

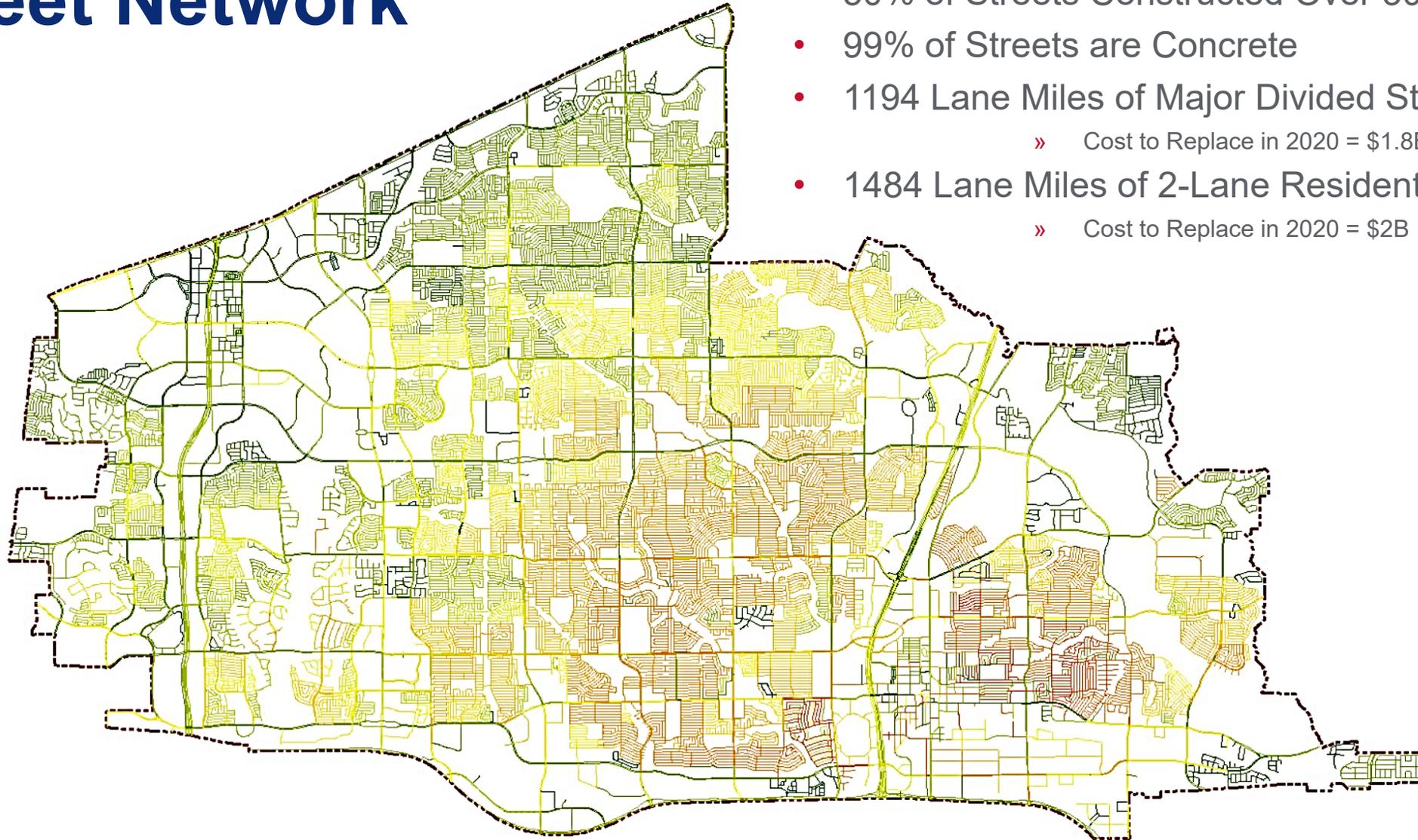


Plano

City of Excellence

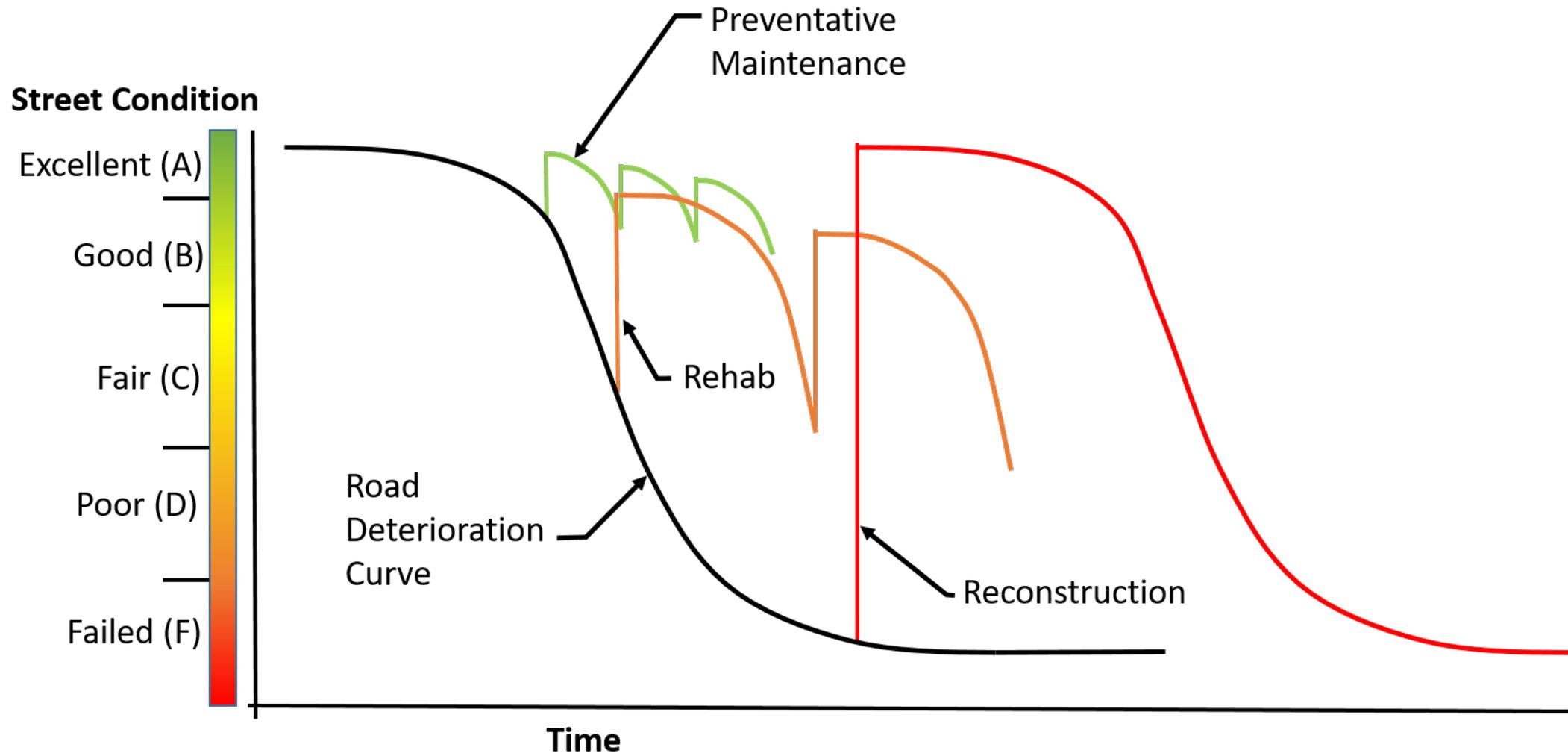
**Pavement Management
with Asphalt Overlays
City of Plano**

Street Network



- 50% of Streets Constructed Over 30 Years Ago
- 99% of Streets are Concrete
- 1194 Lane Miles of Major Divided Streets
 - » Cost to Replace in 2020 = \$1.8B
- 1484 Lane Miles of 2-Lane Residential Streets
 - » Cost to Replace in 2020 = \$2B

Pavement Management Plan



1194 Arterial Lane Miles

Minimal Maintenance (Clean Joints/Seal Joints)	Increased Maintenance (Crack Sealing/Joint Grinding/Minor Panel Replacement)	Concrete Panel Replacements	Major Concrete Panel Replacements	Full Reconstruction
