

WSDOT Local Technical Assistance Program

Pavement Condition Rating

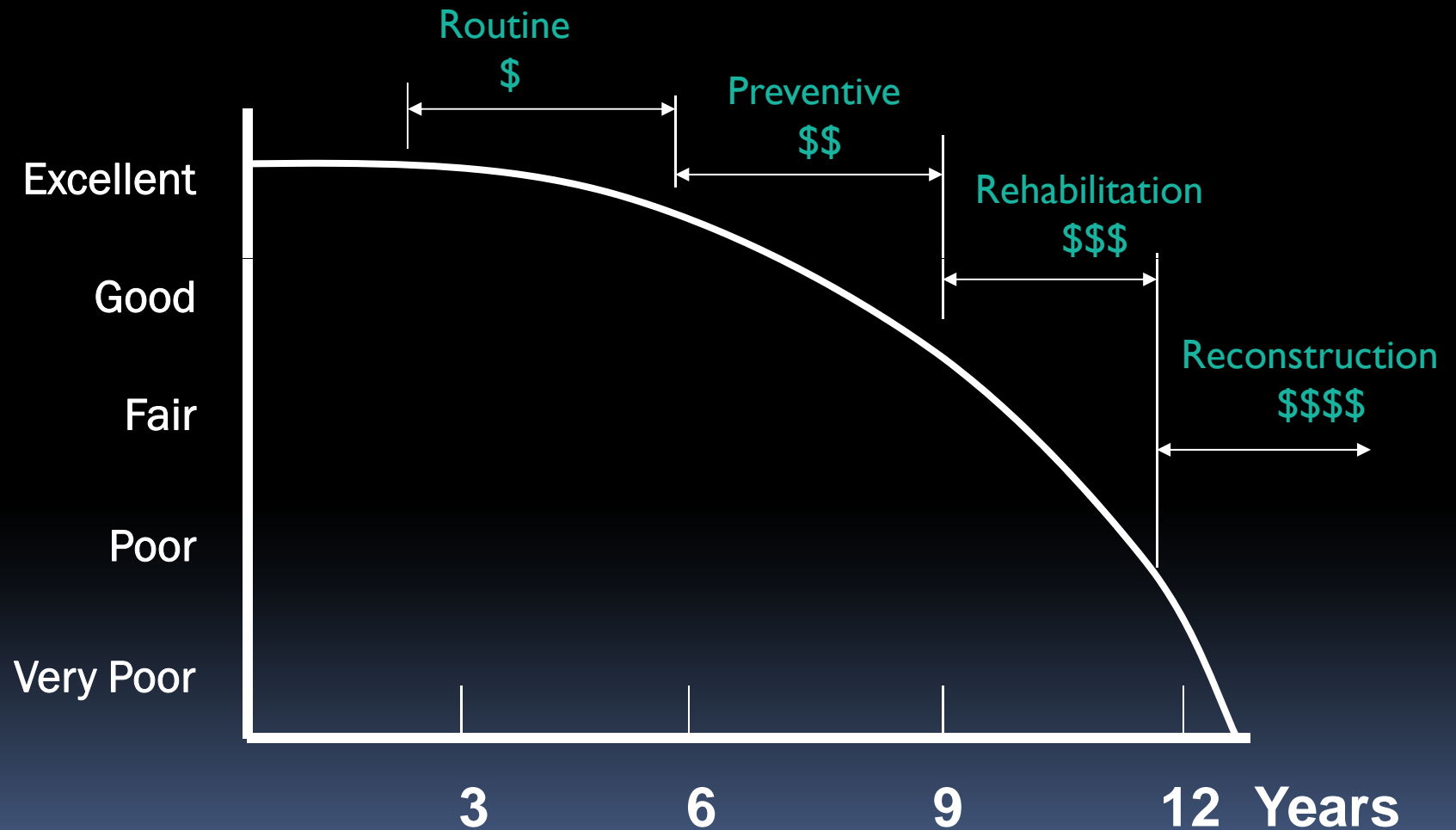
Today's Agenda

- Introductions
- Why rate your pavement?
- What you need to know
- Pavement rating methods
- Pavement rating trial
- Wrap-up

Why Rate Your Pavement?

- Asset management
 - Pavement management system
 - Inventory pavement conditions
 - Prioritize ratings
 - Maintain system
 - Schedule repairs

Why Rate Your Pavement?



Pavement Evaluation Methods

- Nondestructive testing
- Destructive testing
- Ride quality
- Roughness (International Roughness Index)
- Skid resistance
- Pavement serviceability index

Pavement Evaluation Methods

- Visual inspection
 - Benefits
 - Cost
 - Frequency

Inspection Guidelines

- What to look for
 - Defect
 - Severity
 - Extent
- Rating scale
- Rating calculation

Rating Considerations

- Mode used
- How to evaluate
 - Predominate severity
 - Extent of each severity
- What to look at
- Segment length
- Timing

Flexible Pavement Distresses

Cracking

Fatigue Cracking Square
Block Cracking Square
Edge Cracking
Wheel Path Longitudinal Cracking
Non-Wheel Path Longitudinal
Cracking
Reflection Cracking at Joints
Transverse Cracking

Patching and Potholes

Patch/Patch Deterioration
Potholes

Surface Deformation

Rutting
Shoving

Surface Defects

Bleeding Square
Polished Aggregate
Raveling Square

Miscellaneous Distresses

Lane-to-Shoulder Drop-off
Water Bleeding and Pumping

Flexible Pavement Distresses

The screenshot shows the Asphalt Institute website. At the top is the logo with the text "asphalt institute" and a tagline "Serving the industry since 1938". Below the logo is a navigation bar with links for "HOME", "ABOUT AI", "STORE", and "STATE BINDER". The main content area is titled "Asphalt Pavement Distress Summary" and includes a brief introductory paragraph. A dropdown menu is open, listing various distress types: "Choose from list", "Fatigue/Alligator Cracking", "Block Cracking", "Edge/Joint Cracks", "Ravelling", "Bleeding", "Depressions", "Corrugations", "Alligator Cracks", "Dry Surface/Cracking", "Slippage Cracks", "Rutting", "Loss of Aggregate on Surface Treatments", "Longitudinal Streaking", "Moisture Damage (stripping)", and "Transverse Uniform Crack Spaces". To the right of the dropdown, a table is partially visible with a header "CAUSE".

