City of Davis
Pavement Management Update

City Council Meeting

April 15, 2025

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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?

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Pavement Management Program Components

- **Street and Pathway Survey**
  - **Arterials and collectors: Every 3 years**
  - **Local streets and bike paths: Every 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	Number of Sections	Centerline Miles	Lane Miles	Network Area (%)
Arterial	150	33.1	81.8	25.2%
Collector	153	34.3	73.1	23.5%
Residential	758	97.3	195.0	51.0%
Others – Alleys	15	1.3	1.9	0.3%
Total	**1,076**	**166.0**	**351.8**	**100.0%**
Gravel	5	0.5	0.5	-
Paver	2	0.1	0.2	-

Bike Path	Number of Sections	Centerline Miles	Network Area (%)
Asphalt Sections (AC, AC/AC)	214	32.6	64.9
PCC Sections	146	18.2	34.5
Composite Sections (AC/PCC)	3	0.5	0.6%
Total	**363**	**51.3**	**100.0%**
Gravel	1	0.5	-

Asset value = $460.8 million

This cost is needed to replace the entire network with new structure

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How is Pavement Condition Measured?

Condition Category

Pavement Condition Index (PCI)

- 100 — Good (green)
- 70 — Fair (blue) ← **62** STREET BIKE PATH
- 50 — Poor (yellow)
- 25
- Failed (red)
- 0

Seabright Ave

Antelope Ave

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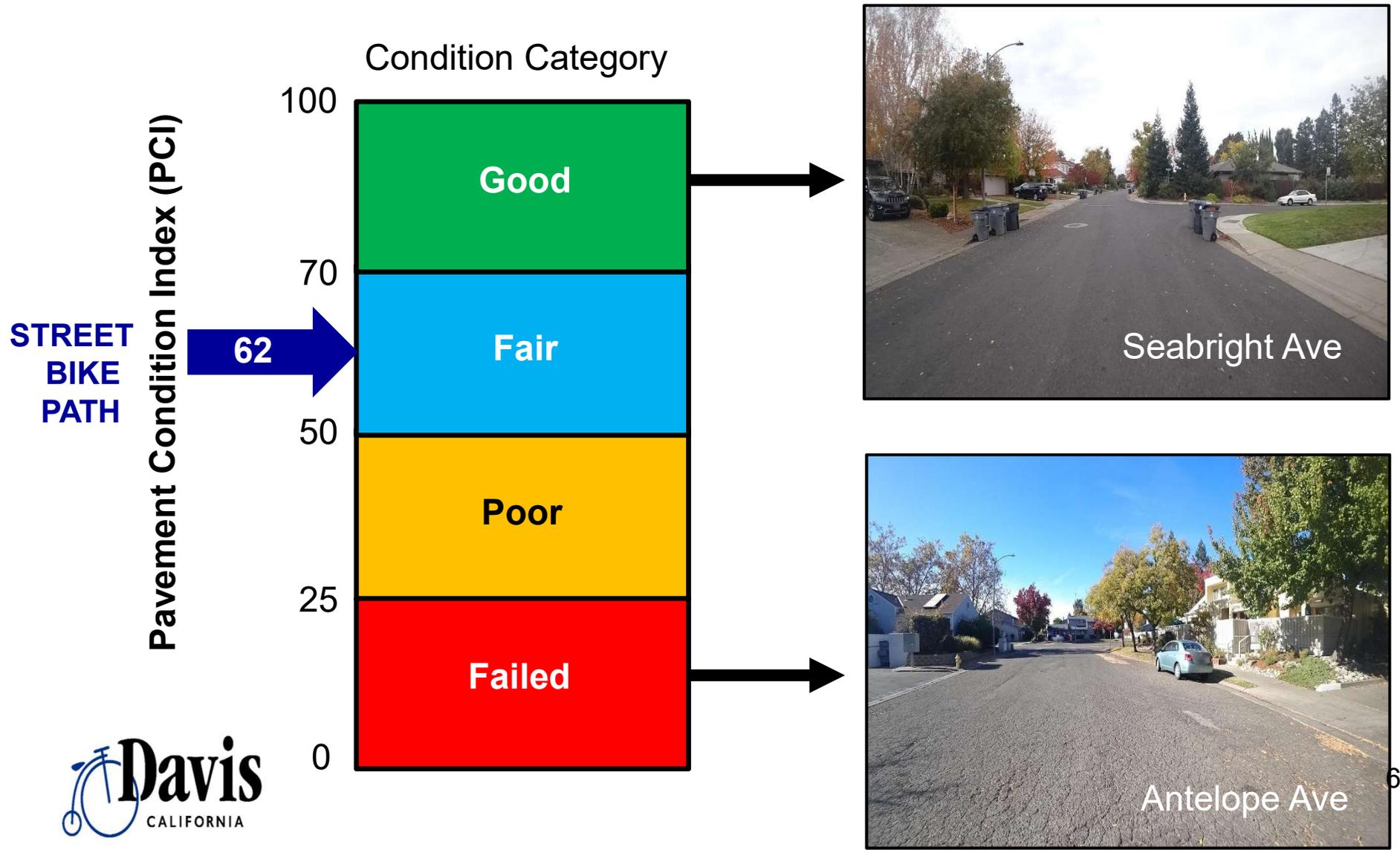
Current Pavement Conditions
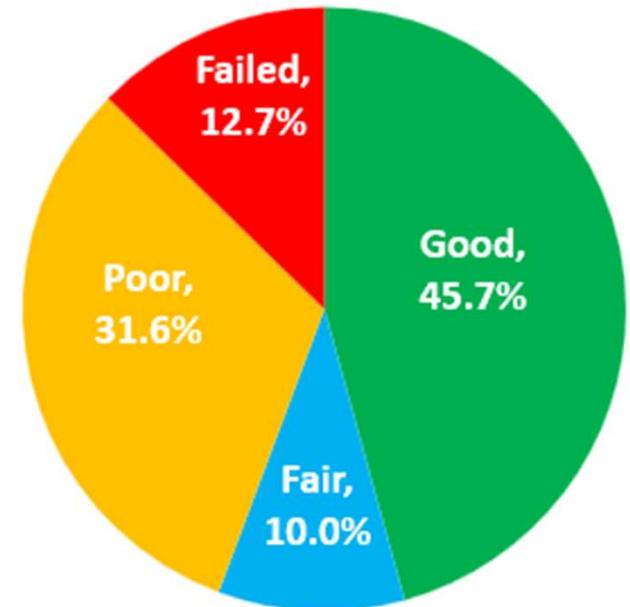
Street PCI = 62