31% Grade = A	39% Grade = B	25% Grade = C	5% Grade = D	0% Grade = F
				

Preservation

Rehabilitation



Assets

Map Filter Search by address

Measure Select

Add layer +

Advanced Filter

Like this layer? SAVE LAYER

Arterial A 1300

Advanced Filter

Like this layer? SAVE LAYER

Arterial B 1491

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Arterial C 864

Advanced Filter

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Arterial D 199

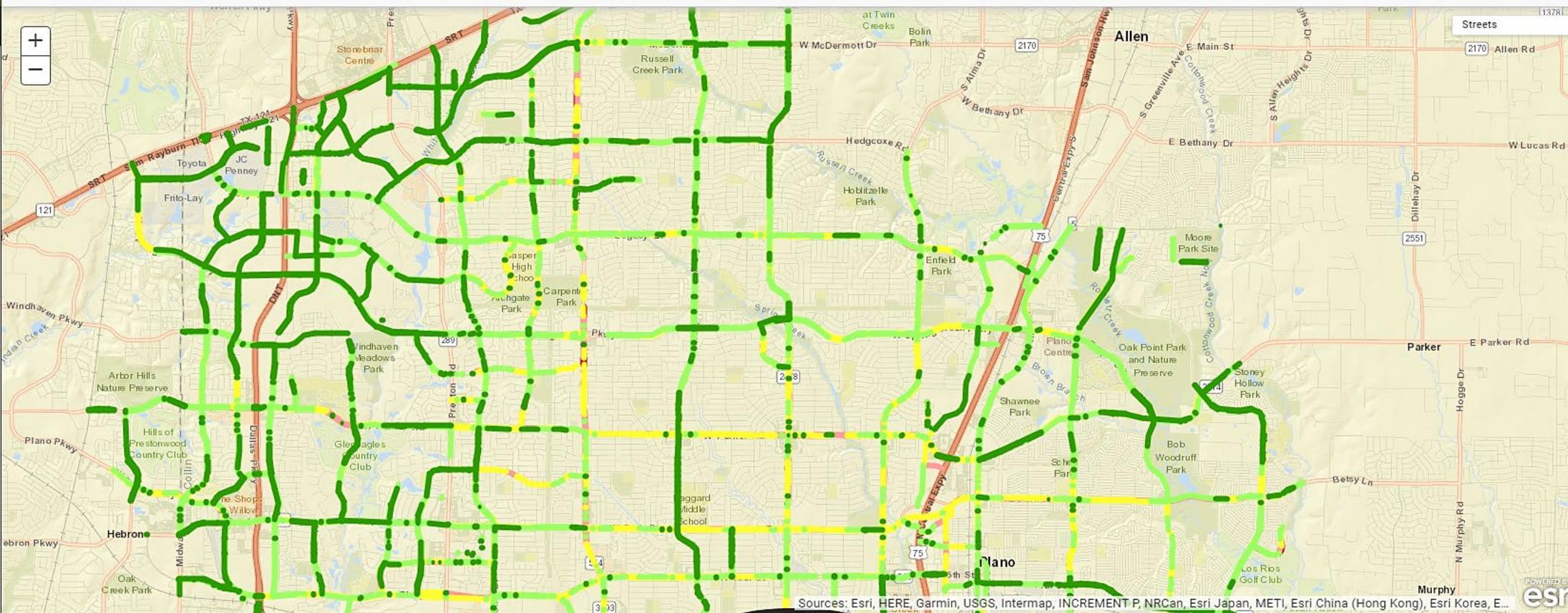
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Arterial F 18

