



# 2012 STATEWIDE PAVEMENT PERFORMANCE

Network condition information is taken from the 2012 WSDOT Condition survey.  
Report produced 8/22/2013

WSDOT has been rating pavement condition since 1969. Pavement rated in *good* condition is smooth and has few defects. Pavement in *poor* condition is characterized by cracking, patching, roughness and rutting. Pavement condition is rated using three factors: Pavement Structural Condition (PSC), International Roughness Index (IRI), and Rutting.

While the goal for pavements is zero miles in *poor* condition, pavements in *fair* condition may deteriorate into poor condition during the lag time between assessment and actual rehabilitation. As a result, a small percentage of marginally good pavements will move into the ‘poor’ condition category for any given assessment period.

Additionally, it may be assumed that having a majority of pavements in *very good* condition is desired. This is not the case. Having a majority of pavements in *very good* pavements would only occur in a system where roadways are resurfaced prior to the year that would give their Lowest Life Cycle Cost (LLCC). This is wasteful. Therefore, a healthy pavement network managed by LLCC is characterized by a relatively even distribution in condition<sup>1</sup>.

To report pavement performance, WSDOT breaks roadways into approximately 0.1 mile segments and categorizes them according to the lowest value in the following table:

CATEGORY	PSC	IRI (INCHES/MILE)	RUT (INCHES)
Very Good	100 – 80	< 95	< 0.23"
Good	80 – 60	95 – 170	0.23" – 0.41"
Fair	60 – 40	170 – 220	0.41" – 0.58"
Poor	40 – 20	220 – 320	0.58" – 0.74"
Very Poor	0 – 20	> 320	> 0.74"

## CHANGING REPORTING STANDARDS

While WSDOT has been rating pavement condition since 1969, data collection and analysis methodologies and procedures have sometimes changed over the years, directly affecting the interpretation of roadway condition results. When comparing multiple years of condition information, the condition numbers must be normalized to account for these changes. One such change occurred for the data collected in 2011 and 2012, in which budget reductions resulted in the exclusion of rating Chip Seal roadways. Therefore, a composite condition cannot be assigned for these roadways. Sections that are not rated (NR), not surveyed (NS), or under construction (UC) will now be listed in a separate category (NR, NS, UC), whereas previously these sections were excluded from the report.

Figure 1 and Figure 2 show a breakdown of roadway condition when excluding and including, respectively, NR/NS/UC from the overall percentage. Figure 1 is what has traditionally been reported.

<sup>1</sup> This does not necessarily imply an even distribution between Very Good, Good and Fair. This is because a pavement may spend more of its life in the *Good* category than in the *Very Good* or *Fair* categories.

