



City of Dallas

Update of the City's Five-Year Infrastructure Management Program (IMP) and Pavement Degradation Models

**City Council Briefing
June 2, 2021**

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Five-Year IMP Presentation Overview



- Five-Year IMP Background
- Streets and Degradation
- Sidewalks and Sidewalk Master Plan
- Unimproved Alley Program
- Bridge Maintenance
- Next Steps
- Discussion/Questions





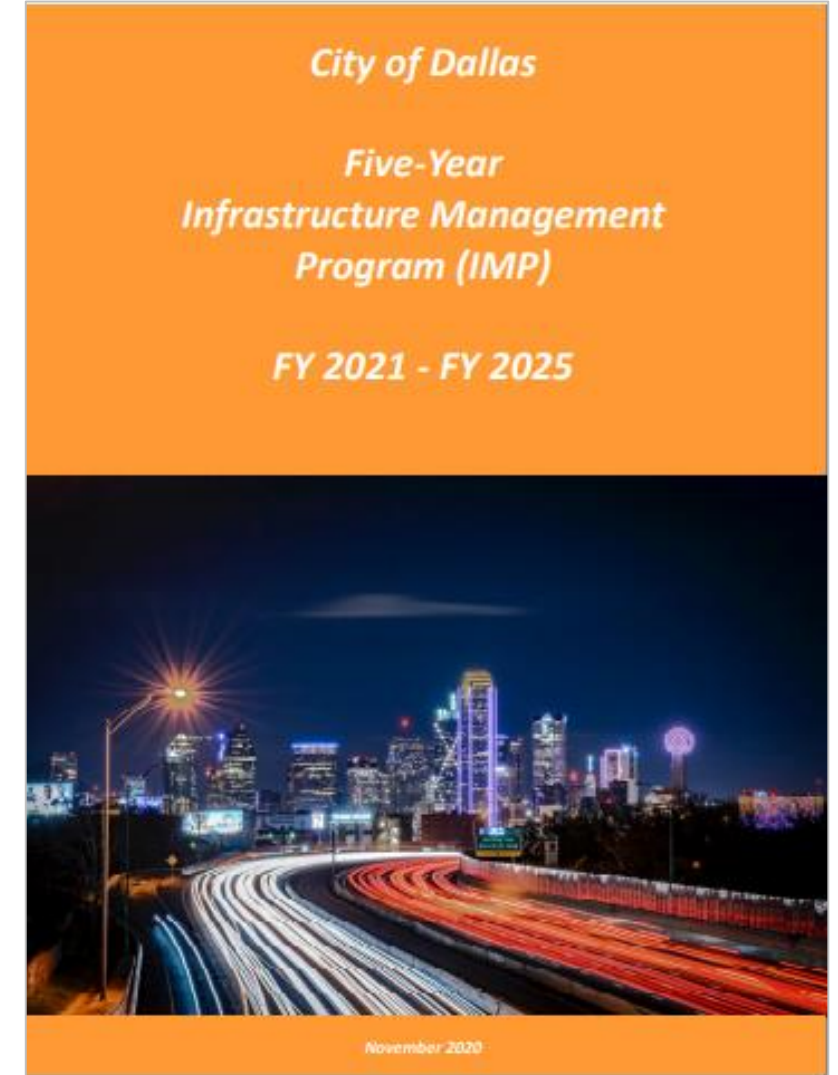
Five-Year IMP Background



Five-Year IMP Background



- The City's Five-Year IMP was created in FY 2019 to establish a rolling five-year forecast of infrastructure maintenance projects (outside of bond programs) for:
 - Streets
 - Alleys
 - Sidewalks
 - Bridges



Five-Year IMP Background



City of Dallas PCI Ranges		
Rating	Ranking	PCI Range
A	Excellent	100-85
B	Good	70-84.9
C	Fair	55-69.9
D	Poor	40-54.9
E	Failed	0-39.9

- Each street segment in the City of Dallas has a Pavement Condition Index (PCI) Rating of “0-100.”
- A street with a PCI of “100” would be a brand new street and a street with a “0” PCI would be a completely failed street.
- IMP projects focus on A-C streets and bonds are primarily targeted on D and E streets.