Advanced Filter

Like this layer? SAVE LAYER



ID	ROADSID	Street	Maintained...	Owner	Functional Classifica...	Length	Inspected OCI
1	19933	MAPLESHADE LN	City of Plano	City of Plano	S4D	367.31 ft	98
100	15755	W PLANO PKWY		City of Plano	Median Cut	62.92 ft	80.3



1484 Residential Lane Miles

Minimal Maintenance (Clean Joints/Seal Joints)	Increased Maintenance (Crack Sealing/Joint Grinding/Minor Panel Replacement)	Concrete Panel Replacements	Major Concrete Panel Replacements	Full Reconstruction
22% Grade = A	31% Grade = B	31% Grade = C	13% Grade = D	3% Grade = F



Preservation

Rehabilitation

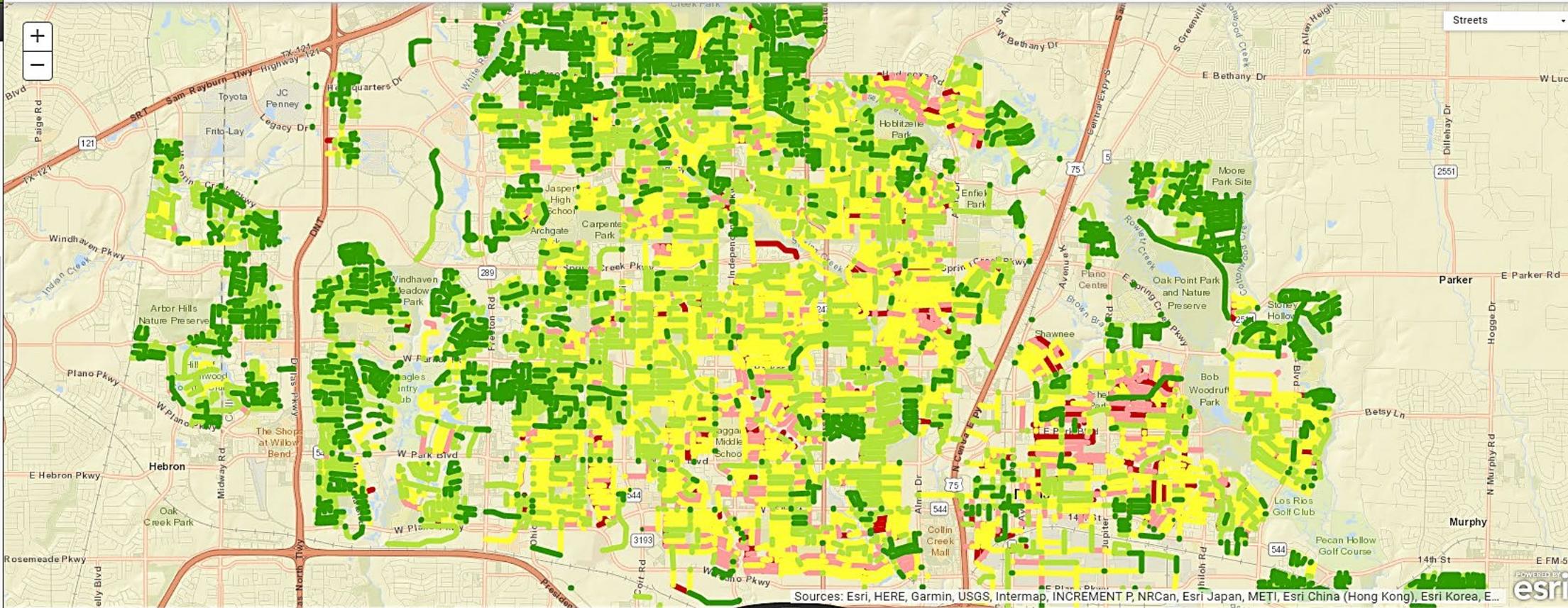


Assets

Map Filter Search by address

Measure Select

- Add layer +
- Like this layer? SAVE LAYER
- Residential A 2384
- Advanced Filter
- Like this layer? SAVE LAYER
- Residential B 3174
- Advanced Filter
- Like this layer? SAVE LAYER
- Residential C 2876
- Advanced Filter
- Like this layer? SAVE LAYER
- Residential D 976
- Advanced Filter
- Like this layer? SAVE LAYER
- Residential F 328
- Advanced Filter
- Like this layer? SAVE LAYER



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, E...

