City of Davis
Pavement Management Update

City Council Meeting

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Agenda

- Pavement Management Program Background
- Recent Pavement Condition Survey Results
- Pavement Management Plan Scenarios
- Staff recommendations

What is a Pavement Management Program?

- City's overall program that plans maintenance and repair of pavement surfaces of streets and pathways

- Answers 4 main questions
  1. What streets and paths does the City own/maintain?
  2. What condition are they in?
  3. What repairs are needed & when?
  4. How much funding we have and how much is needed to maintain or improve the street network?

Pavement Management Program Components

- Street and Pathway Survey
  - Arterials and collectors: Every 2-3 years
  - Local streets and bike paths: Every 4-6 years
- Software (StreetSaver)- A cost-effective decision-making tool
  - Input streets and bike paths segments
  - Input pavement condition from survey
  - Input pavement treatments
  - Input financial assumptions (funding available, treatment costs, inflation)
  - Run scenarios based on financial goals and pavement condition goals
  - Output potential projects and draft scope

- Staff criteria –engineering judgement, coordination, other data
- Design and construction of pavement projects

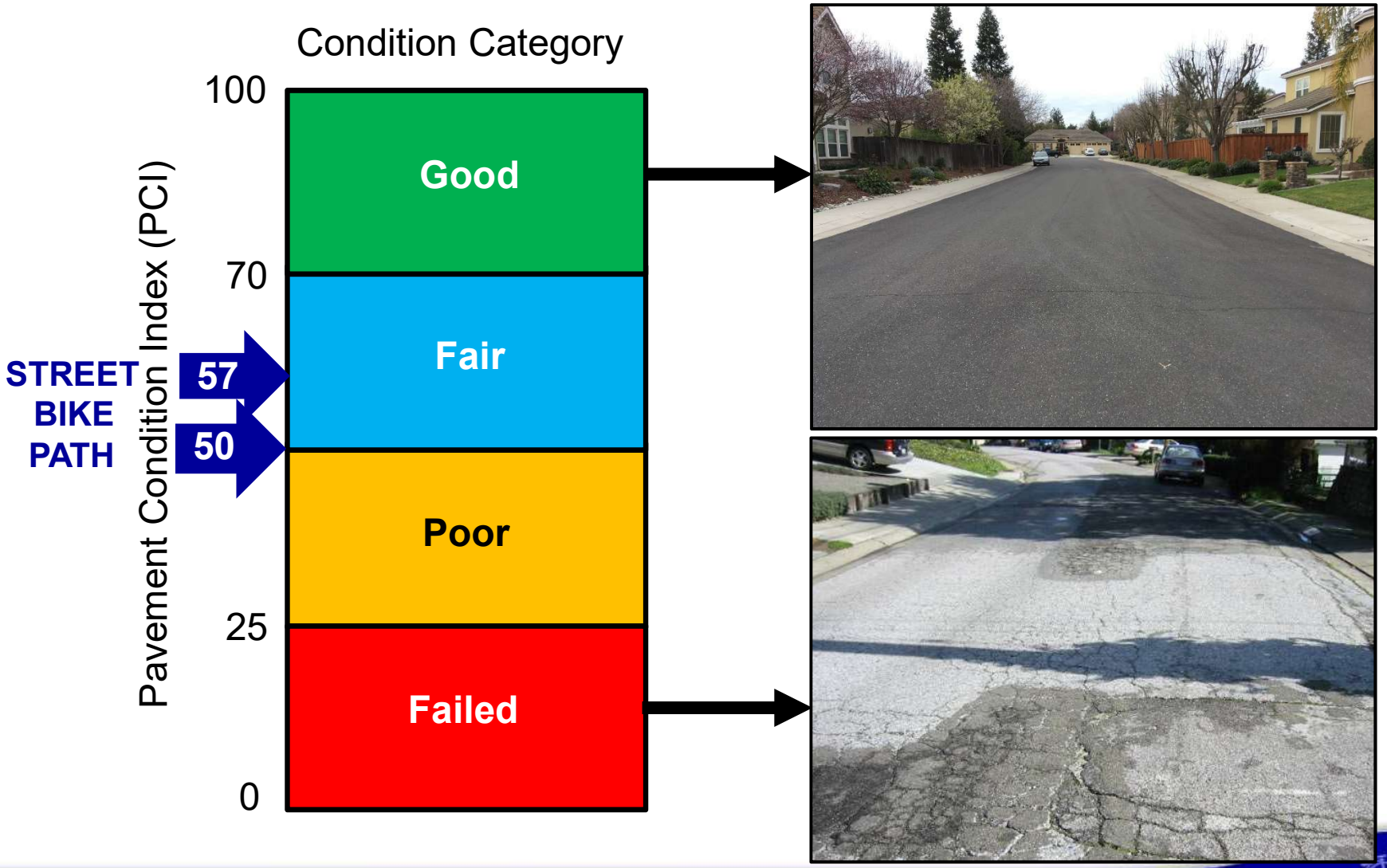
Streets & Bike Paths Maintained

Functional Class	No. of Sections	Centerline Miles	Lane Miles	% of the Street Network (by Pavement Area)
Arterials	150	33.1	81.8	25.2
Collectors	152	34.3	73.1	23.6
Residentials	757	97.3	195.0	50.9
Other – Alleys	15	1.1	1.6	0.3
Total	**1,074**	**165.8**	**351.5**	**100.0**
Paver	2	0.1	0.2	-
Gravel	6	0.6	0.7	-

Bike Path	No. of Sections	Centerline Miles	% of the Bike Path Network (by Pavement Area)
Asphalt Sections AC, AC/AC	190	36.3	71
PCC Sections	106	14.8	28
Composite Sections	2	0.6	1
Total	**298**	**51.7**	**100.0**
Gravel	1	0.35	-

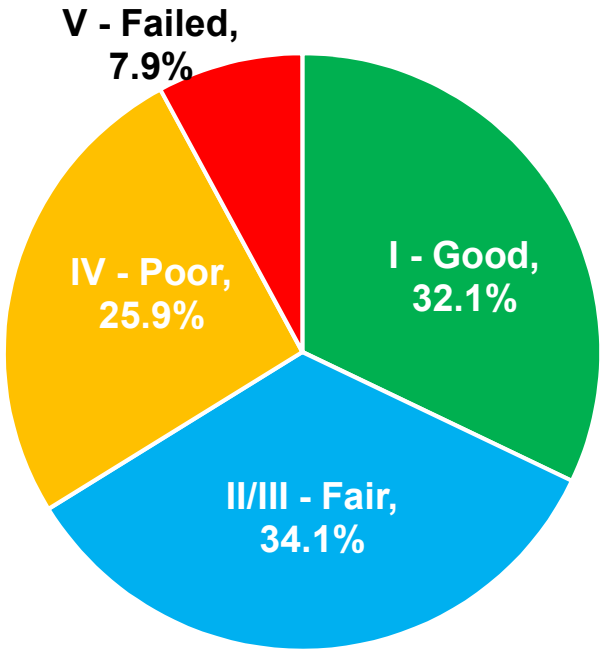
Asset value = $421.5 million

How is Pavement Condition Measured?



Current Pavement Conditions

Streets PCI = 57



Current PCIs:

Arterials PCI = 69

Collectors PCI = 58

Residentials PCI* = 51

Bike Paths PCI = 50

Target PCIs:

