

Pavement Asset Management

City Council Work Session

January 23, 2017

Discussion Outline:

Pavement Management 201

- Pavement Management 101 Refresher
 - Pavement Condition Index (PCI)
 - Examples of Albany Roads
 - Pavement Deterioration (PCI vs. age)
- More on Pavement Treatment Options
 - Types and Applications
 - Comparative Costs
 - “Keep the Good Roads Good”
- Current Pavement Management Strategy
 - Treatments Utilized (i.e. Crack Sealing and Overlays)
 - Albany Roadway Characteristics
- Further Discussion Ahead

Pavement Management 101 Review

- Definition(s) of Pavement Management (and why it is important)
- Pavement Condition Index (PCI)
- How Pavements Fail
- Pavement Renovation Economics
- Best Pavement Management Investment Strategy

Pavement Management:

Definition:*

“Transportation Asset Management (TAM) is a strategic and systematic process of operating, maintaining, upgrading, and expanding physical assets effectively throughout their lifecycles. It focuses on business and engineering practices for resource allocation and utilization, with the objective of better decisions-making based upon quality information and well defined objectives.”

***American Association of State Highway and Transportation Officials (AASHTO)**

Effective Pavement Management Attributes:

- Optimized Decision Making
- Making the Right Investment at the Right Time, Utilizing the Right Renewal Strategy
- Ensures Lowest Life Cycle Costs to Meeting Defined Level of Service Requirements
- Provides Transparency and Accountability, and Helps to *Tell the Story*

