Five-Year Infrastructure Management Program (IMP) Update FY 2024-2028

Council Briefing
December 6, 2023

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City of Dallas

City of Dallas

Overview

- Background
- Equity
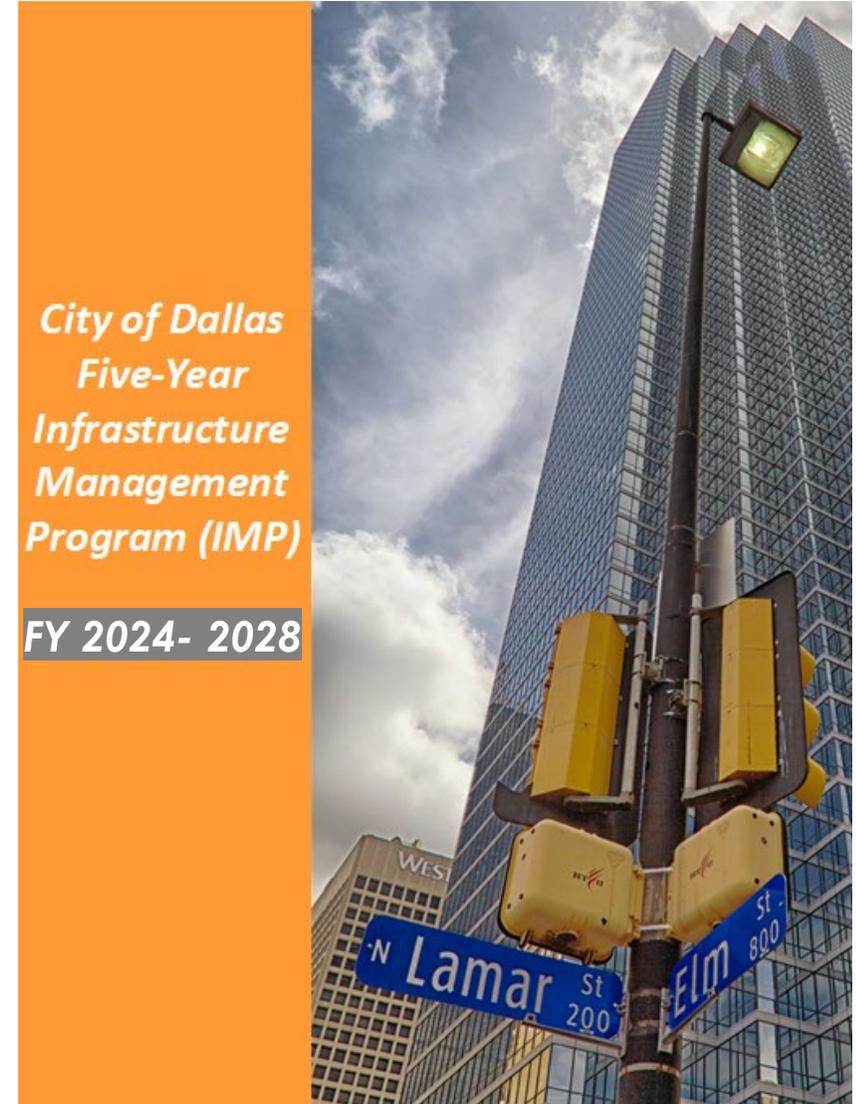- Streets
- Sidewalks
- Alleys
- Bridges
- Discussion/Questions

Background

- This is PBW's sixth annual Infrastructure Management Program (IMP)

- More details can be found on the Public Works website: (https://dallascityhall.com/departments/public-works)

- Hard Copies will be delivered to council in January

Background

The FY 2024 IMP includes $152.9M Total Funds for streets, sidewalks, alleys, and bridges

Proposed Five-Year IMP Maintenance Program Budgets						
Program	FY24	FY25	FY26	FY27	FY28	Total
Streets	$140.9M	$68M	$68M	$68M	$68M	$412.9M
Bridge	$4.4M	$4.4M	$4.4M	$4.4M	$4.4M	$22.0M
Sidewalks	$4.3M	$5.3M	$5.3M	$5.3M	$5.3M	$26.5M
Alleys - Unimproved	$1.3M	$1.3M	$1.3M	$1.3M	$1.3M	$6.5M
Alleys - Improved	$2.0M	$2.0M	$2.0M	$2.0M	$2.0M	$10.0M
Total	$152.9M	$81.0M	$81.0M	$81.0M	$81.0M	$477.9M

Note: grayed out values are subject to future annual appropriations.