Asphalt Pavement Distress Summary Contents

Distress Type	CAUSE
Block Cracking	1. Old and dried out mix

Flexible Pavement Distresses

Fatigue (alligator) cracking

Bleeding

Block cracking

Corrugation and shoving

Depression

Joint reflection cracking

Lane/shoulder drop-off

Longitudinal cracking

Patching

Polished aggregate

Potholes

Raveling

Rutting

Slippage cracking

Stripping

Transverse cracking

Water bleeding & pumping

What You Need to Know...

- Distress
 - How to identify
 - Causes
 - How to measure

Rutting and Wear

- What is it?
- Why is it a problem?
- Causes



Rutting and Wear

- How to measure



Alligator Cracking

- What is it?
- Why is it a problem?
- Causes



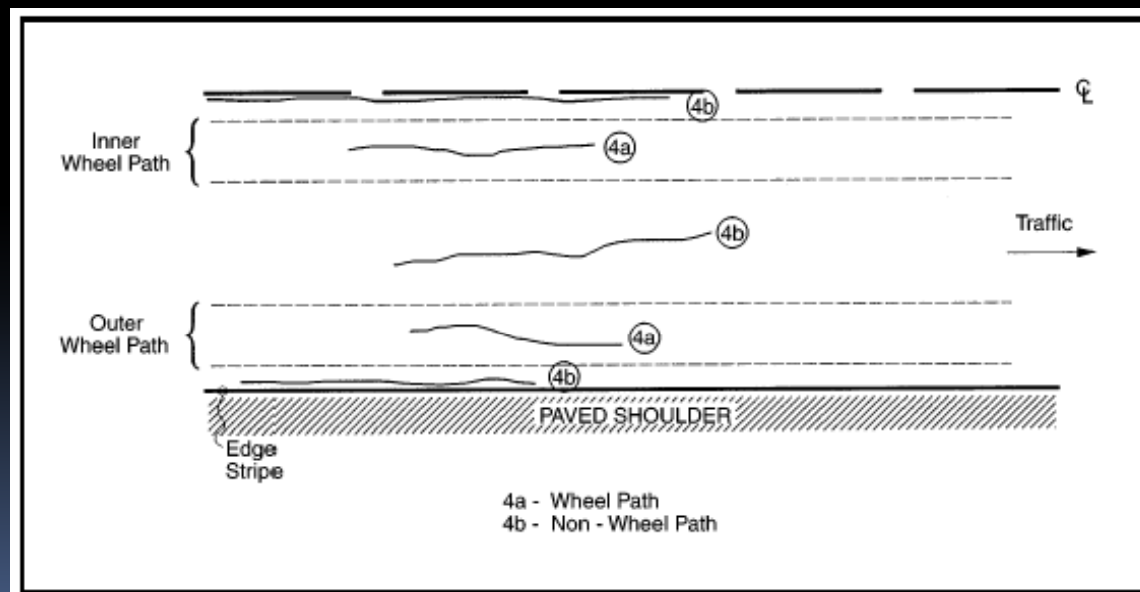
Alligator Cracking

- How to measure



Longitudinal Cracking

- What is it?
 - Wheel path or non-wheel path
- Why is it a problem?