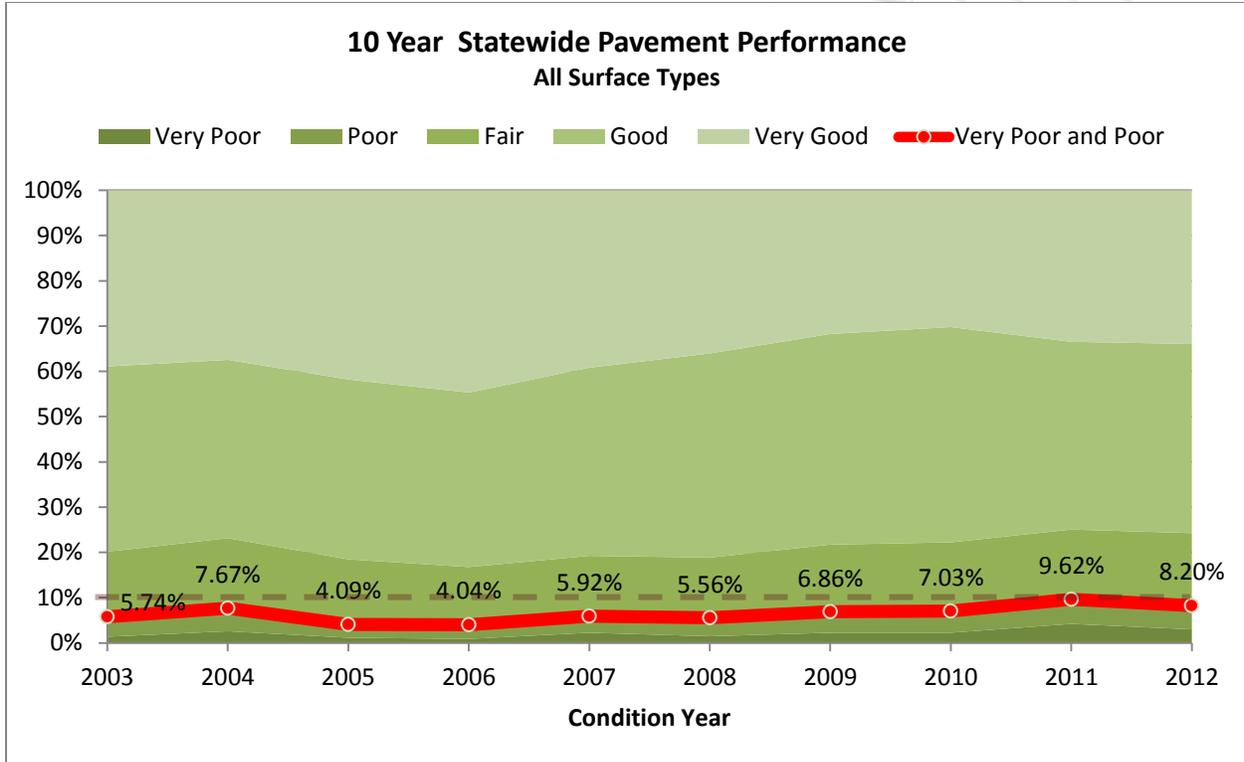


FIGURE 1 - 10 YEAR CONDITION TREND WITHOUT INCLUDING CONSTRUCTION, NOT RATED OR NOT SURVEYED

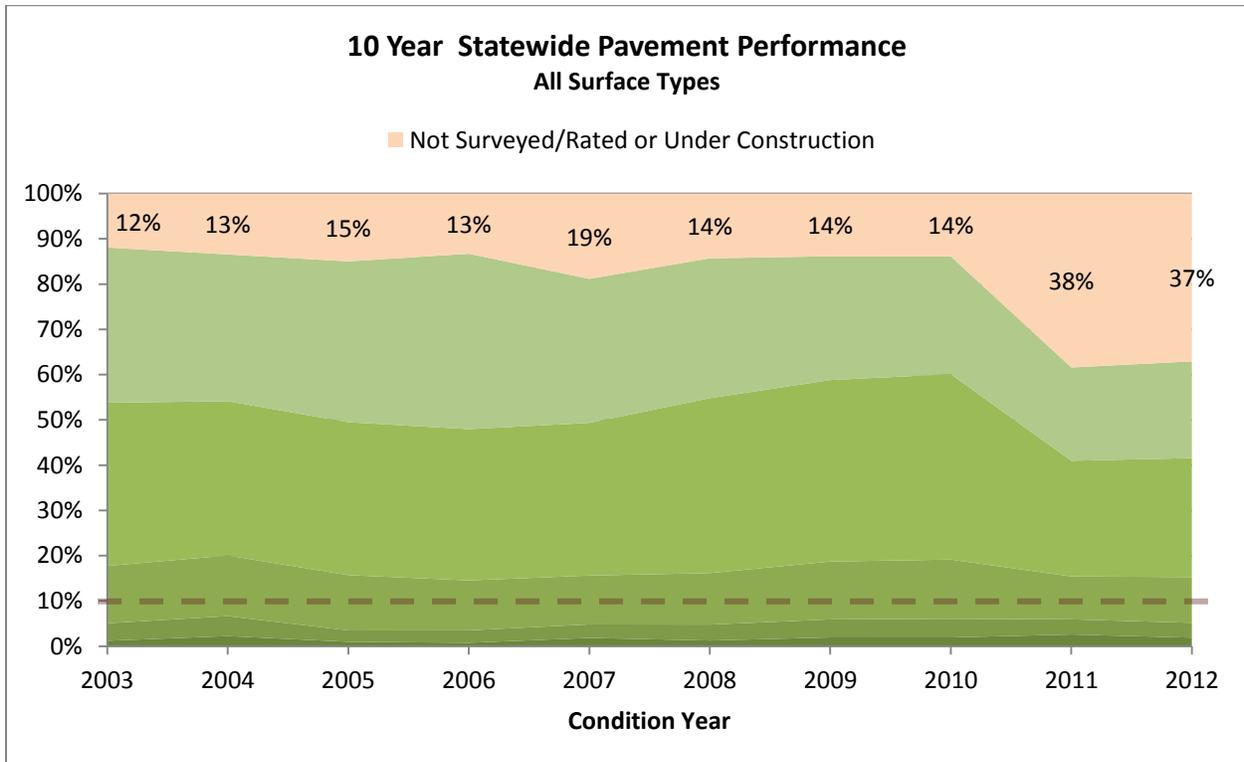


FIGURE 2 - 10 YEAR CONDITION TREND INCLUDING CONSTRUCTION, NOT RATED OR NOT SURVEYED



## Part of the *WSDOT Pavement Notebook*

Current year statistics are broken down by region and surface type, county and legislative district in the following Appendices.

### DETAILS

Field condition surveys are conducted each year in the summer and fall, with processing and analysis occurring in the winter and early spring. Final results are released in July. Years indicated are when the physical assessment was done.

Percentages and statistics are summarized by lane miles. Roadway sections that were under construction or are Portland Cement Concrete (PCCP) Bridges are excluded. Roadway sections near a bridge or RR crossing are not analyzed for IRI. To ensure the most accurate year to year comparison, previous years' condition scores are back-calculated using current methodologies.

The WSDOT objective is to keep the percentage of lane miles in poor or very poor condition to no more than 10%. This measurement is shown as the dashed red line in the figures above.

### IMPORTANT NOTES

2004 – There was an issue with the IRI lasers reporting an inaccurate roughness, especially for PCCP surfaces. However, since the data is still used throughout the Washington State Pavement Management System (WSPMS), it was still included in the chart.

2007 – There was an issue with the pavement images for ~5% of state roadways causing them to be un-ratable.

2011 and 2012 – BST Roadways Not Rated

## APPENDIX A: CATEGORY DEFINITIONS

### PAVEMENT STRUCTURAL CONDITION (PSC)

The PSC is a performance measure based on surface distresses such as cracking and patching, which are related to the pavement's ability to carry loads. Pavements develop structural deficiencies due to truck traffic and environmental conditions (such as water and freezing temperatures). WSDOT attempts to program rehabilitation for pavement segments when they are projected to reach a PSC between 45 and 50. A PSC of 50 will occur due to a significant amount and severity of distress.

### INTERNATIONAL ROUGHNESS INDEX (IRI)

International Roughness Index (IRI) is a standardized pavement measurement indicating the overall smoothness of a roadway. It is expressed in terms of inches per mile (the lower the number, the smoother the pavement). WSDOT considers pavements with ride performance measures greater than 220 inches per mile to be in poor condition. In contrast, new asphalt overlays typically have IRI below 75 inches per mile. For more in-depth information on IRI, please see the current WSDOT Pavement Roughness (IRI) Report as part of the Pavement Notebook.