City of Dallas Five-Year Infrastructure Management Program (IMP)

FY 2024- 2028

Background
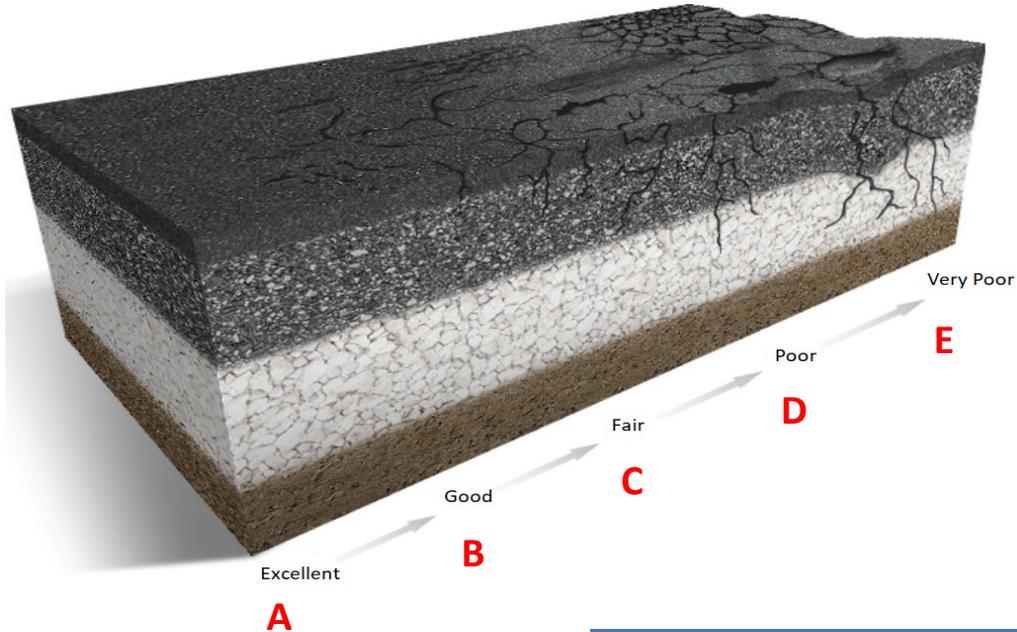
- Each street segment in the City of Dallas has a Pavement Condition Index (PCI) Rating of "0-100"

- 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

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

Background

- New pavement data was recently collected (FY23)
- Data collection process included:
  - Vehicle Mounted Data Collection Equipment
  - Right-of-Way Imagery
  - Laser Crack Measurement System (LCMS)
  - Rut Depths
  - International Roughness Index (IRI)
  - Data processing was fully automated for some distresses, but manual for others
- Current Model Network Overall PCI = 71.5

