

Pavement Trench Cut Fee Study and Proposed Fee Schedule

Public Works Department

Mobility and Infrastructure Committee

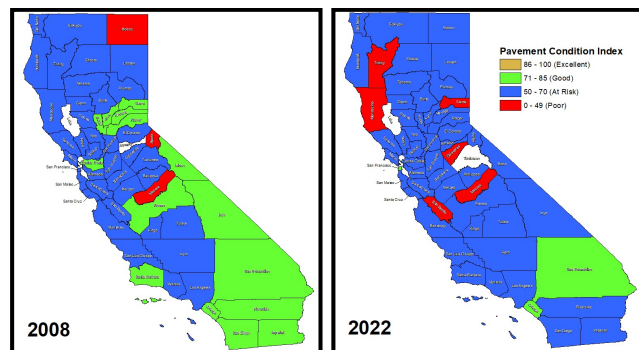
June 12, 2025

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BACKGROUND

Factors contributing to declines in the network pavement condition

- Inflation, higher construction costs
- Funding Gap between target PCI and available budget
- Water and weather-related damage, storm-related impacts
- Damage to roadways from **construction** and heavy vehicles



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BACKGROUND/FUNDING SOURCES

Federal

- Regional Surface Transportation Program (RSTP)
- Community Development Block Grant (CDBG)
- Surface Transportation Program (STP)
- Bipartisan Infrastructure Investment and Jobs Act (IIJA)

State

- Gas Tax
- SB1 Gas Tax
- Vehicle Registration Fees
- CalRecycle (Expended)

Local

- General Fund
- Measure A
- Measure Z
- Impact Fees
 - Development
 - Utility Cut



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BACKGROUND – BEST PRACTICES

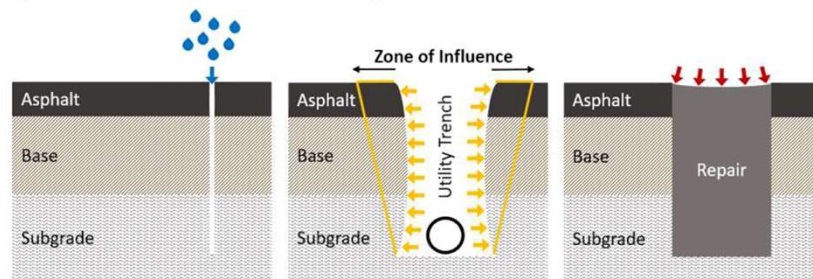
- 1) GIS Paving Map
- 2) Paving Moratorium - 3 to 5 years
- 3) Updated Std. Drawing 453 detail and standardize trench repairs
- 4) Refinanced the 2013 Debt Obligation
- 5) On-Call Contractor to repair the RPU water line temporary patches
- 6) Actively surveying City streets to have latest PCI information
- 7) Using *Lucity* software to make PMP recommendations
- 8) Piloted a 100% Recycled Product
- 9) Asphalt grindings for unimproved alleys
- 10) Will pilot "Cool" pavement
- 11) Appropriate one-time \$10 million to address paving needs
- 12) Identified \$5.325 in equipment needs – will pursue grant funding
- 13) Assess truck traffic volumes and consider Axle Restrictions
- 14) Continue to assess emerging technology, materials, and best practices



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ROAD DAMAGE BY TRENCHING OPERATIONS

1. Water Intrusion leads to cracking
2. Zone of Influence (2-ft beyond the cut) – lateral support becomes weak and unstable.
3. 90% compaction is not always achieved.



