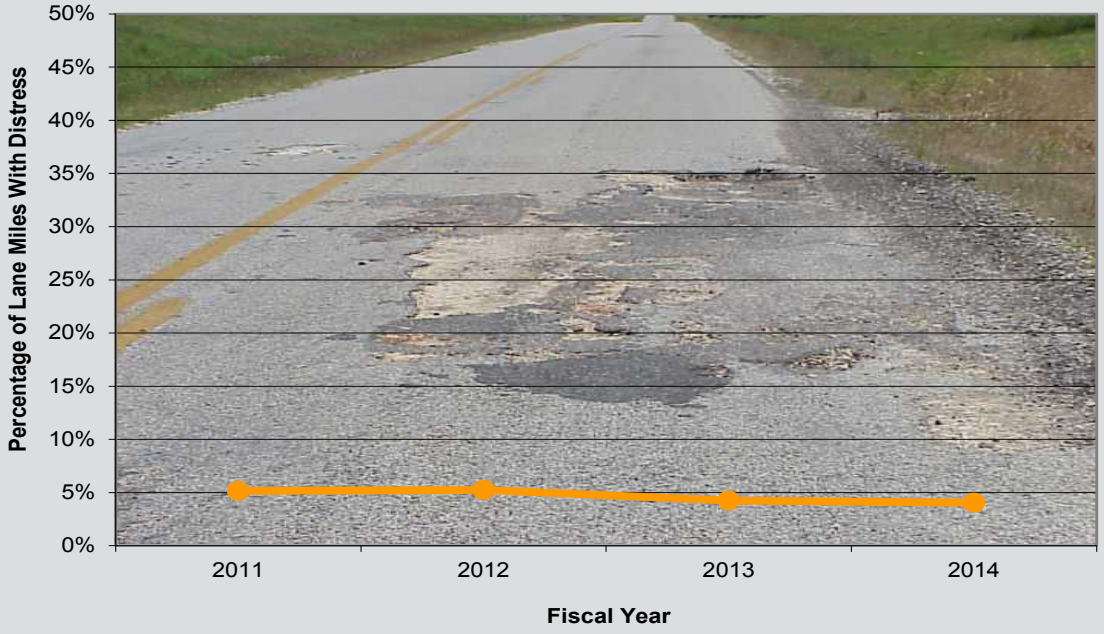
FY 2014 Trend: More

6.68 percent of the lane miles contained Deep Rutting

ACP Alligator Cracking (rated), FY 2011–2014

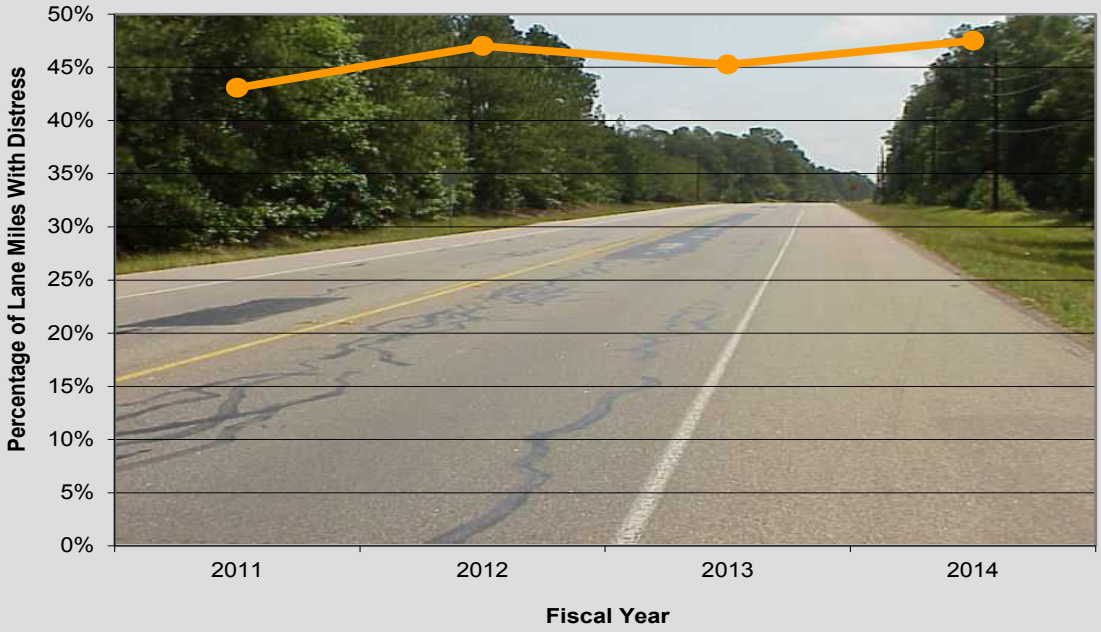
FY 2014 Trend: More **15.68 percent** of the lane miles contained Alligator Cracking