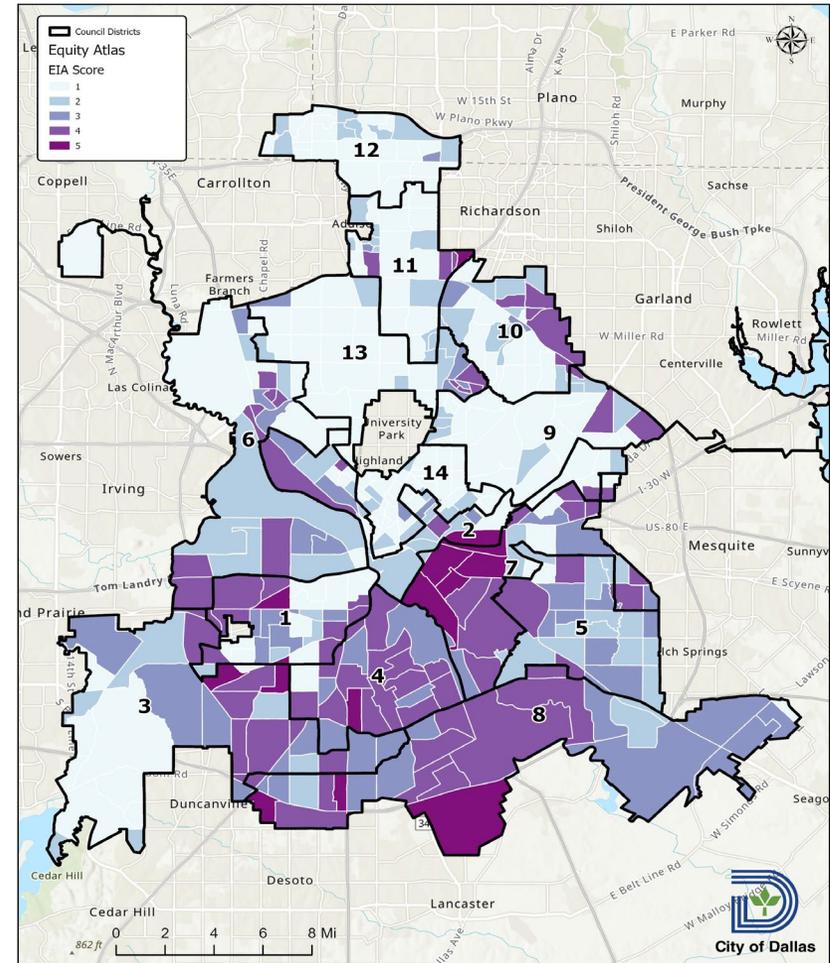COURTESY: ROMDAS

Converted to distresses
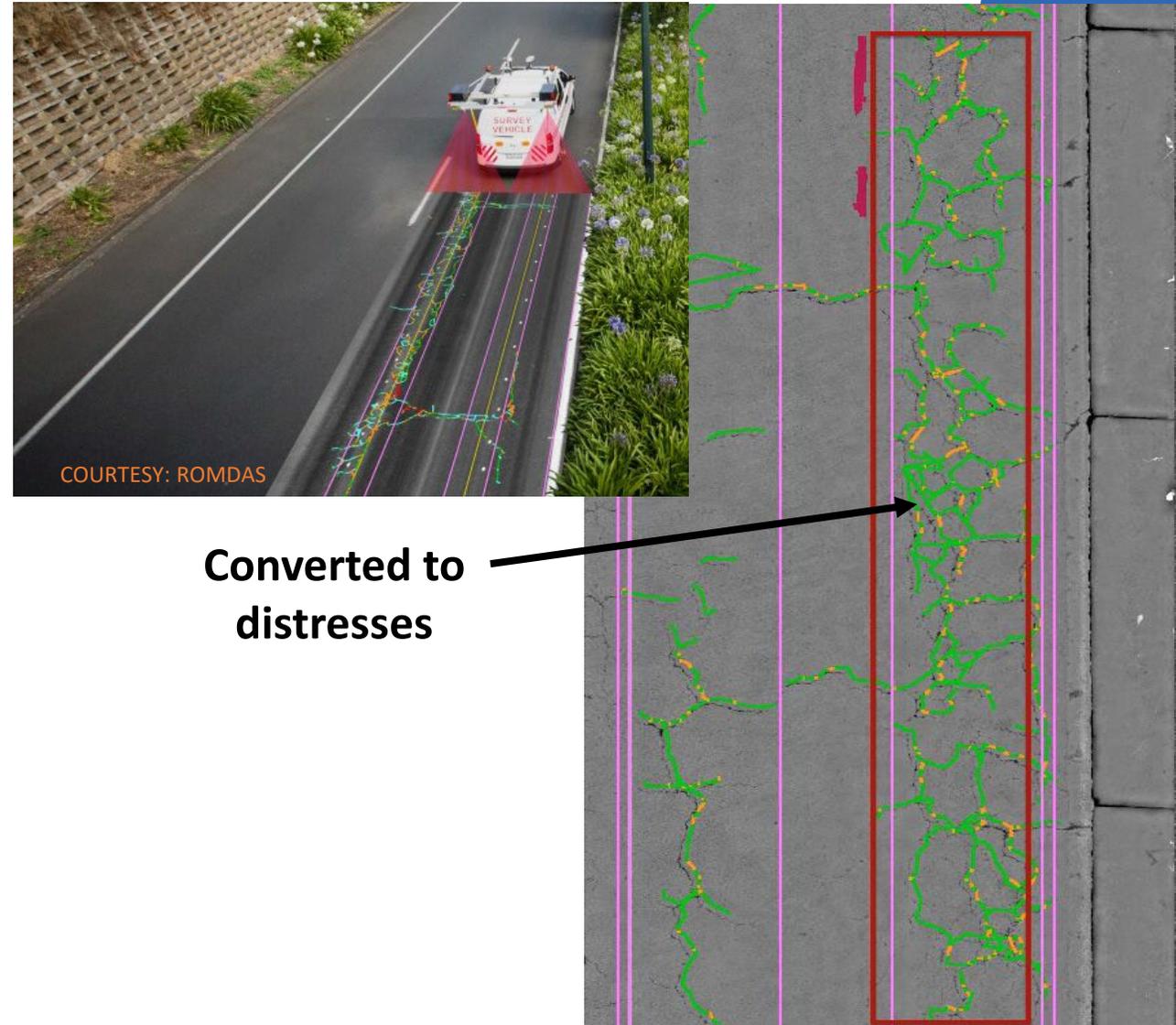
Equity

- Equity/Underserved Areas Funding:

- Pavement Model configured to maintain minimum 20% Fund Allocation to Equity Priority Areas

- In FY24, a minimum total of $28.18M will be allocated to infrastructure improvements for Equity Priority Areas

Equity Priority Areas, City of Dallas

Streets

- Recently collected data was utilized in the paving model to develop the pavement deterioration curve
- A higher inflation rate was used on treatment costs (5.0% a year), but budget projections kept flat
- Incorporated current higher contract pricing
- Looked at various scenarios to optimize results with a focus on a long-term benefits

Streets

Evaluated multiple Modeling Scenarios:

- $68M/Year IMP + CBTF Proposed Bond Allocation of $375M for Proposition A

- $68M/Year IMP + Department Proposed Bond Allocation of $675M for Proposition A

- Zero Pavement Degradation Scenario Prediction

- Pavement Performance Prediction will vary based on the actual allocated fund

- Network PCI, Backlog Lane Miles, and Backlog Costs will vary based on the final bond and IMP budget allocations, future construction costs, updated data collection, etc.

Streets

- Budget per year scenario for IMP and Bond Funds:

Streets Scenario	FY 24	FY 25	FY 26	FY 27	FY 28	Total