Five-Year IMP Background



- The FY 2019 establishment of the IMP included analysis on the conditions of the City's street network to include:
 - \$269.4M average annual budget to maintain zero degradation (currently modeled at \$347.0M).
 - \$2.3B need to resurface and reconstruct all streets in "D" and "E" conditions.
 - During 2019 briefing, City Council asked, "How do we catch up?"





Streets and Degradation



Streets and Degradation



- Since FY 2019, Public Works:
 - Has developed a long-range plan to address street deterioration,
 - Procured a state-of-the-art pavement modeling software and Pavement Management Consultant to determine the accuracy and sensitivity of the pavement performance data and future budgetary needs,
 - Is currently in the Implementation Phase of the new and enhanced Paving Model.



Streets and Degradation



- Recalculations of PCI based upon:
 - As a “best practice,” Public Works reviewed all Pavement Management business practices with consultant,
 - Review of practices identified opportunities to refine the PCI calculation such as:
 - Updating of PCI ratings based upon completion of projects (previously only done with annual street assessments),
 - Removed cracking from PCI variables as it artificially increased or decreased PCI scores.



Streets and Degradation



- Preliminary Results of New Pavement Model:
 - Overall PCI) ratings decreased approximately 4 points; New citywide PCI Avg. = 59.4,
 - Budget needed to maintain or increase PCI levels was significantly reduced,
 - Current budget results in a -0.2 PCI annual change over next ten years,
 - Annual average budget needed to maintain current conditions: \$100M,
 - Annual average budget needed to improve street conditions: \$150M.



Streets and Degradation



Current Funding Model

- Current budget results in an average (-0.2) PCI annual change over next ten years,
- Also assumes new bond program in FY 2024 with focus on low-PCI streets.

FY	Budget	LM Improved	PCI
2021	\$58.8M	726.0	59.4
2022	\$61.7M	977.4	59.4
2023	\$61.7M	757.4	59.0
2024	\$111.7M	693.1	58.9
2025	\$111.5M	640.2	58.6
2026	\$111.6M	643.9	58.4
2027	\$111.5M	617.1	58.2
2028	\$111.4M	587.8	58.1
2029	\$111.6M	508.8	57.9
2030	\$104.7M	425.7	57.6



Streets and Degradation



Zero Degradation Funding Model

FY	Budget	LM Improved	PCI
2021	\$58.8M	726.0	59.4
2022	\$100.0M	1,038.2	60.2
2023	\$99.4M	884.1	60.5
2024	\$100.0M	763.8	60.5
2025	\$100.0M	737.8	60.5
2026	\$100.0M	740.6	60.5
2027	\$100.0M	712.8	60.5
2028	\$99.3M	678.9	60.6
2029	\$99.5M	587.9	60.7
2030	\$92.6M	507.8	60.6

- Estimated annual budget of \$100M needed over next ten years to maintain current street PCI condition.



Streets and Degradation



Condition Increase Funding Model

FY	Budget	LM Improved	PCI
2021	\$58.8M	726.0	59.4
2022	\$150.0M	1,204.2	60.9
2023	\$148.8M	1,053.4	62.0
2024	\$149.0M	934.1	62.6
2025	\$149.3M	908.1	63.6
2026	\$149.0M	905.3	64.9
2027	\$148.7M	883.6	66.3
2028	\$148.9M	835.0	67.5
2029	\$149.4M	752.9	69.0
2030	\$145.5M	691.5	70.2