Pavement Condition Index (PCI) Rating Scale – ASTM D 6433 - 07

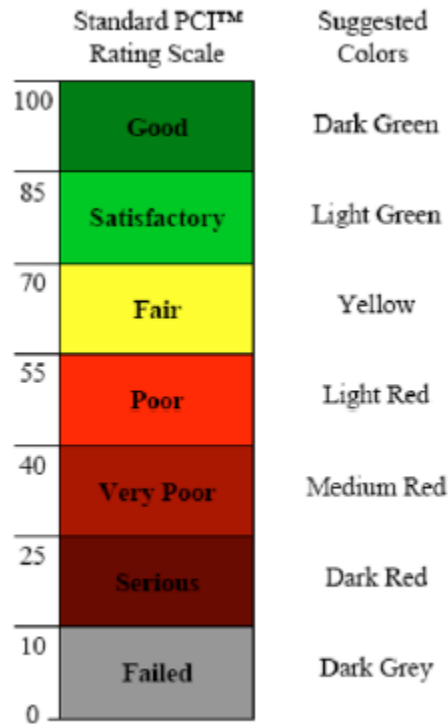


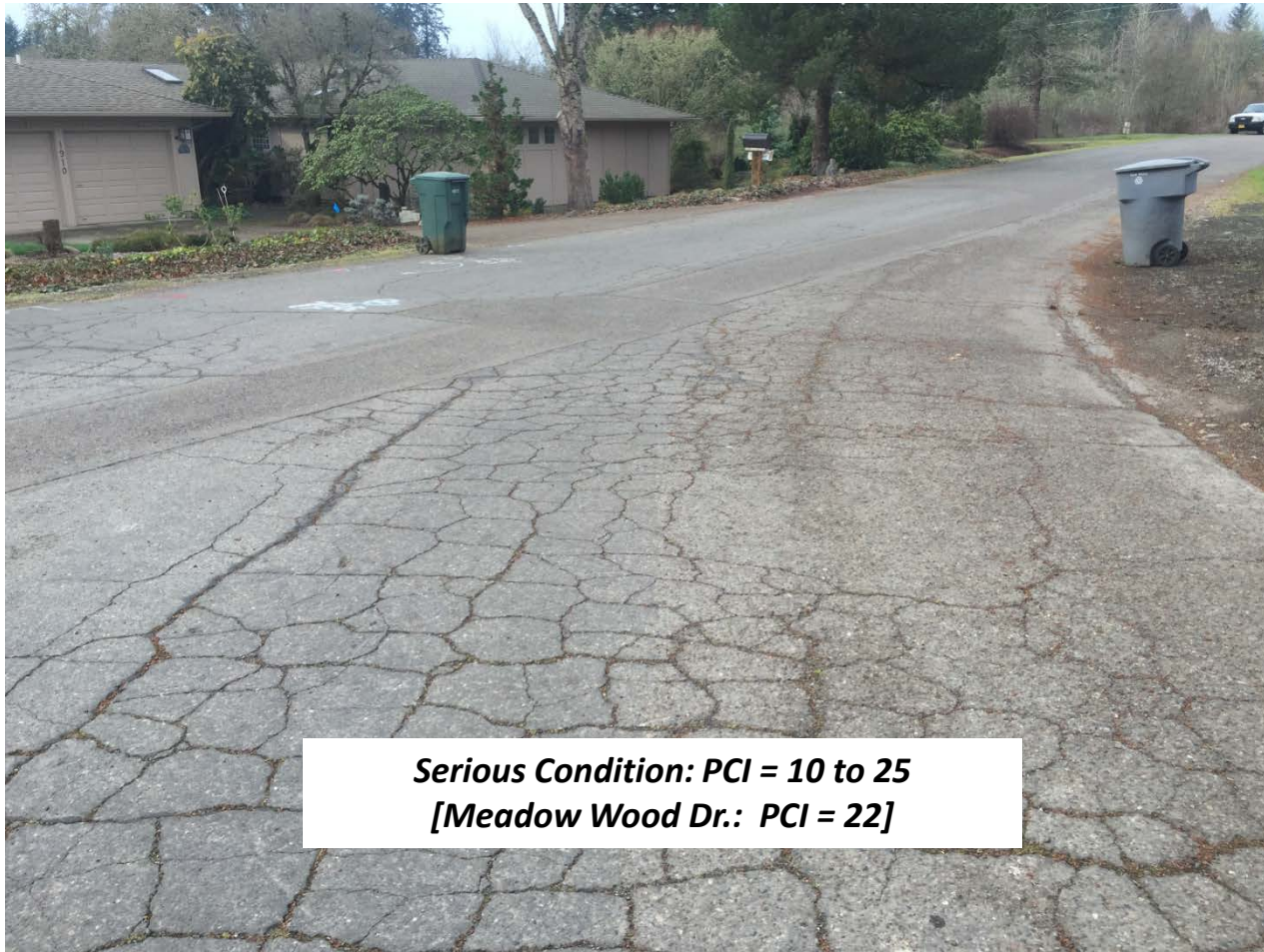
FIG. 1 Pavement Condition Index (PCI), Rating Scale, and Suggested Colors

The Good....



Good Condition: PCI = 85 to 100
[N. Albany Road near bridge: PCI = 96]

...The Bad...