IMP + $325M Bond	$151.2M	$96.6M	$113.7M	$132.6M	$144.5M	**$638.6M**
IMP + $675M Bond	$162.2M	$124.5M	$173.9M	$209.0M	$261.6M	**$931.2M**
Zero Degradation	$162.2M	$254.5M	$293.9M	$308.9M	$311.6M	**$1,331.1M**

- Note: grayed out values are subject to future annual appropriations
- FY24 Budget to include $140.9M IMP+ Bond Projection
- FY25-FY28 Budgets presented above to include $68M Annual IMP+ Bond Projection
- Five-year average annual need of $266.2M to maintain zero degradation

Streets

- Projected PCI over the next 5 years by council district
- PCI data below is subject to change with the updated data collection cycle

PCI by Council District - IMP + 325M Bond					
District	2024	2025	2026	2027	2028
1	71	71	70	69	69
2	67	67	67	66	66
3	76	75	74	73	73
4	70	69	69	68	67
5	71	70	70	69	69
6	72	71	71	70	69
7	73	72	71	71	70
8	76	76	76	75	75
9	70	70	69	69	68
10	75	75	74	73	73
11	69	69	68	67	66
12	77	77	76	74	74
13	68	68	67	67	66
14	63	63	63	62	61
Avg	71.3	70.9	70.3	69.5	69

PCI by Council District - IMP + $675M Bond					
District	2024	2025	2026	2027	2028
1	71	71	70	69	70
2	67	67	67	66	66
3	76	75	74	74	73
4	70	69	68	67	68
5	71	70	70	70	70
6	71	71	71	70	70
7	73	72	71	71	71
8	76	76	75	76	75
9	70	71	70	69	69
10	76	76	75	73	73
11	70	69	69	68	67
12	78	77	76	75	74
13	68	68	68	67	67
14	63	63	63	63	63
Avg	71.4	71	70.5	69.8	69.7