Failed, 3.0%

Good, 38.6%

Poor, 24.9%

Fair, 33.5%
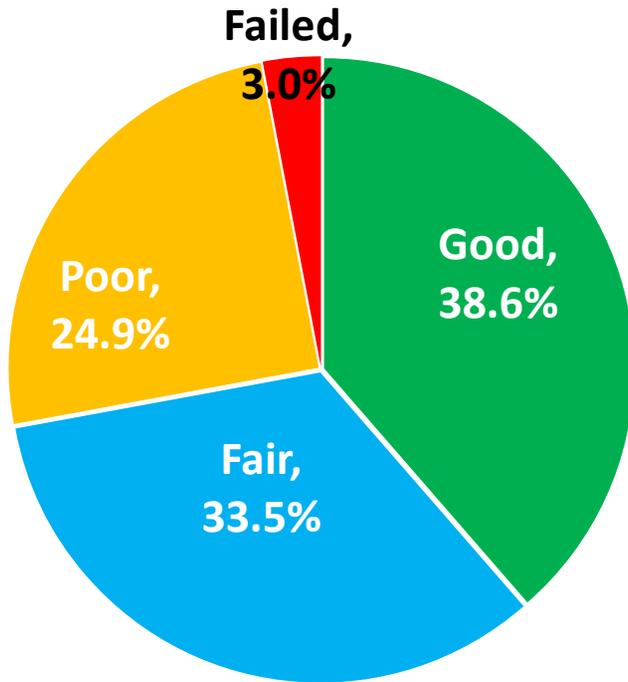
Current PCIs

Arterials = 71

Collectors = 60

Residentials = 59

Bike Paths = 62

Target PCIs

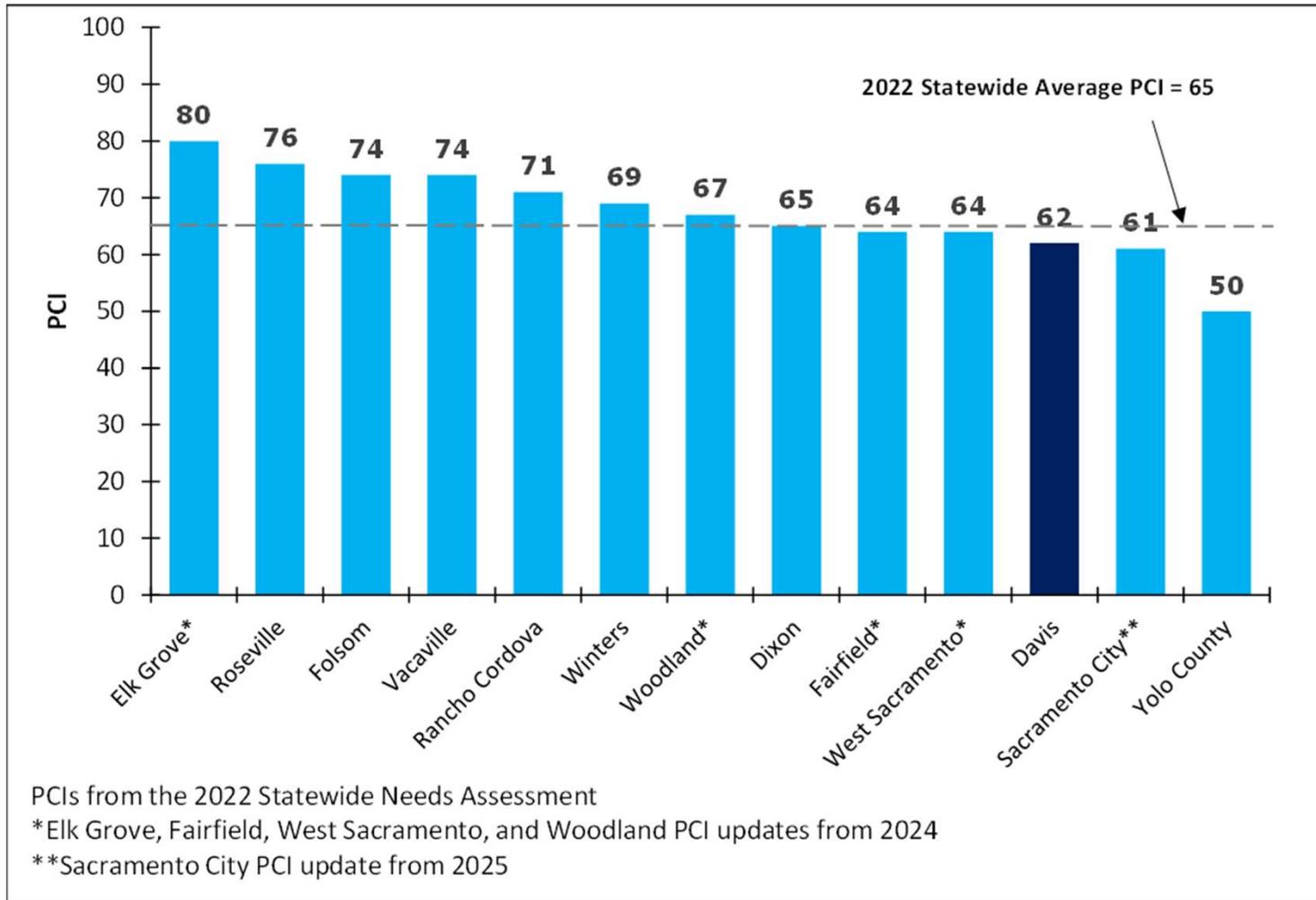Arterials – 68

Collectors – 65
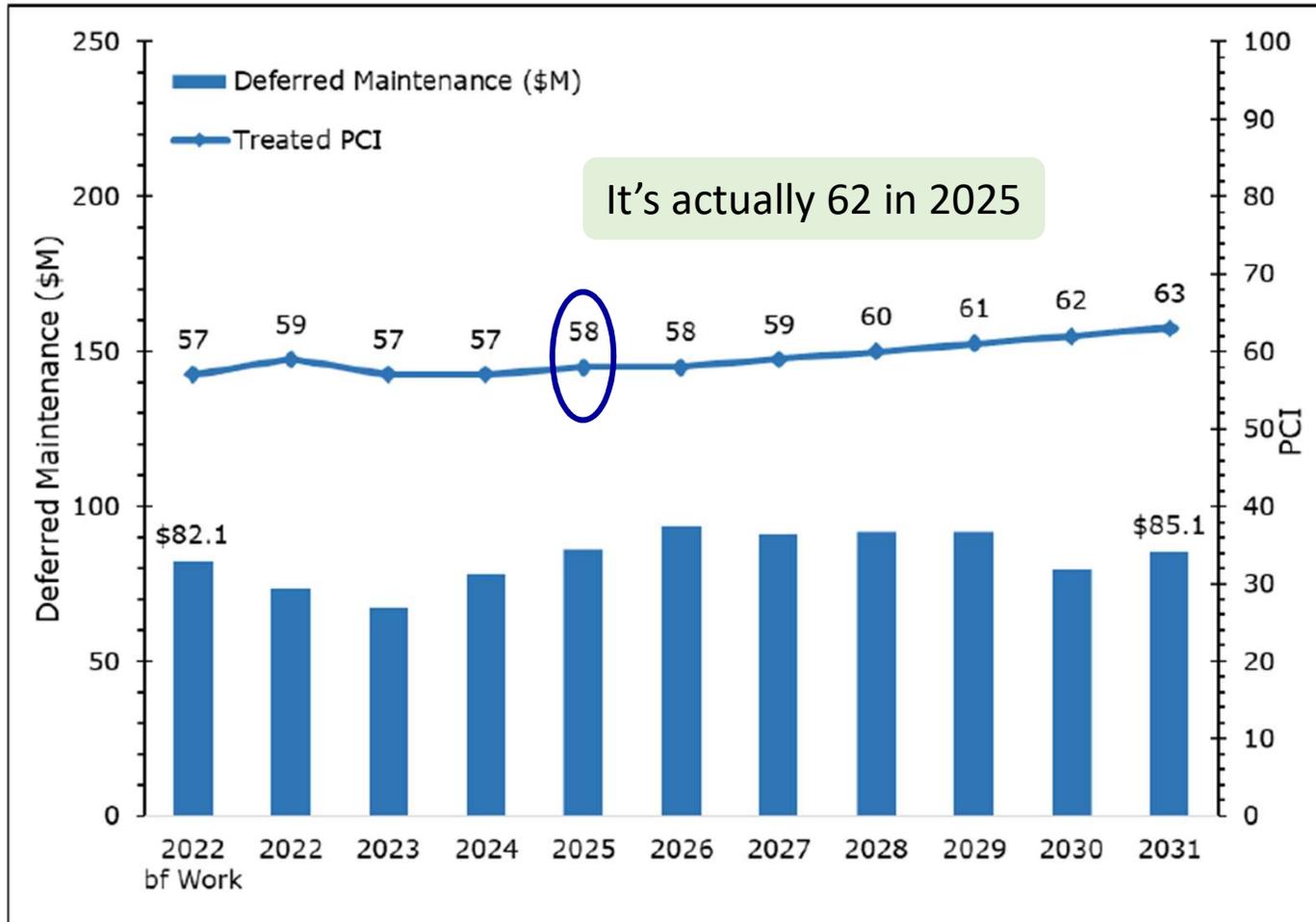
Residentials – 60

Bike Paths - 68

Bike Path PCI = 62

Failed, 12.7%

Good, 45.7%

Poor, 31.6%

Fair, 10.0%

- ■ Good (PCI 70-100)
- ■ Fair (PCI 50-69)
- ■ Poor (PCI 25-49)
- ■ Failed (PCI <25)

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Comparing Davis With Neighbors

Bar chart: PCI values by city/county

- Elk Grove*: 80
- Roseville: 76
- Folsom: 74
- Vacaville: 74
- Rancho Cordova: 71