ACP Failures (rated), FY 2011–2014



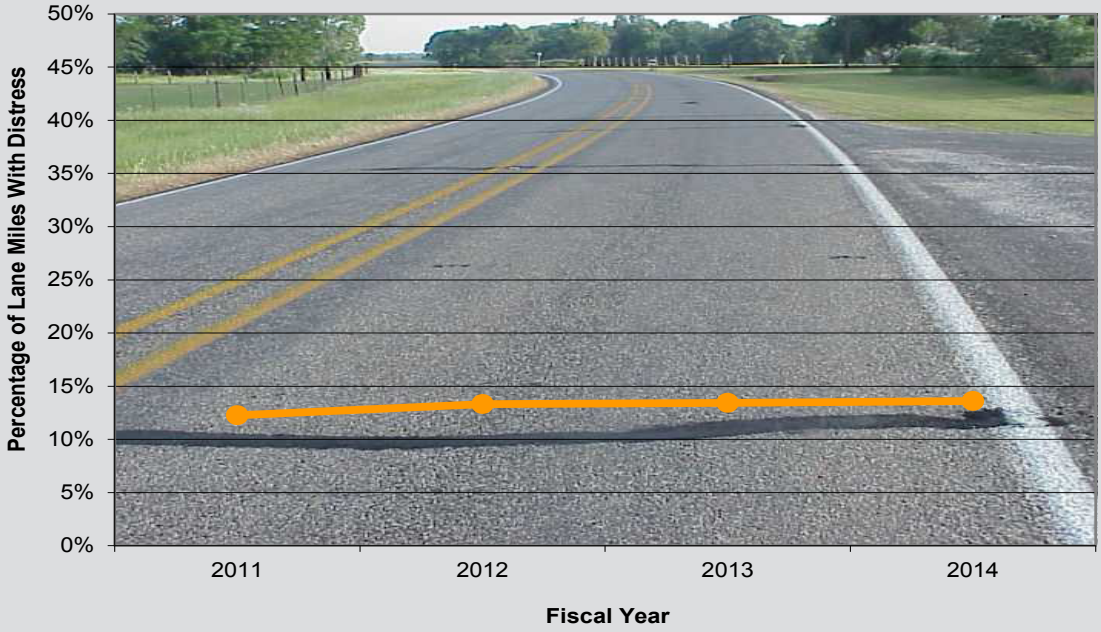
FY 2014 Trend: Less **4.03 percent** of the lane miles contained Failures

ACP Longitudinal Cracking (rated), FY 2011–2014



FY 2014 Trend: More **47.50 percent** of the lane miles contained Longitudinal Cracking

