



Pavement Management of Ventura County Roads

Board of Supervisors Presentation

June 04, 2024

Presented by: Anitha Balan, Director of Roads & Transportation

June 4, 2024

Overview of Pavement Management

- Maintain 542.65 miles of roadways
- 80% of Roads are in Good Condition
- County Roads have improved from “Fair (PCI >50) in 2008” to “Good (PCI >70) ” in 2012
- 2014 BOS directed PWA to maintain the Roads in Good Condition (PCI in mid 70’s)
- StreetSaver used for over 30 years
 - Designed to assist Local Governments
 - Widely used throughout California
 - Used by 8 of the 10 Cities in Ventura County
 - PWA assisted the cities of Ojai, Fillmore, Santa Paula, and Camarillo with developing their Pavement Management Plans
- Historical Annual Budget (past 5 years) - \$9M, expected to go up in 2024

Causes of Pavement Deterioration

➤ Environmental Causes

- Weathering – Surface deterioration - loss of asphalt binder and fine aggregates
- Temperature Cracking
 - Block cracking
 - Longitudinal & Transverse cracking
- Distortions - tree roots uplifting the asphalt
- Raveling – loss of coarse aggregate in the asphalt surface

➤ Load Related Causes

- Alligator cracking – resulting in potholes due to base failure
- Rutting & Depressions – deformation within the wheel path

Calculating PCI and Preparing the Paving Plan

- PWA uses StreetSaver to Calculate the Pavement Condition Index (PCI)

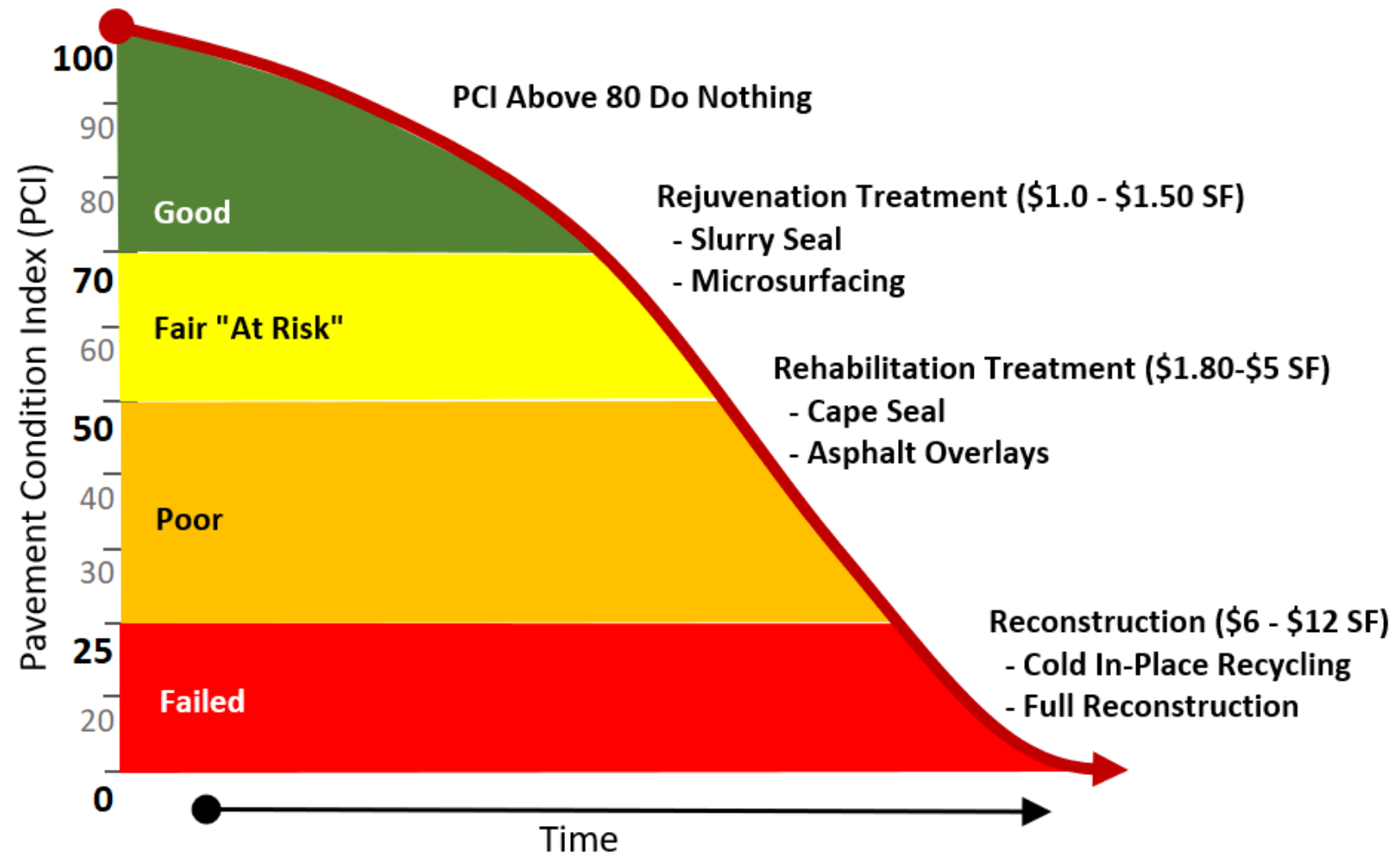
- Field evaluation results
- Average Daily Traffic
- Pavement Maintenance History
- Type of Roadway
- Budget Based
- Includes GIS integration