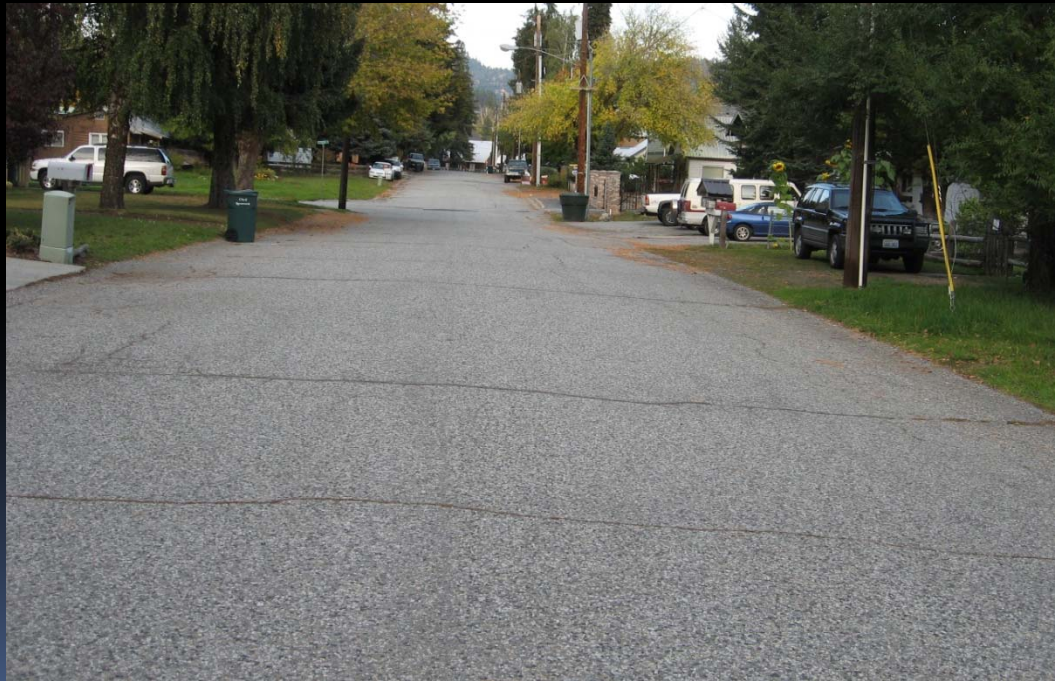
Longitudinal Cracking

- Causes
- How to measure



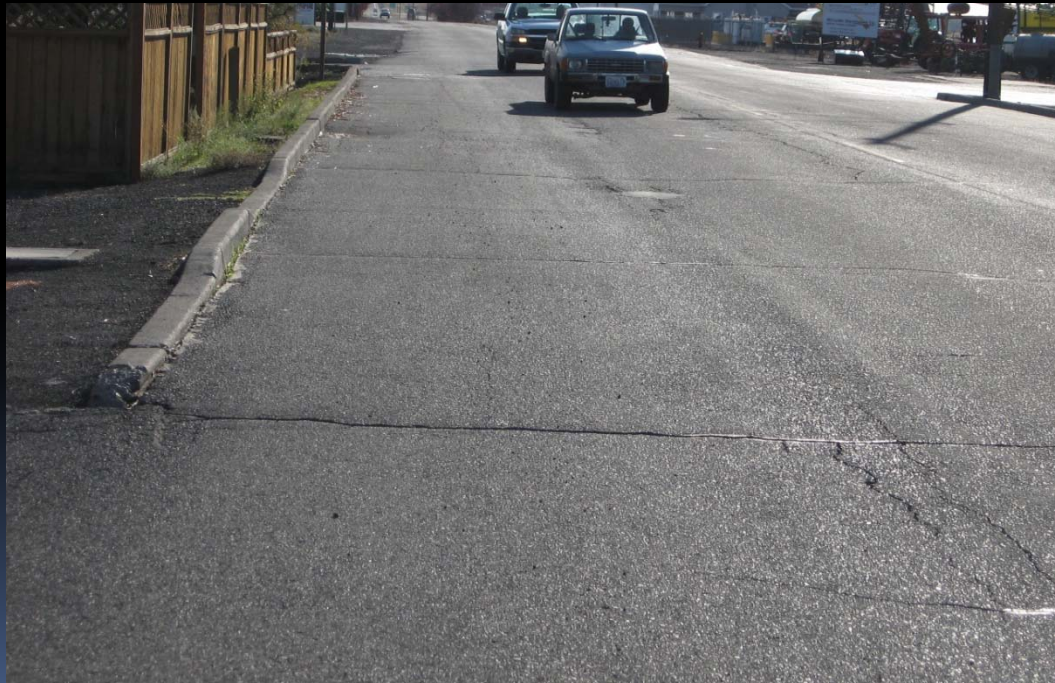
Transverse Cracking

- What is it?
- Why is it a problem?
- Causes



Transverse Cracking

- How to measure



Raveling and Aging

- What is it?
- Why is it a problem?
- Causes



Raveling and Aging

- How to measure



Flushing / Bleeding

- Causes
- How to measure



Patching

- ▣ Severity
- ▣ How to measure



Corrugation and Waves

- Causes
- How to measure



Sags and Humps

- Causes
- How to measure



Block Cracking

- Causes
- How to measure



Pavement Edge Condition

- Causes
- How to measure



Crack Seal Condition

- How to measure




Pavement Rating Worksheets

- Streetwise
- TIB

Streetwise Rating Worksheet

- Detailed distress information
- Limited inventory data


Washington State Department of Transportation
Streetwise Pavement Condition Rating

Inventory Information

Road Number		Sequence No.	Functional Class
Street Name			
From		To	
Length ^(A)	No. of Lanes	<input checked="" type="checkbox"/> Wheelpath Length ^(B)	<input checked="" type="checkbox"/> Area ^(C)
<input checked="" type="checkbox"/> Width			

Distress Information

Rating Date	Direction	Rater				
		Alligator Cracking Lin. Ft.	Longitudinal Cracking Lin. Ft.	Transverse Cracks Fath.	Raveling Sq. Ft.	Patching Sq. Ft.
Low						
	Total					
Medium						
	Total					
High						
	Total					

PCR Calculations

	Percentages from "Distress Information"				
	(Total / Box (B)) 100	(Total / Box (A)) 100	(Total / Box (A)) 100	(Total / Box (C)) 100	(Total / Box (C)) 100
Low					
Medium					
High					

Alligator Co.	Severity Summary (X One)			Extent Summary (X One)				
	Low	Med.	High	0 - 1%	1% - 5%	5% - 10%	10% - 25%	Above 25%
Other (_____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


Maintenance Strategy

Treatment Groups (X One) Group 1 PCR Between 75 - 100 <input type="checkbox"/> Group 2 PCR Between 50 - 74 <input type="checkbox"/> Group 3 PCR Between 25 - 49 <input type="checkbox"/> Group 4 PCR Between 0 - 25 <input type="checkbox"/>	Comments _____ _____ _____ Treatment for Segment → _____ Estimated Cost to Repair → _____	<div style="border: 2px solid black; padding: 5px; display: inline-block;"> PCR → _____ </div>
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DOT Form 146-900 1983

Streetwise Rating Worksheet

- How form works


Washington State Department of Transportation
StreetWise Pavement Condition Rating