ID	ROADSID	Street	Maintained...	Owner	Functional Classifica...	Length	Inspected OCI
1000	9362	N HILLBRIER CIR	City of Plano	City of Plano	R2U	733.78 ft	60.45
10000	11345	RIDGEWOOD DR	City of Plano	City of Plano	R2U	305.82 ft	62.12



Pavement Management Plan

Street Maintenance



Goal

Maintain Streets to Maximize Life Cycle in the Most Cost Effective Way



Programs

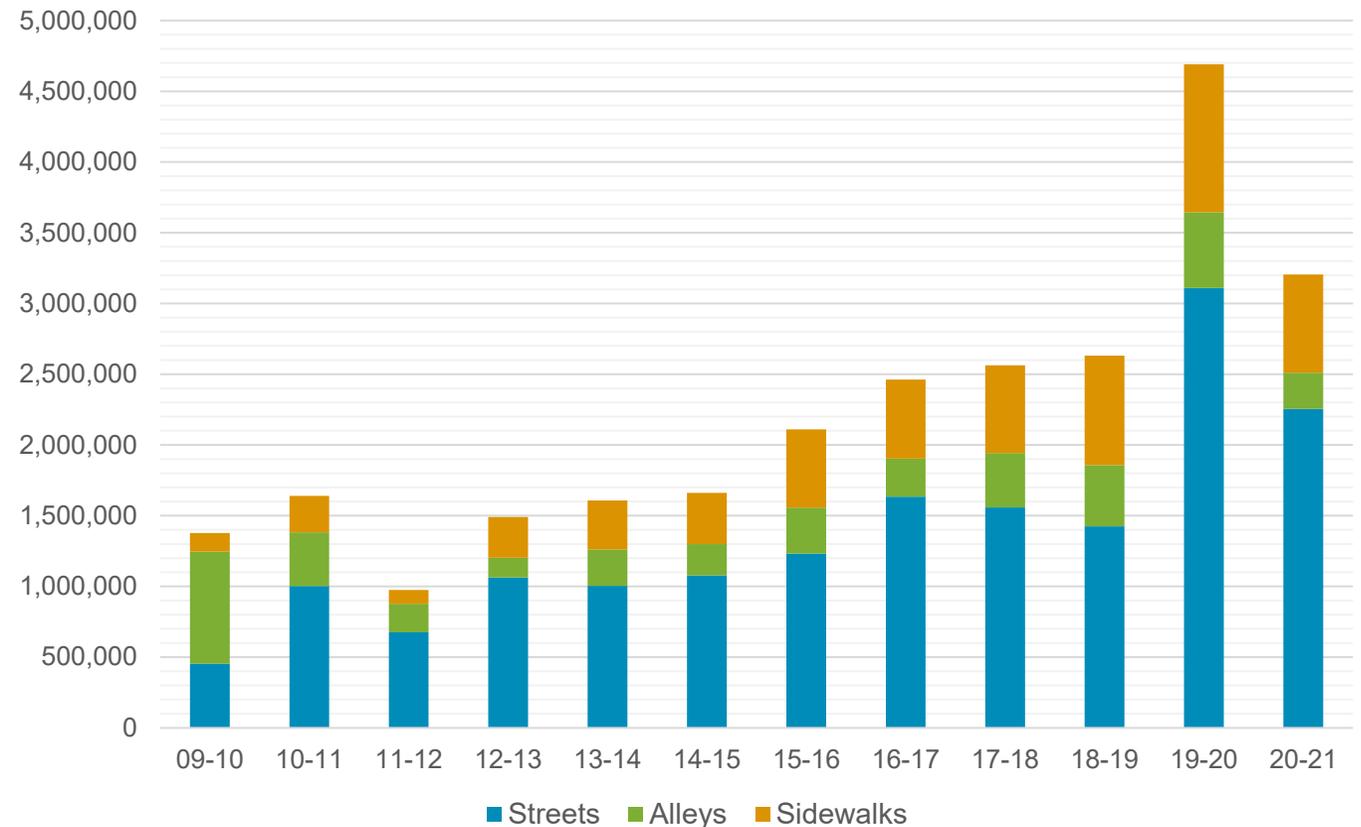
- Pavement Preservation
 - Joint Cleaning
 - Joint Sealing
- Rehabilitation
 - Concrete Repair/Replacement
 - Asphalt Ultra-Thin Overlay
 - Reconstruction



Prioritization

- Pavement Condition
- Pavement Age
- Last Rehab
- Adjacent Projects

Pavement Replaced (SF) per Fiscal Year by Public Works



Pavement Management Plan

Arterial (6-Lanes)					
Roadway Maintenance Strategies					
Grade	Maintenance Type	Cost/ Lane Mile	Design Life (Yr)	Cost/Lane Mile/Year	Impact To Motorists
A	Clean Joints/ Seal Joints	\$8,000	10	\$800	Low
B	Seal/Joint+ Minor Conc Replacement	\$50,000	10	\$5,000	Low
C	Concrete Panel Recon.	\$130,000	20	\$6,500	Medium
D	Major Rehab	\$280,000	20	\$14,000	Medium
F	Full Reconstruction	\$1,500,000	30	\$50,000	High

