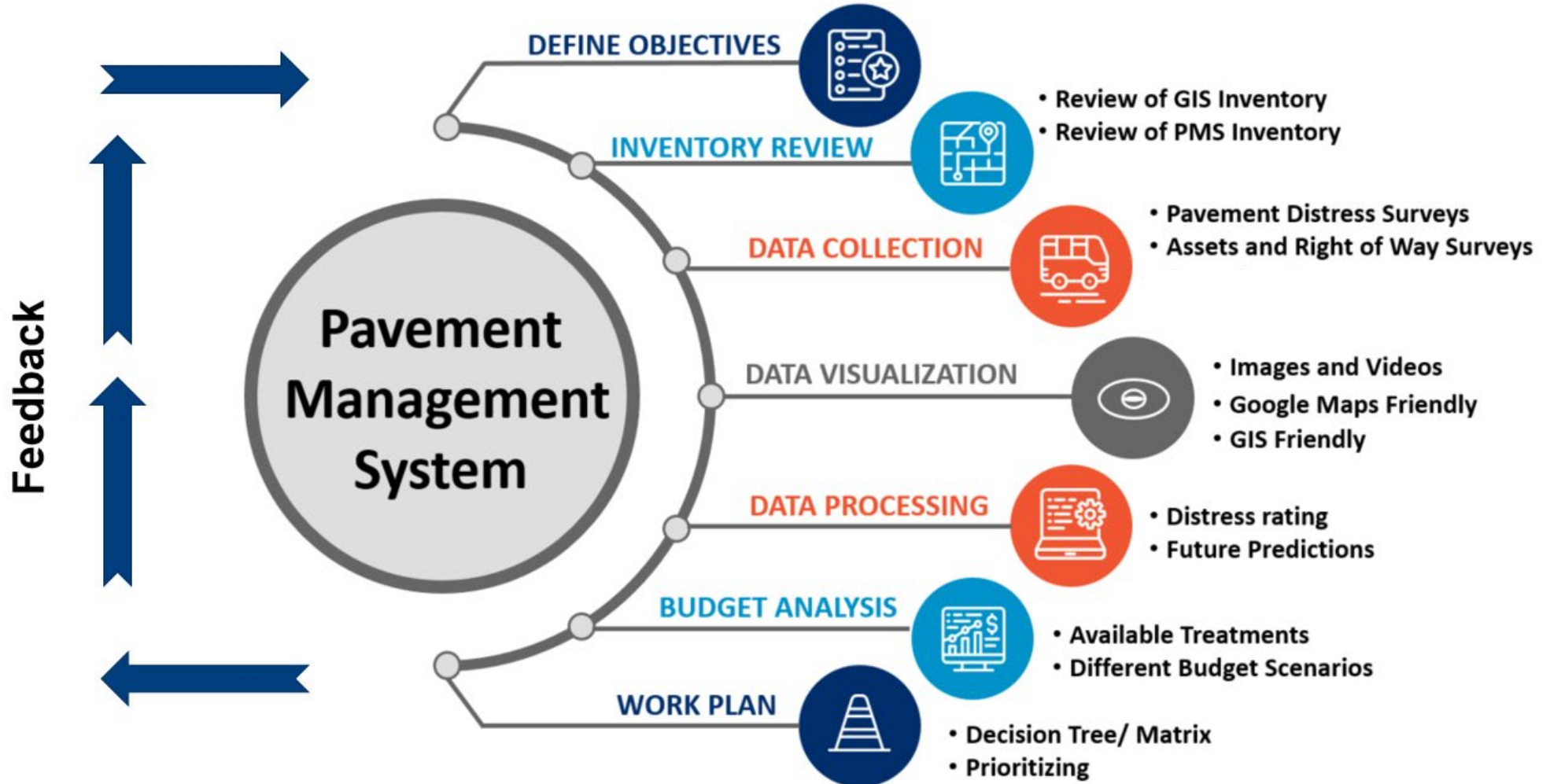


Developing Multi-year Pavement Rehabilitation Plan (case Study Fort Worth).

Omar Elbagalati, PhD, PE
Pavement Management Program Manager

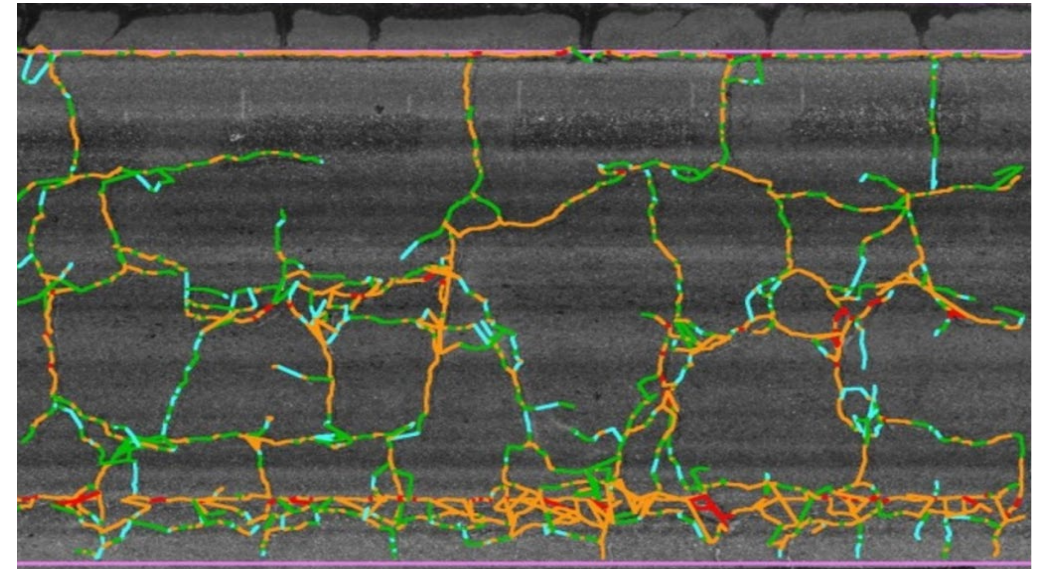
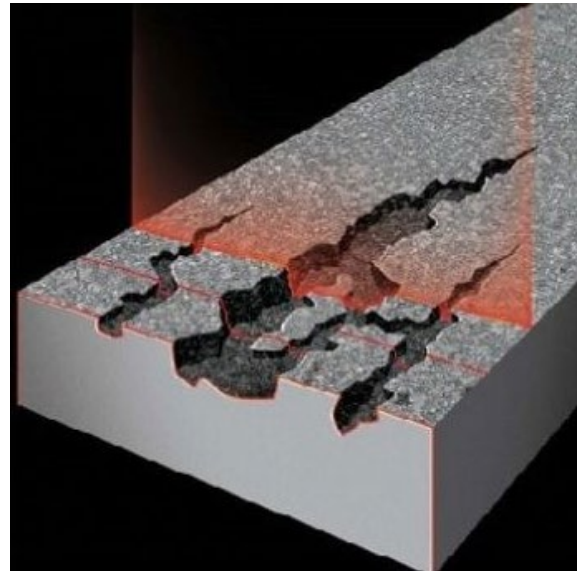
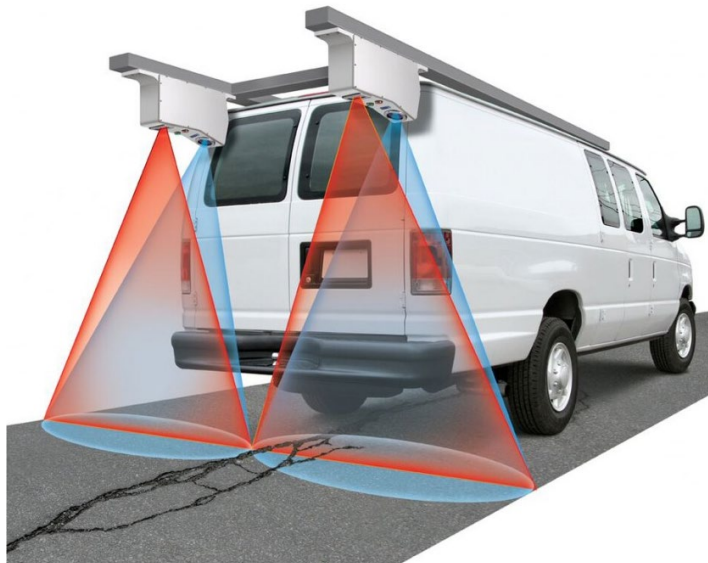
PMS COMPONENTS