- Winters: 69
- Woodland*: 67
- Dixon: 65
- Fairfield*: 64
- West Sacramento*: 64
- Davis: 62
- Sacramento City**: 61
- Yolo County: 50

Y-axis: PCI (0–100)

2022 Statewide Average PCI = 65

PCIs from the 2022 Statewide Needs Assessment
*Elk Grove, Fairfield, West Sacramento, and Woodland PCI updates from 2024
**Sacramento City PCI update from 2025

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2022 Report - Projected PCI (Streets)

It's actually 62 in 2025

**Recommended Scenario (2022 PMP Update)
Improve to Target PCIs**

2022 Report - Projected PCI (Bike Path)

- 2022 PCI was projected
- Last Inspection in 2019
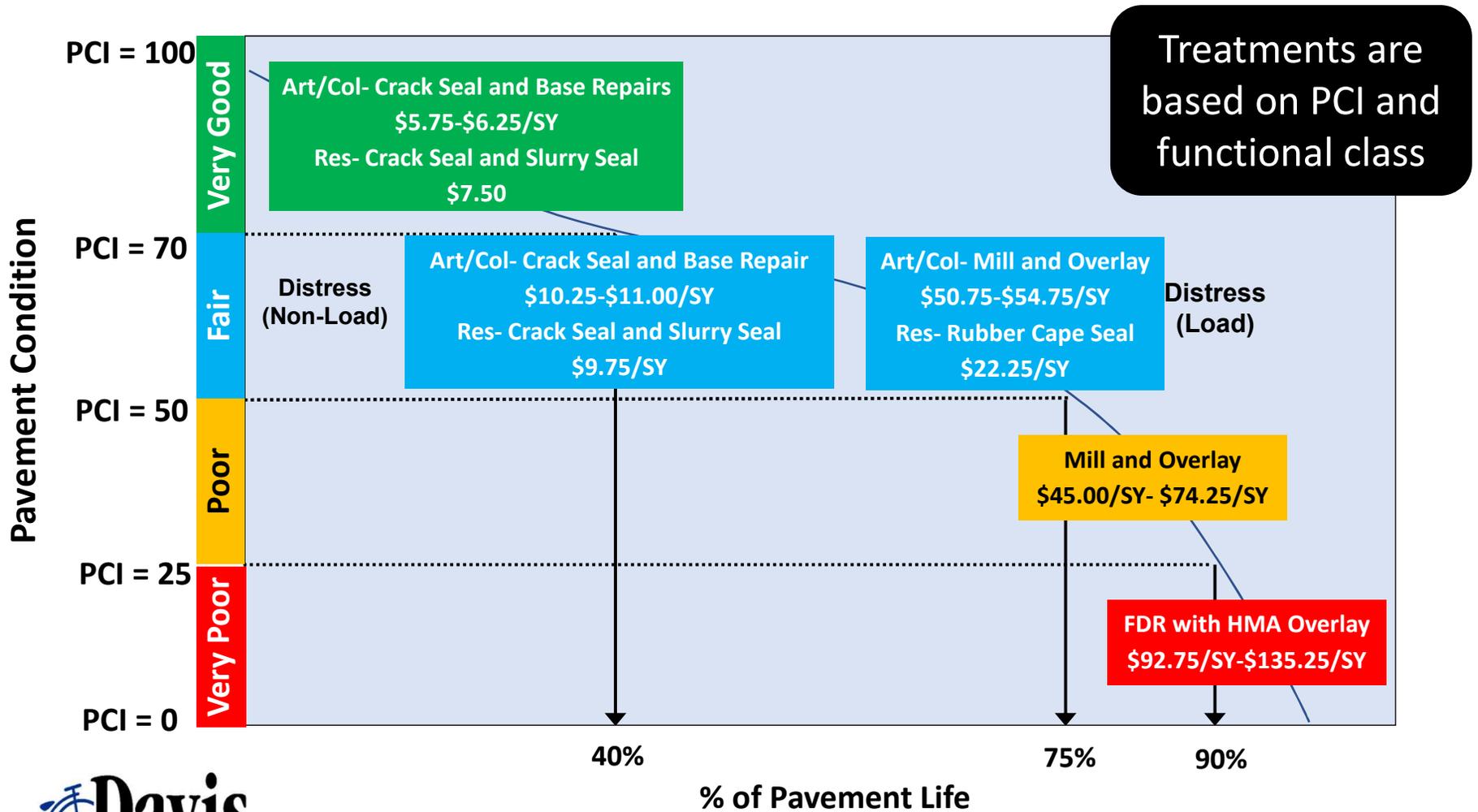- Treated approx. 8 miles since 2019