ACP Transverse Cracking (rated), FY 2011–2014



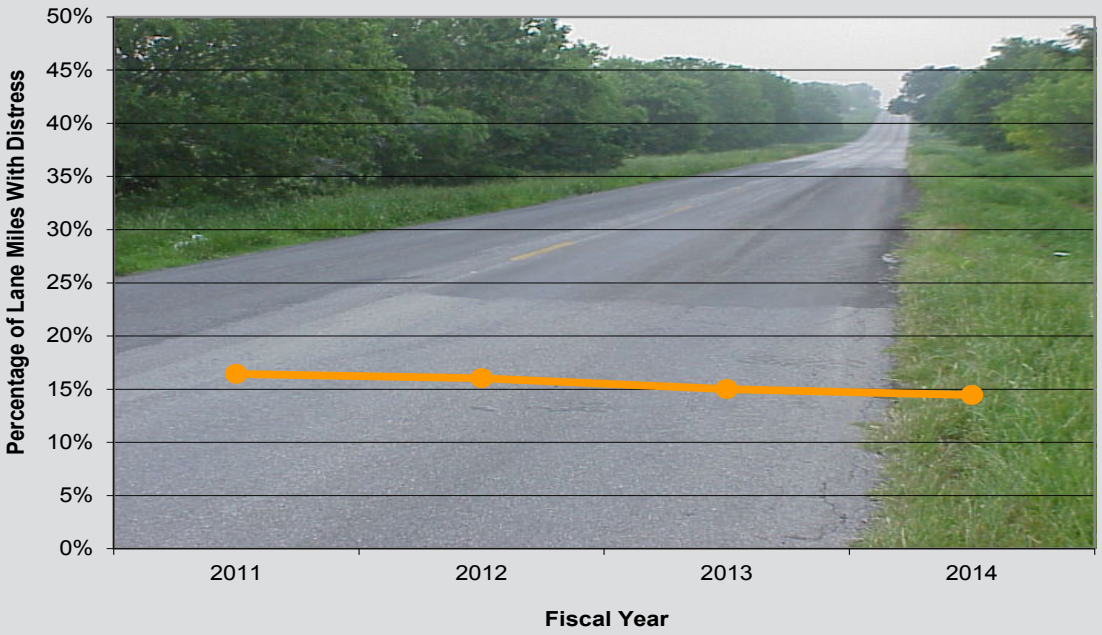
FY 2014 Trend: More **13.59 percent** of the lane miles contained Transverse Cracking