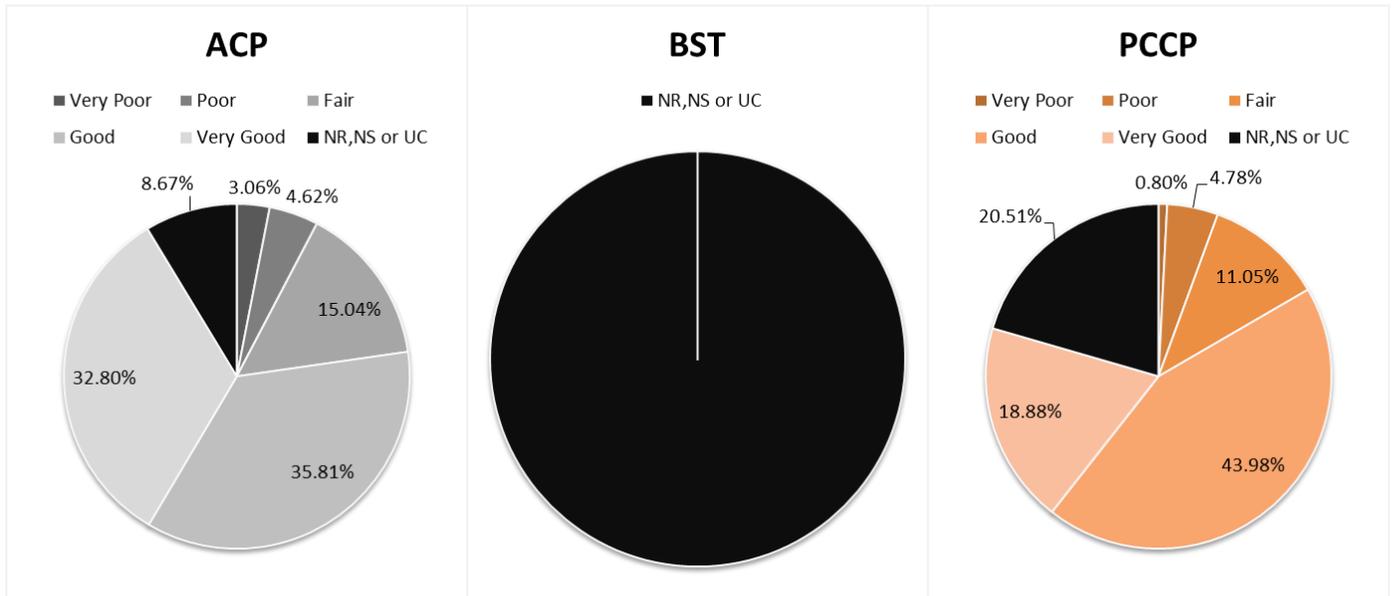
### RUTTING

Rutting is the average maximum depth of each wheel path compared to the center height of the lane. Rutting is measured in inches. A pavement with more than 0.58 inches of rutting is considered to be in poor condition.