SIMPLIFIED OUTLINE

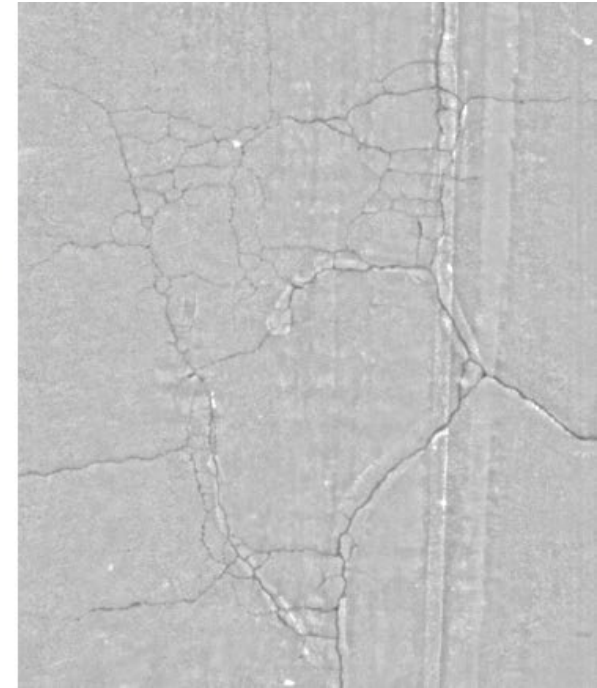
- Data Collection
- Decision Tree
- Budget Constraints
- Socio-economic Decision Factors

Data Collection Procedure 2021-2022



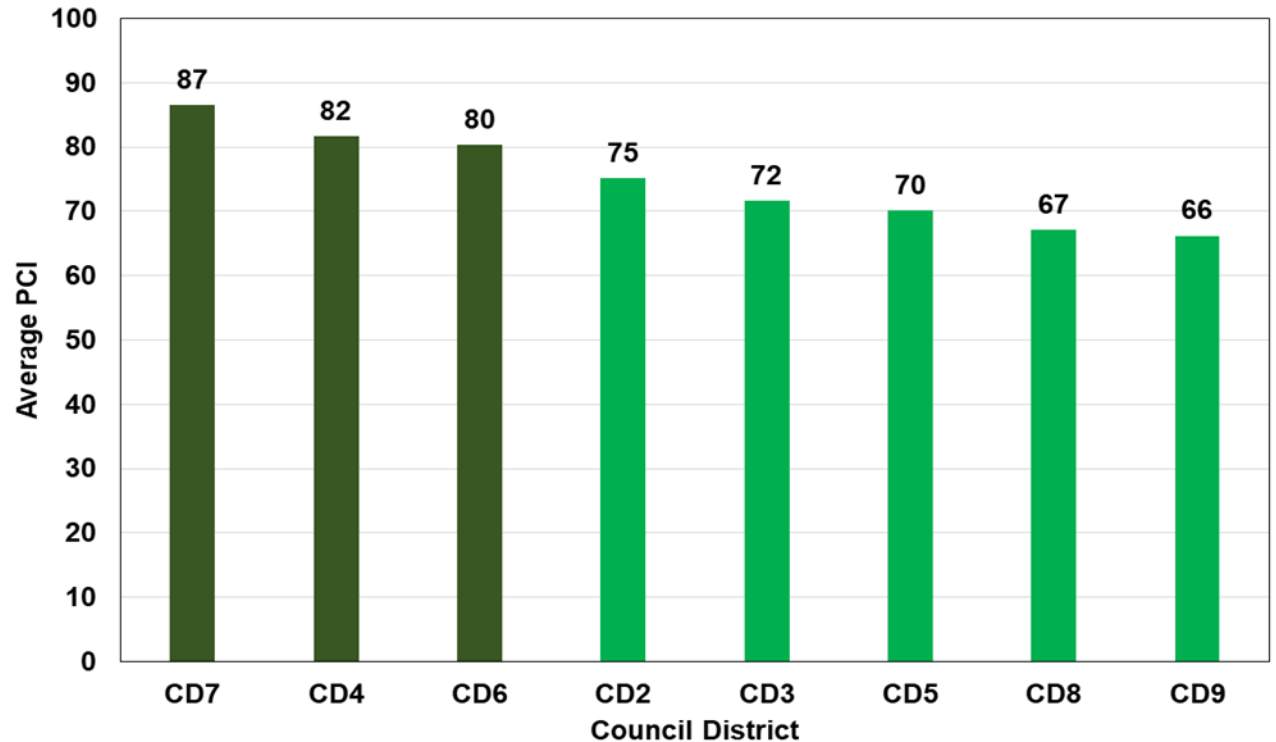
DATA COLLECTION

- Pavement Distresses
- Right of Way Images
- Ride Quality Data
- Asset Inventory (Sidewalks, utilities...etc.)