ACP Block Cracking (rated), FY 2011–2014

FY 2014 Trend: More

0.53 percent of the lane miles contained Block Cracking

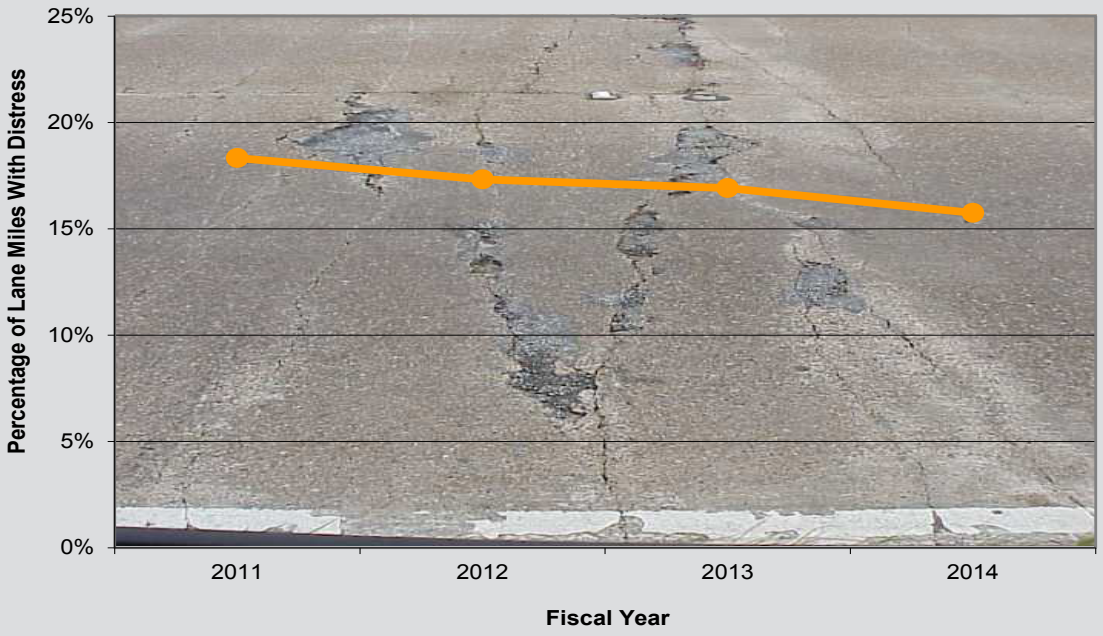
ACP Patching (rated), FY 2011–2014



FY 2014 Trend: Less

14.45 percent of the lane miles contained Patching

CRCP Spalled Cracks (rated), FY 2011–2014

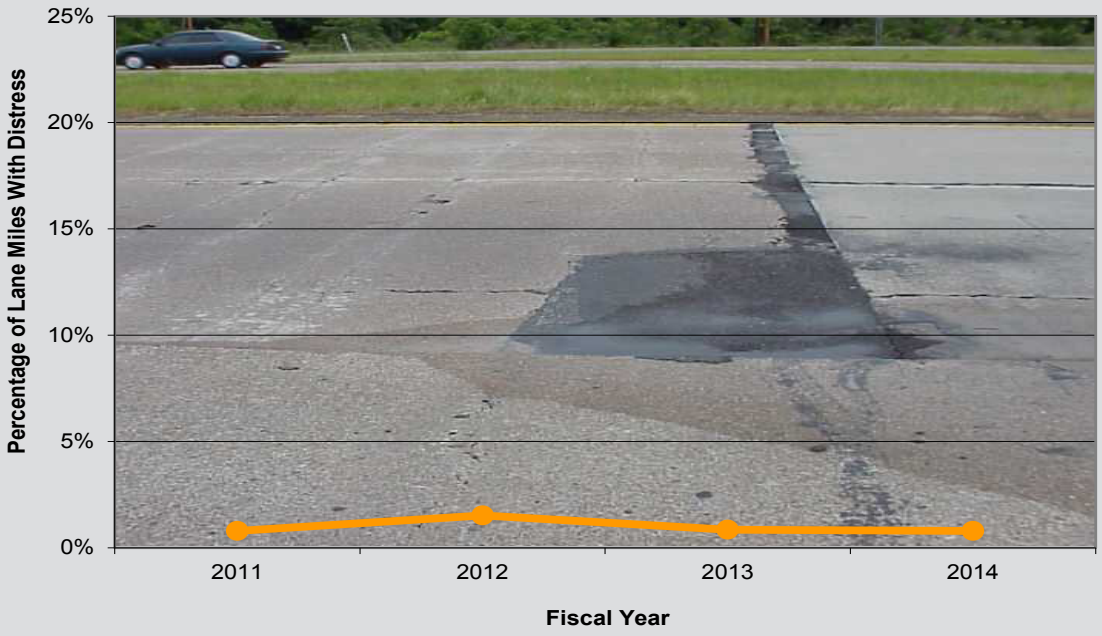


FY 2014 Trend: Less **15.75 percent** of the lane miles contained Spalled Cracks

CRCP Punchouts (rated), FY 2011–2014

FY 2014 Trend: Less **7.31 percent** of the lane miles contained Punchouts

CRCP Asphalt Patches (rated), FY 2011–2014

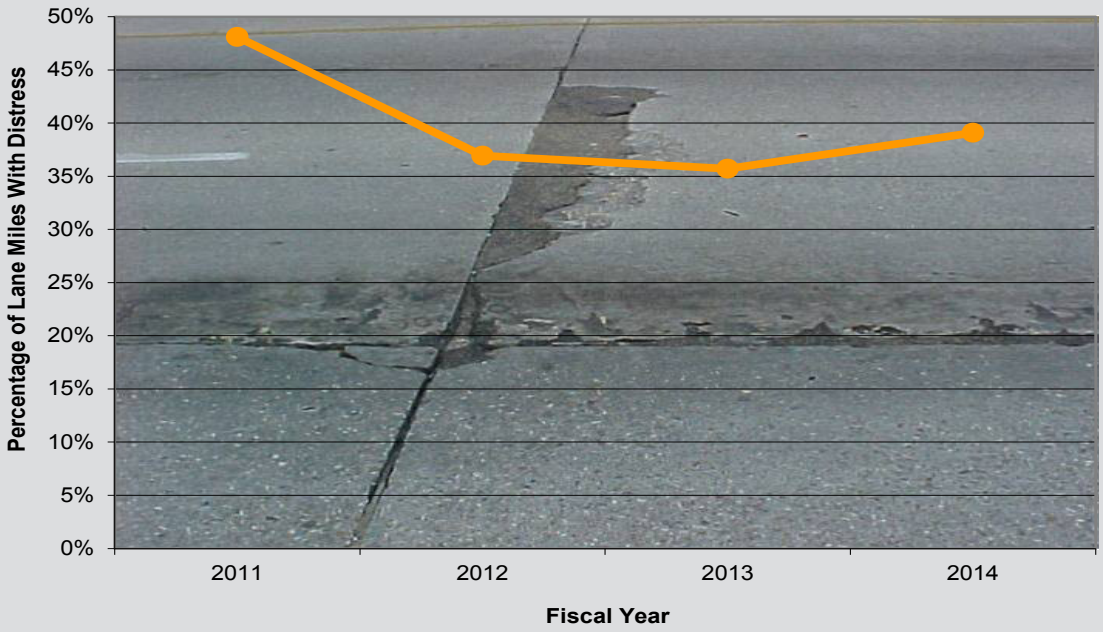


FY 2014 Trend: Less **0.79 percent** of the lane miles contained Asphalt Patches

CRCP Concrete Patches (rated), FY 2011–2014

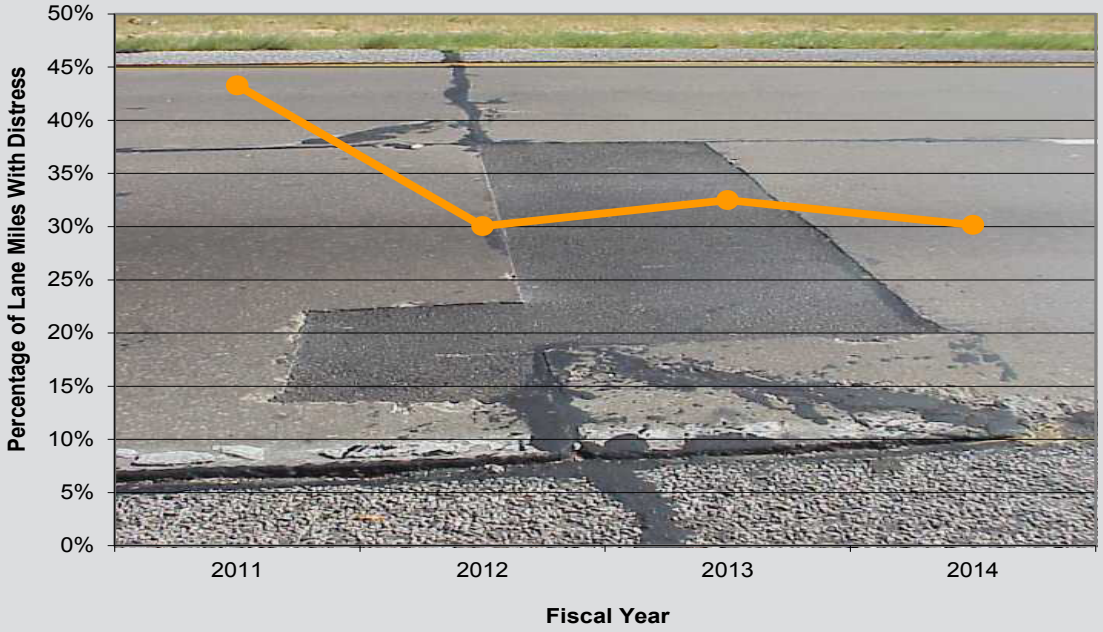
FY 2014 Trend: More **16.10 percent** of the lane miles contained Concrete Patches

JCP Failed Joints and Cracks (rated), FY 2011–2014



FY 2014 Trend: More **39.10 percent** of the lane miles contained Failed Joints and Cracks

JCP Failures (rated), FY 2011–2014



FY 2014 Trend: Less **30.17 percent** of the lane miles contained Failures

JCP Shattered Slabs (rated), FY 2011–2014

FY 2014 Trend: Less **0.49 percent** of the lane miles contained Shattered Slabs

JCP Slabs with Longitudinal Cracks (rated), FY 2011–2014

FY 2014 Trend: More **18.19 percent** of the lane miles contained Longitudinal Cracks

JCP Concrete Patches (rated), FY 2011–2014

FY 2014 Trend: More

41.66 percent of the lane miles contained Concrete Patches

One- and two-digit Interstate highway numbers are reserved for routes between cities or states. Three-digit Interstate highway numbers are reserved for spurs and loops in urban areas. Spurs begin with an odd-number (for example, IH 110 in El Paso), while loops begin with an even-number (for example, IH 410 in San Antonio). The last two digits indicate the lowest-number Interstate highway that connects to the spur or loop.