PCI by Council District - Zero Degradation					
District	2024	2025	2026	2027	2028
1	71	71	71	70	71
2	67	68	70	70	70
3	76	76	75	75	74
4	70	69	69	68	69
5	71	70	71	71	71
6	71	71	72	71	72
7	73	72	72	72	72
8	76	76	75	76	76
9	70	71	71	70	70
10	76	76	75	74	73
11	70	70	69	68	67
12	78	77	76	75	74
13	68	68	69	68	68
14	63	66	68	68	69
Avg	71.4	71.5	71.6	71.2	71.2

Streets

- Backlog analysis comparison between scenarios

Scenario	Impact to PCI	Recon. Backlog Cost ($551M in 2024)	Recon. Backlog Lane Miles (194 LM in 2024)	Resurf. Backlog Cost ($1.188B in 2024)	Resurf. Backlog Lane Miles (1,551 LM in 2024)
IMP + $325M Bond	Slight Decline	$867M ↑	215 LM ↑	$1.915B ↑	1,914 LM ↑
IMP + $675M Bond	Slight Decline	$795M ↑	196 LM =	$1.817B ↑	1,822 LM ↑
Zero Degradation - IMP + $918M Bond	Maintains Current	$642M ↑	164 LM ↓	$1.517B ↑	1,499 LM ↓

Streets

- Network PCI Comparison

PCI Network Weighted Average

Legend: IMP + $325M — IMP + $675M — Zero Degredation
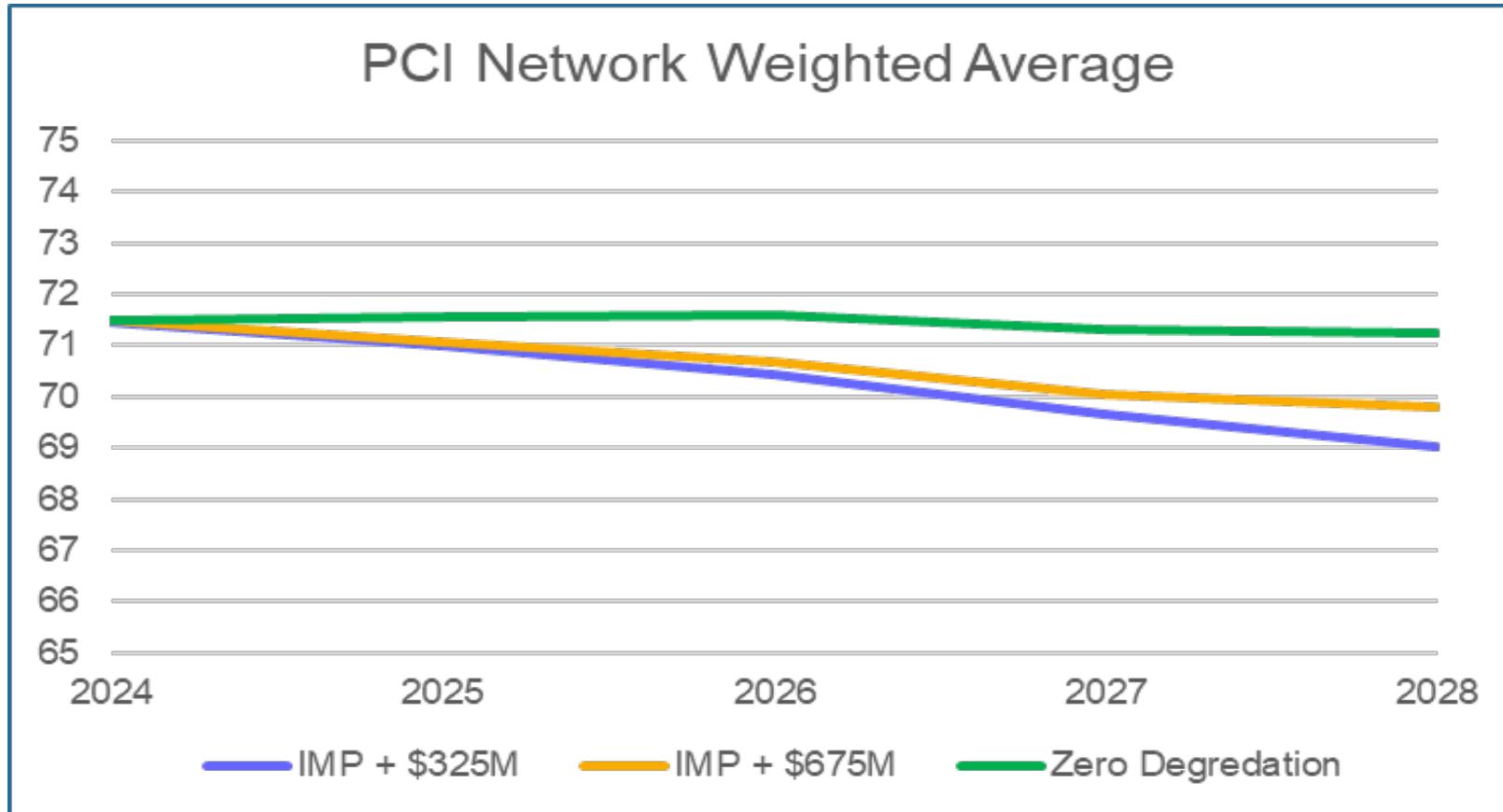
Streets