It's actually 62 in 2025
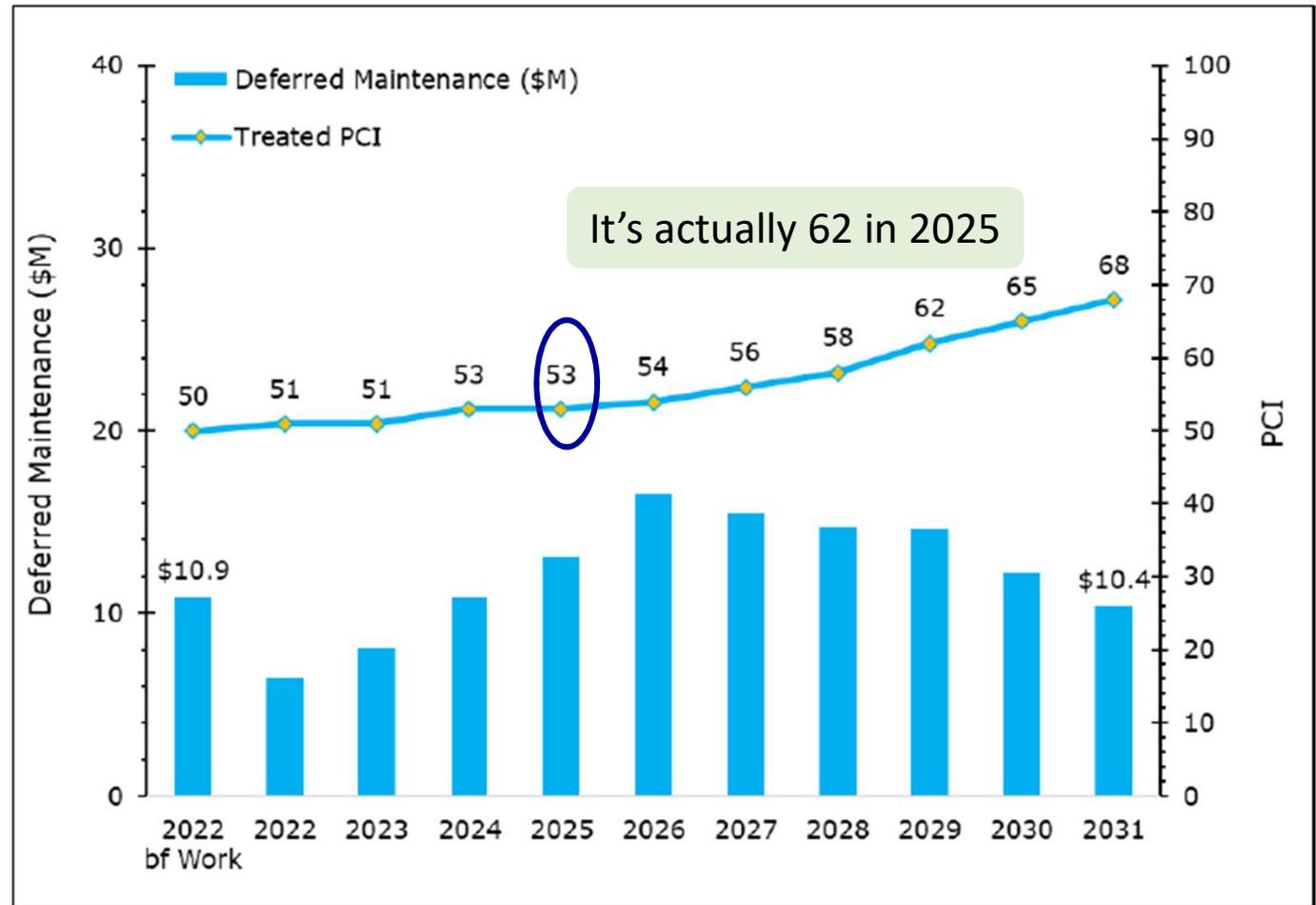
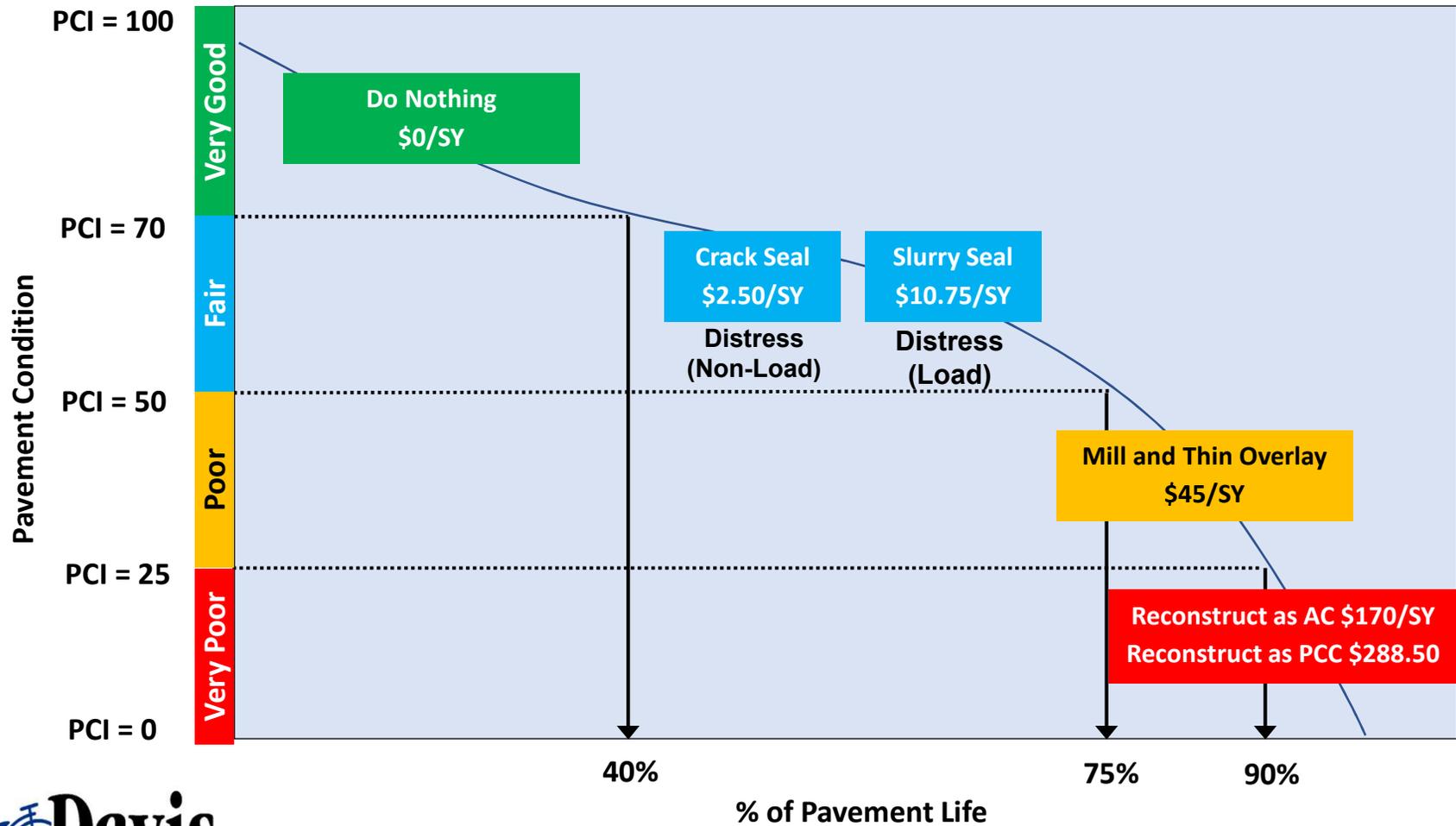**Recommended Scenario (2022 PMP Update) Improve PCI to 68**

Current vs Predicted PCI Discussion

- **Model Limitations**: The StreetSaver model has limitations in accurately predicting the performance of different types of surface seals

- **Crack Seals and Base Repairs**: The model does not fully account for the positive impact of crack seals and base repairs

- **Undocumented Improvements**: Some improvements, such as those from utility work or other unrecorded treatments, may not be included in the model but still contribute to a higher PCI.

- **Subjective Rating Differences**: Variations in how inspectors rate pavement conditions (e.g., subjective assessments of weathering or raveling) can result in higher PCI scores than the model predicts.

