

Pavement Condition Measures  
for Metropolitan Planning Organization  
2017 Data





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DEPARTMENT OF TRANSPORTATION**

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Attached you will find the pavement condition measures report for 2017. This report aims to provide Metropolitan Planning Organization (MPO) with current pavement condition measures in accordance with 23 CFR 490.313 - Calculation of performance management measures. The scope of this report includes the Interstates, State routes and local routes on National Highway System (NHS) that are within the boundary of MPO administration. This information is tendered to assist MPO personnel in evaluating the current pavement condition and determining the performance targets in accordance with 23 CFR 490.105 - Establishment of performance targets.

Pavement condition measure, also called performance measure, is determined by performance metrics, which consists of International Roughness Index (IRI), cracking percent, rutting, and faulting. Performance metrics are collected and calculated according to Federal Highway Administration "Highway Performance Monitoring System (HPMS)- Field Manual (December 2016)".

Along with this report, the raw data of performance metrics and the corresponding performance measure with 0.1-mile increment are in the Excel file. If you have any comments, questions, or suggestions concerning this report, please contact Mark Woods at (615) 532-3622.

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**Contents**

Performance Metrics ..... 1

Determination of Pavement Condition ..... 2

1. Summary of Pavement Conditions ..... 3

2. Pavement Conditions in Bristol ..... 4

3. Pavement Conditions in Chattanooga..... 5

4. Pavement Conditions in Clarksville..... 6

5. Pavement Conditions in Cleveland..... 7

6. Pavement Conditions in Jackson ..... 8

7. Pavement Conditions in Johnson City ..... 9

8. Pavement Conditions in Kingsport..... 10

9. Pavement Conditions in Knoxville ..... 11

10. Pavement Conditions in Memphis..... 12

11. Pavement Conditions in Nashville..... 13

12. Pavement Conditions in Lakeway ..... 14

## **Performance Metrics**

### IRI – International Roughness Index

- Measurement of the number of vertical deviations over a section of road.
- Measured in inches/mile.

### Cracking percent

- Visual fissure or discontinuity of pavement surface.
- For asphalt pavements, cracking percent is the percentage of the area within two wheel paths subject to fatigue type cracking over the entire lane width.
- For jointed concrete pavements, cracking percent is the percentage of slabs subject to transverse cracking. All concrete surfaced pavements are reported as jointed concrete pavement in Tennessee.
- Measured in Area and calculated in Percentage.

### Rutting depth

- Permanent deformation on the surface of asphalt pavements transverse to path of travel direction.
- Measured in each wheel path and reported as the averaged value within a segment.
- Measured in inches.

### Faulting

- Difference of elevation across the two adjacent concrete slabs longitudinal to travel direction in concrete pavements.
- Measured in inches.

## Pavement Condition Measure

Pavement condition measures are determined in accordance with 23 CFR 490.313- Calculation of performance management measures. The thresholds for individual metric are as follows,

<b>Metric</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
IRI (in./mi.)	<95	95-170	>170
Cracking (%), Asphalt Pavements	<5	5-20	>20
Cracking (%), Jointed Concrete Pavements	<5	5-15	>15
Rutting, (in.)	<0.20	0.20-0.40	>0.40
Faulting (in.)	<0.10	0.10-0.15	>0.15