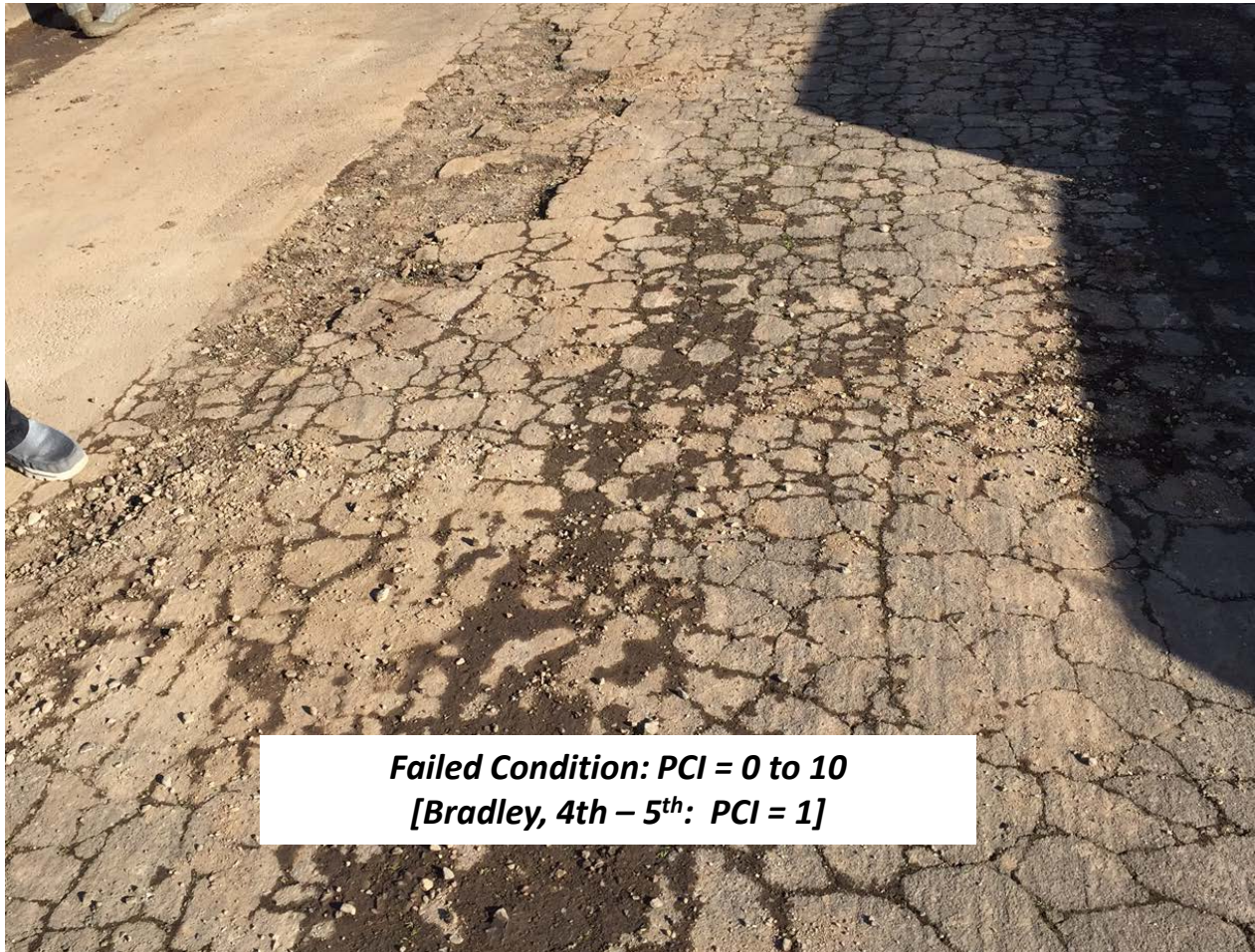


***Serious Condition: PCI = 10 to 25
[Meadow Wood Dr.: PCI = 22]***

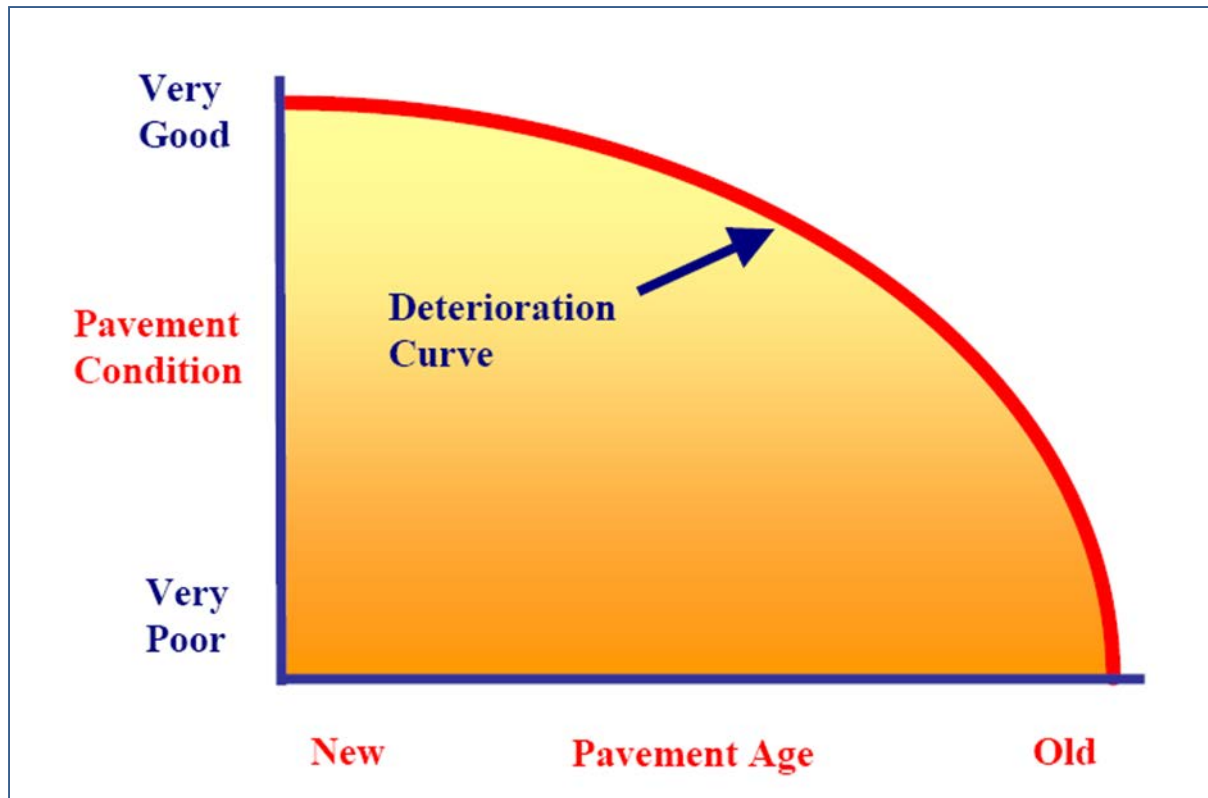
....and the Ugly



(and the Uglier)



How Pavements Fail:



[From the National Center for Pavement Preservation]

Pavement Treatment Options

- Crack Sealing
- Fog Sealing
- Slurry Sealing