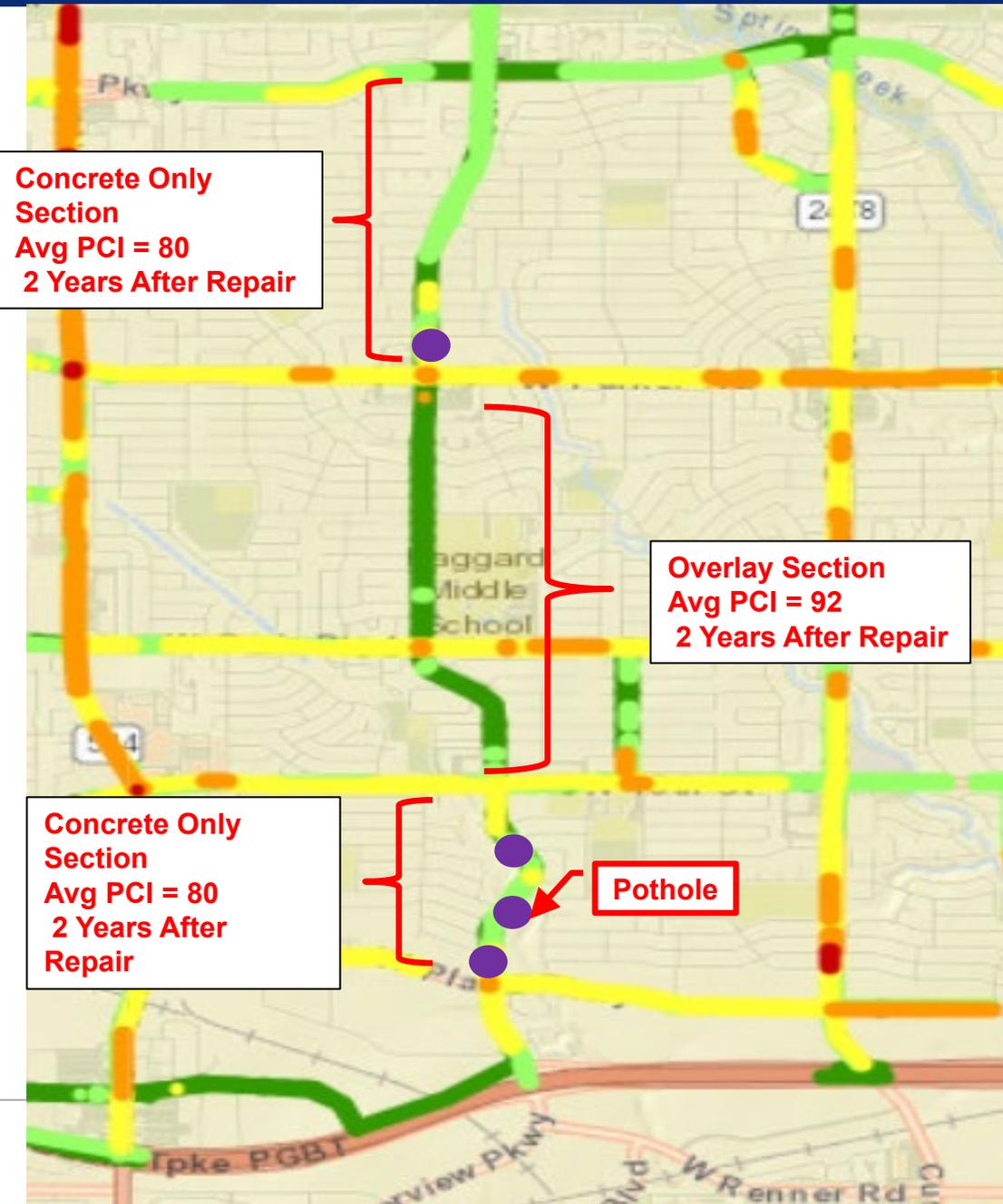
Residential (2-Lanes)					
Roadway Maintenance Strategies					
Grade	Maintenance Type	Cost/ Lane Mile	Design Life (Yr)	Cost/Lane Mile/Year	Impact To Residents
A	Clean Joints/ Seal Joints	\$7,000	10	\$700	Low
B	Crack Sealing/ Joint Grinding/Minor Panel Replacement	\$40,000	10	\$4,000	Low
C	Concrete Panel Replacement	\$200,000	20	\$10,000	Medium
D	Major Rehab/Reconstruction	\$375,000	20	\$18,750	Medium
F	Full Reconstruction	\$1,400,000	30	\$46,667	High

Note: Overlay Adds \$70,000/lane mile to 6 Lane Arterial Maintenance Types w/ 10 year Life