- 1/3rd of the Roads are Inspected annually

Treatment Recommendations Based on PCI

- StreetSaver recommends resurfacing treatment categories based on PCI of each road
- Based on the budget criteria, StreetSaver prioritizes which roadways are recommended for work
- Roads are then grouped by neighborhoods



Surface Treatments used by PWA

➤ Seals

- Slurry - Type 2 and Type 3
- Microsurfacing
- Rubberized chip seal (ARAM)
- Cape Seal - 2-layers - ARAM overlain by Slurry Seal

➤ Overlay

- Conventional and Asphalt Rubber Hot Mix (ARHM) (1.5" or 2")
- 2-layer Overlay - ARAM + AC Overlay (1.5" or 2")

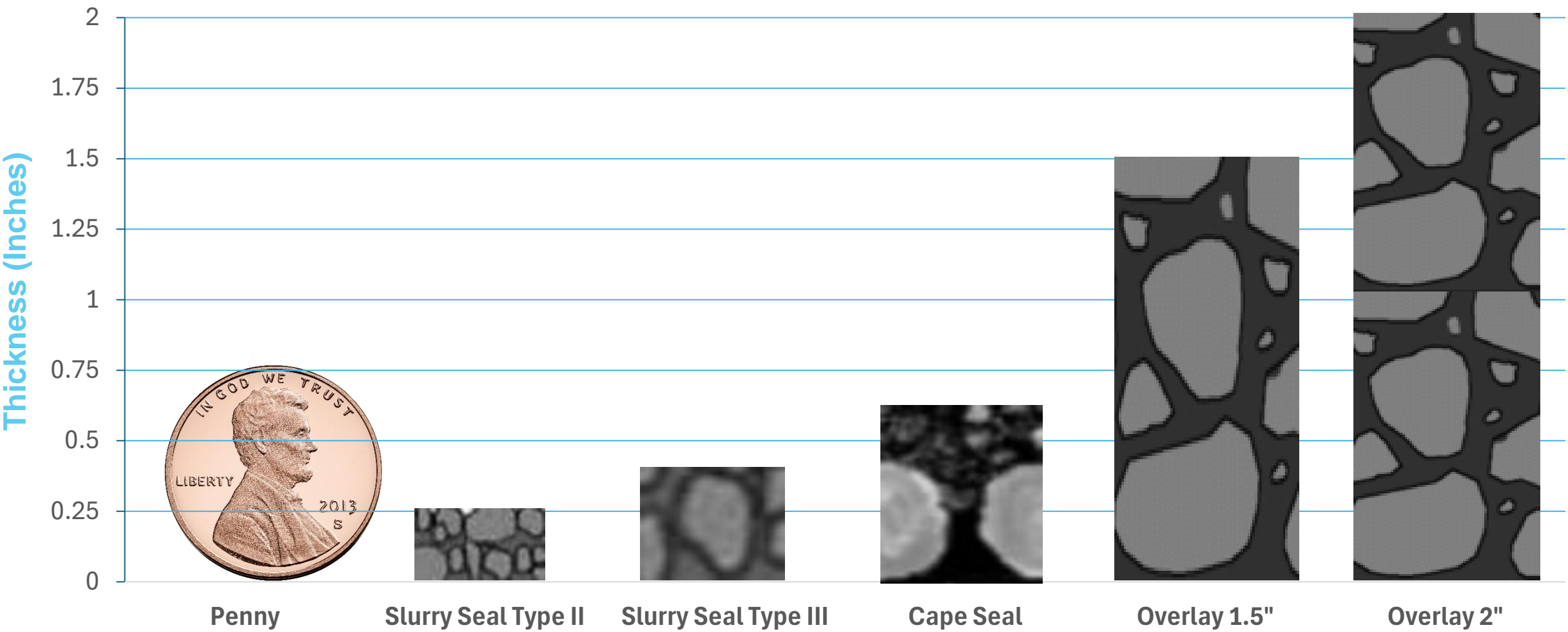
Rejuvenation

Rehabilitation

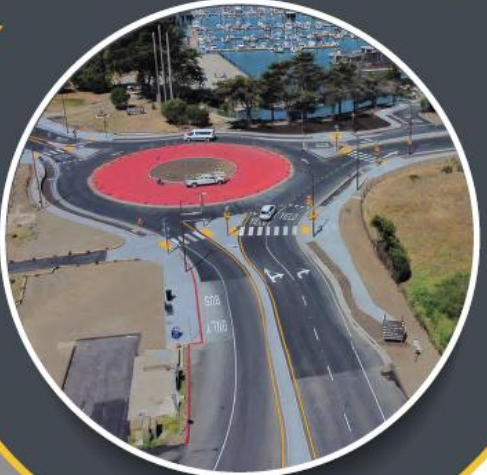
Other Specialized Treatments/Newer Technology

- Recycled asphalt pavement used in new AC mix (RAP)
- FortaFi fiber reinforcement mixed into Asphalt pavement (Kevlar fibers)
- High Friction Surface Treatment (HFSC) –in curves and intersection approaches