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Decision Tree for Streets – Identifies Repairs Needed

Treatments are based on PCI and functional class

Pavement Condition

- PCI = 100 — Very Good
- PCI = 70 — Fair
- PCI = 50 — Poor
- PCI = 25 — Very Poor
- PCI = 0

Distress (Non-Load) — **Distress (Load)**

Art/Col- Crack Seal and Base Repairs
$5.75-$6.25/SY
Res- Crack Seal and Slurry Seal
$7.50

Art/Col- Crack Seal and Base Repair
$10.25-$11.00/SY
Res- Crack Seal and Slurry Seal
$9.75/SY

Art/Col- Mill and Overlay
$50.75-$54.75/SY
Res- Rubber Cape Seal
$22.25/SY

Mill and Overlay
$45.00/SY- $74.25/SY

FDR with HMA Overlay
$92.75/SY-$135.25/SY

40%   75%   90%

% of Pavement Life

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Decision Tree for Bike Paths – Identifies Repairs Needed

Pavement Condition (y-axis)

PCI = 100
PCI = 70
PCI = 50
PCI = 25
PCI = 0

Very Good
Fair
Poor
Very Poor

Do Nothing $0/SY

Crack Seal $2.50/SY — Distress (Non-Load)

Slurry Seal $10.75/SY — Distress (Load)

Mill and Thin Overlay $45/SY

**Reconstruct as AC $170/SY
Reconstruct as PCC $288.50**

40%   75%   90%

% of Pavement Life

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Pavement Selection Criteria

- **Pavement Condition Index (Pavement Survey Results)**

- **Coordination with infrastructure, development projects and other stakeholders**

- **Safety considerations**

- **Maintenance history / citizen reported problems**

- **High Use/Level of Service**

- **Grouping of projects for efficiency purposes**

- **10% of the budget for failed residential streets**

- **Engineering judgment**

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%

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Budget Analysis

- **To develop a PMP, evaluate alternative budget scenarios to find optimal scenario (improve PCI and decrease cost)**

  - **10 year period (2034)**

  - **Mix of pavement maintenance and rehabilitation/reconstruction**

  - **Eliminate or reduce Deferred Maintenance – unmet needs**

    - **maintenance and rehabilitation tasks that are postponed or delayed**
    - **the estimated cost required to "catch up" and restore the pavement to its desired**

  - **Consider inflation - 3.2%**

Funding Scenarios

1.   **Existing Annual Funding- $8.4M**
   - **Street Funding- 85%**
   - **Bike Path funding- 15%**

2.   **Improve to Target PCIs -**
   - **Streets overall average – 63**
     - **Arterials – 68**
     - **Collectors – 65**
     - **Residentials – 60**
   - **Bike Paths – 68**

3. **Maintain Current PCI**

   Streets: 62; Bike Path: 62

4. **Fix Everything (Unconstrained Budget)**

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Planned Pavement Projects

- For scenarios 1-3, the predicted PCI assumes that the awarded grant funded pavement projects, such as the Cool pavement project, will be completed during the analysis period

- The model includes an assumption of 10% of the street budget being allocated to projects that have awarded grant funding

  - The 10% is a local match for the grant funding. Local matches are not optional. The City will not have capacity to use the grant funding without this local match.

  - The remaining 90% of the street funding is use for the selection of other streets.

Totals by Fund

| Funding Source	2023/2024 Budget	2024/2025 Budget	2025/2026 Proposed Budget	2026/2027 Proposed Budget
GENERAL CIP FUND (012)	$3,746,000	$2,948,000	$5,952,155	$5,840,000
SB 1 (113)	$1,670,000	$1,600,000	$1,711,845	$1,800,000
CONSTRUCTION TAX (200)	$400,000	$400,000	$100,000	$100,000
IMPACT FEES - ROADWAY (485)	$800,000	$800,000	$200,000	$200,000
TDA NON-TRANSIT USE FUND (115)	$1,530,000	$350,000	$500,000	$500,000
SOLID WASTE FUND (520)	$312,000	$312,000	$312,000	$312,000
Totals	$8,458,000	$6,410,000	$8,776,000	$8,752,000
Totals Recommended by Previous Subcommittee	$8,958,000	$8,410,000	$8,744,000*	$8,683,000*