Chapter 5 — **Maintenance Level of Service Trends**

This chapter shows FY 2011–2014 statewide maintenance level of service trends, according to the definitions shown below.

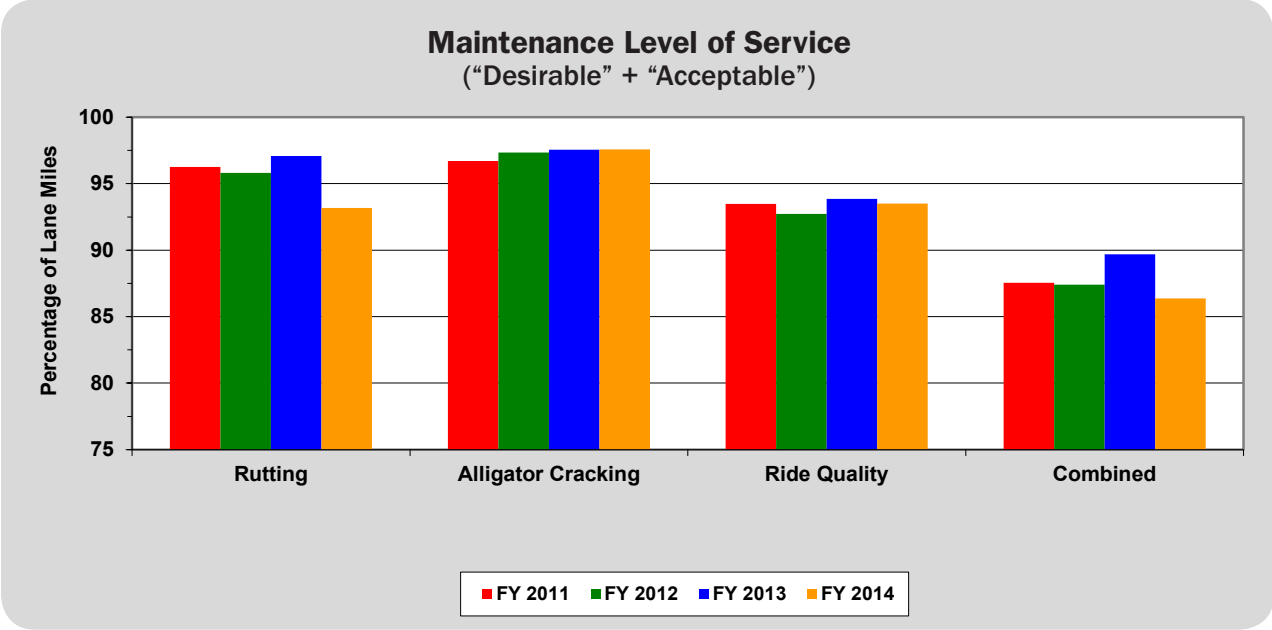
Please note that maintenance levels of service are only defined for flexible ("asphalt") pavements. Rigid ("concrete") pavements are not included in this Chapter.