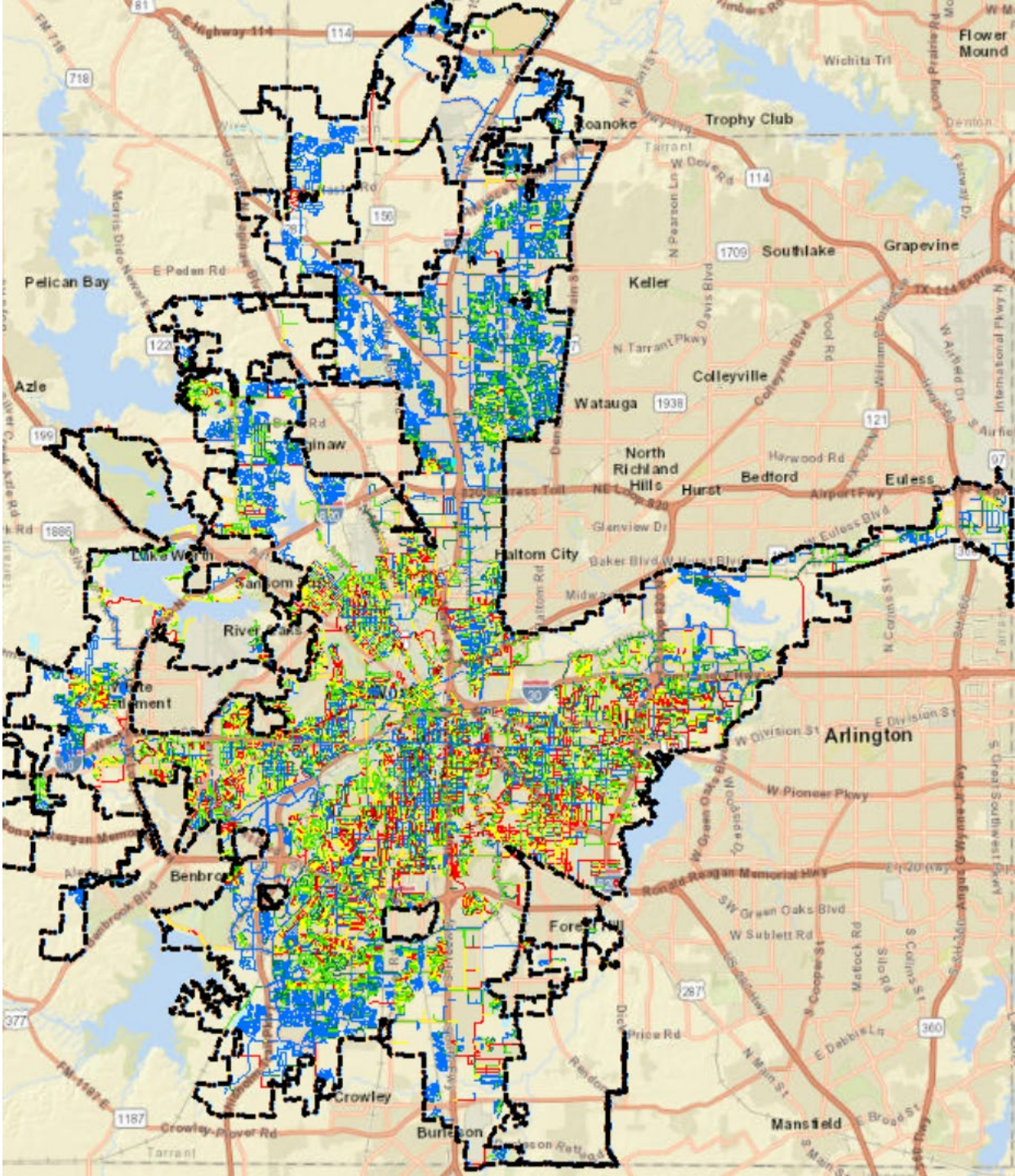


NETWORK STATISTICS

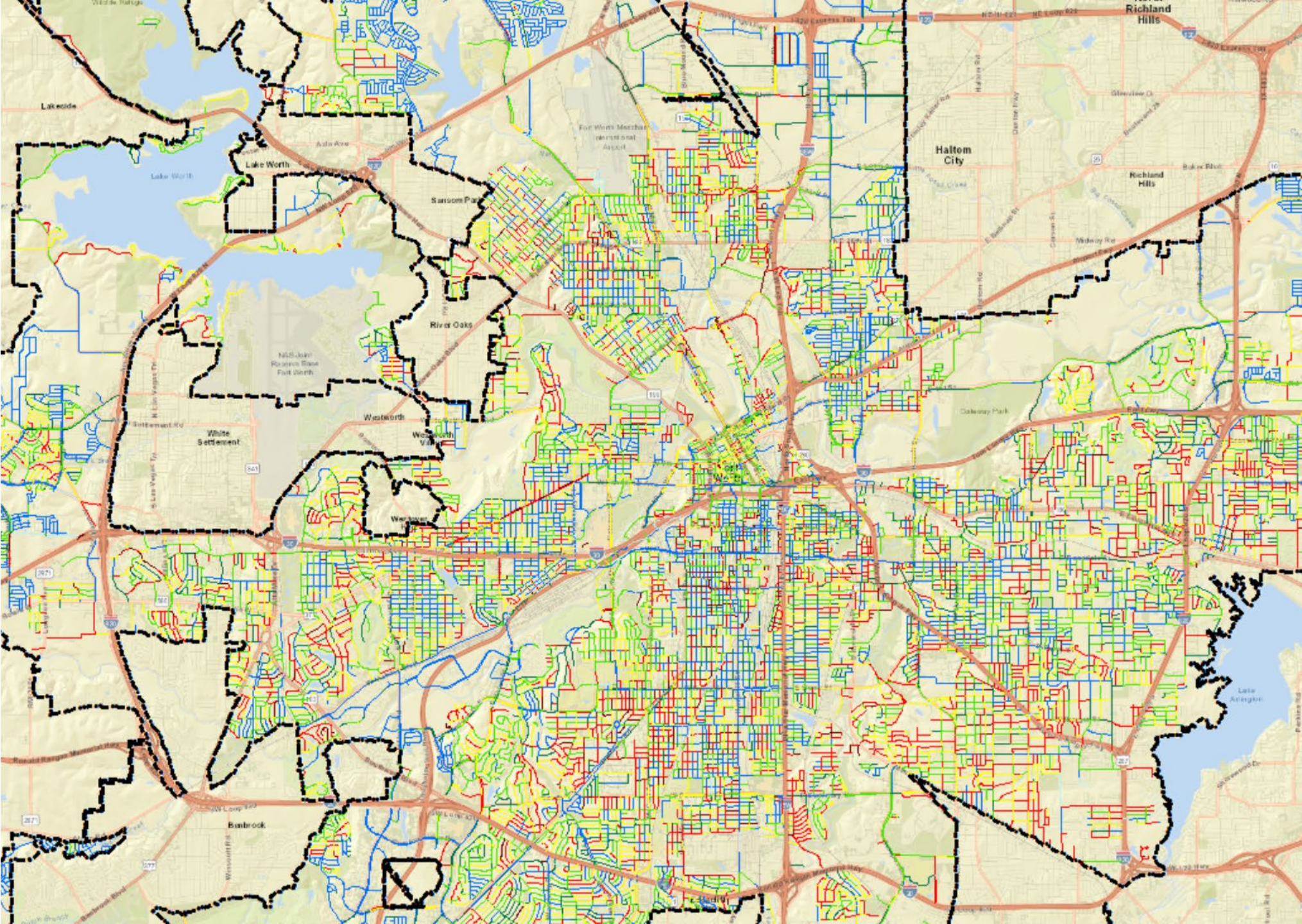
- 8,100 Lane Miles
- Approximately 40,000 Assets
- 52% Asphalt and 48% Concrete
- Overall PCI 74