Surface Treatment Thicknesses Comparison



Ventura County PCI 2023











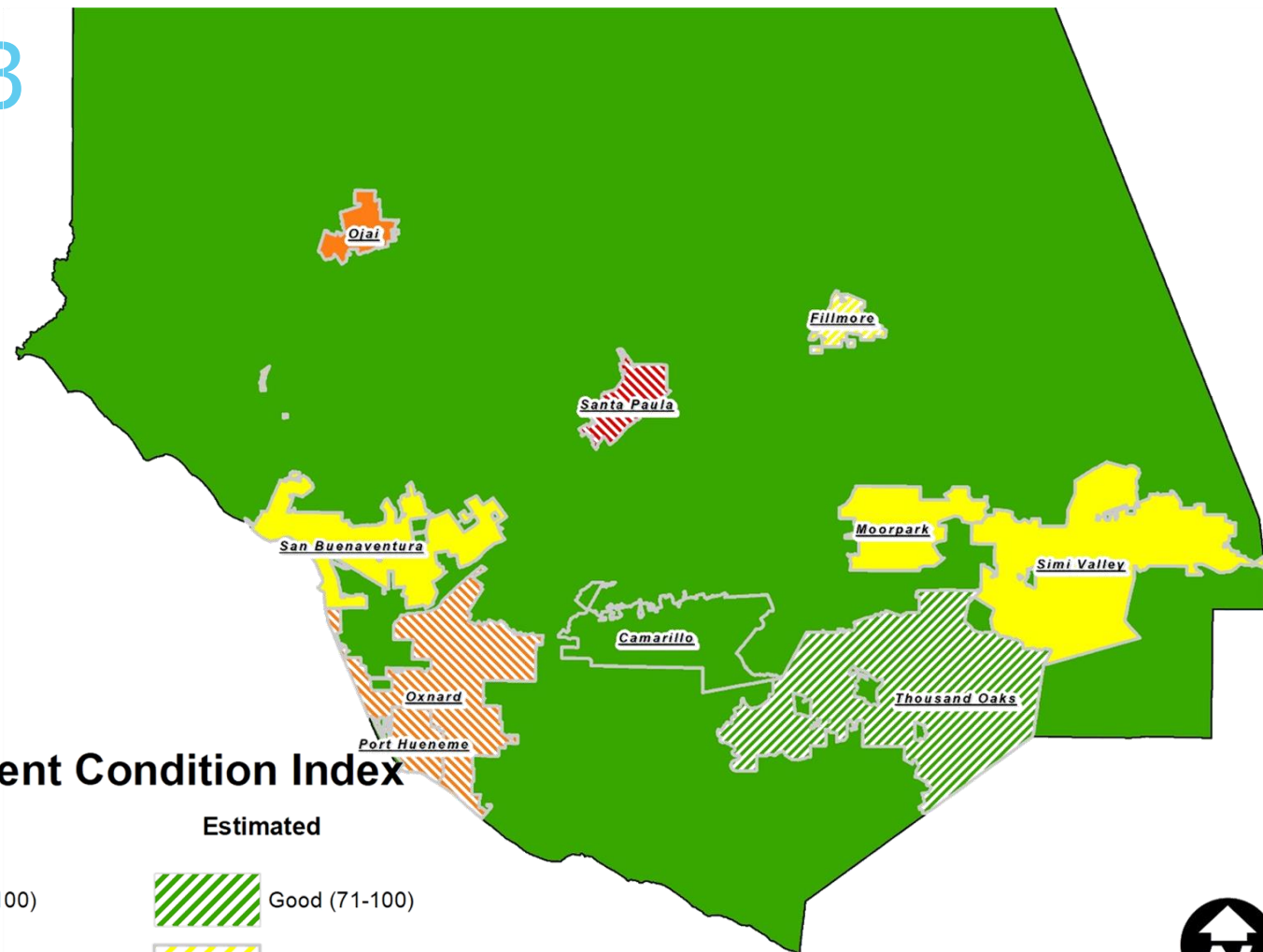
California Statewide Local Streets and Roads Needs Assessment
Final Report
April 2023

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CSAC **SECTOR OF CALIFORNIA CITIES** **RTPA RCTF**
Rural Counties Task Force
Regional Transportation Planning Agencies