Future Opportunities:

- Exploring the implementation of the new standard (ASTM E3303)
  - Fully Automated Pavement Evaluation that uses AI Technology for crack detection and analysis
- Enhance the frequency of pavement evaluation and data collection to an annual cycle to boost data accuracy and enhance comprehension of trends
- Implement a Data Quality Control Plan in our upcoming procurement process to dictate data collection procedures, calculations, and QA/QC process, to help minimize PCI variances between different data collection vendors
- Update the Pavement Management System including the pavement model to operate within a single pavement software, streamlining all tasks in one place for better efficiency in pavement management

Sidewalks

Sidewalk Program

- In June 2021, the Department of Public Works completed the City's first Sidewalk Master Plan (DSWMP)
- A data-driven system was utilized to identify the most impactful projects to:
  - o Increase accessibility for pedestrians,
  - o Improve safety for all city residents,
  - o Address sidewalk needs in historically underserved communities

Sidewalks

Sidewalk Program

- The DSWMP provides guidance for decision makers on budgeting, project selection, and implementation of planned projects included in the Five-Year IMP-Sidewalk Maintenance Program
- The Dallas Sidewalk Master Plan's 12 Focus Areas, originally identified $30 million in priority projects across all 14 City Council Districts
- Cost estimates have increased since then due to inflation

Sidewalks

- Sidewalk Program Five-Year Budget

Program	FY 24	FY 25	FY 26	FY 27	FY 28	Total
Sidewalk- General Funds	$0.3 M	$0.3 M	$0.3 M	$0.3 M	$0.3 M	**$1.5 M**
Sidewalk- Certificate of Obligation (CO)	$4.0 M	$5.0 M	$5.0 M	$5.0 M	$5.0 M	**$25.0 M**
Funding Total	$4.3 M	$5.3 M	$5.3 M	$5.3 M	$5.3 M	**$25.5 M**

Note: grayed out values are subject to future annual appropriations.
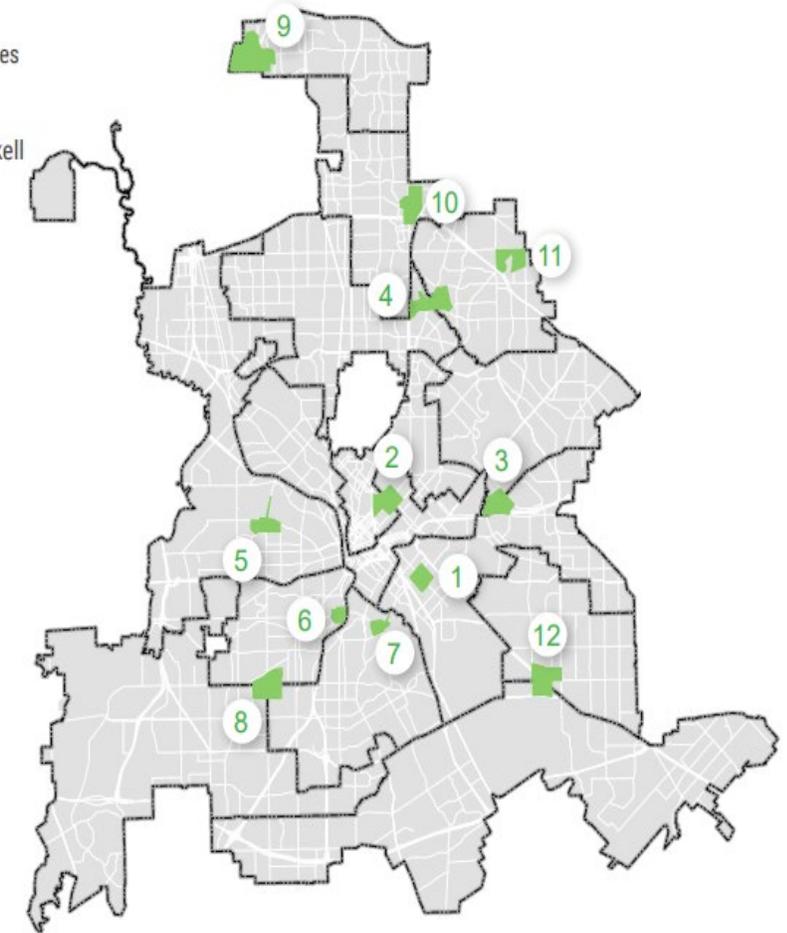
Sidewalks