PCI MAP



PCI MAP



Pavement Maintenance Tool Box

Example of Maintenance Strategies



POL



MOL

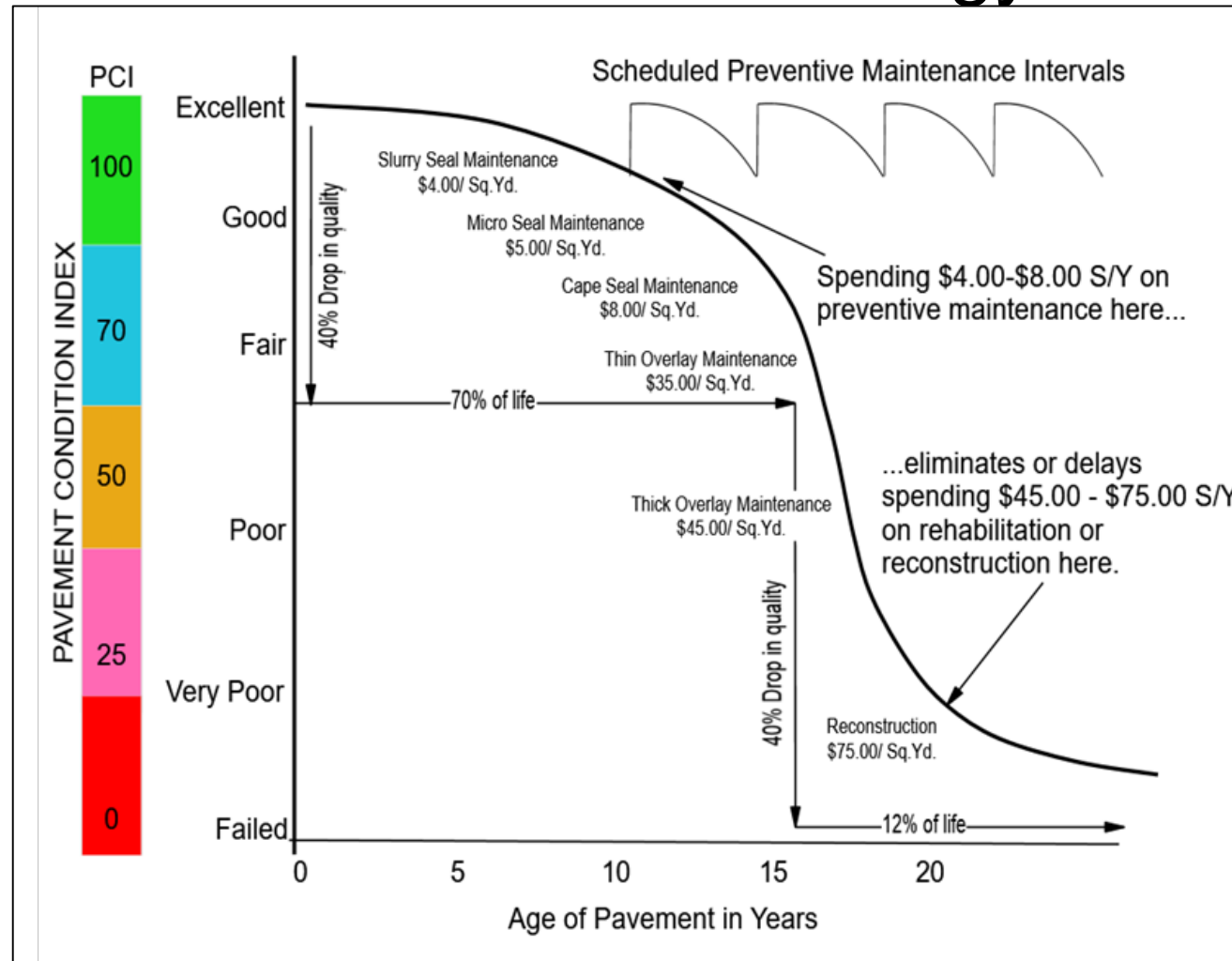


Surface Seal

Concrete Restoration



Optimum Pavement Maintenance Strategy



Cost and impact of Maintenance Strategies

Treatments	Cost/LM	Resulted PCI	ROI*1000 (PCI/\$)
Asphalt Recon	\$ 750,000	100	0.09
Concrete Recon	\$ 1,350,000	100	0.05
Concrete Restoration Arterial	\$ 360,000	+35	0.10
Concrete Restoration Local/ Collector	\$ 90,000	+25	0.39
POL	\$ 286,000	100	0.25
MOL	\$ 190,000	100	0.28
HIPR	\$ 195,000	100	0.19
Join Seal	\$ 25,000	+10	0.40
Surface Seal	\$ 80,000	+20	0.25
POL In House	\$ 130,000	100	0.49
MOL In House	\$ 95,000	100	0.40
Crack Seal In House	\$ 3,000	+5	1.67
Chip seal In House	\$ 20,000	+20	1.00
Do Nothing	\$ -	0	
Monitor	\$ -	0	

Pavement Management Decision Tree



Critical Streets

- Which one is the critical?



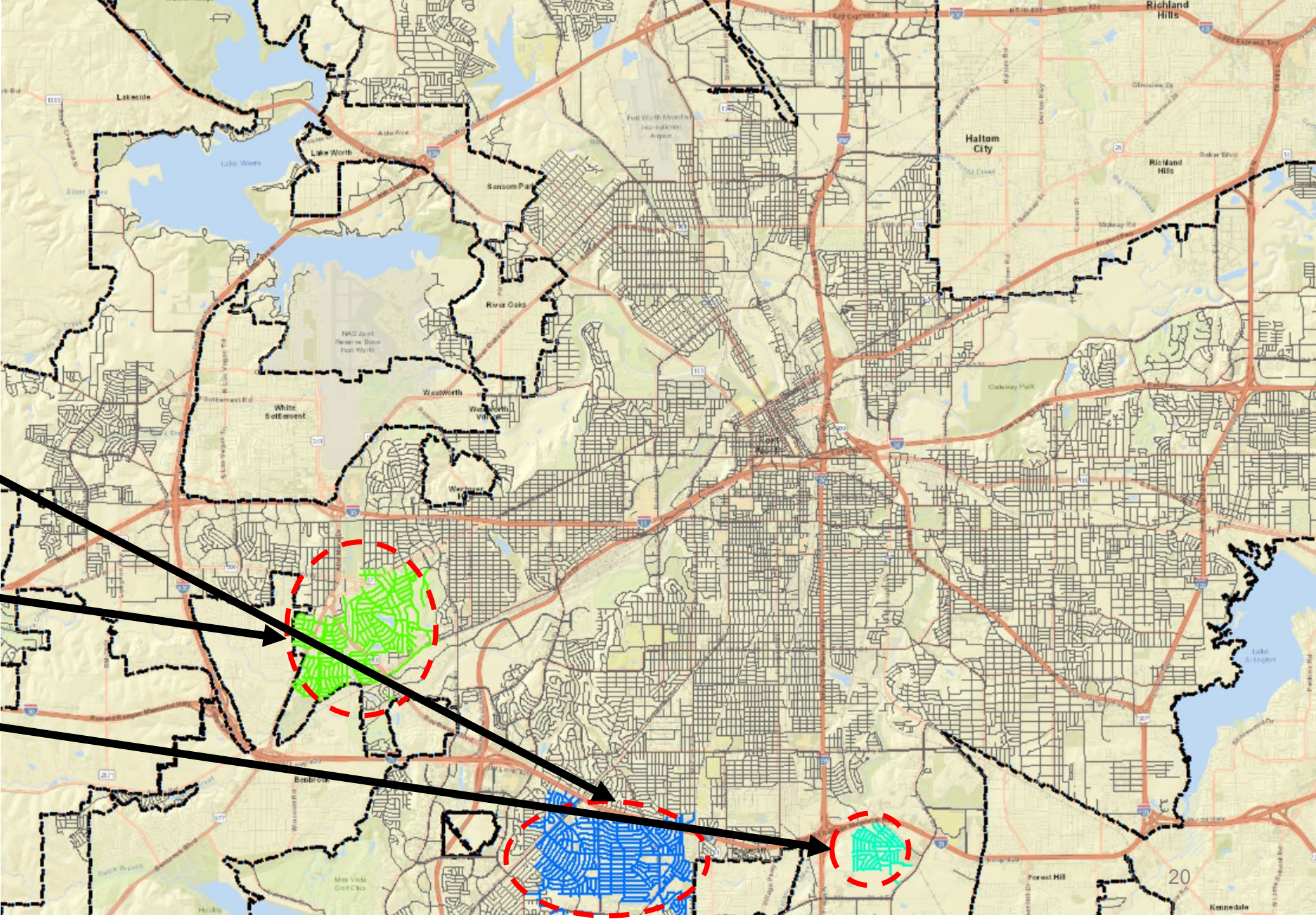
How much will it cost to apply the decision tree to the entire network??