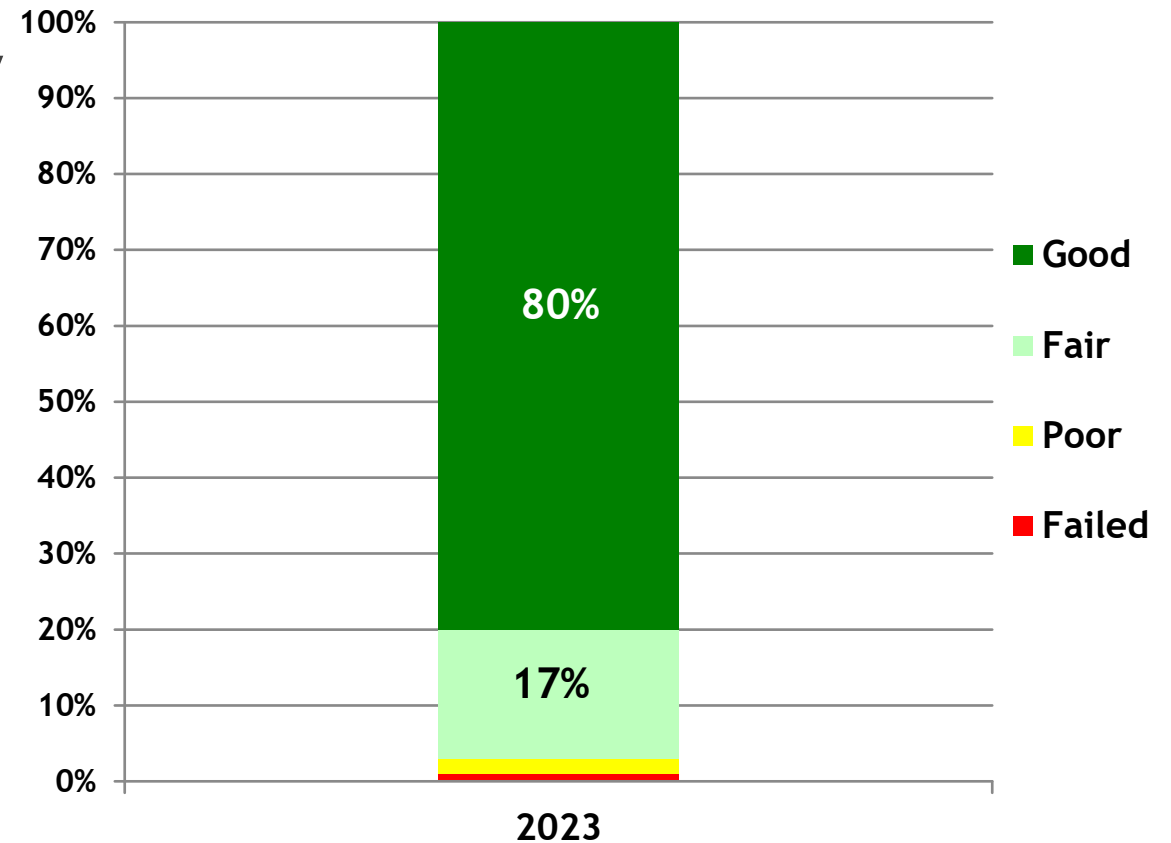
Pavement Condition Index

Reported	Estimated
 Good (71-100)	 Good (71-100)
 At Lower Risk (61-70)	 At Lower Risk (61-70)
 At Higher Risk (50-60)	 At Higher Risk (50-60)
 Poor (0-49)	 Poor (0-49)