Inventory Information

Road Number		Sequence No.	Functional Class
Street Name			
From		To	
Length ^(A)	No. of Lanes	<input checked="" type="checkbox"/> ^(B) Wheelpath Length	<input checked="" type="checkbox"/> ^(C) Area
<input checked="" type="checkbox"/> Width			

Distress Information

Rating Date	Direction	Rater				
		Alligator Cracking Lin. Ft.	Longitudinal Cracking Lin. Ft.	Transverse Cracks Fath.	Raveling Sq. Ft.	Patching Sq. Ft.
Low						
	Total					
Medium						
	Total					
High						
	Total					

PCR Calculations

	Percentages from "Distress Information"				
	(Total / Box (B)) 100	(Total / Box (A)) 100	(Total / Box (A)) 100	(Total / Box (C)) 100	(Total / Box (C)) 100
Low					
Medium					
High					

Alligator Co.	Severity Summary (X One)			Extent Summary (X One)				
	Low	Med.	High	0 - 1%	1% - 5%	5% - 10%	10% - 25%	Above 25%
Other (_____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Maintenance Strategy

Treatment Groups (X One) Group 1 PCR Between 75 - 100 <input type="checkbox"/> Group 2 PCR Between 50 - 74 <input type="checkbox"/> Group 3 PCR Between 25 - 49 <input type="checkbox"/> Group 4 PCR Between 0 - 25 <input type="checkbox"/>	Comments _____ _____ _____ Treatment for Segment → _____ Estimated Cost to Repair → _____	<div style="border: 2px solid black; padding: 5px; display: inline-block;"> PCR → _____ </div>
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DOT Form 340-900
1983

TIB Rating Worksheet

- Detailed inventory data
- Streamlined pavement rating

TIB Street Inventory Form

Agency No. TIB Route Study Section

Agency _____ Reviewer _____

Review Date _____

Street Name _____

Termini _____ To _____

	Inventory Data	Field Review		Inventory Data	Field Review
Section Length				Sidewalk Width	
Number of Travel Lanes				Number Compliant ADA Ramps	
Average Pavement Width (feet)				Number ADA Ramps Needed	
Number of Travel Lanes				Number Intersections including termini	

Bus Route Transit School Both Types None

Sidewalk Placement One Side Both Sides Intermittent None

Sidewalk Condition Good Fair Poor

Parking Lanes One Side Both Sides Intermittent None

Curb Placement One Side Both Sides Intermittent None

Roadway Surfacing ACP Concrete Gravel

Shoulder Surfacing Paved Gravel Earth Unpaved Parking

Last PCR Score _____ Last PCR Rating Year _____

ASPHALT CONCRETE PAVEMENT (ACP)	ALLIGATOR CRACKING Percent of Travel Lanes			LONGITUDINAL CRACKING Length per 100 feet			TRANSVERSE CRACKING Number per 100 feet			PATCHING % of Road Surface			TOTAL DEDUCTIONS	RIDE Excellent Good Fair Poor	PAVEMENT RATING (100 - Deductions) / Ride Factor
	1) Hairline	2) Spalling	3) Spalling & Pumping	1) Less than 100'	2) 100' to 200'	3) Over 200'	1) 1 to 4	2) 5 to 9	3) 10 & Over	1) 1 to 5%	2) 6 to 25%	3) Over 25%			
RIDE FACTORS	Excellent ... 100% Good 90% Fair 80% Poor 70% Circle only one deduction for each Deficiency Type present on segment														
Severity	1 to 20%	20 to 40%	40 to 70%	70 to 80%	Up to 1/4" Wide	Over 1/4" Wide	Spalled	Up to 1/4" Wide	Over 1/4" Wide	Spalled	Good Condition	Fair Condition	Poor Condition		
1	20	25	30	35	5	15	30	5	10	15	10	15	20		
2	35	40	45	50	15	30	45	10	15	20	15	20	25		
3	50	55	60	65	30	45	60	15	20	25	20	25	30		

COMMENTS:

F:\USER\GLORIA\Funding Programs\LTAP Class\TIB Street Inventory Blank Form - Letter.docx

TIB Rating Worksheet

- How form works

TIB Street Inventory Form

Agency No.	TIB Route	Study Section
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Agency _____ Reviewer _____

Review Date _____

Street Name _____

Termini _____ To _____

	Inventory Data	Field Review		Inventory Data	Field Review
Section Length			Sidewalk Width		
Number of Travel Lanes			Number Compliant ADA Ramps		
Average Pavement Width (feet)			Number ADA Ramps Needed		
Number of Travel Lanes			Number Intersections including termini		

Bus Route	<input type="checkbox"/> Transit	<input type="checkbox"/> School	<input type="checkbox"/> Both Types	<input type="checkbox"/> None
Sidewalk Placement	<input type="checkbox"/> One Side	<input type="checkbox"/> Both Sides	<input type="checkbox"/> Intermittent	<input type="checkbox"/> None
Sidewalk Condition	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor	
Parking Lanes	<input type="checkbox"/> One Side	<input type="checkbox"/> Both Sides	<input type="checkbox"/> Intermittent	<input type="checkbox"/> None
Curb Placement	<input type="checkbox"/> One Side	<input type="checkbox"/> Both Sides	<input type="checkbox"/> Intermittent	<input type="checkbox"/> None
Roadway Surfacing	<input type="checkbox"/> ACP	<input type="checkbox"/> Concrete	<input type="checkbox"/> Gravel	
Shoulder Surfacing	<input type="checkbox"/> Paved	<input type="checkbox"/> Gravel	<input type="checkbox"/> Earth	<input type="checkbox"/> Unpaved Parking