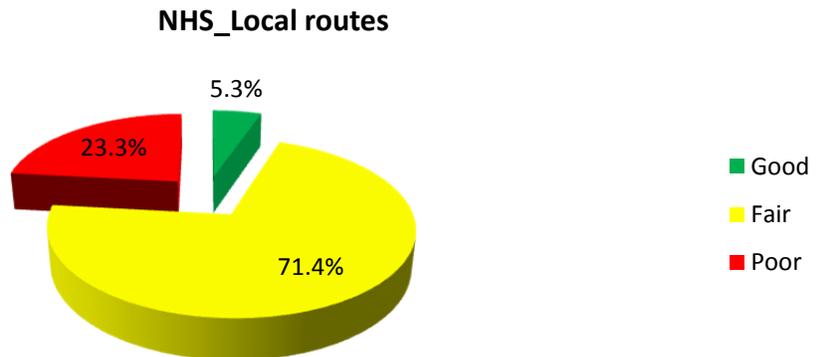
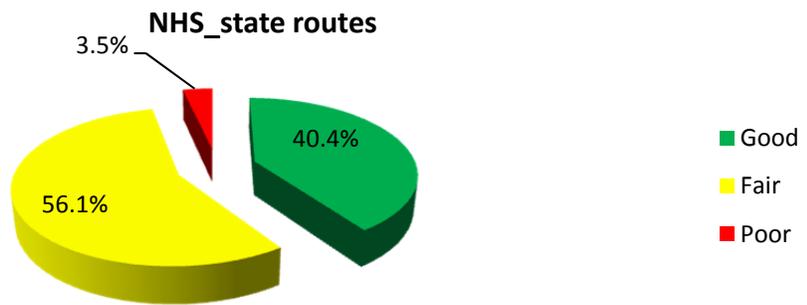
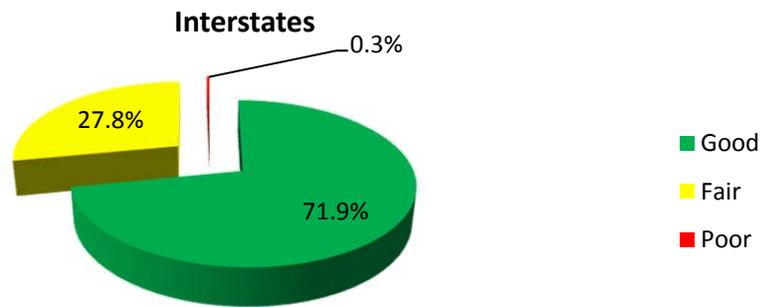
The overall section condition is determined by the following rules.

Three individual metric rating*	Overall section condition rating
<b>All three metrics rated “Good” per threshold</b>	Good
<b>2 or more metrics rated “Poor”</b>	Poor
<b>Any other combination</b>	Fair

\* For asphalt pavements, the three metrics are IRI, rutting and cracking; for concrete pavements, the three metrics are IRI, faulting, and cracking.

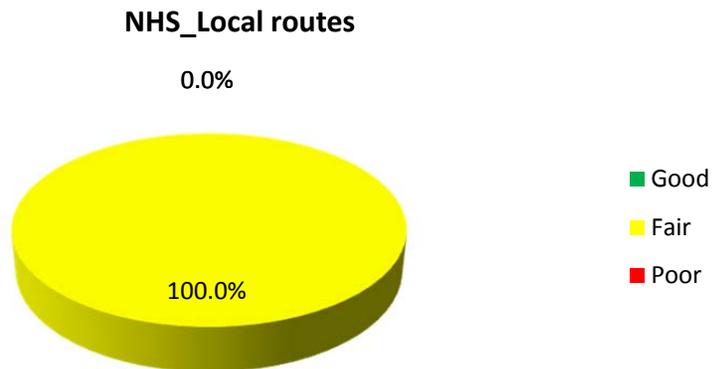
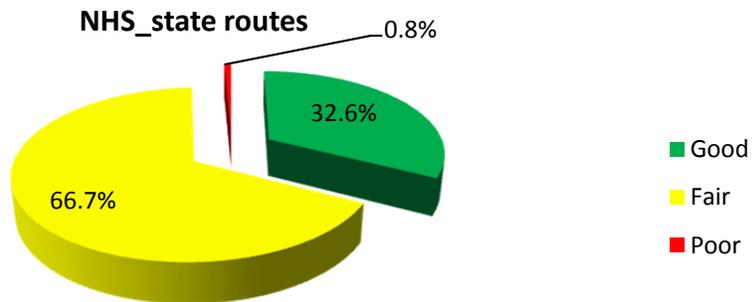
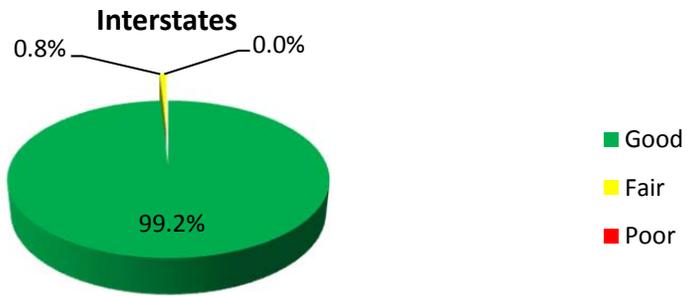
# 1. Summary of Pavement Conditions