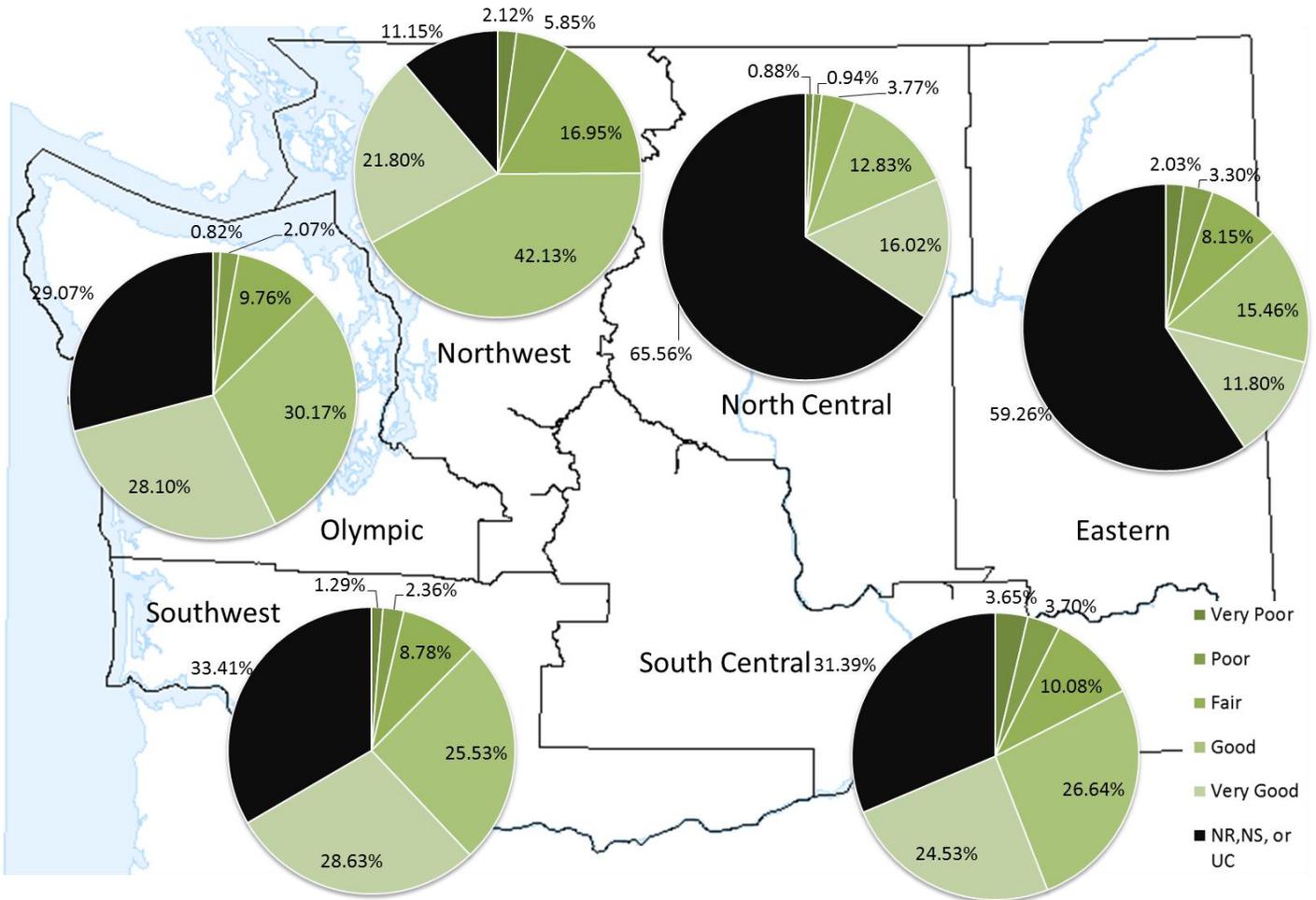
## APPENDIX B: SURFACE TYPE BREAKDOWN

WSDOT uses three major types of surfacing – Asphalt Concrete Pavement (ACP), Bituminous Surface Treatment (BST also known a chip seal) and Portland Cement Concrete Pavement (PCCP). Due to their different material characteristics each surface type behaves differently throughout their life. BST is useful for low volume roads (< 5,000-10,000 vehicles per day), has the shortest pavement life, but is the most cost effective where appropriate. ACP is used for all roadways needing sufficient pavement structure and has an average life of approximately 14.7 years, with greater life West of the Cascades and lower life East of the Cascades. PCCP is a long lasting surface, with most PCCP roadways still in use being built in the late 1950s and 1960s as part of the Interstate Highway program still in use, even though they were originally designed for 20 years.