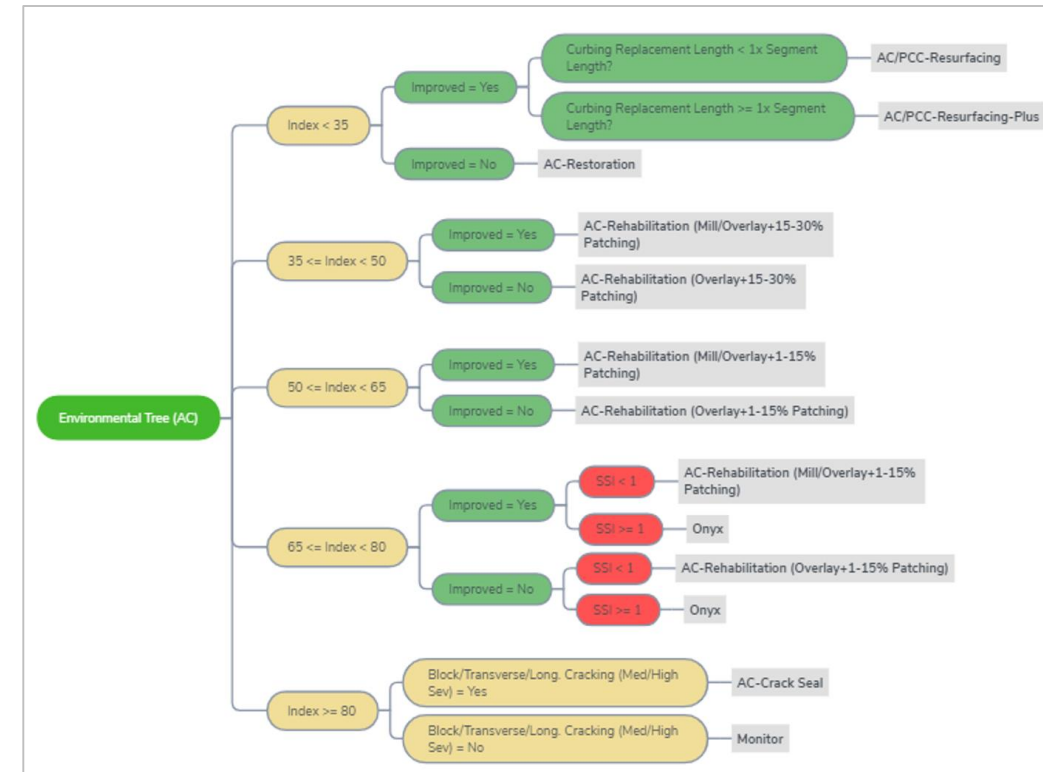
- Estimated annual budget of \$150M needed over next ten years to increase to an overall Street PCI of 70.2 by FY 2030.



Streets and Degradation



- Main differences in pavement degradation costs:
 - Recalculated PCI's included in new, enhanced decision tree models (now 18 decision trees versus 3 previously).
 - New decision trees include varying costs for in-house vs. contractual prices.
 - New PCI models allow for resurfacing of streets previously shown as needing reconstruction.



Streets and Degradation



- The FY 2021 IMP includes 1,024 street projects and a budget of \$62.1M (1,180 projects and a total budget of \$111.7M with bond dollars).
- Public Works is approximately 40% completed with its annual program; highest amount of work is completed in drier, warmer summer months.
- New In-House Onyx Pavement Preservation Program set to start in June 2021 (programmed to complete 114 lane miles and save \$600K in FY 2021).