Last PCR Score _____ Last PCR Rating Year _____

ASPHALT CONCRETE PAVEMENT (ACP)	ALLIGATOR CRACKING Percent of Travel Lanes			LONGITUDINAL CRACKING Length per 100 feet			TRANSVERSE CRACKING Number per 100 feet			PATCHING % of Road Surface			TOTAL DEDUCTIONS	RIDE Excellent Good Fair Poor	PAVEMENT RATING (100 - Deductions) / Ride Factor	
	1) Hairline	2) Spalling	3) Spalling & Pumping	1) Less than 100'	2) 100' to 200'	3) Over 200'	1) 1 to 4	2) 5 to 9	3) 10 & Over	1) 1 to 5%	2) 6 to 25%	3) Over 25%				
RIDE FACTORS	Excellent ... 100% Good 90% Fair 80% Poor 70%															
Severely	1 to 20%	20 to 40%	40 to 70%	70 to 80%	Up to 1/4" Wide	Over 1/4" Wide	Spalled	Up to 1/4" Wide	Over 1/4" Wide	Spalled	Good Condition	Fair Condition	Poor Condition			
1	20	25	30	35	5	15	30	5	10	15	10	15	20			
2	35	40	45	50	15	30	45	10	15	20	15	20	25			
3	50	55	60	65	30	45	60	15	20	25	20	25	30			

COMMENTS:

F:\USER\GLORIA\Funding Programs\LTAP Class\TIB Street Inventory Blank Form - Letter.docx

Field Exercise

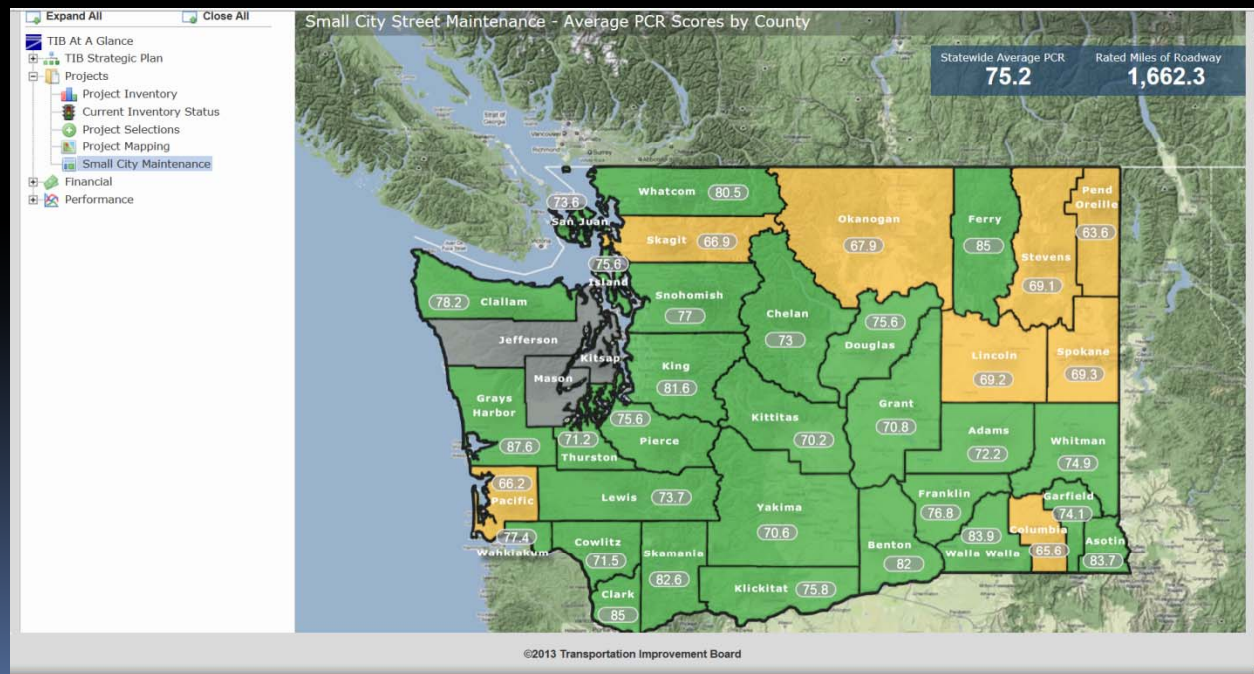
- Location
- Segments
 - Columbia St – I-5 Bridge Midspan to Columbia Way
 - Columbia St – Joe’s Crab Shack to I-5 Bridge Midspan