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	3170.6	71.9%	27.8%	0.3%
NHS state routes	5861.9	40.4%	56.1%	3.5%
NHS Local routes	613.9	5.3%	71.4%	23.3%



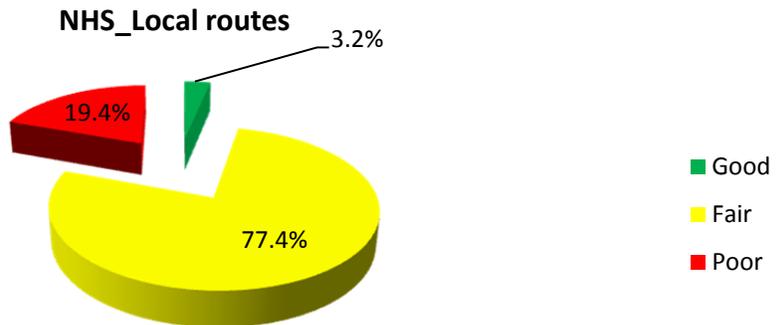
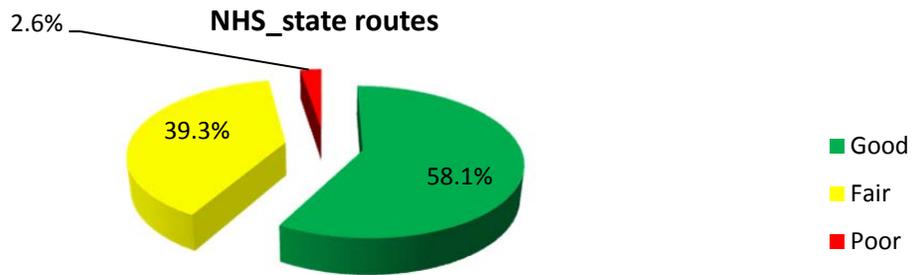
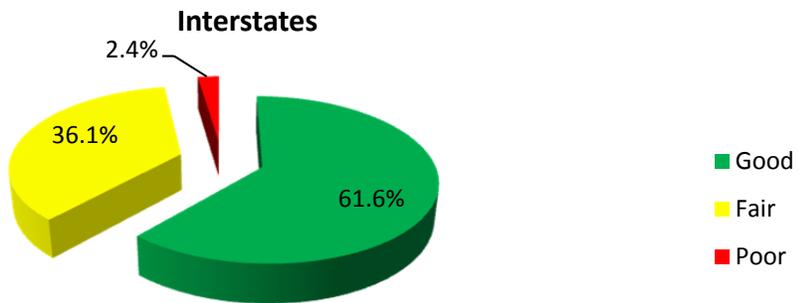
## 2. Pavement Conditions in Bristol

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	33.4	99.2%	0.8%	0.0%
NHS state routes	154.4	32.6%	66.7%	0.8%
NHS Local routes	0.8	0.0%	100.0%	0.0%