Sidewalks and Sidewalk Master Plan

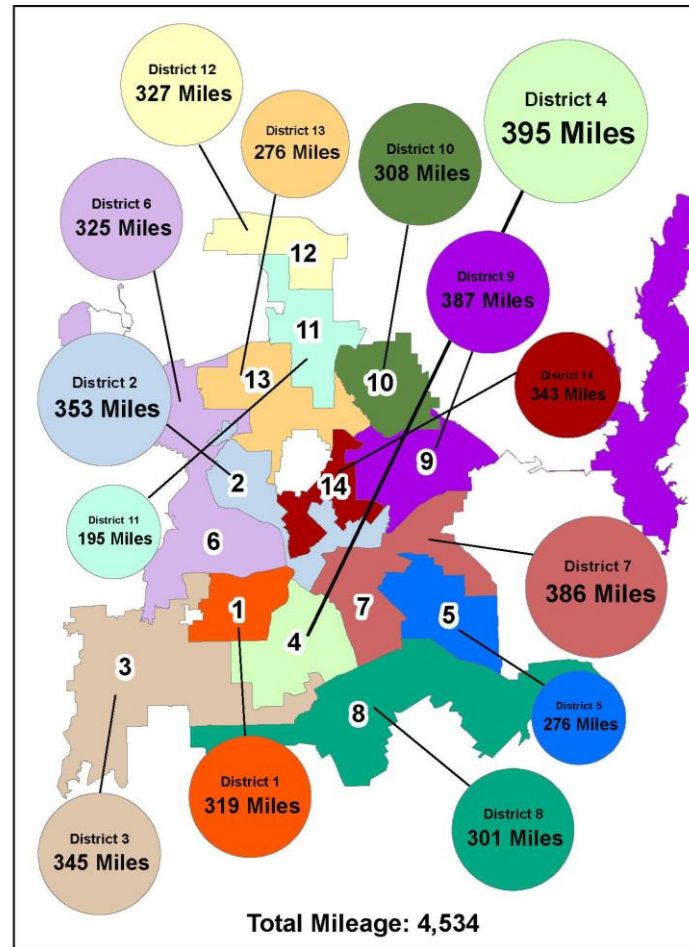


Sidewalks and Sidewalk Masterplan

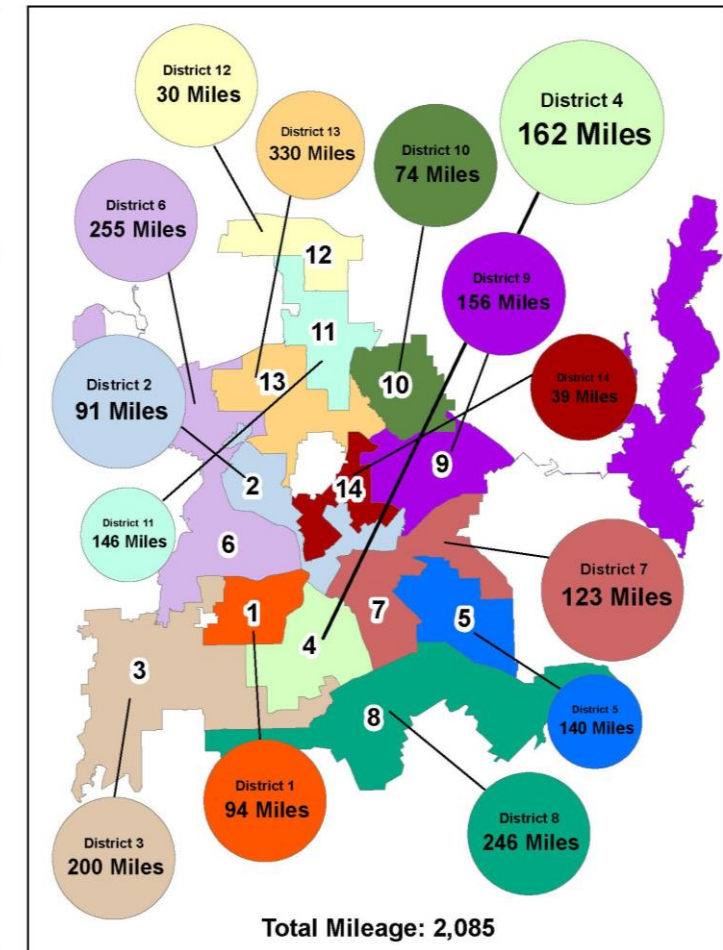


- The Public Works team is on track to complete the Sidewalk Master Plan in June 2021.
- Prioritized list of projects will be included in future versions of the IMP.