Sidewalk Program Budget – Next 5-Years

- $25.5M Programmed
- expanding Dallas' sidewalk network

FY24

- $4.3M programmed
- 7.3 miles of sidewalk improvements
- focused on priority projects included in the DSWMP's 12 Focus Areas

All Focus Area Locations

- \# Focus Area Numbers
- Focus Areas
- Council District Boundaries

1. Martin Luther King, Jr.
2. Renaissance Oaks & Haskell
3. Tenison Park East
4. Fair Oaks
5. Hampton Crossing
6. Southern Gateway
7. Cedar Creek
8. Hampton & Illinois
9. Denton County Gateway
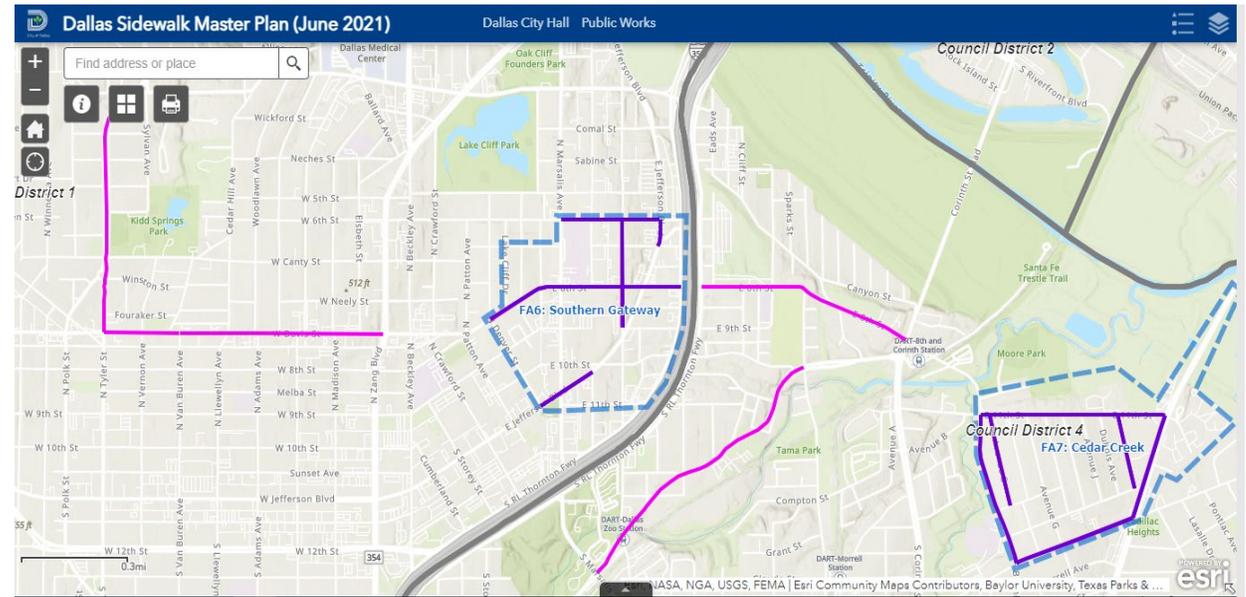10. Coit & 635
11. Woodridge
12. Elam Creek