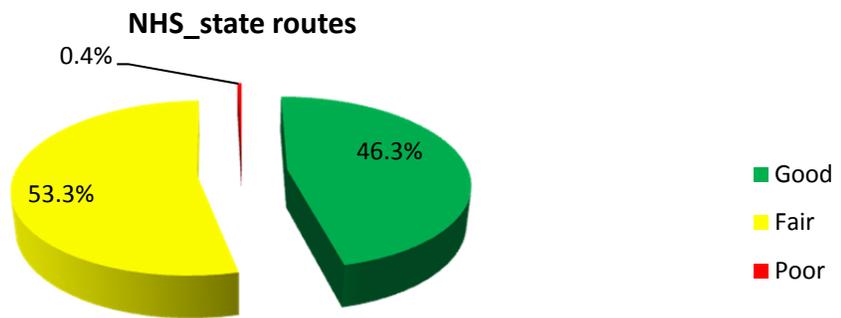
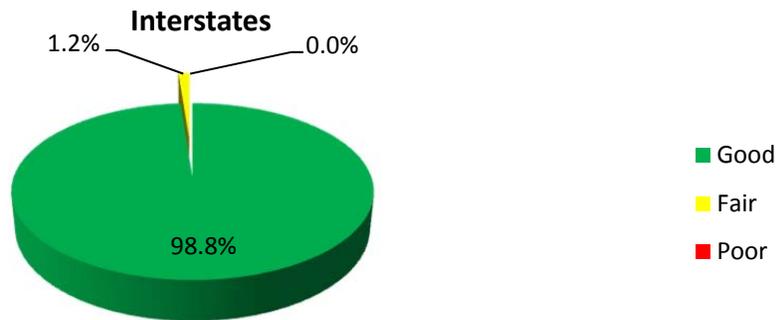
### 3. Pavement Conditions in Chattanooga

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	176.1	61.6%	36.1%	2.4%
NHS state routes	509.3	58.1%	39.3%	2.6%
NHS Local routes	89.6	3.2%	77.4%	19.4%



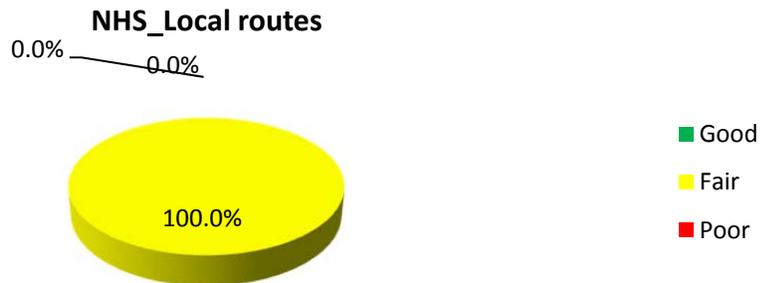
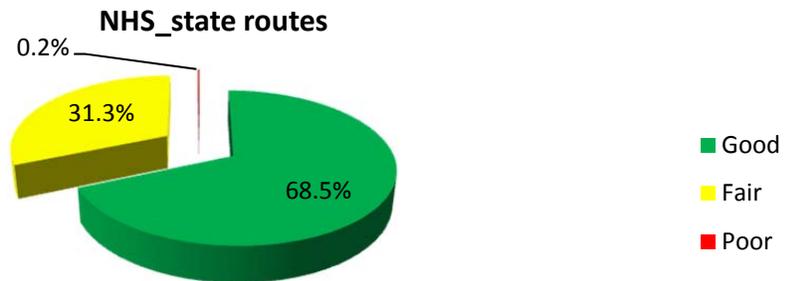
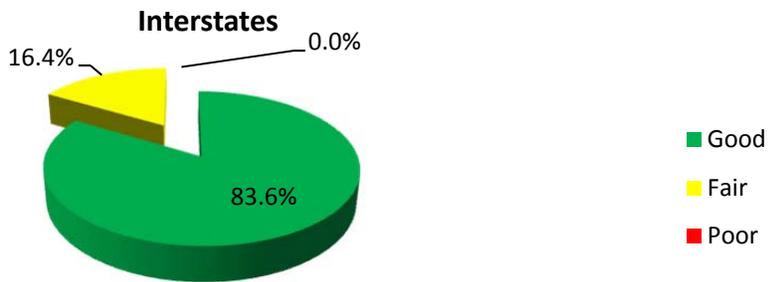
## 4. Pavement Conditions in Clarksville