Small City Maintenance Data

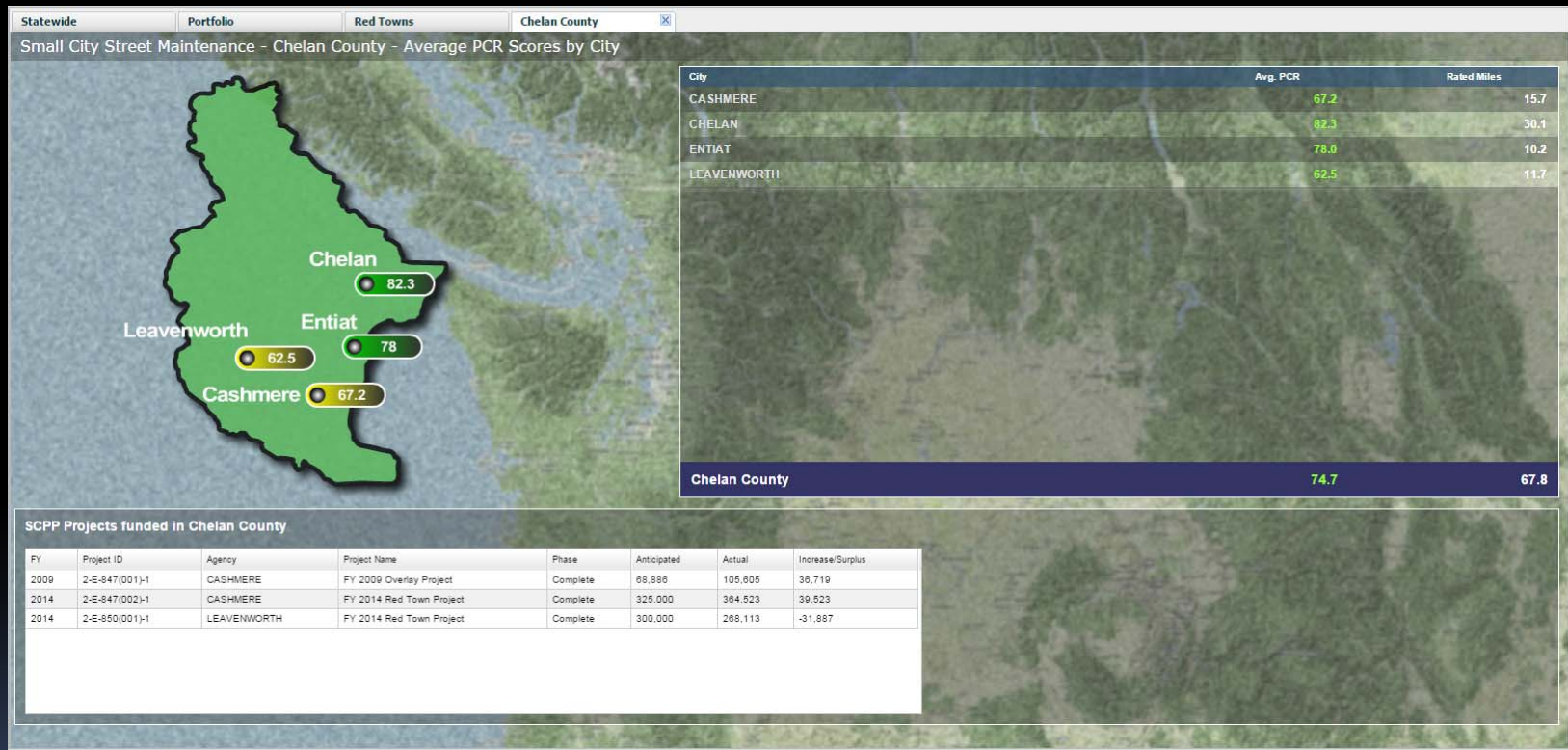
- Available to all small cities

- Link

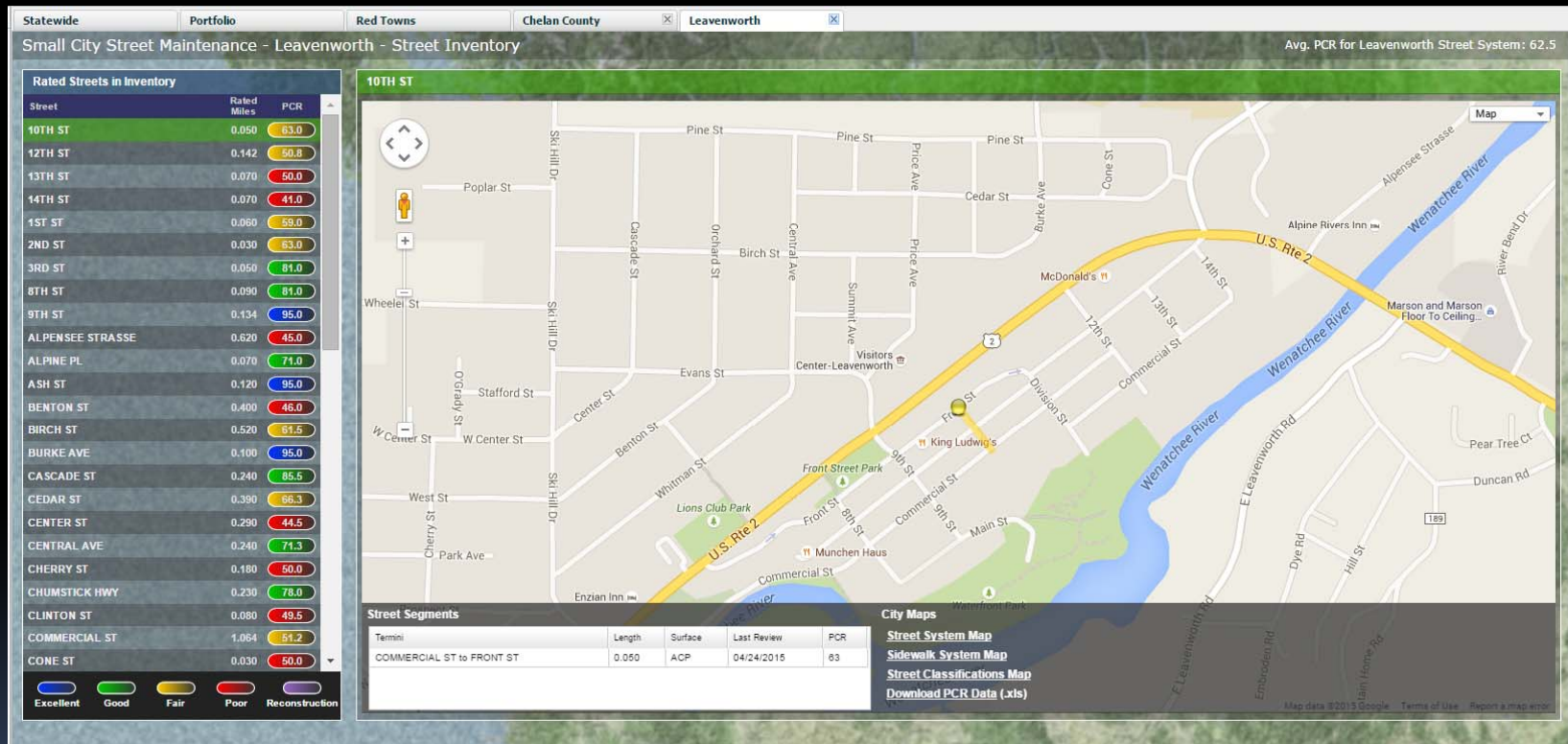
<http://www.tib.wa.gov/TIBDashboard/index.cfm?PCR>