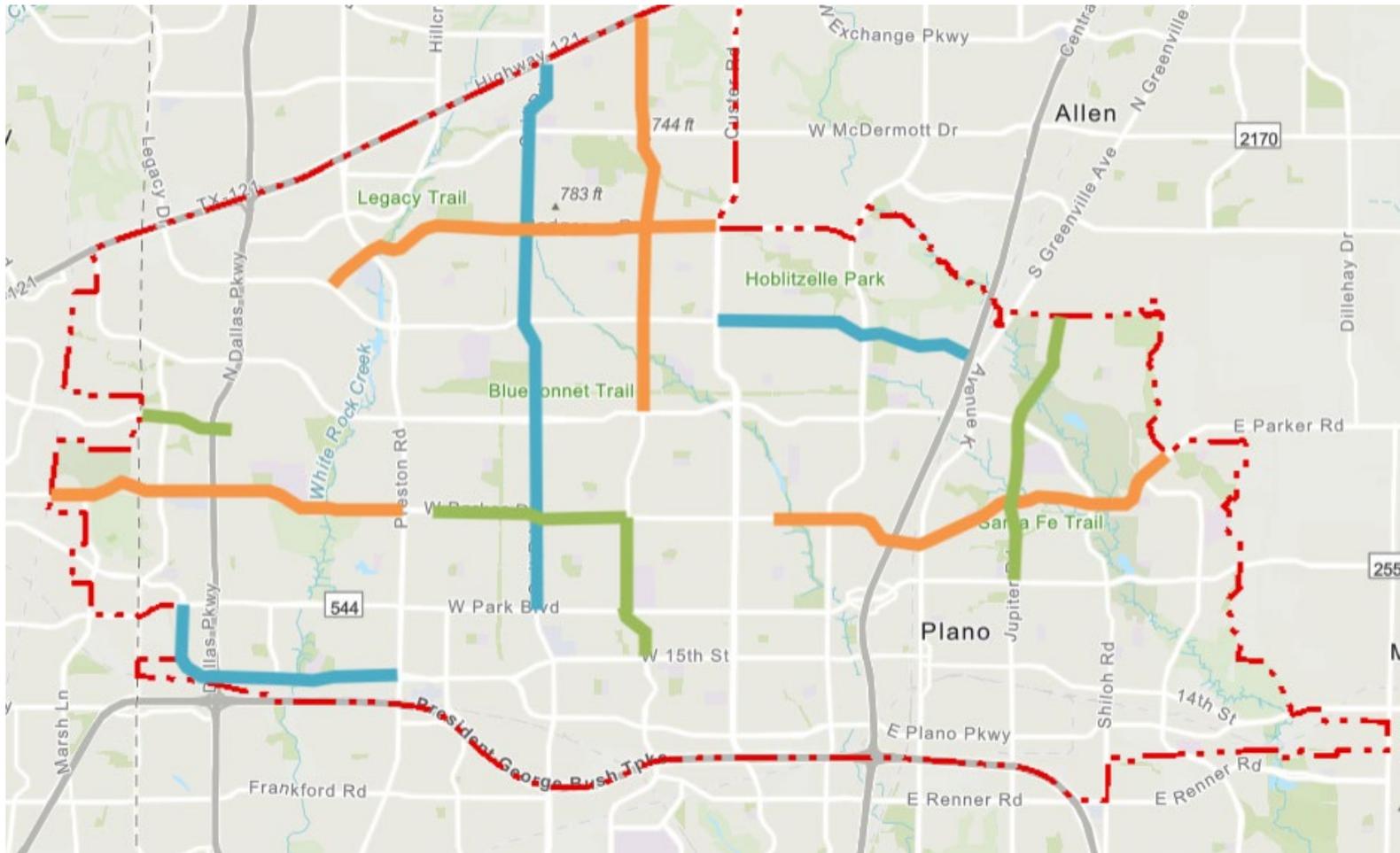


Why Overlay vs Replacement?

- Condition Rating
 - Test Section on Independence Parkway Evaluated 2 Years After Construction and Scored Significantly Higher than Control Section (Concrete Only)
- Protective Layer
 - No Potholes After 3 Years in Asphalt Section. 4 Major Potholes in Concrete Only Section
- Life Cycle Cost
 - Replacement Cost/Mile/Year (40 Yrs) = \$340,000
 - Concrete Repair and Overlay Cost/Mile/Year (10 Yrs) = \$226,000
- Construction Schedule
 - 1 Mile Replacement = 18 to 24 Months
 - 1 Mile Concrete Repair and Overlay = 6 to 8 Months
- Additional Benefits
 - Much Improved Ride Quality
 - Better Aesthetics – Complete Project