*These numbers are plugged in for the current Scenario 1 for existing funding

Street Scenarios

S1: $65.1M/10 Yrs

$72.3M/10 Yrs*

S2: $89.1M/10 Yrs

$98.8M/10 Yrs*

S3: $80.7M/10 Yrs

$89.5M/10 Yrs*

S4: $157.1M/10 Yrs
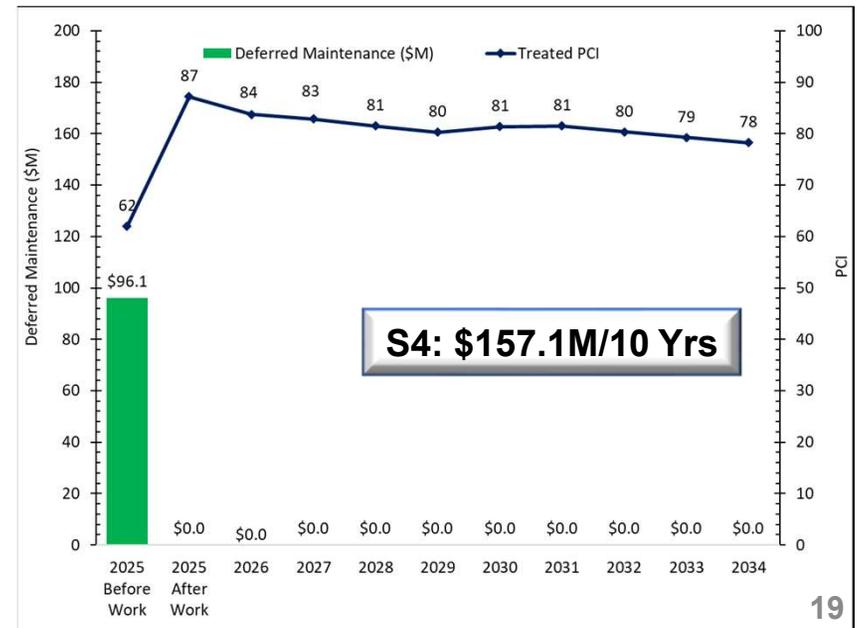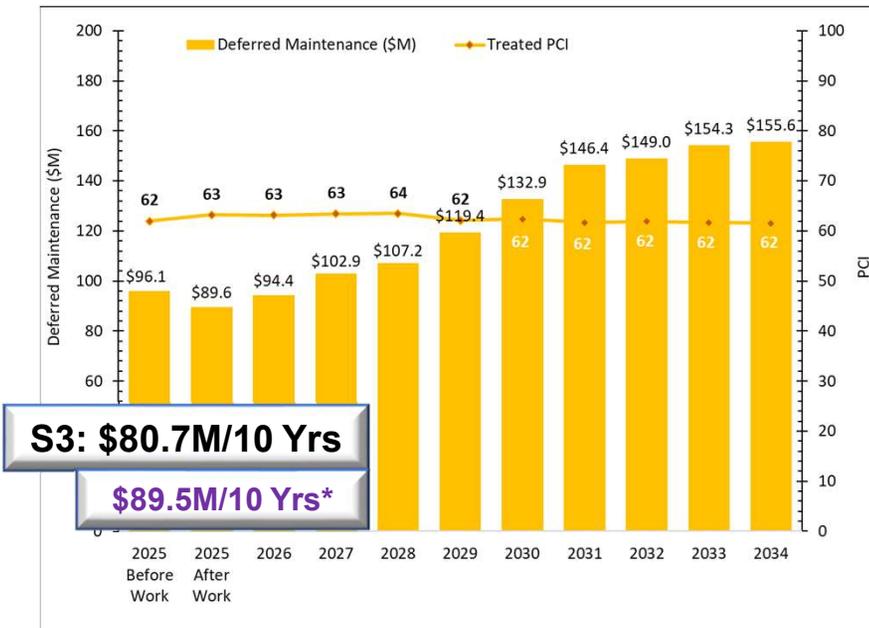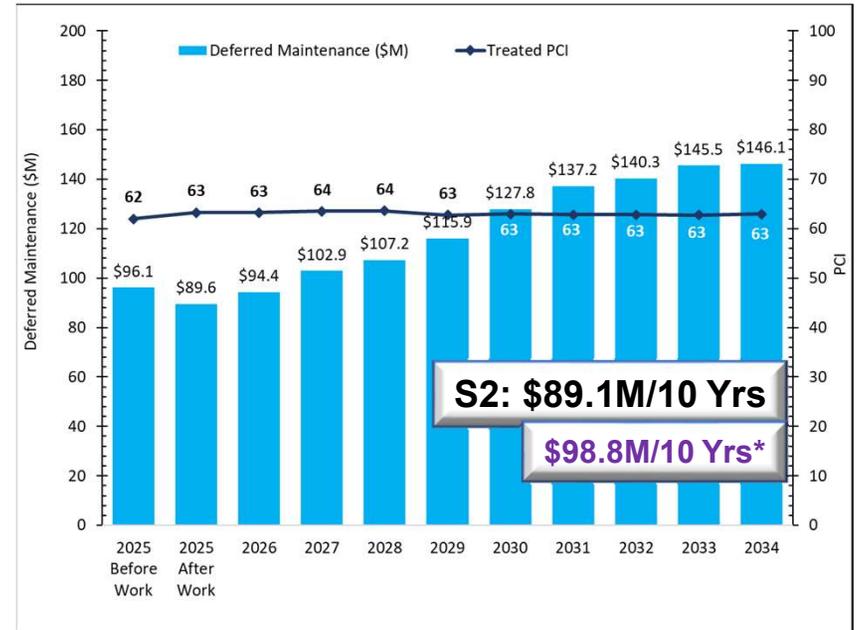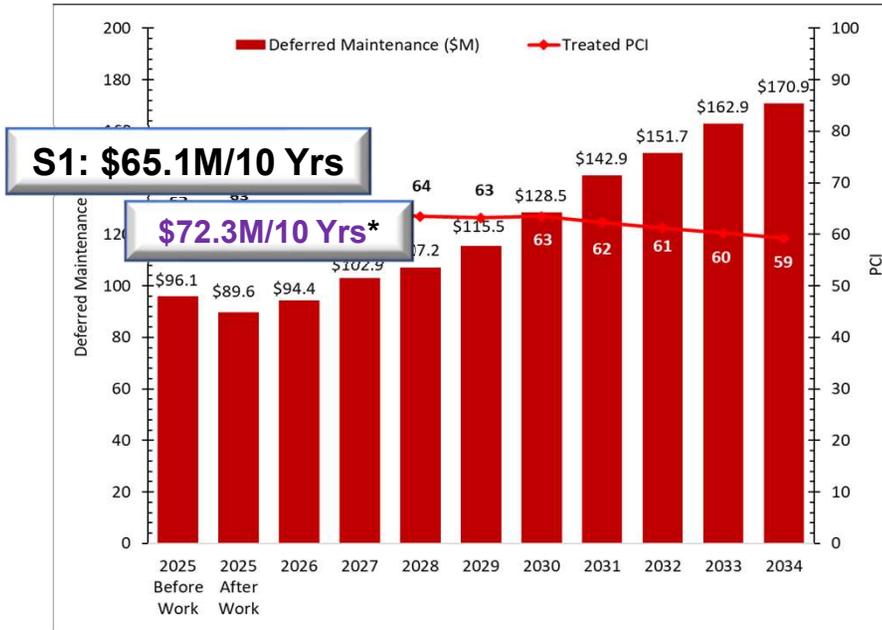
*Includes 10% additional budget to be set aside to use for the local funding match for grant funded projects