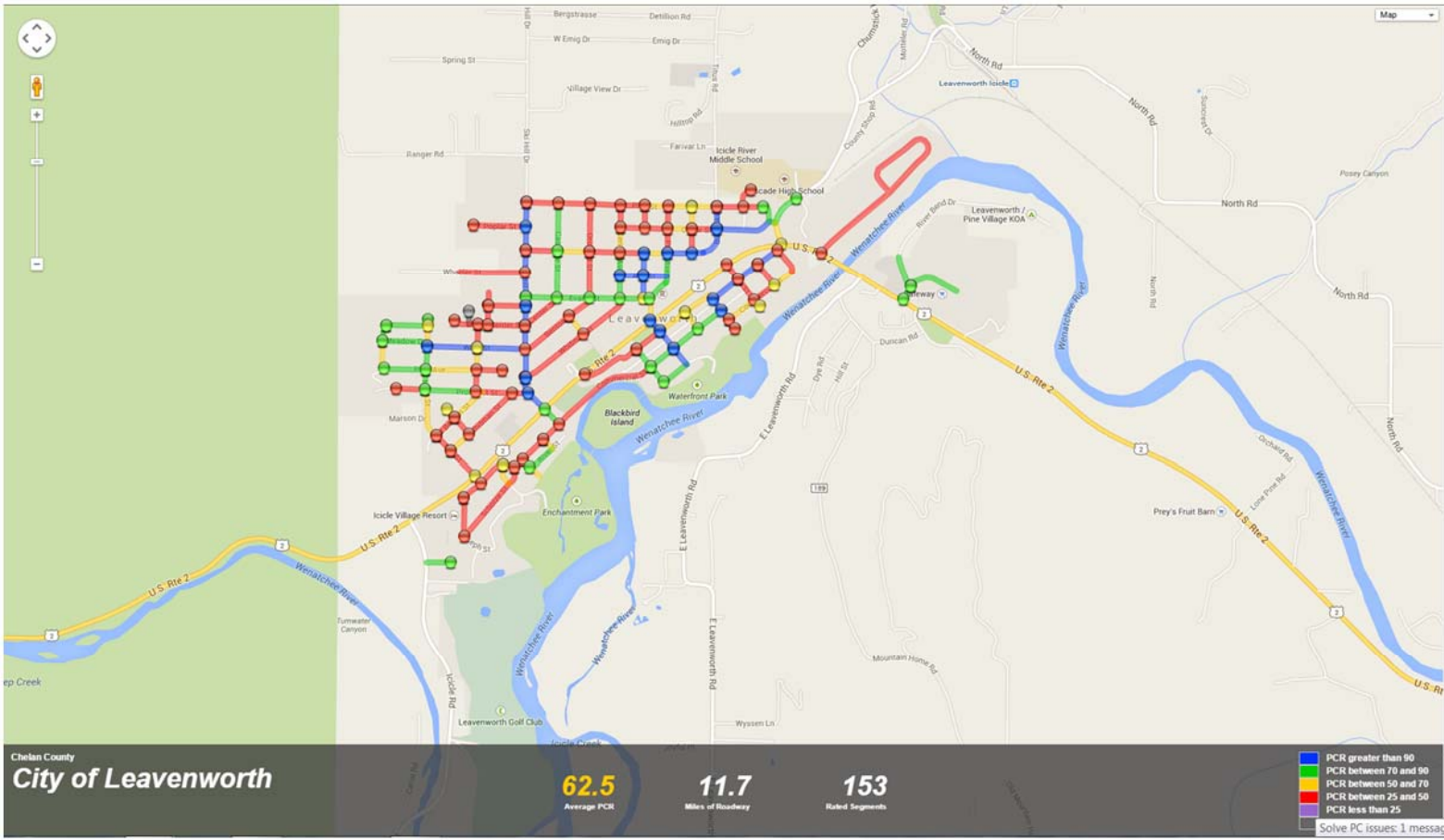
Small City Maintenance Data



Small City Maintenance Data



Small City Maintenance Data



StreetSaver Inventory Detail

City of Anywhere Section Summary
Printed: 05/13/2015

Street ID: AURORA	Begin Location: CARLI DR.	Constructed: 01/01/1993
Section ID: 10	End Location: EMERALD DR.	No. Lanes: 2
Road Name: AURORA DRIVE		
Functional Class: Residential/Local	Length (ft): 307	Width (ft): 32
Surface Type: AC	Slab Width: 0.00	Slab Length: 0.00
General Code: PS PARKING/SHOULDER	Funding Source:	Area ID:
Comments:		
Parking Lot Type:		