PMIS Distress Type	Traffic Category (ADT)	Level of Service			
		"Desirable"	"Acceptable"	"Tolerable"	"Intolerable"
Rutting	**Low** (0–500)	0–1% Shallow & 0–1% Deep	2–50% Shallow & 0–1% Deep	51–100% Shallow & 0–1% Deep OR 0–50% Shallow & 2–25% Deep	51–100% Shallow & 2–25% Deep OR 26–100% Deep
	Medium (501–10,000)	0–1% Shallow & 0–1% Deep	2–50% Shallow & 0–1% Deep	51–100% Shallow & 0–1% Deep OR 0–50% Shallow & 2–25% Deep	51–100% Shallow & 2–25% Deep or 26–100% Deep
	High (over 10,000)	0–1% Shallow & 0–1% Deep	2–25% Shallow & 0–1% Deep	26–50% Shallow & 0–1% Deep	51–100% Shallow & 0–1% Deep or 2–100% Deep
Alligator Cracking	**All Traffic**	0%	1–10%	11–50%	51–100%
Ride Quality	**Low** (0-500)	2.6–5.0	2.1–2.5	1.6–2.0	0.1–1.5
	Medium (501–10,000)	3.1–5.0	2.6–3.0	2.1–2.5	0.1–2.0
	High (over 10,000)	3.6–5.0	3.1–3.5	2.6–3.0	0.1–2.5

Reference: *TxDOT Administrative Circular 5-92* **(February 13, 1992).**

Maintenance Level of Service Trends, FY 2011–2014

Fiscal Year	Desirable + Acceptable Level of Service			
	Rutting	Alligator Cracking	Ride Quality	Combined
2011	96.25	96.71	93.48	87.54
2012	95.81	97.33	92.72	87.41
2013	97.09	97.56	93.85	89.69
2014	93.16	97.57	93.49	86.36
2013–2014 Change	-3.93	+0.01	-0.36	-3.33



Total Lane Miles in PMIS, by Highway System, FY 2011–2014

Highway System	Fiscal Year			
	2011	2012	2013	2014
Interstate Highways, mainlanes only	15,295.5	15,323.6	15,375.0	15,690.1
Interstate Highways, frontage roads	9,441.4	9,457.8	9,275.0	9,438.4
United States Highways	39,754.5	39,827.7	39,964.8	39,323.0
State Highways	42,883.7	43,139.4	43,352.2	43,407.0
Farm-to-Market Roads	85,025.5	85,124.8	85,262.0	85,306.0
Business Routes	3,157.6	3,184.3	3,210.2	3,203.0
Park Roads	687.2	684.0	682.8	695.8
Principal Arterial Streets	77.0	79.8	79.8	79.8
STATEWIDE	196,322.4	196,821.4	197,201.8	197,143.1

Total Lane Miles in PMIS, by Pavement Type, FY 2011–2014

Pavement Type	Fiscal Year			
	2011	2012	2013	2014
Flexible or Asphalt Concrete Pavement (ACP)	179,318.3	179,485.9	179,599.9	179,842.8
Continuously Reinforced Concrete Pavement (CRCP)	13,109.1	13,387.9	13,778.7	13,572.7
Jointed Concrete Pavement (JCP)	3,895.0	3,947.6	3,823.2	3,727.6
STATEWIDE	196,322.4	196,821.4	197,201.8	197,143.1

Rated/Measured Mileage in PMIS, by Data/Score Type, FY 2011–2014

Data/Score Type	Fiscal Year			
	2011	2012	2013	2014
	Lane Miles	Lane Miles	Lane Miles	Lane Miles
Condition Score	190,759.4	190,918.2	190,501.1	190,799.1
Distress	193,143.3	194,656.1	194,307.2	194,945.2
Distress Score	191,344.9	191,803.6	191,407.5	191,633.3
Ride	193,538.4	192,795.2	193,051.2	192,701.8
Ride Score	193,538.4	192,795.2	193,051.2	192,701.8
Rut (ACP Only)	177,084.8	176,296.2	176,241.0	176,252.5

Rated/Measured Percentage in PMIS, by Data/Score Type, FY 2011–2014

Data/Score Type	Fiscal Year			
	2011	2012	2013	2014
	Lane Miles	Lane Miles	Lane Miles	Lane Miles
Condition Score	97.17%	97.00%	96.60%	96.78%
Distress	98.38%	98.90%	98.53%	98.89%
Distress Score	97.46%	97.45%	97.06%	97.21%
Ride	98.58%	97.95%	97.90%	97.75%
Ride Score	98.58%	97.95%	97.90%	97.75%
Rut (ACP Only)	90.20%	89.57%	89.37%	89.40%

The department was spending about $75 million annually on the construction, maintenance, and betterment of the FM system by 1967.

Texas Department of Transportation

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Austin, Texas 78701

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