Bike Path Scenarios
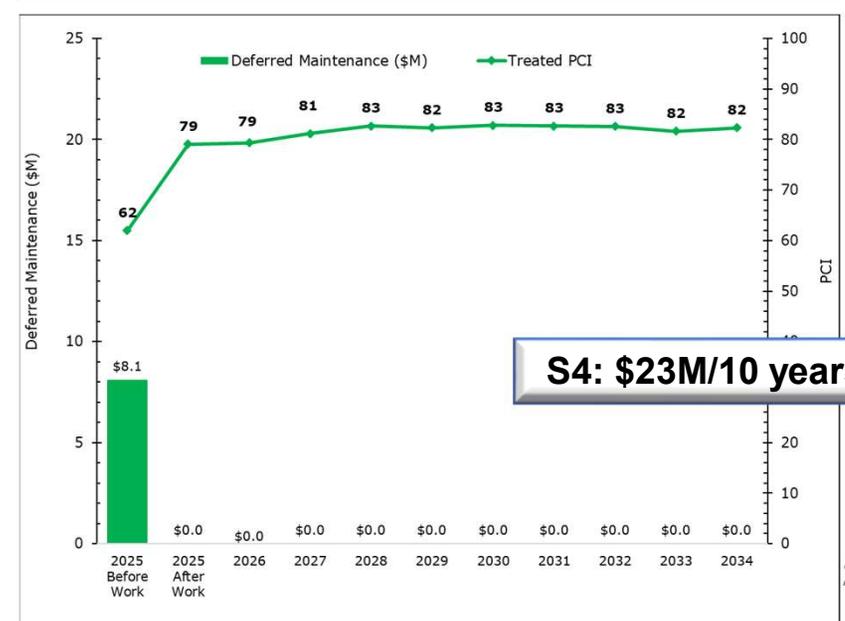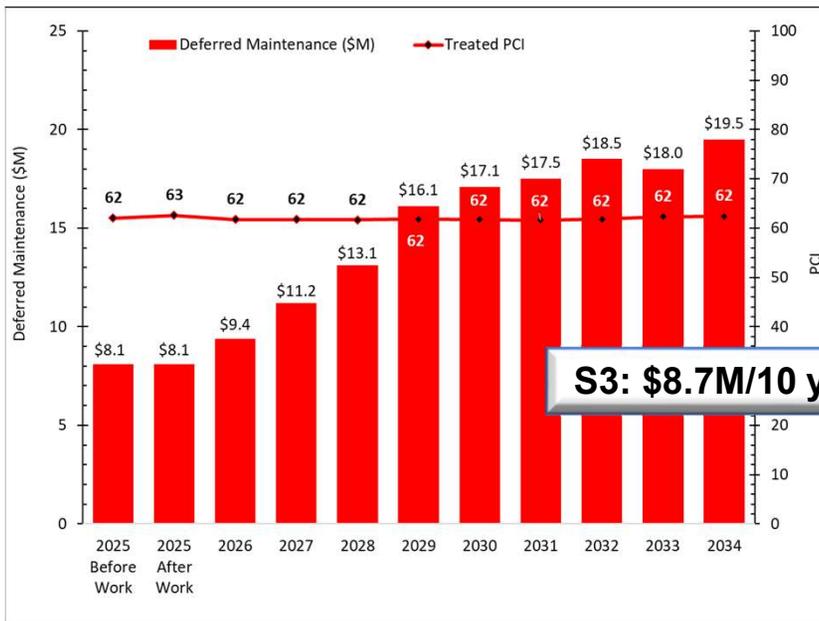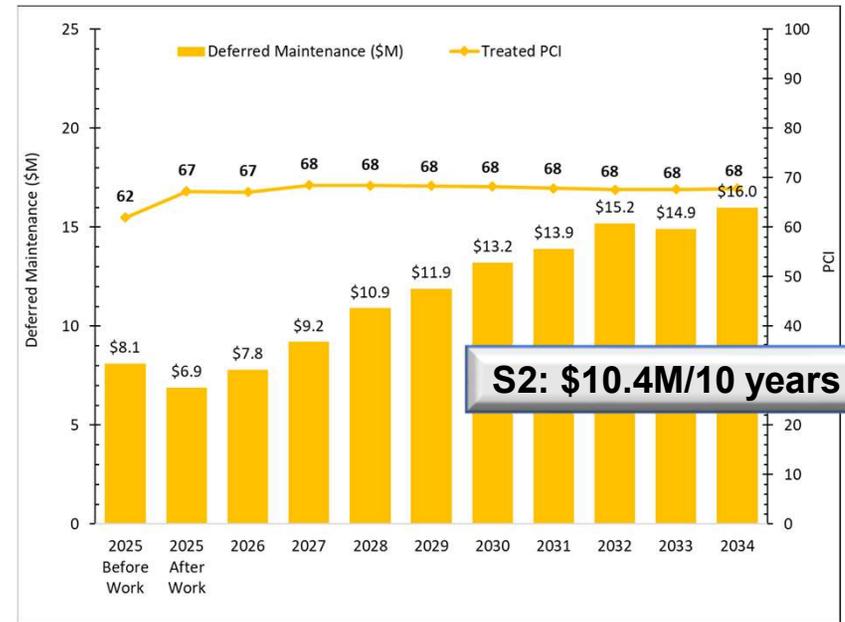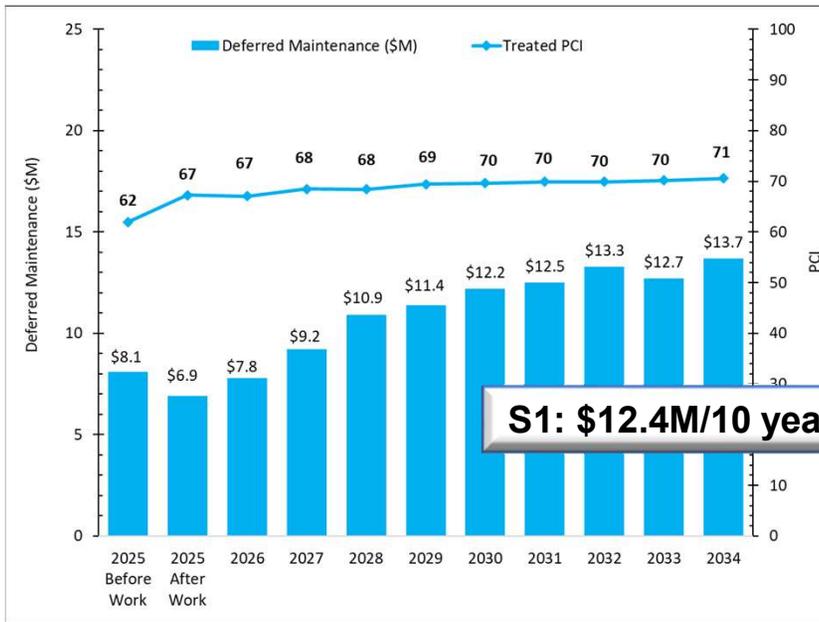
Summary of 4 scenarios

Network	Scenario	Description	10-Year Budget ($M)	2034 PCI	2034 Deferred Maintenance ($M)
Streets	1	Existing Budget	72.3*	59	170.9
	2	Improve to Target PCIs	98.8*	63	146.1
	3	Maintain PCI at 62	89.5*	62	155.6
	4	Unconstrained Funding	157.1	78	0
Bike Paths	1	Existing Budget	12.4	71	13.7
	2	Improve to Target PCI	10.4	68	16
	3	Maintain PCI at 62	8.7	62	19.5
	4	Unconstrained Funding	23	82	0