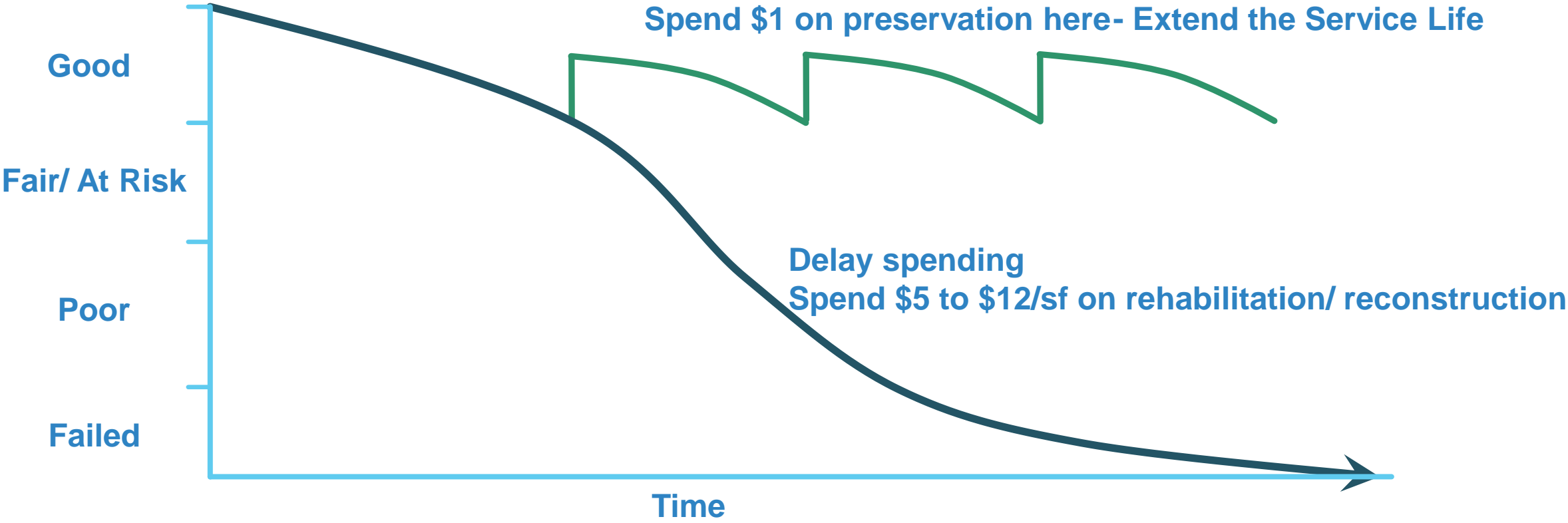


Pavement Condition for the Unincorporated County 2023

- Current Pavement Condition by Category
- 2023 PCI 77
 - 80% in Good Condition
 - 17% in Fair Condition
 - 2% in Poor Condition
 - 1% in Failed Condition