Existing Sidewalk by Council District



Missing Sidewalk by Council District



Sidewalks and Sidewalk Masterplan



Total System Value/Cost

- Existing sidewalks = 4,535 miles
- Cost of maintenance of existing sidewalks = \$976.5M
- Missing sidewalks = 2,086 miles
- Cost to install missing sidewalks = \$1.0B
- Total sidewalk capital and maintenance need = \$2.0B.



Sidewalks and Sidewalk Masterplan



- The FY 2021 IMP includes \$10.7M for sidewalk projects (The sidewalk program has a base budget of \$2.2M.)
- There are 36 identified projects (17 are complete) in the FY 2021 IMP.
- Additional projects will be added to the FY 2021 IMP upon completion of the Sidewalk Master Plan.





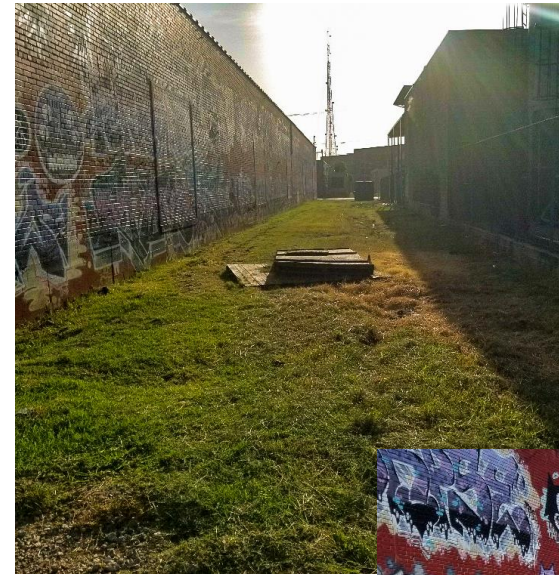
Unimproved Alley Program



Unimproved Alley Program



- The FY 2021 IMP includes \$1.6M for 108 unimproved alley segments making up over 11.4 alley miles.
- Unimproved Alley Program selection based on:
 - Sanitation alley routes,
 - Gravel alleys,
 - Alley conditions in B-D ranges,
 - No obstructions such as utility poles or gas meters.



Deep Ellum Alley Before and After





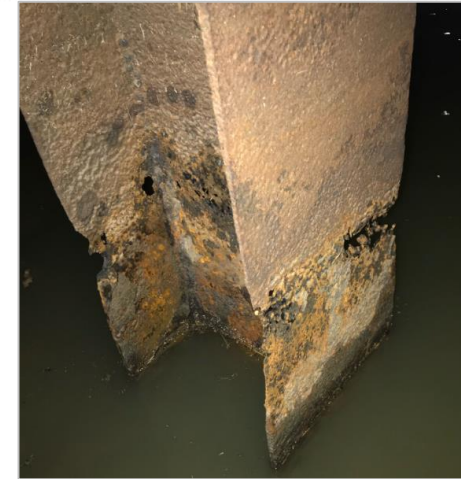
Bridge Maintenance



Bridge Maintenance



- The FY 2021 IMP includes \$1M for the Bridge Maintenance Program.
 - Projects that have been funded through the Bridge Maintenance Program have included the Lawther Bridge and emergency repairs on the Belt Line Road Bridge at Goff Branch.
 - A consultant is currently working to prioritize FY 2022 projects and beyond.



Before and after pictures of columns on Belt Line Road Bridge





Next Steps



Next Steps



- Continue review and implementation of new paving models.
- Complete existing IMP Programs and report monthly status to TRNI Committee.





Discussion/Questions





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