Arterials – 68

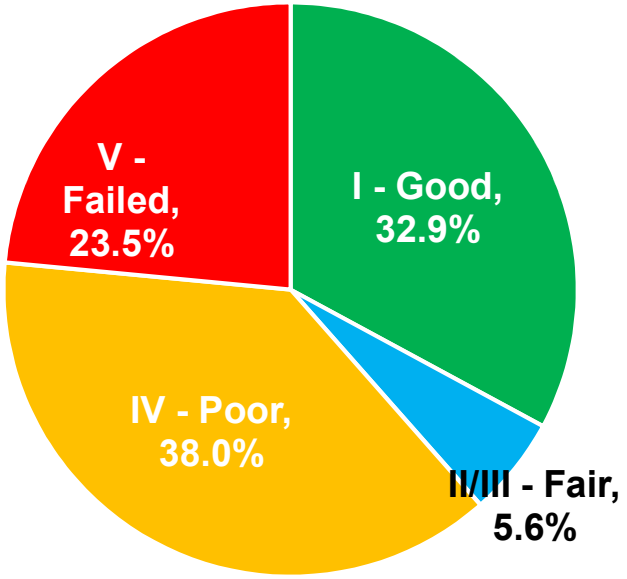
Collectors – 65

Residentials – 60

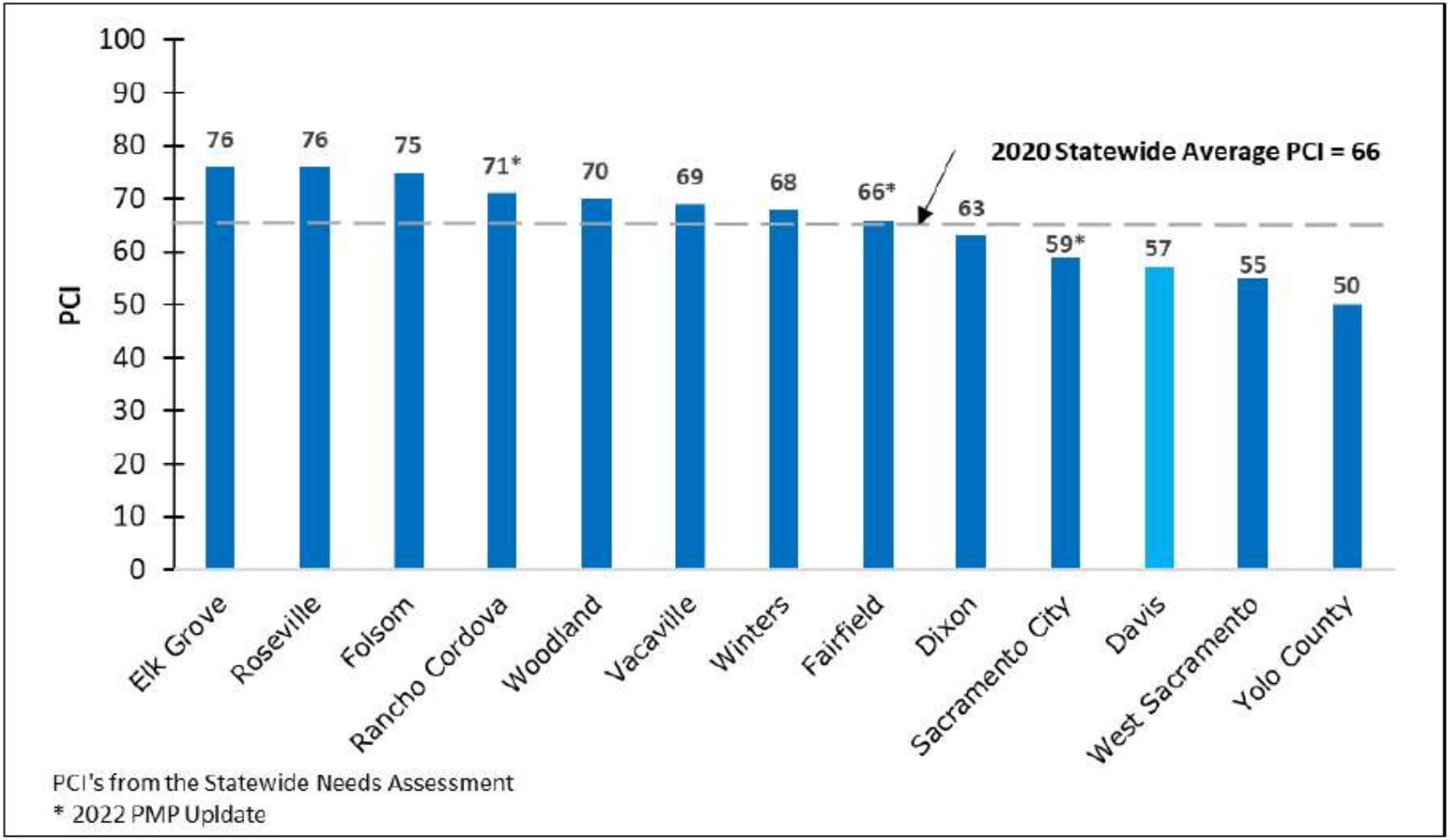
Bike Paths - 68