Overlay Projects

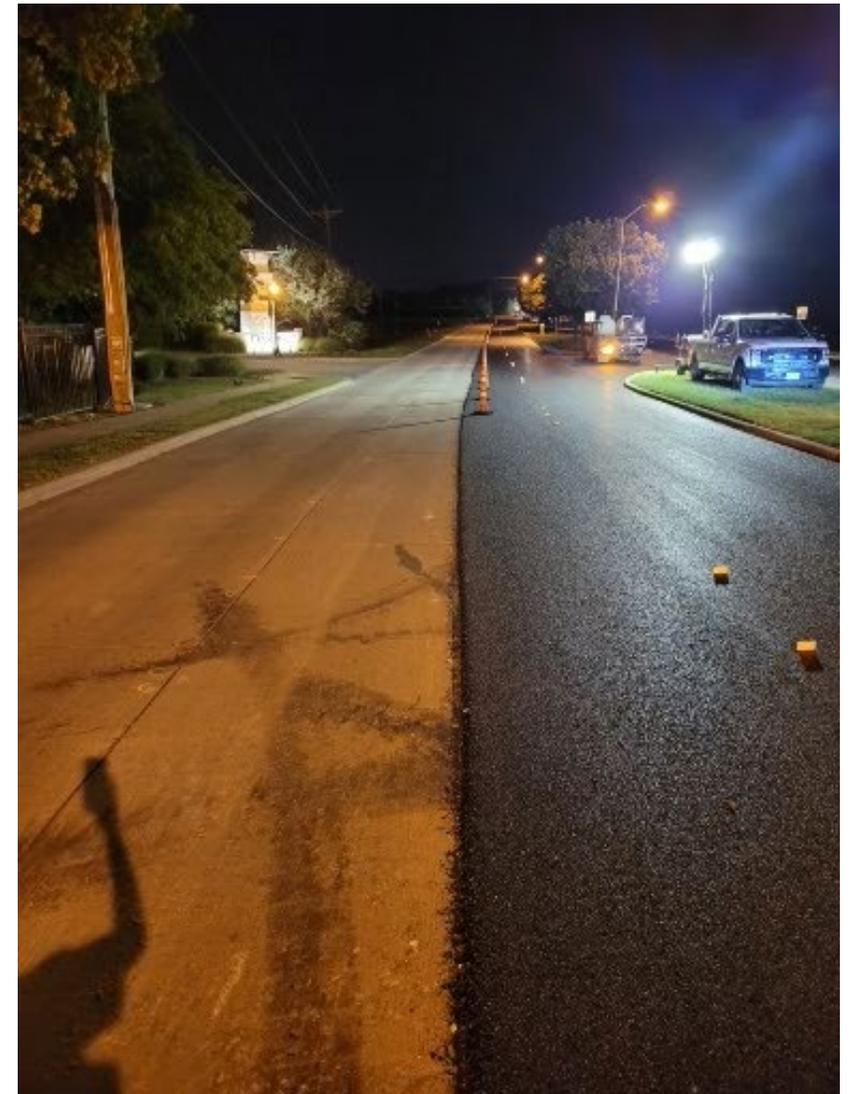
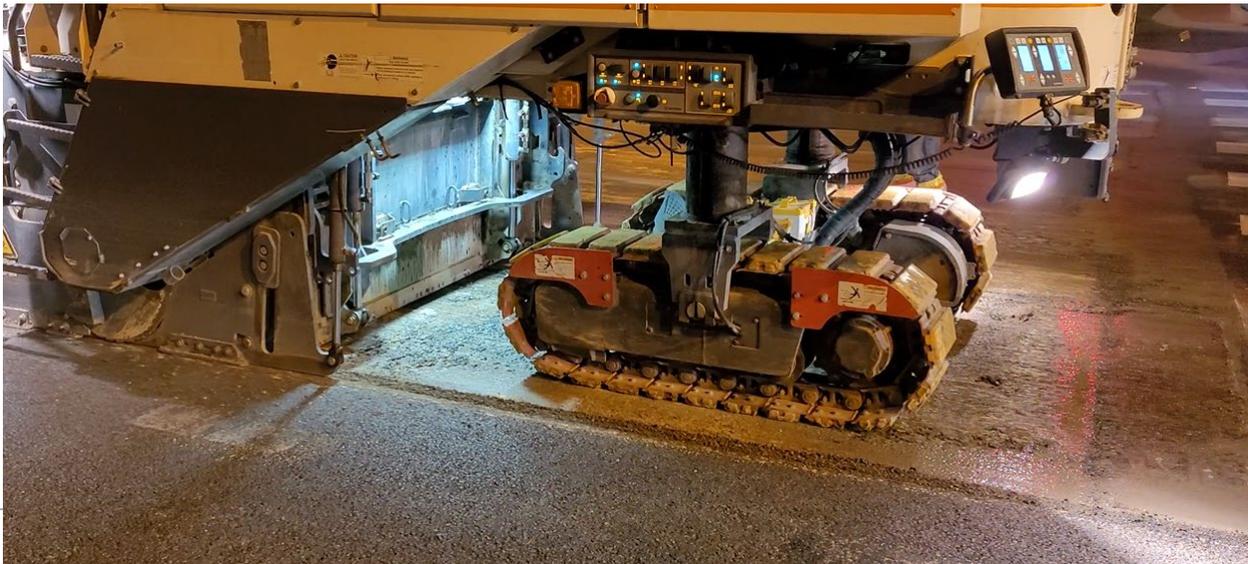
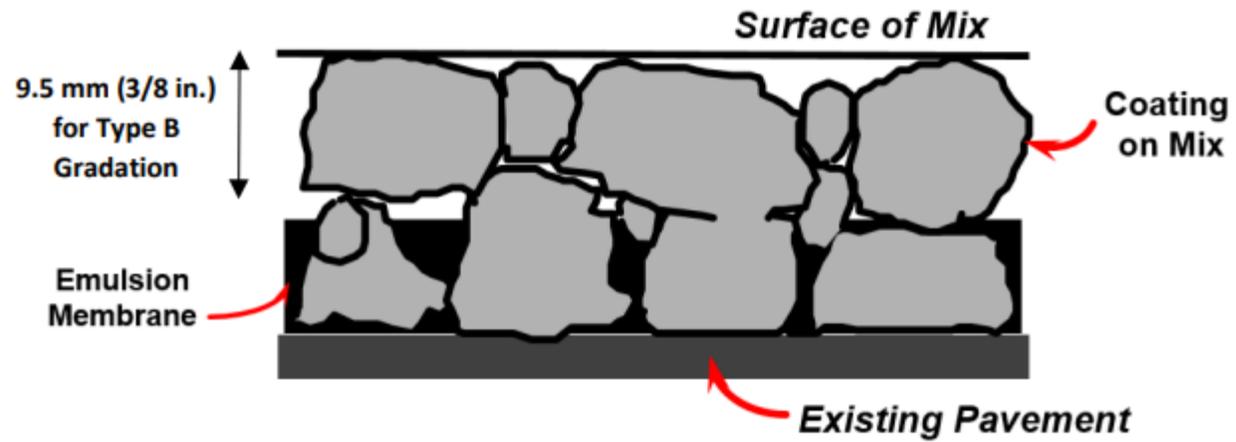