- Chip Sealing (a.k.a. seal coat, “BST”)
- Microsurfacing
- Thin Overlay
- Thick Overlay
- Full-Depth Reclamation (FDR)
- Traditional Reconstruction

Crack Sealing



Fog Sealing



Slurry Seal



Chip Seal



Microsurfacing



Thin Overlay



Thick Overlay



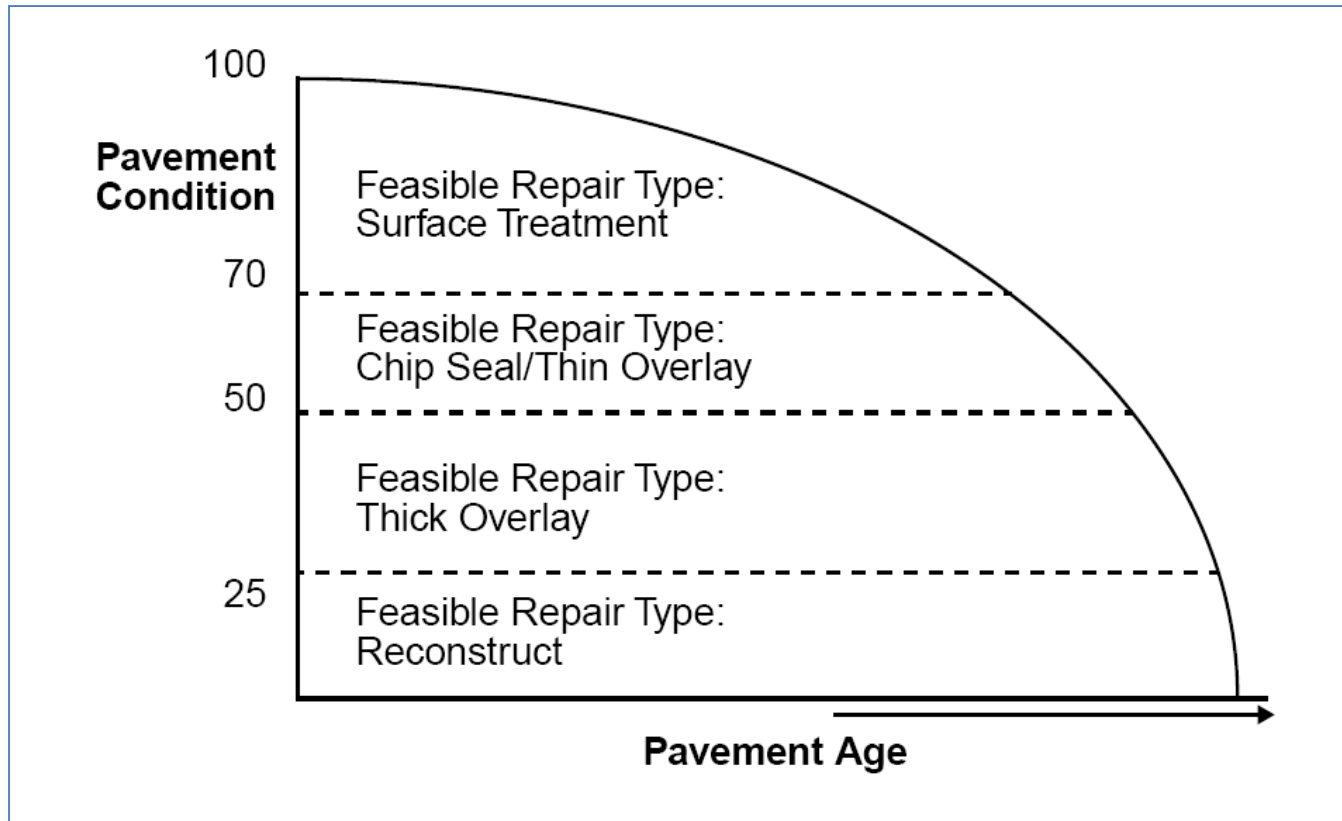
Full Depth Reclamation (FDR)