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	68.8	98.8%	1.2%	0.0%
NHS state routes	192.7	46.3%	53.3%	0.4%
NHS Local routes	N/A	N/A	N/A	N/A



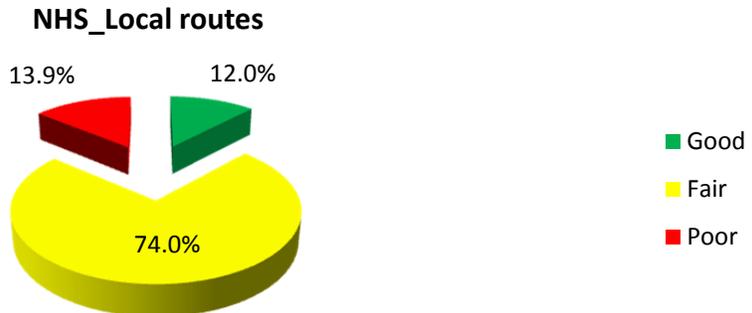
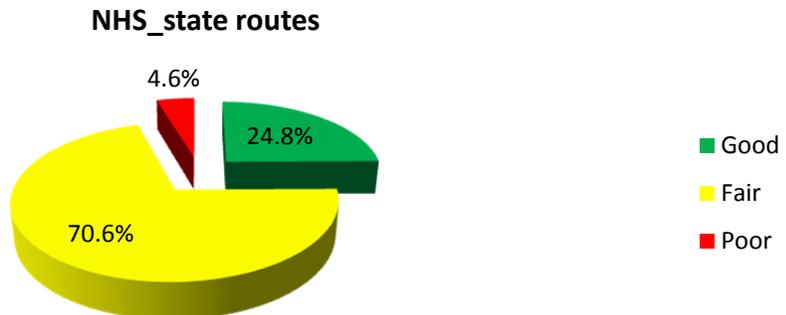
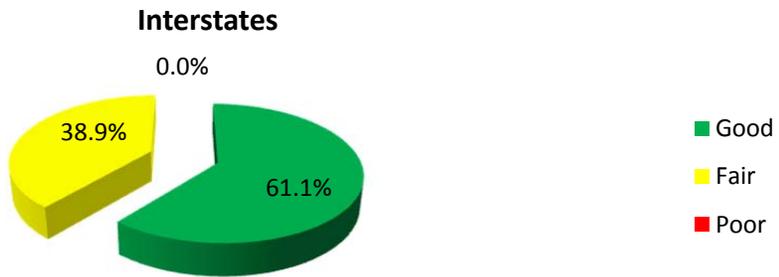
## 5. Pavement Conditions in Cleveland

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	82.0	83.6%	16.4%	0.0%
NHS state routes	127.3	68.5%	31.3%	0.2%
NHS Local routes	9.7	0.0%	100.0%	0.0%