\$840M

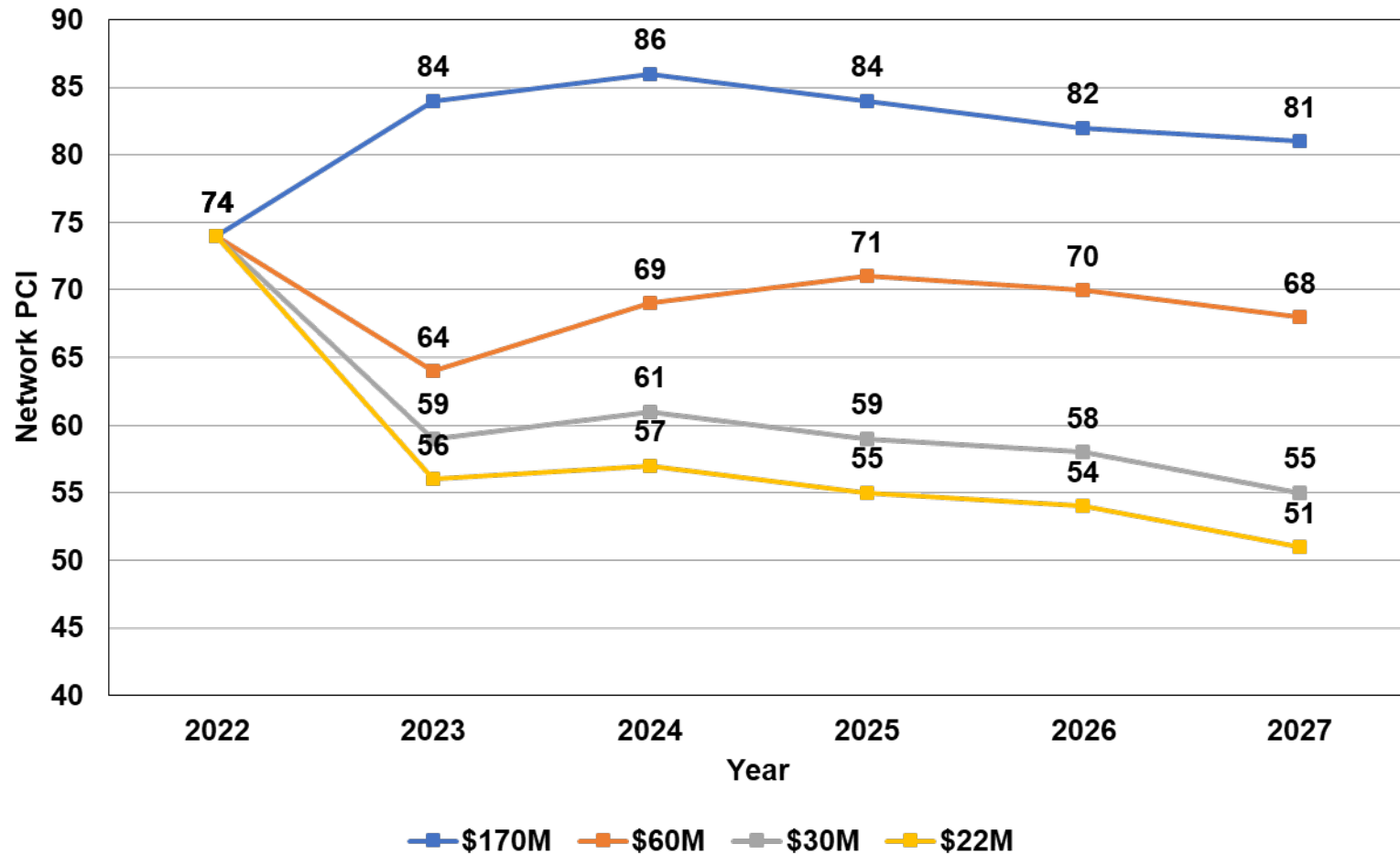
Budget Impact

What can we do with \$22M??