Reconstruction



Treatment Options vs. PCI:



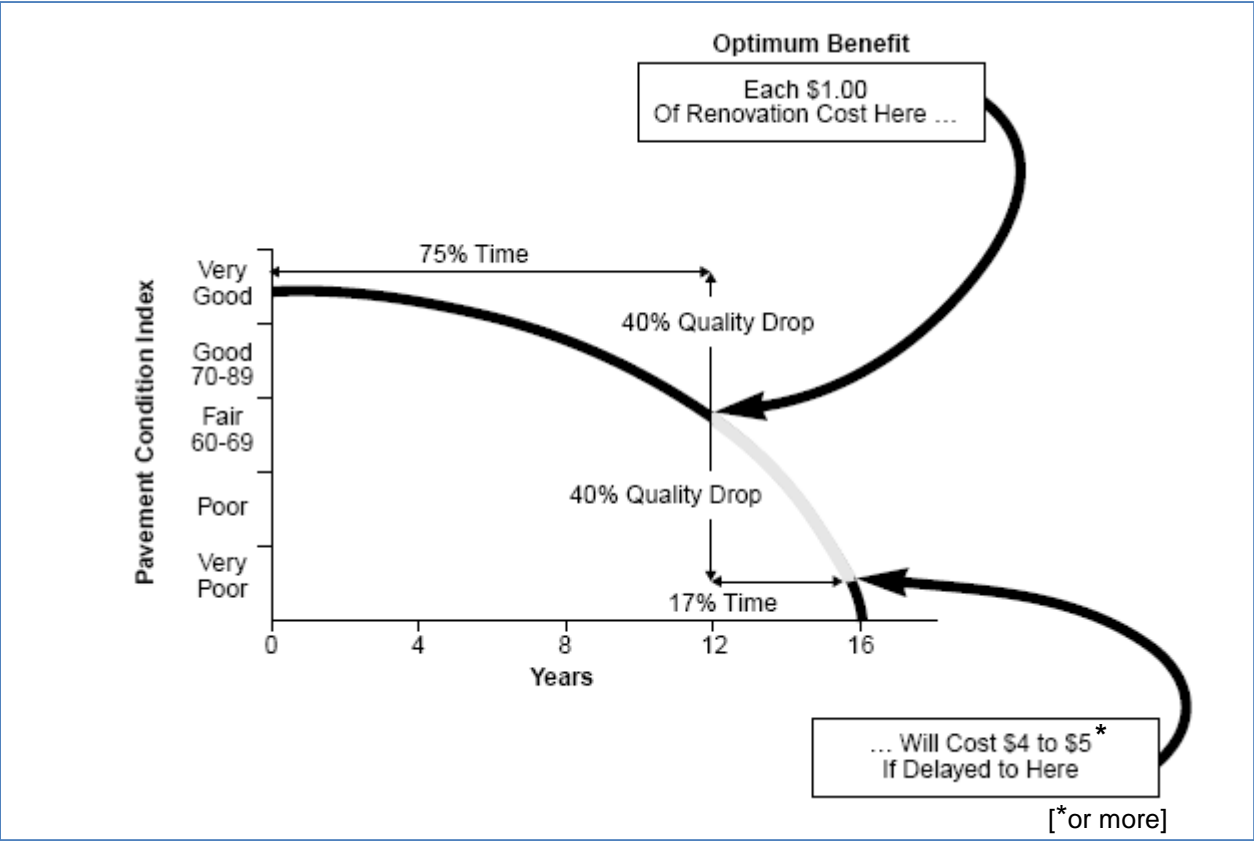
[From the Northwest Technology Transfer Center]

Relative Costs of Treatment Options:

Type of Treatment	Unit Cost*
Crack Sealing	\$1.00 - \$1.50 per lin. ft.
Fog Sealing	\$1.00 - \$2.00 per sq. yd.
Slurry Sealing	\$1.50 - \$4.00 per sq. yd.
Chip Sealing	\$2.50 - \$4.00 per sq. yd.
Microsurfacing	\$3.00 - \$4.50 per sq. yd.
Thin Overlay	\$30 - \$40 per sq. yd.
Mill and Overlay	\$40 - \$50 per sq. yd.
Full Depth Reclamation	\$150 - \$170 per sq. yd.
Reconstruction	\$200 - \$230 per sq. yd.