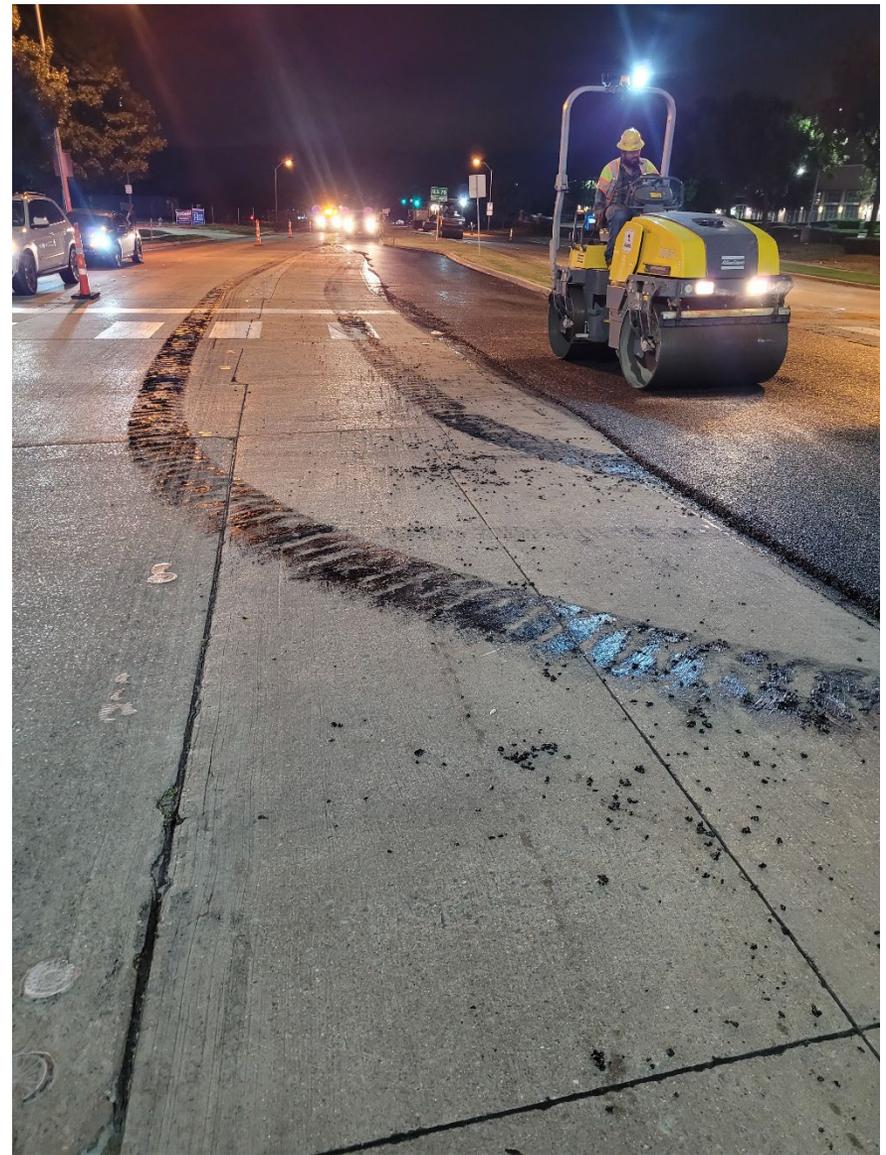
LEGEND

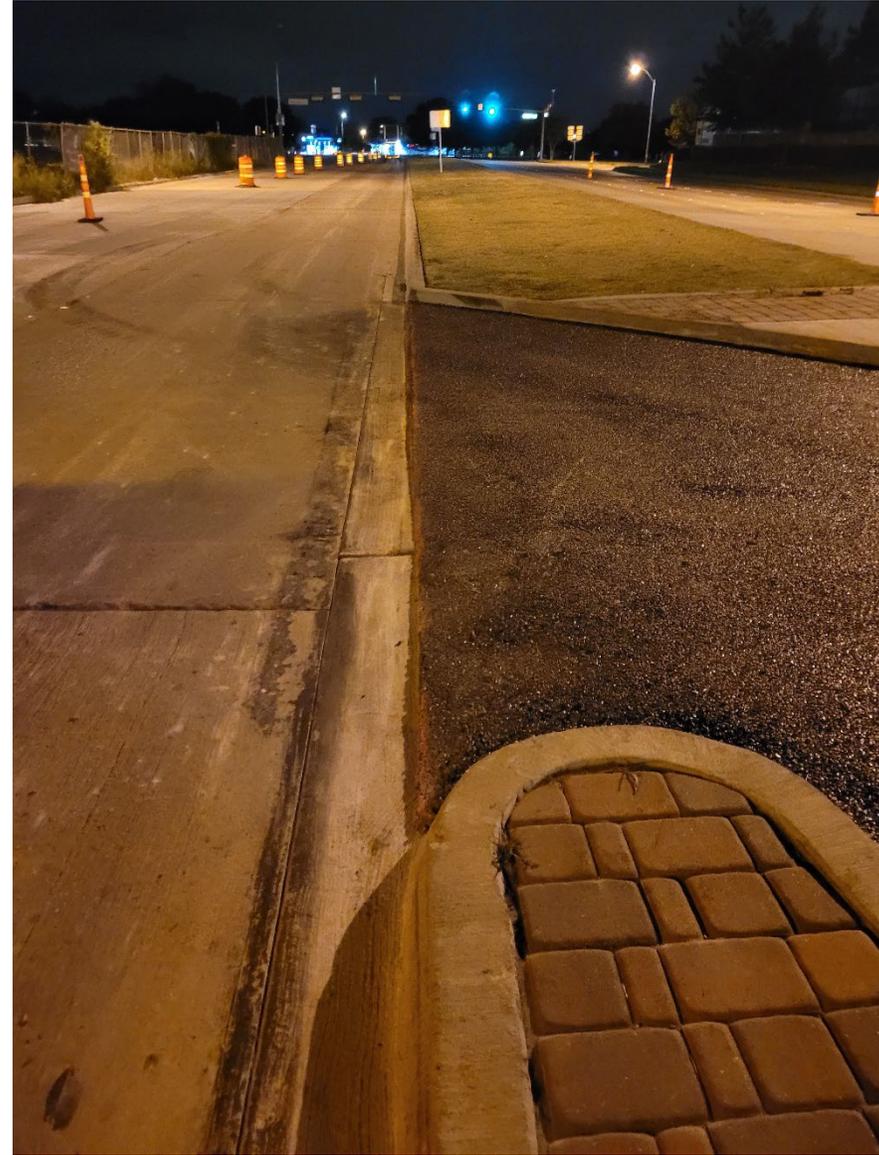
- Complete Projects
- Ongoing Projects
- Upcoming Projects



Asphalt overlay







Lessons Learned

- Day work vs Night work
- Timing is everything!
- Hot applied
- Markings
- Valves & Manholes



Summary

- 10 Year Pavement Maintenance Plan with Annual Adjustments if Needed
- Increased Focus on Preventative Maintenance and Rehab
- Use Data to Help Prioritize Future Projects
- Proactive Approach to Pothole Repair
- Continuous Monitoring and Improvement



Questions?

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