Funding reduced by 10% for street selection analyses for local contribution to other grant funded pavement projects (Cool Pavement, 14th Street, I-80 Richards, Anderson Road, H Street); total budget for 10-year analyses: $65.1M (Scenario 1), $89.1M (Scenario 2), $80.7M (Scenario 3), over 10 years.
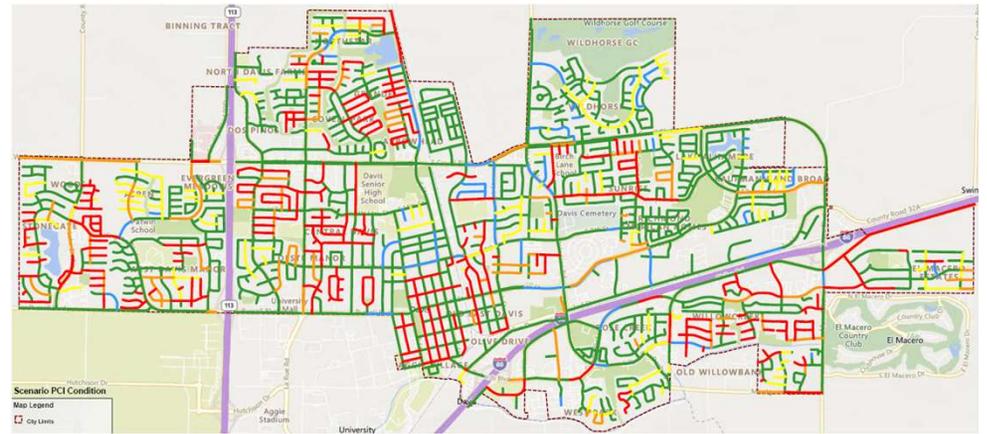
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Streets
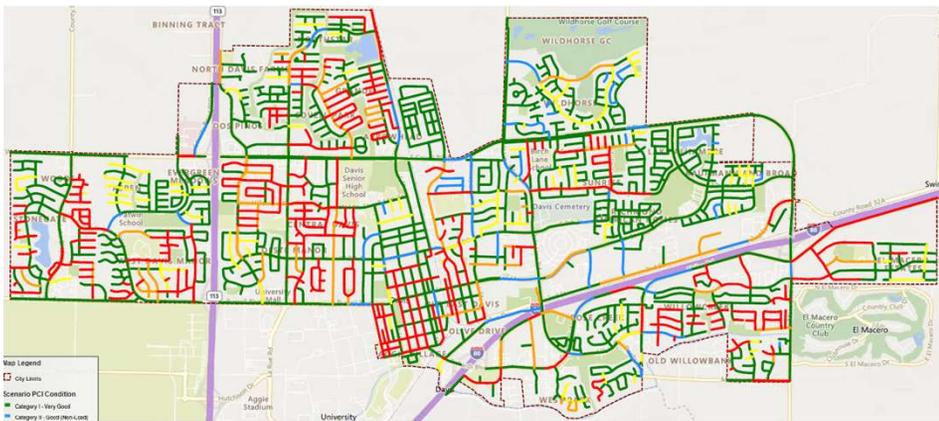# 2034 Projected Condition
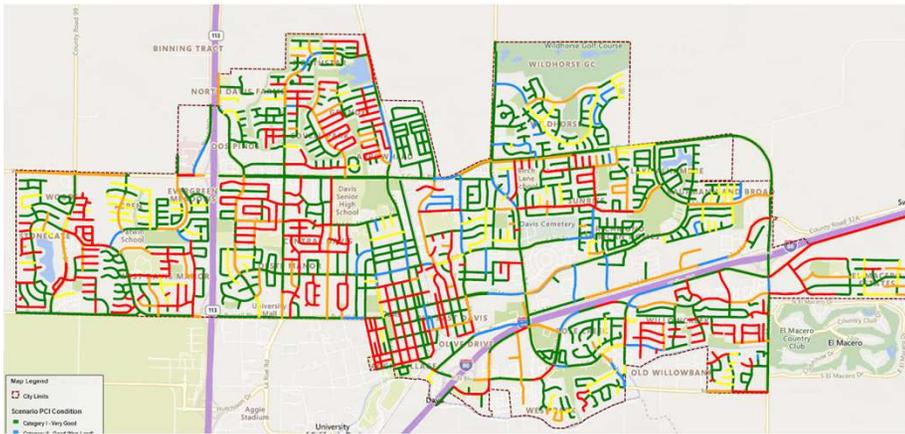
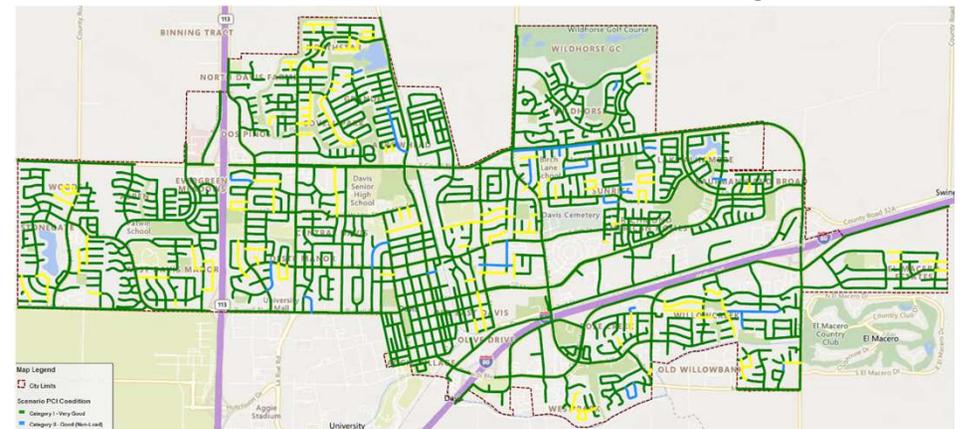## Scenario 1- Existing Budget

Scenario 2- Improve to Target PCIs

Scenario 3- Maintain PCI
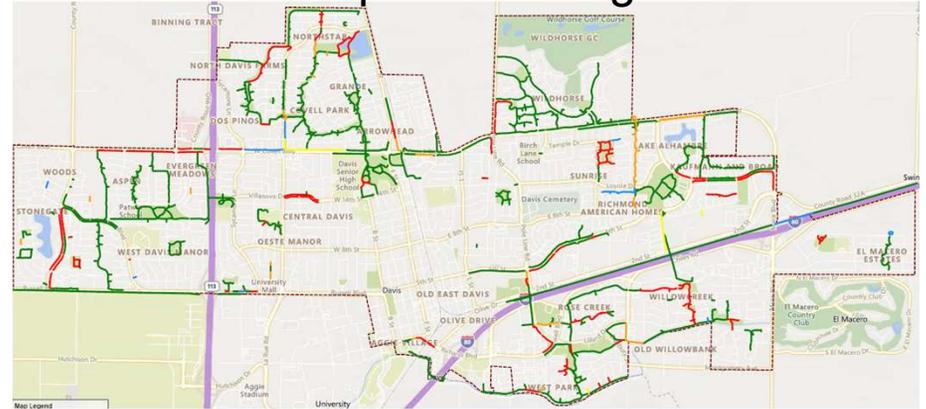

Scenario 4- Unconstrained Budget

Bike Path
2034 Projected Condition
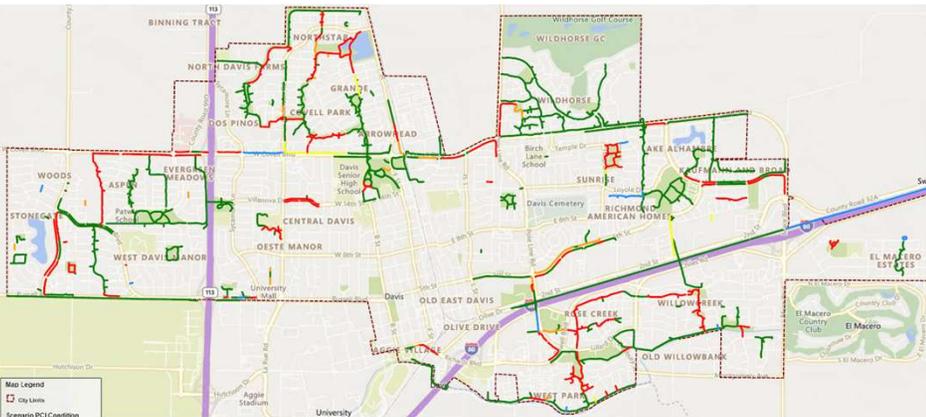
Scenario 1- Existing Budget

Scenario 2- Improve to Target PCIs

Scenario 3- Maintain PCI

Scenario 4- Unconstrained Budget

10-Year Funding Shortfall

Budget Scenario	Street 10-Year Budget	Bike Path 10-Year Budget	Total 10-Year Budget	Funding Shortfall
S1: Maintain Budget*	$72.3M	$12.4M	$84.7M	$0
S2: Improve to Target PCI*	$98.8M	$10.4M	$109.2M	$25M
S3: Maintain PCI*	$89.5M	$8.7M	$98.2M	$14M
S4: Fix Everything	$157.1M	$23M	$180.1M	$95M

Funding reduced by 10% for street selection analysis; total budget for analysis: $65.1M over 10 years. Funding reduced by ~10% for street selection analysis; total budgets for analyses: $89.1M (Scenario 2), $80.7M (Scenario 3) over 10 years.

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Conclusions

- **City has a substantial investment in the street and bike path network**
  - **$460.8 Million**

- **The network is in "Fair" condition**
  - **Street PCI = 62**
  - **Bike Path PCI = 62**

- **Existing budget ($8.4M/year) is insufficient to reach target PCI**
  - **Street PCI will deteriorate to 59**
  - **Bike path PCI will improve to 71**
  - **Deferred Maintenance will increase to $170.9 Million**
  - **By 2034, 21.1% of streets, 14.3% of bike paths will be in "Failed" condition**

- **Recommendation**
  - **Recommend Scenario 2, Target PCI, for streets and paths**
  - **Encourage work with pavement management subcommittee, staff and Fiscal Commission to brainstorm methods to bridge this funding gap between Scenario 1 and 2, and to return to the City Council with options and recommendations.**

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