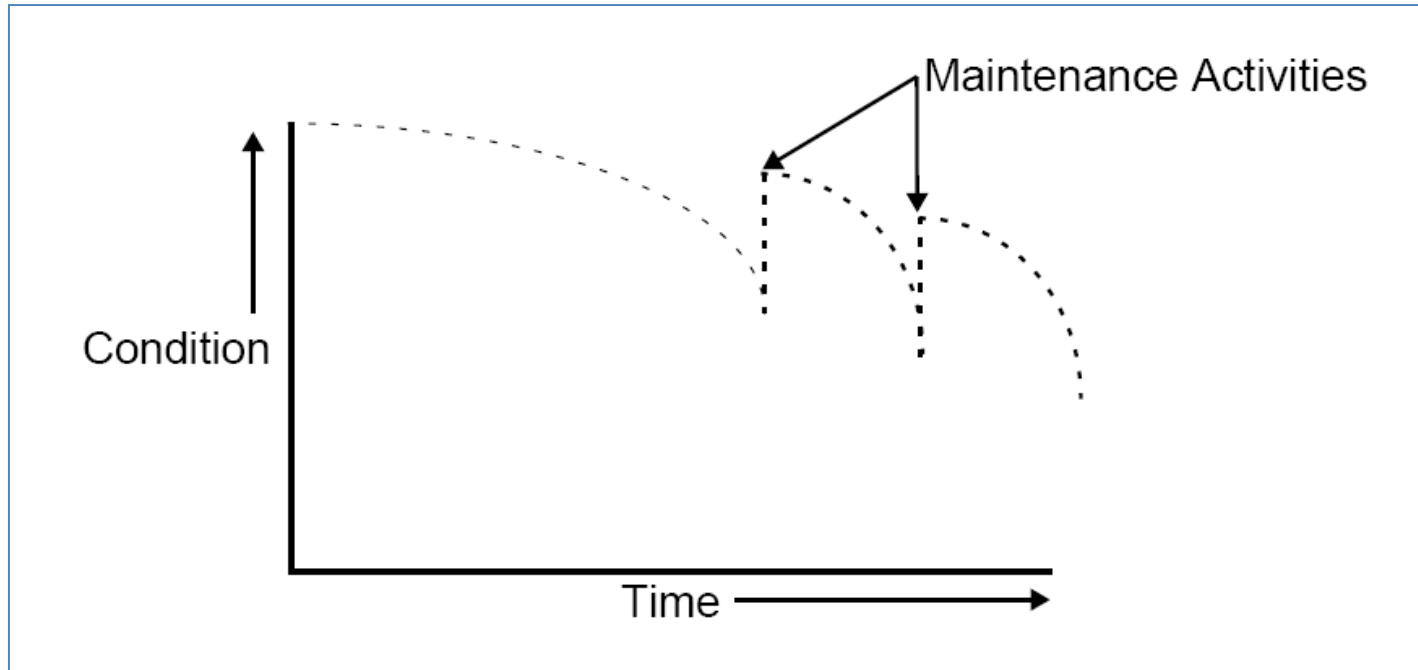
*These unit costs are approximate (will vary based on project scope/size) and intended to illustrate the comparative magnitude of treatment type versus cost.

Pavement Renovation Economics:



[From the Northwest Technology Transfer Center]