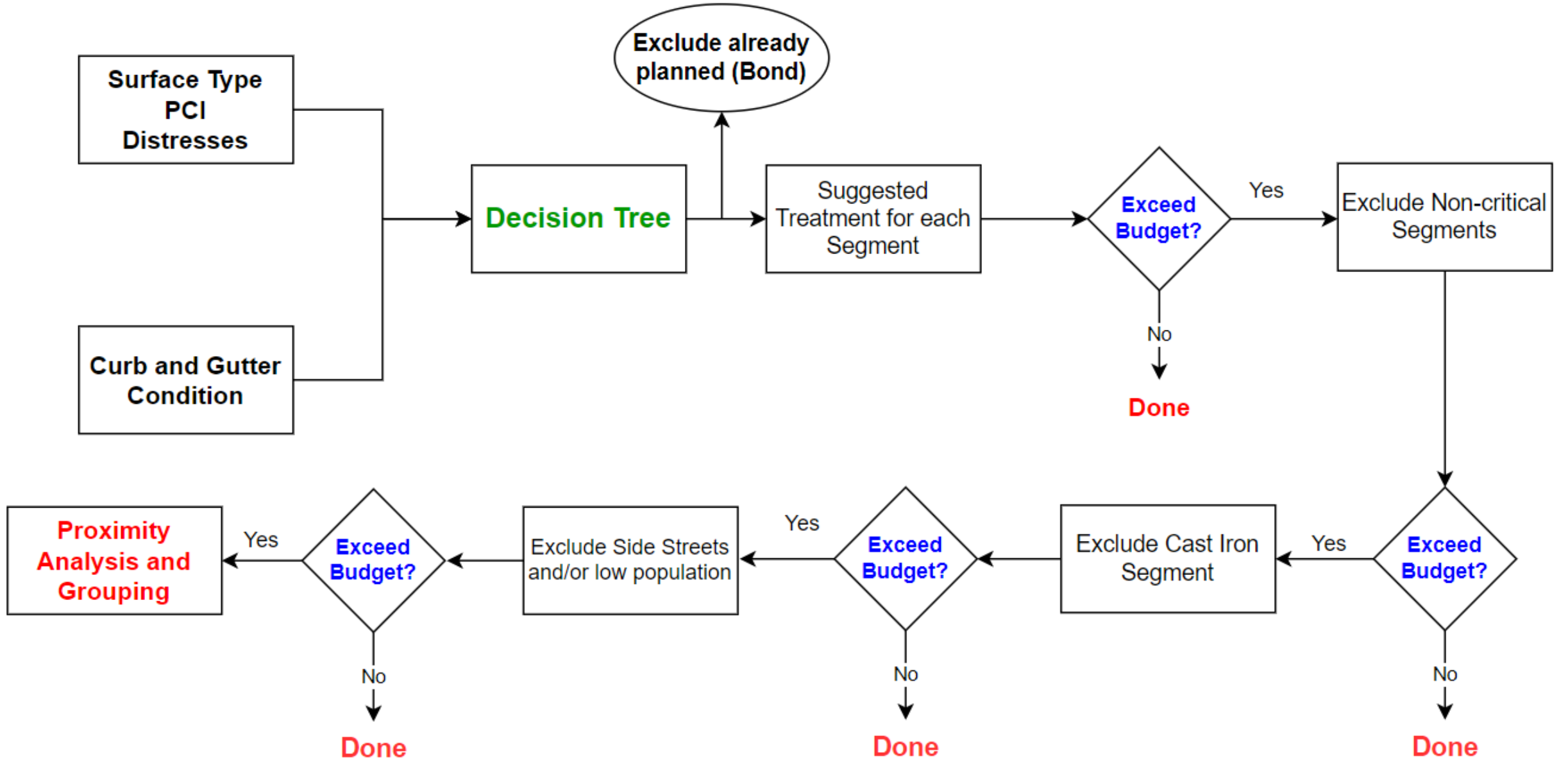
- 150 LM MOL
- 86 LM POL
- 33 LM Recon



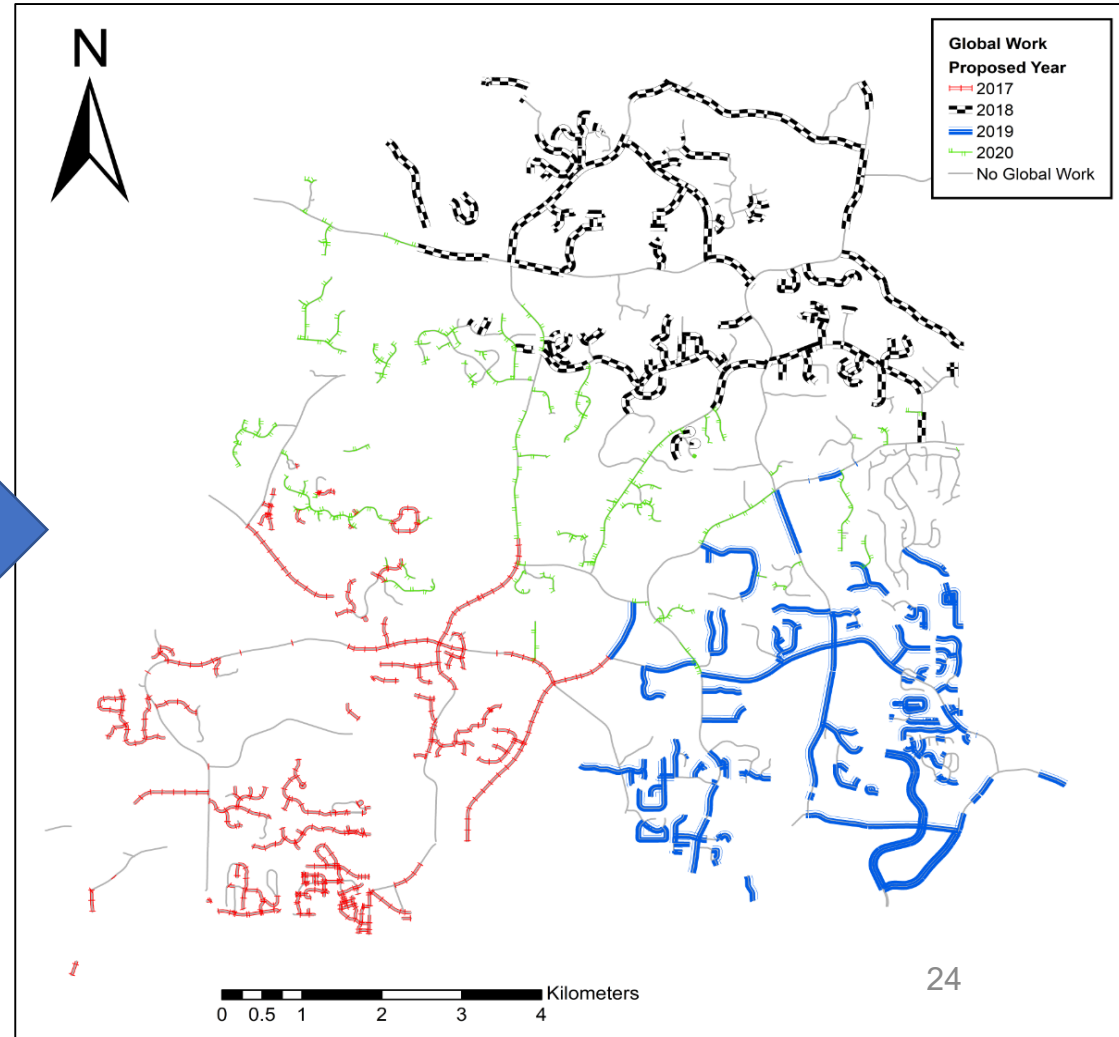
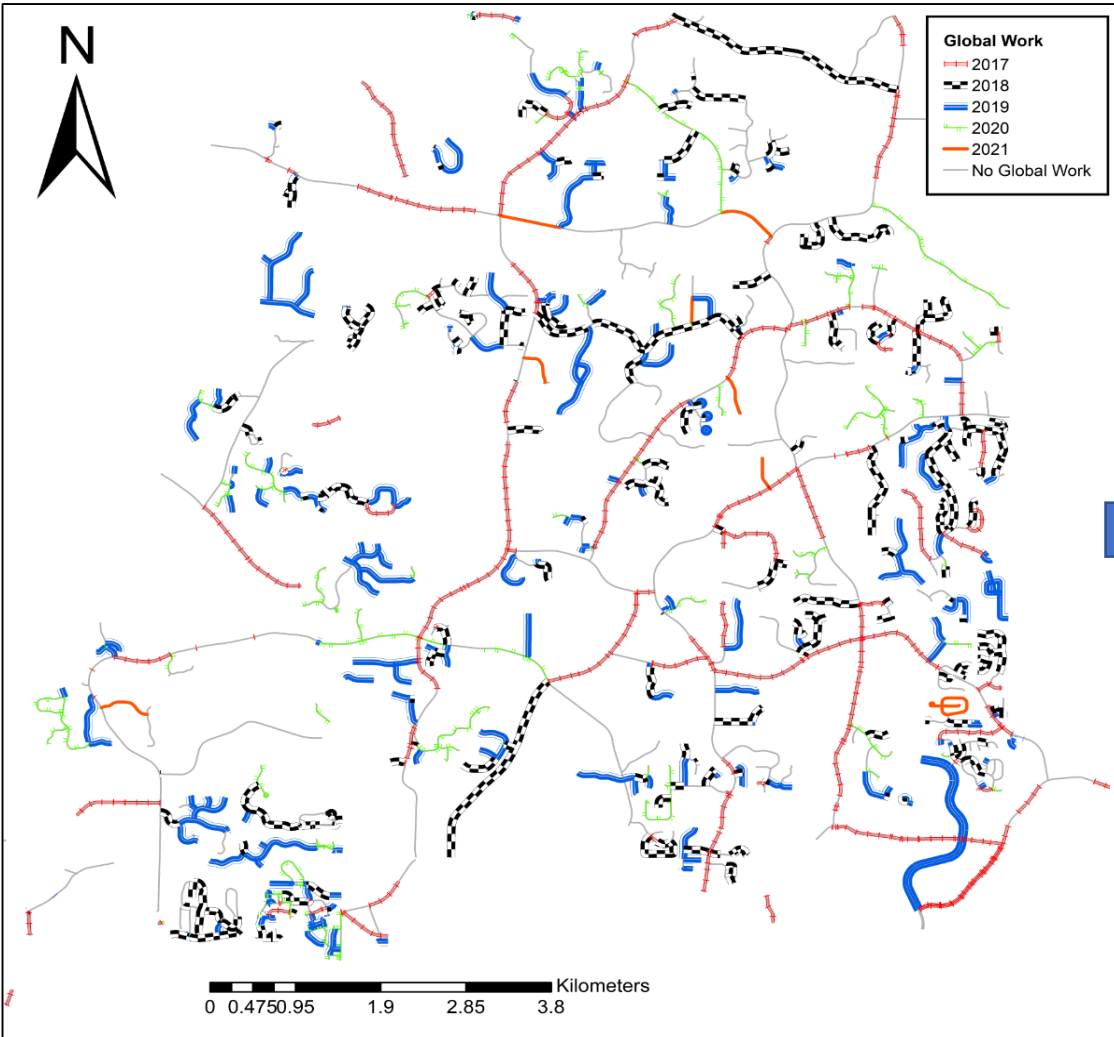
Year vs PCI at Different Budget Scenarios