Surface Type	Very Poor	Poor	Fair	Good	Very Good	Not Surveyed, Not Rated or Under Construction	Total Lane Miles
ACP	330.96	499.75	1625.63	3871.09	3546.07	937.25	10810.75
BST						5491.56	5491.56
PCCP	19.12	114.01	263.7	1049.69	450.48	489.61	2386.61
All Pavements	350.08	613.76	1889.33	4920.78	3996.55	6918.42	18688.92

### APPENDIX C: REGION BREAKDOWN



Region	Lane Mile Totals				Condition Distribution (Lane Miles)					
	ACP	BST	PCCP	All Pavements	Very Poor	Poor	Fair	Good	Very Good	Not Surveyed, Not Rated or Under Construction
Eastern	1361.75	2031.87	301.03	3694.65	74.95	122.02	300.97	571.23	436.01	2189.47
North Central	979.84	1554.5	6.19	2540.53	22.40	23.97	95.72	325.95	406.94	1665.55
Northwest	3079.64	44.72	894.79	4019.15	85.24	235.13	681.16	1693.59	876.14	448.37
Olympic	2185.55	574.31	176.41	2936.27	24.28	61.25	288.38	891.71	830.54	859.19
South Central	1380.4	834.21	890.75	3105.36	113.46	114.99	313.11	827.26	761.82	974.72
Southwest	1823.57	451.95	117.44	2392.96	30.77	56.40	210.13	611.04	685.10	799.52



### APPENDIX D: COUNTY BREAKDOWN

County	Lane Mile Totals				Condition Distribution (Lane Miles)					
	ACP	BST	PCCP	Total	Very Poor	Poor	Fair	Good	Very Good	Not Surveyed, Not Rated or Under Construction
Adams	287.64	303.07	70.44	661.15	0.84	1.56	41.78	174.26	137.56	305.15
Asotin	49.12	61.96	0.84	111.92	0.00	2.16	7.72	24.02	8.22	69.80
Benton	270.1	140.16	222.97	633.23	7.60	12.59	41.06	216.83	203.77	151.38
Chelan	329.11	86.17	1.08	416.36	0.20	6.50	50.20	163.72	95.17	100.57
Clallam	189.07	191.73	1.6	382.4	4.56	8.00	21.31	57.98	96.81	193.74
Clark	353.5	0.68	88.38	442.56	7.24	20.81	85.67	157.81	107.52	63.51
Columbia	29.55	61.17	2.18	92.9	0.00	0.46	2.61	16.40	10.80	62.63
Cowlitz	435.84	49.79	17.8	503.43	6.11	9.34	34.35	143.31	208.36	101.96
Douglas	123.55	318.84	1.44	443.83	0.00	1.90	5.83	17.46	77.35	341.29
Ferry	33.66	277.14	0.42	311.22	0.00	0.00	0.00	0.00	0.00	311.22
Franklin	135.63	150.08	114.19	399.9	58.29	13.44	15.38	123.14	34.53	155.12
Garfield	45.94	47.6	0.52	94.06	0.00	0.00	0.60	5.60	39.46	48.40
Grant	361.15	517.68	1.54	880.37	21.32	9.47	25.24	96.50	194.10	533.74
Grays Harbor	319.16	185.24	7.32	511.72	2.14	9.50	68.83	120.91	115.36	194.98
Island	115.2	0	0	115.2	22.76	9.64	15.92	27.72	28.67	10.49
Jefferson	193.8	63.36	2.64	259.8	1.70	3.80	11.50	51.40	116.40	75.00
King	1256.11	0	795.6	2051.71	38.36	149.15	390.37	911.88	303.52	258.43
Kitsap	303.98	0	4.5	308.48	8.98	14.95	39.42	106.28	100.07	38.78
Kittitas	282.35	98.43	253.62	634.4	14.62	34.99	120.19	179.97	128.38	156.25
Klickitat	228.69	168.38	0.98	398.05	2.20	6.14	31.20	64.25	32.87	261.39
Lewis	470.62	85.66	3.94	560.22	14.42	16.87	41.95	141.06	213.00	132.92
Lincoln	147.58	467.96	0.68	616.22	3.72	3.76	23.26	84.40	32.24	468.84
Mason	173.09	80.92	1.06	255.07	1.34	3.16	12.42	73.73	81.28	83.14
Okanogan	84.55	505.42	2.18	592.15	0.88	5.90	12.56	6.64	6.86	559.31
Pacific	201.08	128.08	3.92	333.08	0.78	2.44	11.52	85.93	99.25	133.16
Pend Oreille	64.07	179.2	0.26	243.53	0.00	0.70	1.55	12.34	49.38	179.56
Pierce	738.17	46.42	122.77	907.36	3.20	17.81	91.24	379.96	255.86	159.29
Skagit	404.68	29.38	44.63	478.69	5.11	22.52	54.68	184.32	136.09	75.97
Skamania	94.56	0	0.94	95.5	0.00	0.00	0.20	4.22	5.40	85.68
Snohomish	862.66	0.46	94.34	957.46	18.35	43.68	170.72	406.56	236.45	81.70
Spokane	514.16	120.39	188.29	822.84	52.09	83.97	139.09	228.26	114.88	204.55
Stevens	136.7	357.68	0.8	495.18	2.42	7.18	29.63	23.65	61.44	370.86
Thurston	326.4	19.02	36.86	382.28	2.28	7.15	53.44	127.41	79.24	112.76
Wahkiakum	65.66	19.36	1.7	86.72	0.16	1.00	5.84	25.12	33.54	21.06
Walla Walla	251.6	87.4	2.26	341.26	10.68	13.56	37.19	75.18	100.23	104.42