Sidewalks

Sidewalk Program – DSWMP Application

- Project tracking system and publicly available map showing progress of sidewalk improvements

Resources

- Dallas Sidewalk Master Plan
- Dallas Sidewalk Master Plan Map

Alleys

Alleys- Improved:

Improved Alley Maintenance
Partial Reconstruction
Partial Reconstruction

Proposed Five-Year IMP Improved Alley Maintenance Program Budgets						
Program	*FY 24*	*FY 25*	*FY 26*	*FY 27*	*FY 28*	*Total*
Funding Needed	$2.0M	$2.0M	$2.0M	$2.0M	$2.0M	$10.0M
Miles	10.43	6.7	6.7	6.7	6.7	37.23

Note: grayed out values are subject to future annual appropriations.

- Improved alleys are defined as alleys that have been constructed in concrete or asphalt
- The projects included in the IMP were prioritized and selected based upon pavement condition and Sanitation routes
- Construction contract awarded and approved by council
- Construction start anticipated by Feb 2024

Alleys

Alleys- Unimproved:

- The Unimproved Alley program began in FY 19; to date, the Street Operations team has completed 51.1 alley miles for 449 separate alley projects

- The IMP assumes a program budget of $1.3M to complete an average of 5.0 miles of maintenance for unimproved alleys

- The reduction in alley miles is the result of increase in material cost for Asphalt
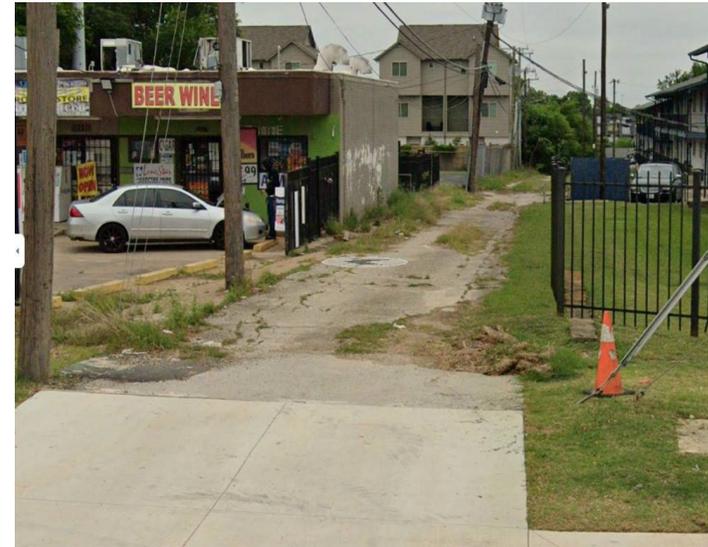
Proposed Five-Year IMP Unimproved Alleys Maintenance Program Budgets						
Program	FY 24	FY 25	FY 26	FY 27	FY 28	Total
Funding	$1.3M	$1.3M	$1.3M	$1.3M	$1.3M	$6.5M
Miles	5.0 miles	5.0 miles	5.0 miles	5.0 miles	5.0 miles	25.0 miles

Note: grayed out values are subject to future annual appropriations.

Bridges

- Finalizing the development of a rolling 5-year maintenance program to address routine maintenance

- Current estimated backlog $30M of routine maintenance

- In October 2022, a construction contract was awarded for the Bridge Maintenance Program

- Bridge Maintenance Program next goal is to implement a preventative maintenance program for Dallas bridges.

REFERENCE IMAGE AT TYPICAL MISALIGNED BEARING
NOT TO SCALE

Proposed Five-Year Bridge Maintenance Program Budgets						
Program	**FY 24**	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**Total**
Maintenance Program	$3.4M	$3.4M	$3.4M	$3.4M	$3.4M	$17.0M
Reserve for Emergency Repair/ Consultant	$1.0M	$1.0M	$1.0M	$1.0M	$1.0M	$5.0M
Bridges Impacted	25	20	20	20	20	105

Note: grayed out cells values are subject to future annual appropriations.

Example of emergency repairs on the SH356 Bridge

Discussion/Questions

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