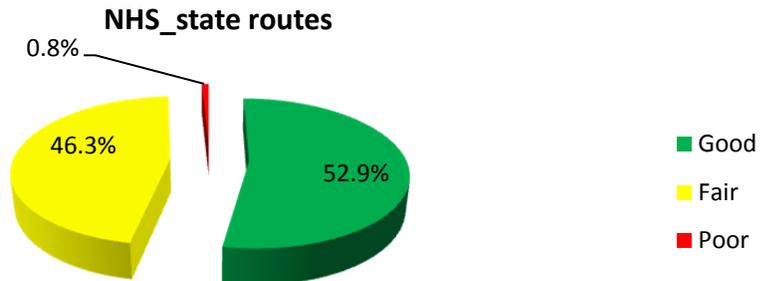
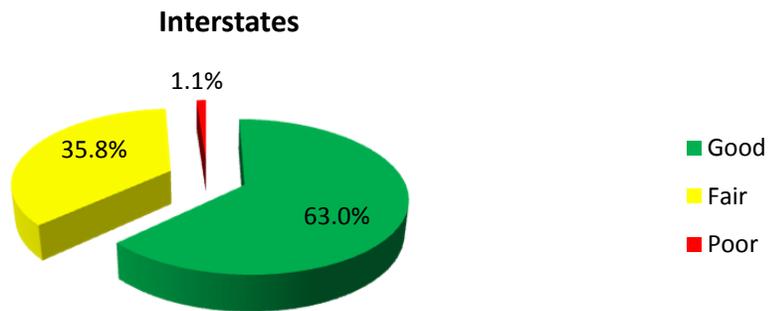
## 6. Pavement Conditions in Jackson

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	110.3	61.1%	38.9%	0.0%
NHS state routes	224.4	24.8%	70.6%	4.6%
NHS Local routes	8.3	12.0%	74.0%	13.9%



## 7. Pavement Conditions in Johnson City

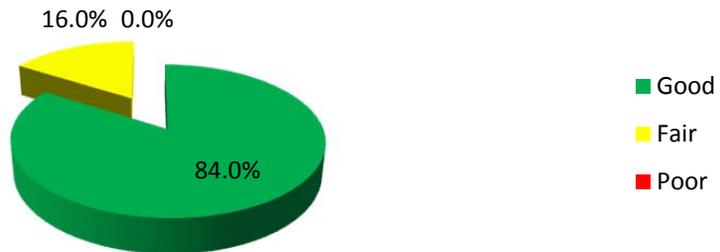
Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	67.5	63.0%	35.8%	1.1%
NHS state routes	253.9	52.9%	46.3%	0.8%
NHS Local routes	N/A	N/A	N/A	N/A



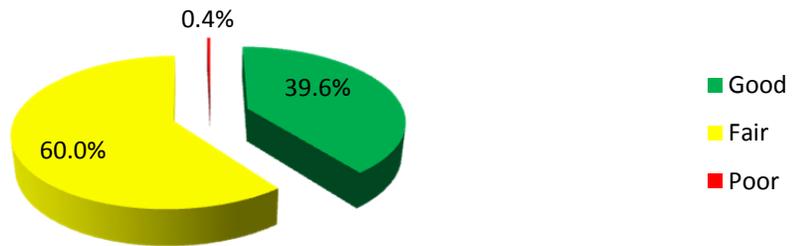
## 8. Pavement Conditions in Kingsport

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	101.5	84.0%	16.0%	0.0%
NHS state routes	217.1	39.6%	60.0%	0.4%
NHS Local routes	3.3	96.4%	3.6%	0.0%