1. Increased Water Access to Pavement Structure

2. Reduced Lateral Support

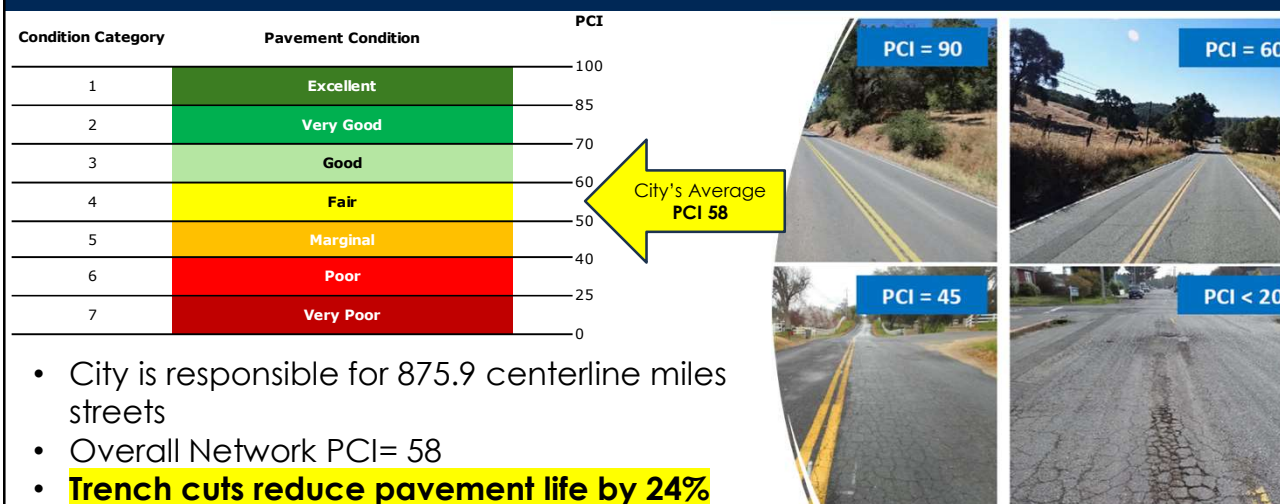
3. Increased Surface Roughness



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PAVEMENT CONDITION INDEX (PCI)



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5-YEAR PCI AND FUNDING ANALYSIS

2025 PCI & Funding Analysis

Annual Budget	PCI	Backlog
\$0	49	39%
\$20	53	31%
\$41M	58	23%
\$53M	60	20%
\$72M	64	16%
\$93M	68	13%
\$105M	70	10%

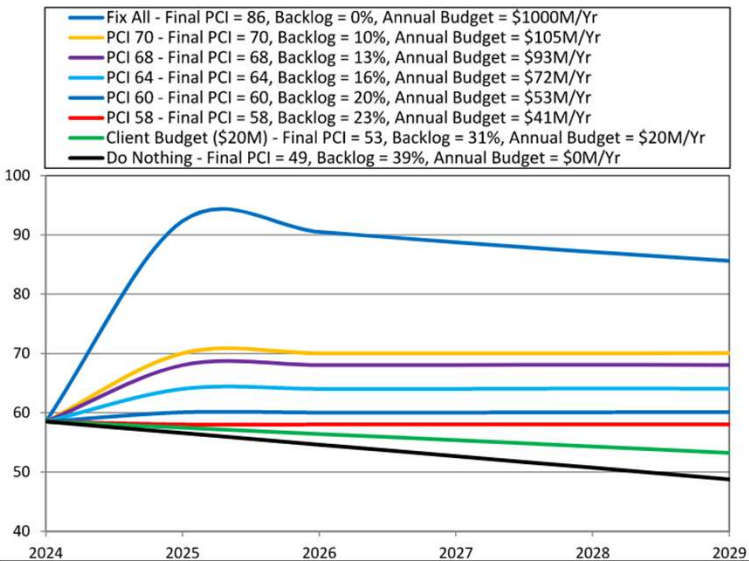
Pavement Management Program Annual Budget

Fiscal Year	Funding Source (Millions)					Subtotal
	Measure A	State Gas Tax	\$B1 Gas Tax	CDBG	Measure Z	
2016/17			\$13.50		NA	\$13.50
2017/18			\$13.50		\$2.875	\$16.375
2018/19			\$13.50		\$2.875	\$16.375
2019/20	\$2.40	\$2.80	\$5.40	\$2.60	\$7.80	\$21.00
2020/21	\$1.20	\$1.40	\$2.70	\$0	\$7.80	\$15.80
2021/22	\$2.00	\$2.80	\$6.40	\$1.20	\$7.80	\$20.20
2022/23	\$2.40	\$2.10	\$7.20	\$1.90	\$12.30	\$25.90
2023/24	\$2.40	\$1.80	\$7.70	\$1.10	\$8.80	\$31.80*
2024/25	\$2.40	\$2.45	\$7.45	\$1.63	\$12.00	\$25.93

* A one-time \$10 million appropriation from the General Fund



2025 5-YEAR FUNDING MODEL



METHODOLOGY

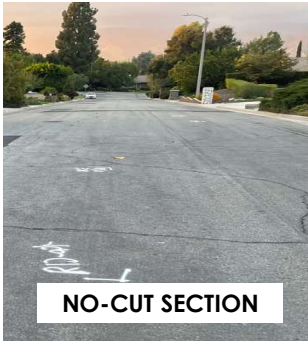
SITE SELECTION

Functional Deterioration

- PCI Comparison
- % Reduction in Service Life Comparison

Structural Deterioration

- Deflection Comparison
- Overlay Design and Comparison



FEE CALCULATION

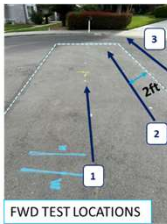
30 PAIRS OF SITES



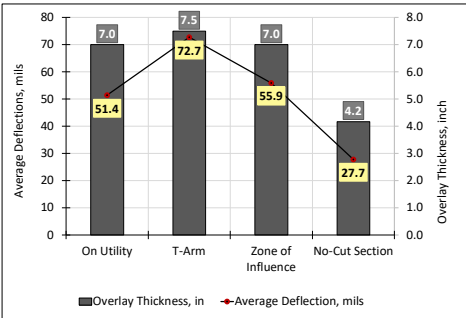
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FIELD EVALUATION