Pavement Preservation – Stretching our Dollars



What do Cities do?

- Slurry Seal Type 2 - All Cities
- Slurry Seal Type 3 - City of Ventura
- Microsurfacing - Cities of Oxnard & Thousand Oaks
- Cape Seal – Cities of Camarillo & Oxnard
- Overlay – All Cities

Quality Assurance / Quality Control

➤ Design

- Conformance with Greenbook* and Caltrans Standards

*Standard Specifications for Public Works Construction

➤ Material Testing

- Use Caltrans and AASHTO accredited laboratories
- Asphalt Mix design conformance, emulsion & aggregate testing
- Field samples for many tests

➤ On-Site Inspection

- Monitor quality of work
- Comply with contract requirements
 - Temperatures of material & surface is within specification
 - Monitor pavement thickness
 - Proper compaction

PWA Involvement in Learning Best Practices

Stay ahead of latest and best practices, Science, Tools

- City and County Pavement Improvement Center (CCPIC)
 - Established for collaboration between CA Universities, California State Association of Counties (CSAC) and the League of California Cities
- Member of a roundtable of seven Southern California counties
 - Meet annually to discuss lessons learned: paving, materials, and methods.
 - Share best practices - successes and failures.
- PWA hosted a forum with the 10 cities and paving contractors to discuss best practices and suggestions for improvement.

Continuous Improvements

- Increase Public Outreach/Notifications
 - Include details of the Types of Treatment and what to expect in Property Owner Notifications
 - Include process to resolve issues if the Contractor does not correct them
- Enhance Quality Assurance during Construction
 - Evaluate On-Site Inspections & Quality Control requirements
 - Evaluate providing independent evaluation of work during & after
 - Consider Deputizing County employees to provide feedback

Recommended Board Actions

- Receive & File a Presentation on The Public Works Agency Pavement Management Program and Process for Selection of Surface Treatments

Questions?

What do Cities do?

AGENCY	Slurry Seal & Microsurfacing	Cape Seal 2-Layer Seal	2-Layer Paving	AC Overlay	Special Treatments
County of Ventura	Slurry Seal - Type 2 & 3 Microsurfacing- Type 2	Asphalt Rubber Aggregate Membrane (ARAM) + Slurry Type 2 and 3	ARAM + AC overlay	Conventional Asphalt & Asphalt Rubberized Hot Mix (ARHM)	Use Fiber in Overlay
City of Camarillo	Slurry -Type 2	ARAM + Slurry Type 2	NO	Conventional Asphalt on residential roads & ARHM on arterials	No fiber but interested
City of Oxnard	Slurry-Type 2 Microsurfacing -Type 2	ARAM + Slurry on residential. ARAM + Microsurfacing on arterials	NO	Mostly ARHM. Conventional Asphalt for small jobs	No fiber but interested
City of Thousand Oaks	Microsurfacing on arterials Slurry –Type 2 REAS (Rubberized Emulsion Aggregate Slurry)	NO	NO	Mostly ARHM. Conventional Asphalt for small jobs	No fiber used
City of Simi Valley	Slurry-Type 2 and 3	NO - Not opposed to using it	NO	Mostly ARHM. Conventional Asphalt for small jobs	No fiber but interested
City of Ventura	Slurry-Type 2 and 3	NO - Not opposed to using it	NO	Conventional Asphalt only	No fiber
City of Ojai	Slurry-Type 2	NO - Not opposed to using it	NO	Conventional Asphalt only	No fiber but interested
City of Santa Paula	Slurry-Type 2	NO - Not opposed to using it	NO	Conventional Asphalt only	No fiber but interested