Part of the *WSDOT Pavement Notebook*

County	Lane Mile Totals				Condition Distribution (Lane Miles)					
	ACP	BST	PCCP	Total	Very Poor	Poor	Fair	Good	Very Good	Not Surveyed, Not Rated or Under Construction
<b>Whatcom</b>	411.34	21.1	84.67	517.11	4.25	19.21	66.35	217.85	171.45	38.00
<b>Whitman</b>	204.36	337.48	40.86	582.7	15.88	25.03	66.62	63.50	50.63	361.04
<b>Yakima</b>	316.32	284.15	168.39	768.86	17.60	25.42	61.89	121.21	230.41	312.33



### APPENDIX E: LEGISLATIVE DISTRICT BREAKDOWN

Legislative District	Lane Mile Totals				Condition Distribution (Lane Miles)					
	ACP	BST	PCCP	Total	Very Poor	Poor	Fair	Good	Very Good	Not Surveyed, Not Rated or Under Construction
1	134.24	0	3.9	138.14	0.98	4.62	31.84	67.23	14.60	18.87
2	226.25	25.78	5.09	257.12	1.46	5.37	19.39	97.94	97.64	35.32
3	54.86	0	26.34	81.2	8.89	12.83	14.06	19.25	16.17	10.00
4	110.89	31.16	61.69	203.74	16.13	28.08	40.87	52.55	17.15	48.96
5	180.93	0	222.87	403.8	7.00	21.14	60.81	245.84	45.30	23.71
6	205.06	8.02	54.92	268	23.25	38.27	51.41	85.82	34.36	34.89
7	395.78	930.37	29.06	1355.21	6.66	16.61	57.22	77.14	151.11	1046.47
8	88.87	64.66	46.23	199.76	0.00	1.97	10.52	62.70	53.68	70.89
9	715.01	979.87	223.58	1918.46	67.16	34.61	137.65	400.68	260.34	1018.02
10	267.67	0	64.17	331.84	24.72	20.35	48.46	109.34	101.20	27.77
11	120.28	0	140.12	260.4	2.17	17.72	46.88	112.75	37.95	42.93
12	483.58	862.23	4.02	1349.83	1.21	10.80	65.45	190.42	178.44	903.51
13	779.53	1017.45	255.84	2052.82	38.65	46.82	163.95	356.57	354.72	1092.11
14	435.74	283.42	2.64	721.8	10.92	15.20	48.78	91.30	89.81	465.79
15	203.83	169.11	167.67	540.61	8.88	16.36	44.51	98.38	178.87	193.61
16	515.47	224.07	194.4	933.94	26.59	33.18	79.32	266.21	278.25	250.39
17	81.12	0	29.4	110.52	2.28	8.92	19.43	45.15	21.34	13.40
18	154.9	0.66	25.09	180.65	3.10	8.59	43.71	59.04	31.03	35.18
19	582.72	221.07	20.11	823.9	2.39	14.36	67.43	240.27	258.06	241.39
20	820.99	105.8	16.12	942.91	20.62	21.95	59.17	221.99	399.72	219.46