Bike Paths PCI = 50*

*Projected



Comparing Davis With Neighbors



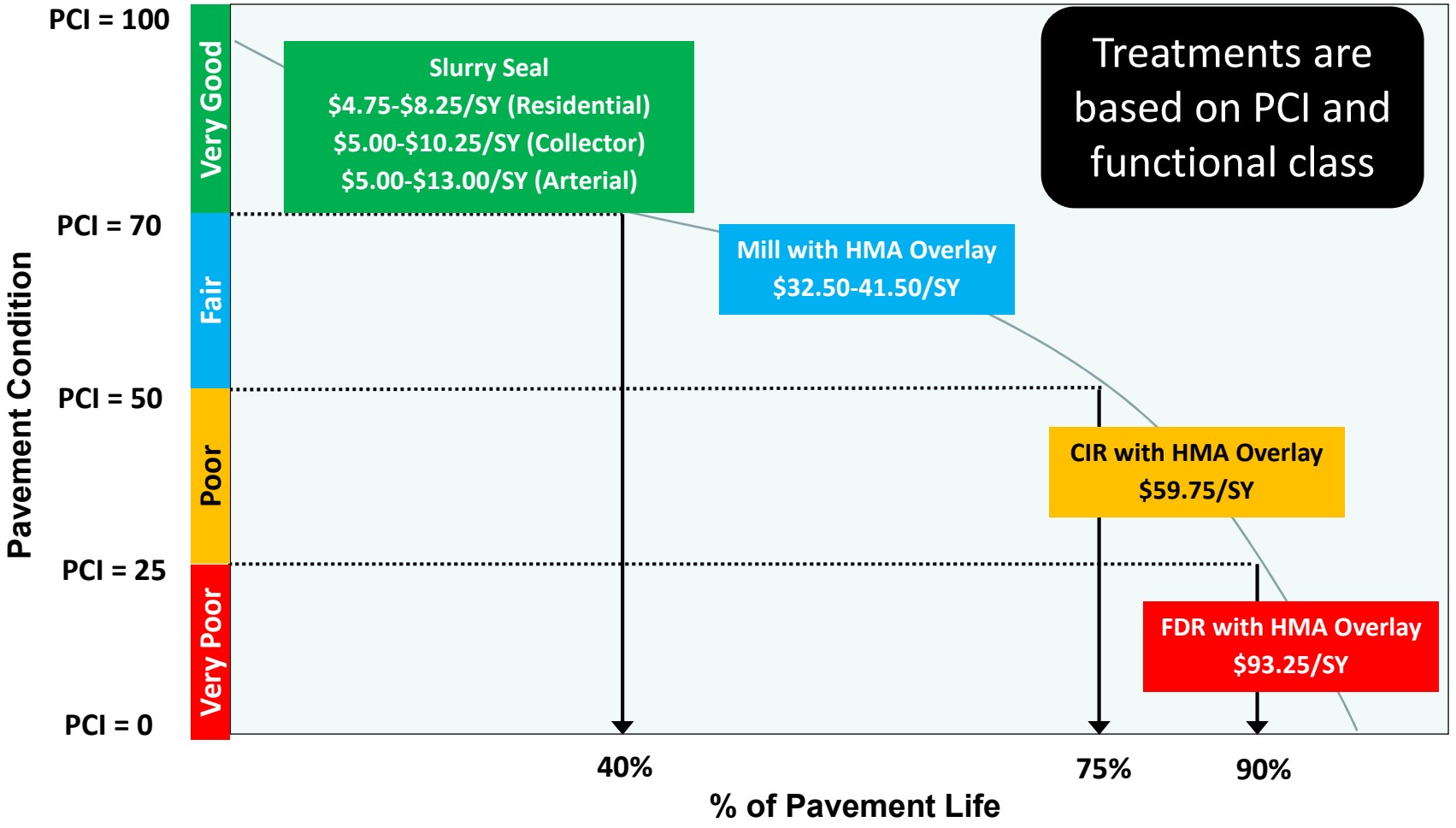
PCI's from the Statewide Needs Assessment
* 2022 PMP Upldate