Maintenance Rehabilitation History

Maint. Date	Treatment	Sq. Ft.	Thickness	PCI after M&R	Cost Maint.
06/01/2003	CAPE SEAL	0	0	62	\$0

Inspection History

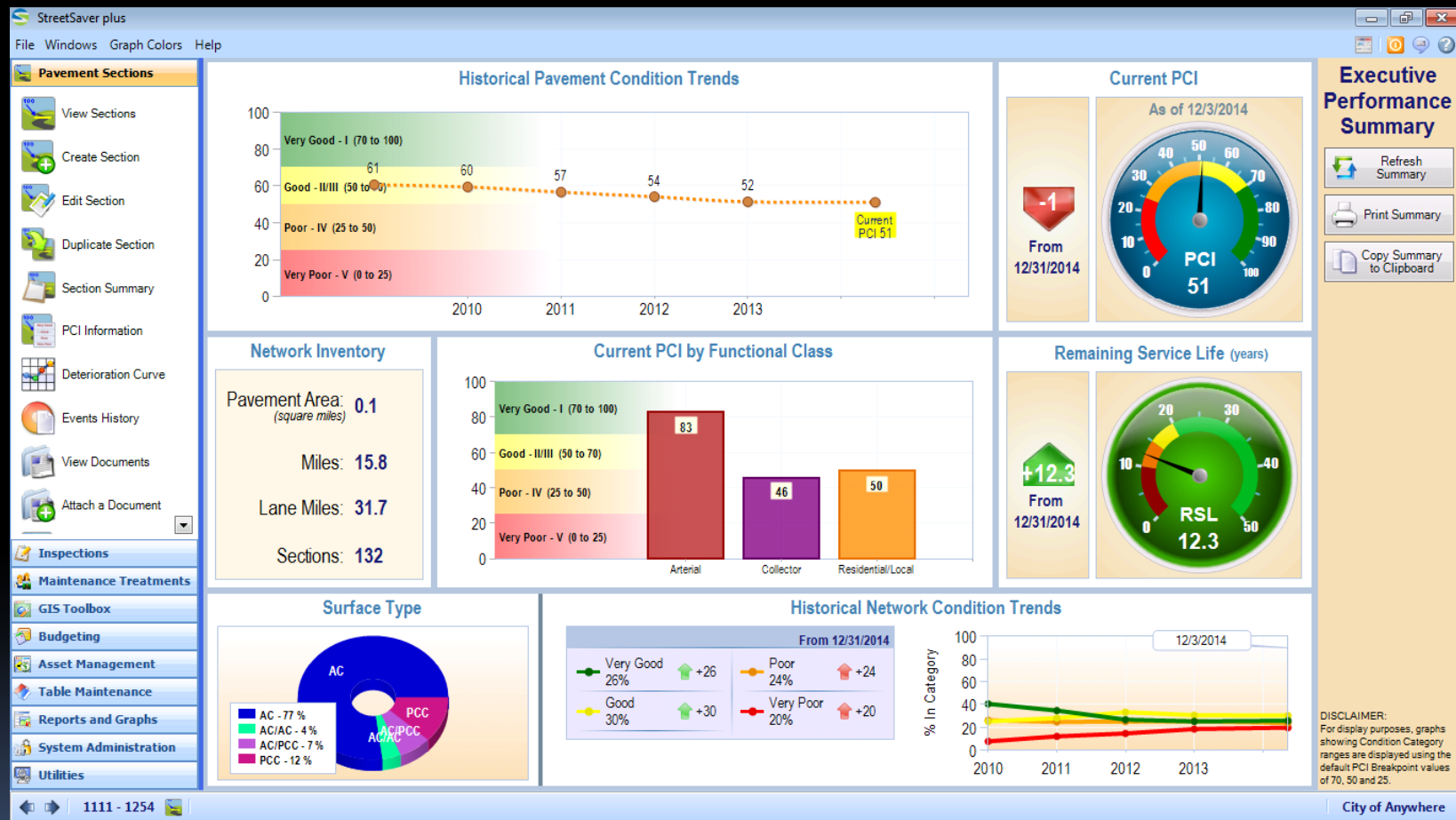
Inspection #	Length	Area	No Distresses	Special
Inspection Date: 02/09/2000 Section PCI: 61				
1	0.00	1600.00	<input type="checkbox"/>	<input type="checkbox"/>
Inspection Date: 07/22/2002 Section PCI: 49				
1	0.00	1600.00	<input type="checkbox"/>	<input type="checkbox"/>
Inspection Date: 08/04/2004 Section PCI: 83				
1	80.00	1600.00	<input type="checkbox"/>	<input type="checkbox"/>
Inspection Date: 11/09/2006 Section PCI: 78				
1	100.00	3200.00	<input type="checkbox"/>	<input type="checkbox"/>
Inspection Date: 11/18/2008 Section PCI: 72				
1	100.00	3200.00	<input type="checkbox"/>	<input type="checkbox"/>
Inspection Date: 09/28/2010 Section PCI: 70				
1	100.00	3200.00	<input type="checkbox"/>	<input type="checkbox"/>
Inspection Date: 10/01/2014 Section PCI: 89				
1	100.00	3200.00	<input type="checkbox"/>	<input type="checkbox"/>

Other History

Transact Date	Transact Type	Attribute	Value
11/21/2008 2:41:21 PM	Attribute change	Section Length	307.00
11/21/2008 2:41:21 PM	Attribute change	Section Area	9824.00

Criteria: Section = AURORA - 10 1
001004 MTC StreetSaver

StreetSaver Dashboard



Pavement Rating Considerations

- Stewardship
- Agency method/standards
- Consistency
- Scheduling
- Reality check



Questions