21	124.48	0	0.98	125.46	3.30	6.58	12.14	57.86	43.00	2.58
22	79.71	0	31.13	110.84	0.00	1.18	16.79	71.53	14.77	6.57
23	158.8	0	2.58	161.38	5.96	9.51	25.01	45.27	54.30	21.33
24	529.03	412.75	6.76	948.54	7.46	15.44	69.17	172.41	253.52	430.54
25	121.53	0	2.29	123.82	0.30	3.67	20.72	44.72	20.09	34.32
26	173.83	0	2.28	176.11	1.72	4.67	12.90	90.17	51.51	15.14
27	70.52	0	48.75	119.27	0.64	6.05	19.42	47.38	15.57	30.21
28	96.19	0	16.63	112.82	0.00	0.23	6.87	42.66	57.89	5.17
29	48.45	0	51.11	99.56	0.20	1.82	10.82	59.50	18.96	8.26
30	104.51	0	74.82	179.33	1.72	7.35	16.54	96.47	27.51	29.74
31	210.76	20.64	6.76	238.16	3.82	15.46	36.37	95.10	51.41	36.00
32	126.29	0	29.24	155.53	4.15	12.89	45.59	60.39	24.97	7.54
33	165.86	0	68.11	233.97	3.00	25.73	45.70	104.66	19.03	35.85
34	15.6	0	0.2	15.8	0.36	1.76	3.40	6.60	3.48	0.20



Part of the *WSDOT Pavement Notebook*

Legislative District	Lane Mile Totals				Condition Distribution (Lane Miles)					
	ACP	BST	PCCP	Total	Very Poor	Poor	Fair	Good	Very Good	Not Surveyed, Not Rated or Under Construction
35	366.33	83.54	2.42	452.29	4.32	6.29	45.75	119.06	123.33	153.54
36	17.57	0	4.86	22.43	4.22	2.50	3.82	9.30	0.83	1.76
37	19.01	0	61.03	80.04	2.91	10.04	13.63	21.12	1.35	30.99
38	176.97	0	32.35	209.32	7.40	12.36	39.24	66.20	55.41	28.71
39	437.46	25.92	6.77	470.15	3.41	11.19	64.98	190.49	149.92	50.16
40	172.19	3.92	59.39	235.5	3.11	11.84	34.50	98.20	56.16	31.69
41	87.45	0	57.43	144.88	0.00	6.01	32.15	49.88	28.69	28.15
42	366.36	21.1	52.67	440.13	3.83	16.89	50.87	190.01	142.33	36.20
43	21.42	0	71.09	92.51	1.16	6.54	18.53	22.41	9.40	34.47
44	113.45	0	5.1	118.55	1.54	8.57	15.57	56.32	24.54	12.01
45	68.13	0	0.89	69.02	0.62	3.64	13.76	30.47	19.60	0.93
46	55	0	41.26	96.26	3.69	12.59	27.52	42.66	8.31	1.49
47	94.22	0	2.44	96.66	2.16	4.00	27.85	45.56	9.05	8.04
48	116.92	0	15.39	132.31	4.16	7.91	26.08	33.63	36.25	24.28
49	112.71	0.02	30.08	142.81	1.86	3.30	22.38	49.48	54.85	10.94