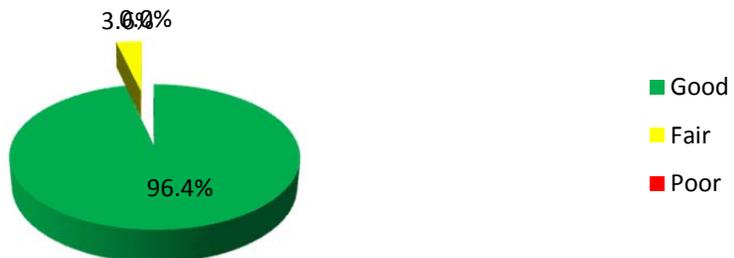
**Interstates**



**NHS\_state routes**

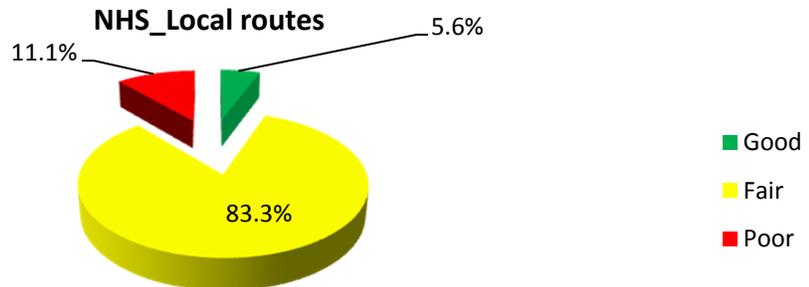
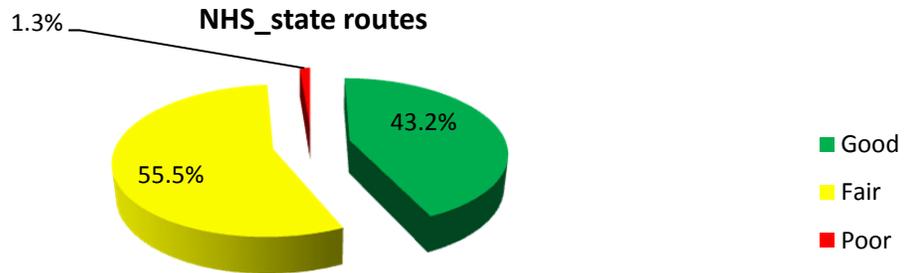
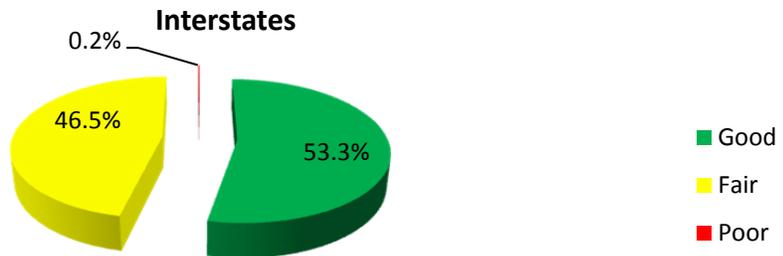


**NHS\_Local routes**



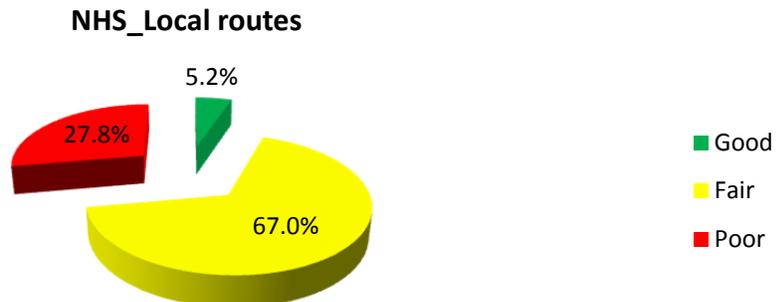
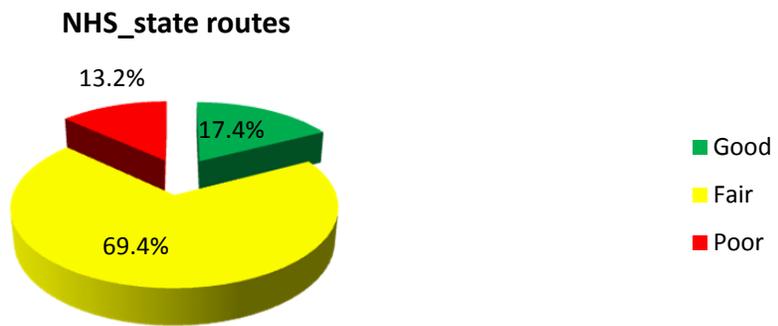
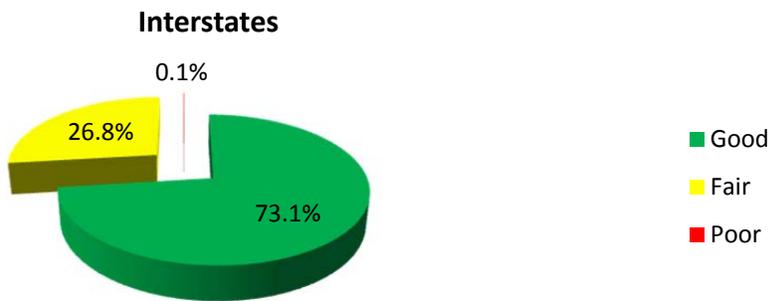
## 9. Pavement Conditions in Knoxville