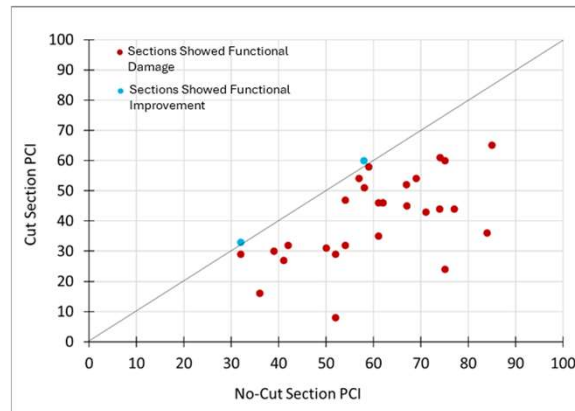
1. Higher the deflection, weaker the pavement
2. Deflection is higher/pavement is weaker near the cut
3. Thicker overlay is needed to compensate for structural capacity loss near the cut



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FIELD EVALUATION – FUNCTIONAL DAMAGE



93% of sites exhibit FUNCTIONAL damage



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FIELD EVALUATION SUMMARY

A TOTAL OF 30 SITES WERE EVALUATED

- **Utility cuts cause damage to pavements.**
 - 97% percent of the test sites were either structurally or functionally damaged by utility cuts.
 - 73% percent of the test sites had both structural and functional damage.
- **Utility cuts cause structural damage to pavements.**
 - An average overlay thickness of **4 inches is needed** to compensate for the loss in structural capacity.
- Overall, pavements with cuts deteriorate more rapidly than those without cuts.
 - An average condition reduction of **18 PCI points** was observed when utility cuts were present.
- Utility cuts cause damage to the pavement beyond the edge of the cuts (2-ft Zone of Influence).



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PROPOSED TRENCH CUT FEE SCHEDULE

Functional Class	PCI Group	Fees (\$/SF*)
Arterials/Collectors	PCI \geq 60	\$ 5.00
	25 \leq PCI < 60	\$ 3.50
	PCI < 25	\$ 0.00
Residential	PCI \geq 70	\$ 4.50
	25 \leq PCI < 70	\$ 3.50
	PCI < 25	\$ 0.00

MAXIMUM DAMAGE COST OF
STRUCTURAL AND FUNCTIONAL
EVALUATION WAS DEVELOPED AS FEES

* The total square footage includes the zone of influence (2 ft outside the edge of the cut/T-arm).

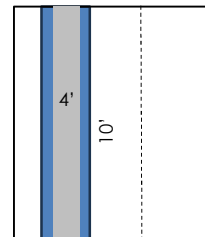
Agency	Criteria	Fee, \$/SF	Study by
Anaheim	PCI	3.60-11.60	NCE, 2022
Davis	Functional Class and PCI	1.04-1.51	NCE, 2022
Pacifica	Functional Class, Age of the Pavement, Size of the Cut	1.00-4.00	NCE, 2021
Ukiah	Functional Class, Age of the Pavement, Size of the Cut	0.50-4.00	NCE, 2021
Santa Barbara County	Functional Class, PCI, Size of the Cut	0.25-4.00	NCE, 2023
Monterey Park	Functional Class, PCI, Size of the Cut	0.25-2.00	NCE, 2023
San Francisco (City & County)	Age of the Pavement	1.00-3.50	Marcus, 1998
Los Angeles	Functional Class	8.24-19.44	Shahin et al., 2017
Sacramento County, Elk Grove, Santa Cruz	Trench Depth, Functional Class, PCI, Type of Cut	1.80-11.82	Shahin et al., 1996
Santa Ana	Functional Class, Age of the Pavement	10.00-36.00	Shahin et al., 1999



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FEE CALCULATION EXAMPLE

- Residential/Arterial Street with a PCI of 60
- \$3.50/Square Foot Fee
- Trench Details: Width = 4' + 2' + 2' = 8'
Length = 10' + 2' + 2' = 14'
- Fee Calculation: 8'x14'x \$3.50/SF = **\$392.00**



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STRATEGIC PLAN ALIGNMENT

Strategic Priority No. 6 Infrastructure, Mobility and Connectivity

Goal No. 6.2 – Maintain, protect, and improve assets and infrastructure within the City's built environment to ensure and enhance reliability, resiliency, sustainability, and facilitate connectivity.

Goal No. 6.3 – Identify and pursue new and unique funding opportunities to develop, operate, maintain, and renew infrastructure and programs that meet the community's needs.

Cross-Cutting Threads



Community Trust



Fiscal Responsibility



Sustainability & Resiliency



Equity



Innovation



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RECOMMENDATION

That the Mobility and Infrastructure Committee recommend that the City Council approve a Trench Cut Fee Schedule to recover costs associated with the damage from trenches and utility cuts on roads



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