2020 Report - Projected PCI

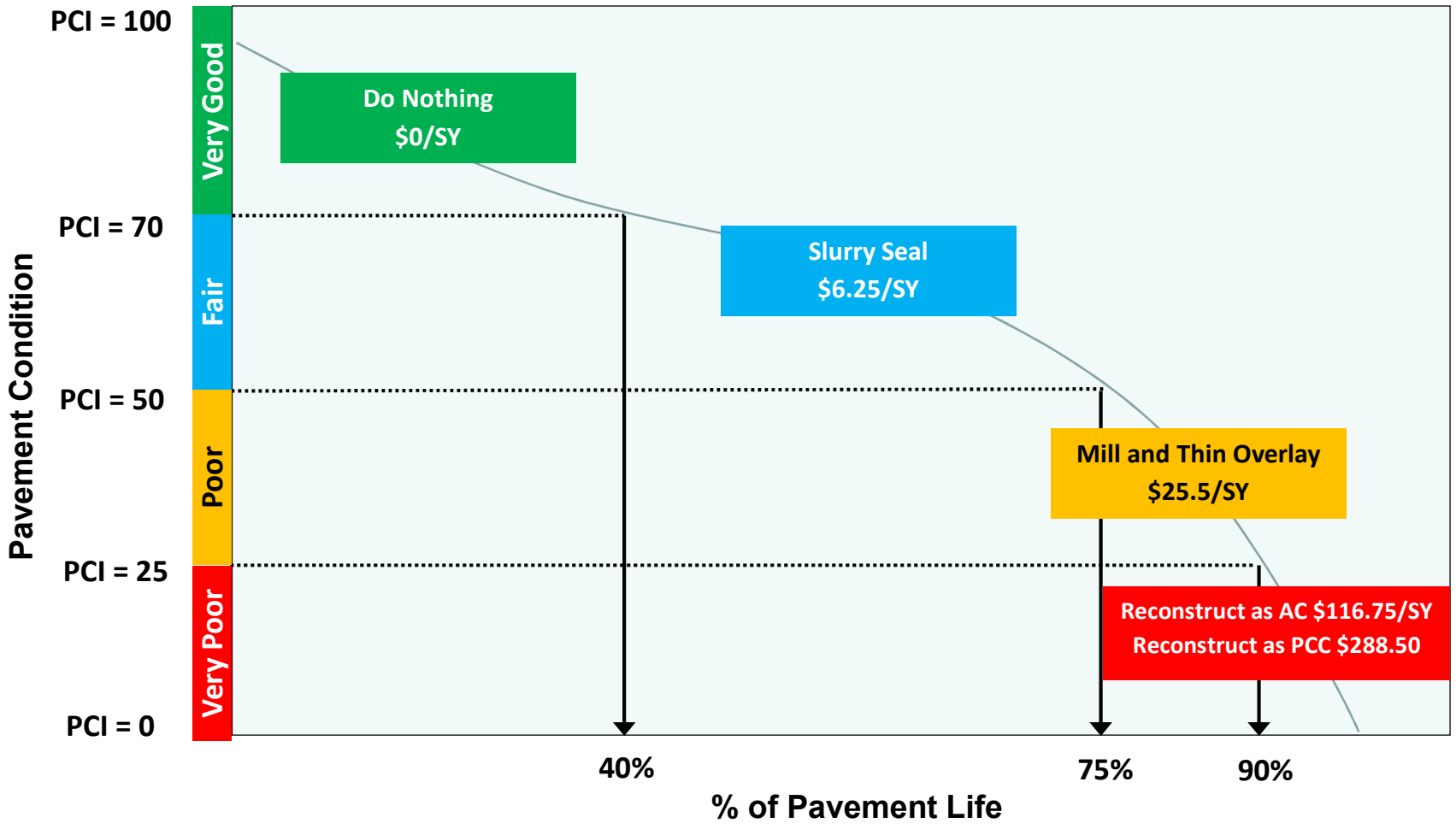
Current vs Predicted PCI Discussion

- Increases in construction costs between from 2019 to 2022
- Decision matrix changes in PMP model increased maintenance costs
  - Arterial Category I and II changed from “Do Nothing” to “Surface Seal”
  - Residential Category IV changed from “Rubber Cape Seal” to “Mill and Overlay”
- Inflation increase in PMP model
  - 2% in 2019 to 3.2% in 2022
- Anticipated revenue uncertain (gas taxes)

Typical Decision Tree – Identifies Repairs Needed



Decision Tree for Bike Paths



Additional Selection Criteria

- Data including safety and maintenance considerations and citizen reported problems
- Engineering judgment
- Coordination with stakeholders
- Creation of a formula using the additional information

Priority Criteria	Elements	Impact Factor
Safety	Bike lane, School, Hospitals, Police Station, Fire Station	30%
High Use Areas	Bus Stop, Major Streets, Bus Routes	35%
Maintenance	Public Complaints, Work Orders	35%

Street Criteria

- Coordination with infrastructure and development projects
- Safety considerations: Presence of bike lanes; major/safe pathways to schools; proximity to fire stations, police stations, hospitals
- Maintenance history: work order history, service requests
- High Use/Level of Service: presence of public transportation routes or bus stations and traffic count data
- Grouping of projects for efficiency purposes

Bike Path Criteria

- Coordination with infrastructure and development projects
- Pavement Condition Index Classification
- Safety considerations: Major/safe pathways to schools
- Maintenance history: work order history, service requests
- Grouping of projects for efficiency purposes

Funding Scenarios

1. Existing Annual Funding