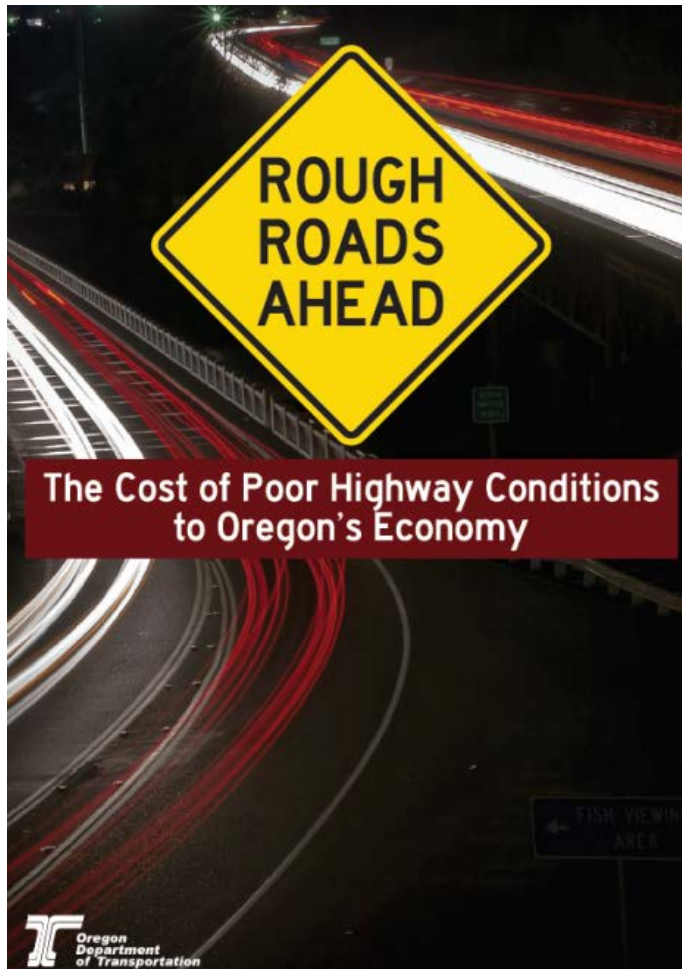
Keeping the Good Pavements Good:



[From the Northwest Technology Transfer Center]

Optimized (i.e. “Best”) Investment Strategy

Business Case Example: ODOT Report



"Bringing deteriorated pavement and bridges back to good condition costs significantly more than keeping them in good condition."

Current Pavement Investment Strategy

- Crack Sealing (Approx. Every 5-7 Years)
 - Currently Collectors and Arterials only
- Mill and Overlay (Approx. Every 15-20 Years)
 - Collectors and Arterials are typically highest priority
- Reconstruction or FDR (typ. beyond 20 years)
 - Collectors and Arterials are typically highest priority

City of Albany Street System

Street System Characteristics

Classification	Miles of Roads*	Number of Travel Lanes	Speed Limit (MPH)	Parking	Bike Lanes	Sidewalk	Traffic Volume (VPD)
Principal Arterial	26	5	25-45	Generally prohibited	Yes	Yes	>25,000
Minor Arterial		2-3	30-45	Generally prohibited	Yes	Yes	10,000 – 25,000
Major Collector	17	2**	25-40	Limited	Yes	Yes	5,000 – 12,000
Minor Collector		2	25-30	Permitted	Yes***	Yes	1,500 – 7,500
Local Residential	153	2	25	Permitted	No	Yes	<2,500

*Roadway “Centerline” miles

** Turn refuge lanes may be allowed subject to review and approval.

***Where traffic volumes exceed 3,000 VPD.

Summary of Recent Investments:

<u>Year/Projects</u>	<u>Classification</u>	<u>Treatment</u>	<u>Total Cost</u>	<u>Length</u>
<u>2015:</u>				
North Albany Road: Gibson Hill to RR Tracks	Arterial	Reconstruction	\$6,478,000	0.6 miles
<u>2014:</u>				
Main Street: 1 st to 4 th Avenue	Arterial	Reconstruction	\$2,731,000	0.3 miles
Center Street and 16 th Avenue	Collector/Local	Full Depth Reclaim.	\$282,000	0.2 miles
Water Avenue: Harrison to Geary	Local	3" Mill & Overlay	\$115,000	0.2 miles
<u>2013:</u>				
Water Avenue: Main to Harrison	Local	3" Mill & Overlay	\$165,000	0.3 miles
<u>2012:</u>				
Jackson Street: 9 th to 13 th Avenue	Collector	Reconstruction	\$1,160,000	0.4 miles
36 th Avenue and Columbus Street	Collector/Local	2" Mill & Overlay/FDR	\$592,000	0.6 miles
TOTAL PROJECT COSTS/MILES			\$11,523,000	2.6 miles

In the Queue for February 6th:

- Review of Pavement Management 201
- Current “State of Albany Roads” (PCI Overview)
- Current Funding Sources and anticipated “gap” to meet Industry Standards
- Discuss Next Steps

Questions?

Thank You For Your Time and
Attention!