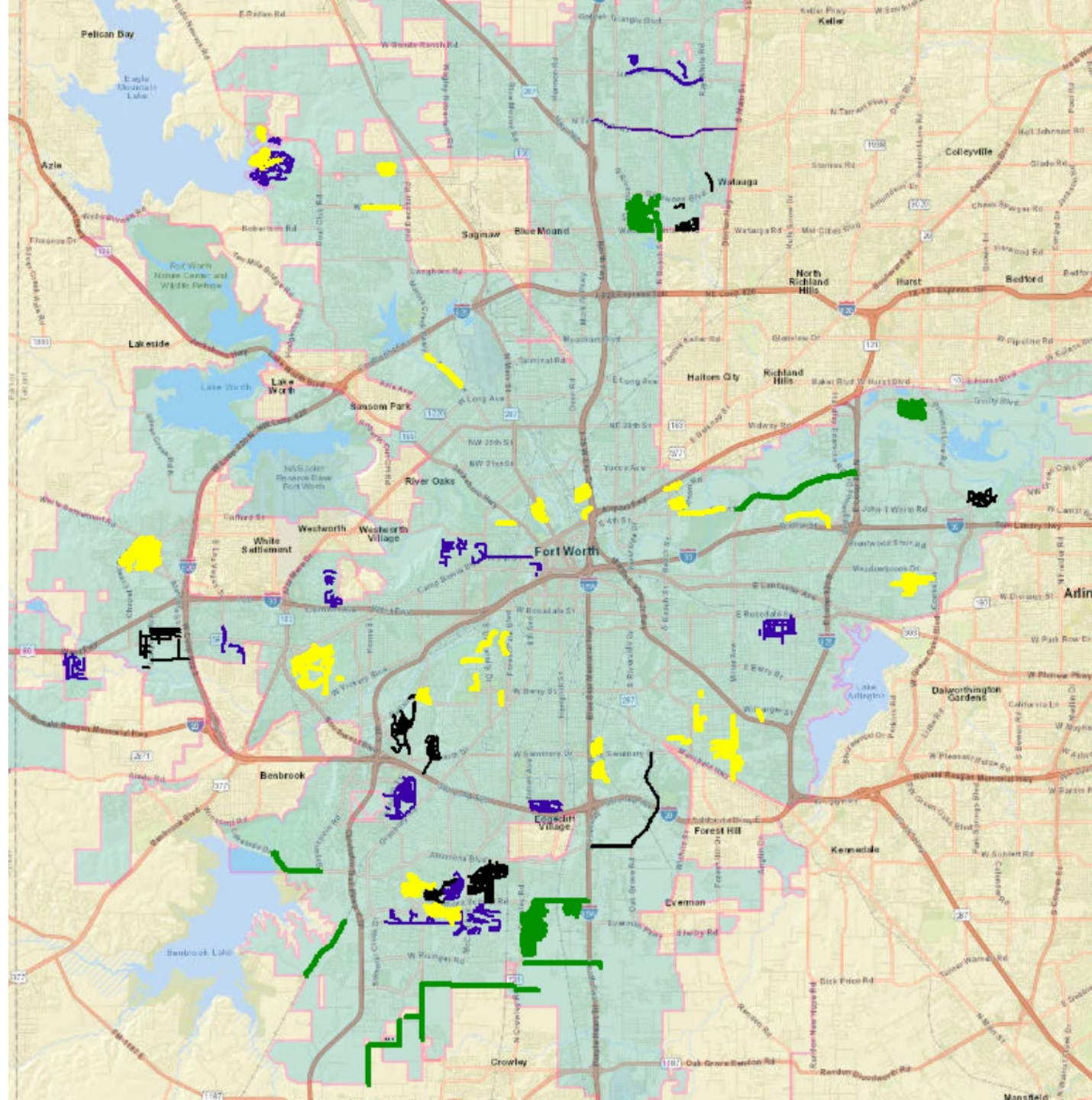
Project Selection Procedure 5-Year Plan



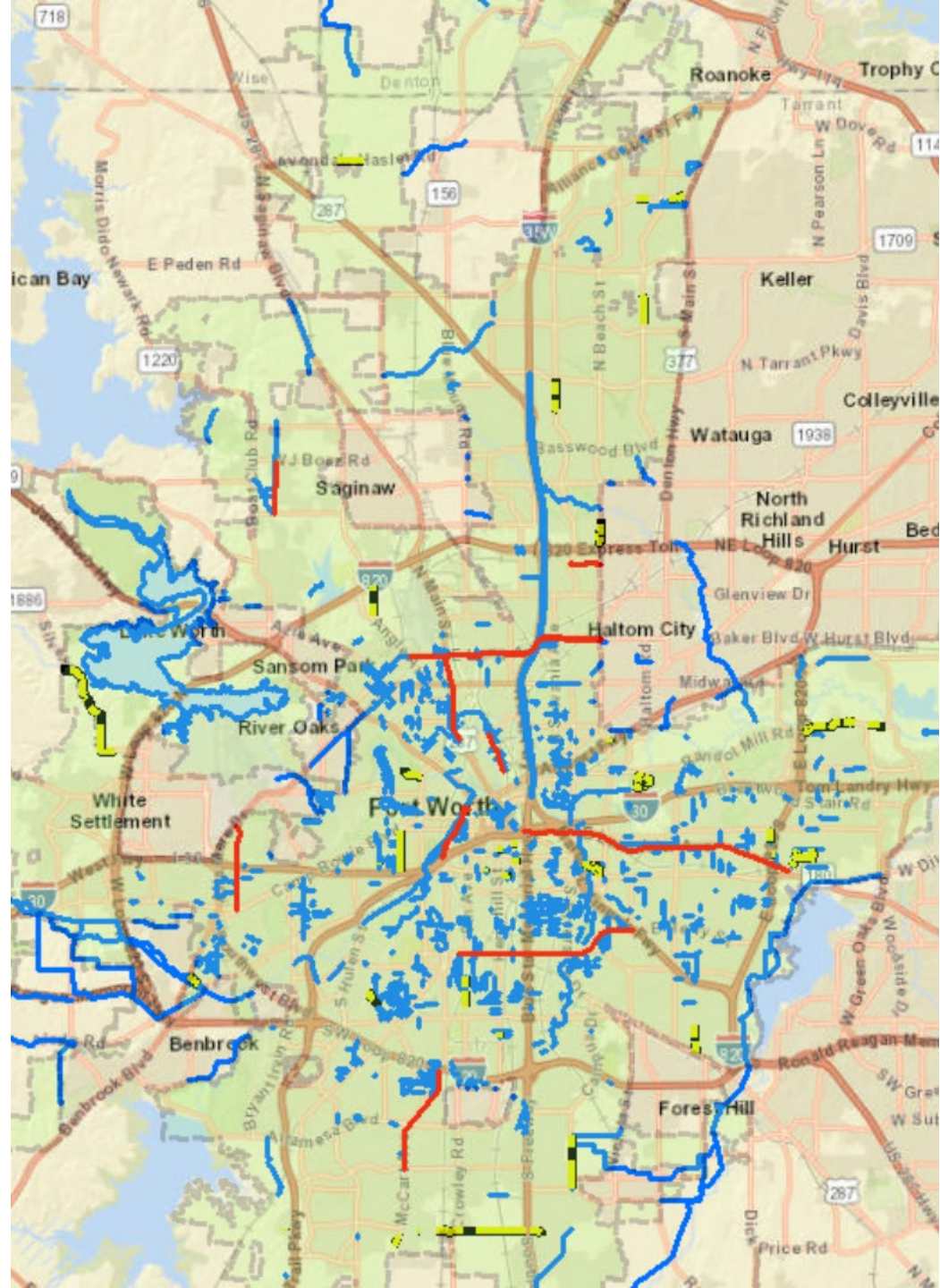
Proximity analysis:



Current Progress

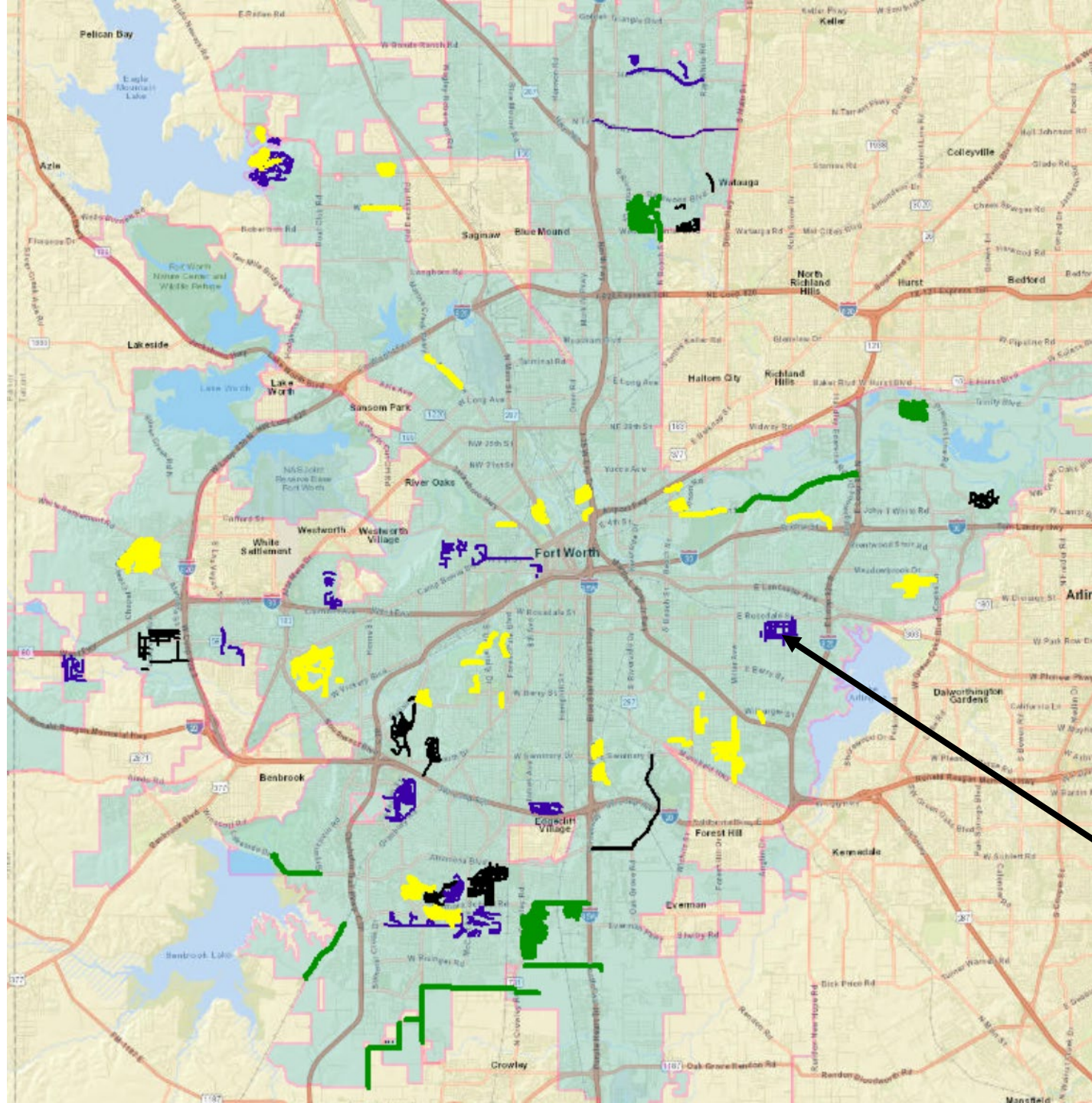


- Year1 Initial
- Year2 Initial
- Year3 Initial
- Year 4 Initial
- Fort_Worth_City_Limit



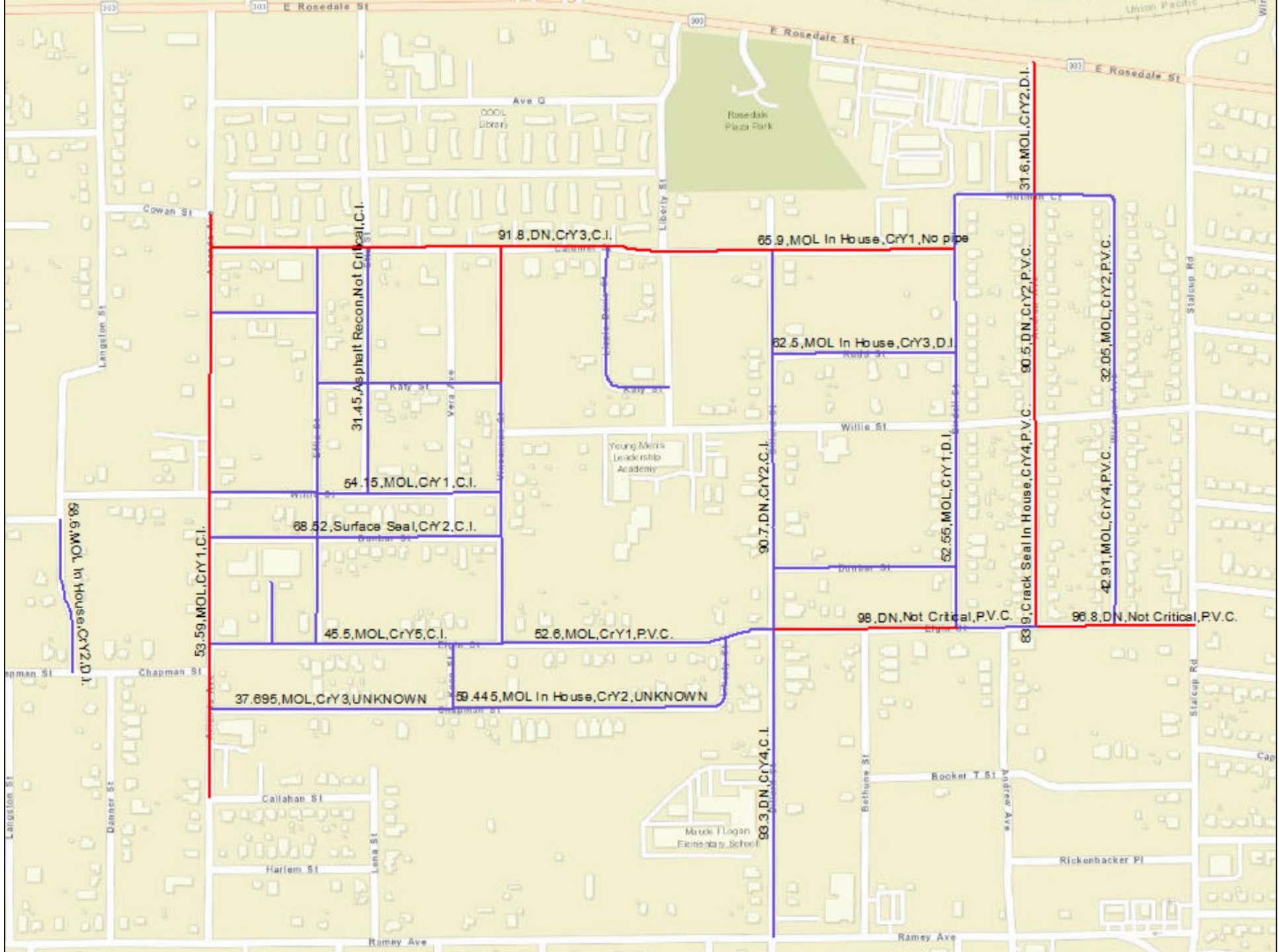
Legend

- Established Corridors
- Current Bond
- WATER.DBO.CIP_WATER
- World Street Map
- Fort Worth City Limit



<input type="checkbox"/>	<input checked="" type="checkbox"/>	Year1 Initial
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Year2 Initial
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Year3 Initial
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Year 4 Initial
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fort_Worth_City_Limit





— Development Project
— Y2 MOL Project

Next Steps

- Perform Detailed Proximity Analysis for Year 5
- Evaluate Different Alternatives and Enhance the selections
- Review all projects for conflicts
- Coordination with Utilities and other Departments
- Perform field visits to confirm each project limits
- Develop final 5-Year Plan GIS Maps
- Upload the 5-Year Plan to Vviewwork
- A Report Showing the Analysis and Procedure Steps

Thank you