   (assuming average funding stays the same for FY 2029/30 and 2030/31)

   (Streets:$7.4M; Bike Path: $1.6M)
2. Improve to Target PCIs
   - Arterials – 68
   - Collectors – 65
   - Residentials – 60
   - Bike Paths - 68
3. Maintain Current PCI (Streets: 57; Bike Path: 50)
4. Fix Everything (Unconstrained Budget)

Summary of 4 scenarios

Network	Scenario	10-year Budget ($M)	2031 PCI	2031 Deferred Maintenance ($M)
Streets	Scenario 1: Existing Budget	$74.4	56	$124.4
	Scenario 2: Improve to Target PCIs	$103.5	63	$85.1
	Scenario 3: Maintain PCI at 57	$70.9	57	$123.8
	Scenario 4: Unconstrained Funding	$128.4	81	$0.0
Bike Paths	Scenario 1: Existing Budget	$16.0	59	$15.2
	Scenario 2: Improve PCI to 68	$20.6	68	$10.4
	Scenario 3: Maintain PCI at 50	$10.71	50	$23.1
	Scenario 4: Unconstrained Funding	$23.7	82	$0.0

10-Year Funding Shortfall

Budget Scenario	Street 10-Year Budget	Bike Path 10-Year Budget	Total 10-Year Budget	Funding Shortfall
S1: Maintain Budget	$74.4M	$16.0M	$90.4M	$0
S2: Improve to Target PCI	$103.5M	$20.6M	$124.1M	$33.7M
S3: Maintain PCI	$70.9M	$10.7M	$81.6M	($8.8M)
S4: Fix Everything	$128.4M	$23.7M	$152.1M	$61.7M

Conclusions

- City has a substantial investment in the street and bike path network ($421.5 Million)
- Overall the network is in “Fair” condition
  - Street PCI = 57
  - Bike Path PCI = 50
- Existing budget ($9M/year) is insufficient to reach target PCI
  - Street PCI will deteriorate to 56
  - Bike path PCI will improve to 59
  - Deferred Maintenance will increase to $139.6 Million
  - By 2029, 25.5% of streets, 26.1% of bike paths will be in “Failed” condition
- Consider reconstituting the pavement management subcommittee to work with staff and the Finance and Budget Commission to develop further pavement funding options.

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Extra slides