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	468.1	53.3%	46.5%	0.2%
NHS state routes	827.6	43.2%	55.5%	1.3%
NHS Local routes	23.3	5.6%	83.3%	11.1%



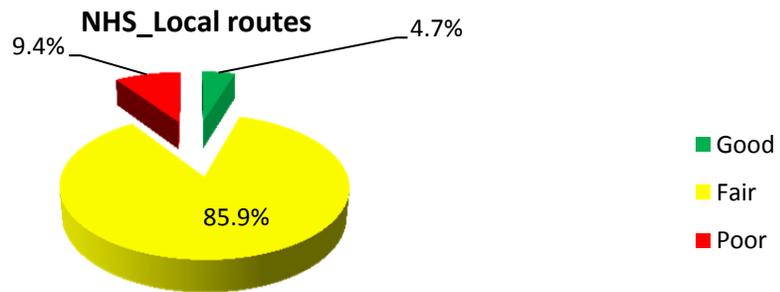
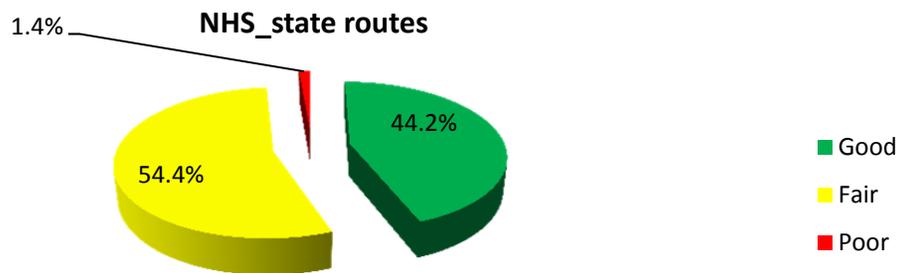
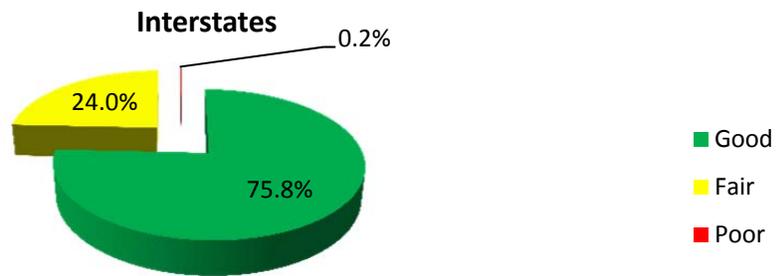
## 10. Pavement Conditions in Memphis

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	457.1	73.1%	26.8%	0.1%
NHS state routes	1025.0	17.4%	69.4%	13.2%
NHS Local routes	425.0	5.2%	67.0%	27.8%



## 11. Pavement Conditions in Nashville

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	1527.7	75.8%	24.0%	0.2%
NHS state routes	2165.9	44.2%	54.4%	1.4%
NHS Local routes	38.4	4.7%	85.9%	9.4%



## 12. Pavement Conditions in Lakeway

Category	Lane miles	Pavement condition		
		Good	Fair	Poor
Interstates	78.0	84.9%	15.1%	0.0%
NHS state routes	164.3	44.7%	55.1%	0.2%
NHS Local routes	15.6	2.6%	97.4%	0.0%

