



2021 Bond Program Street Projects

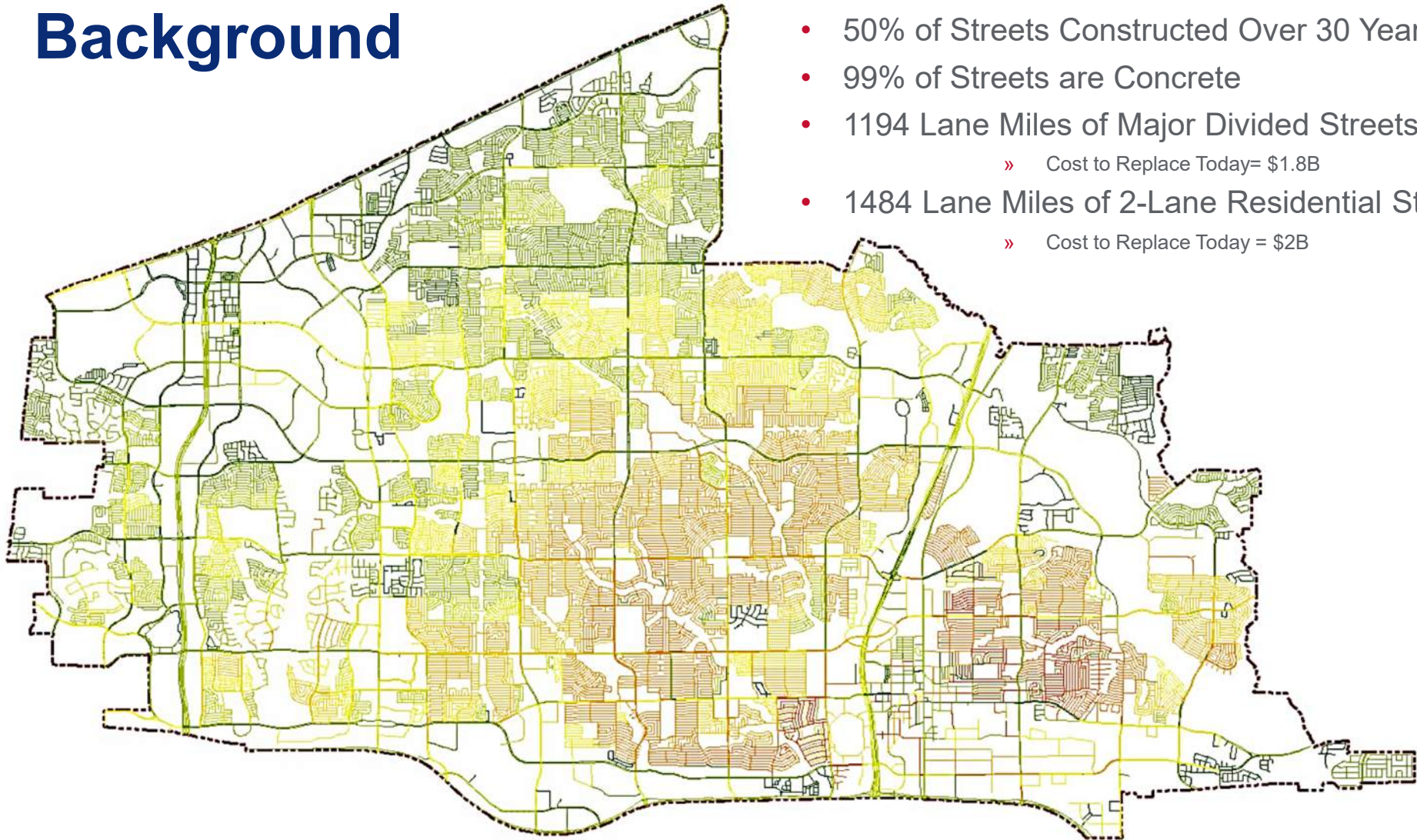
Dan Prendergast P.E.

Assistant Director of Public Works

Caleb Thornhill P.E.

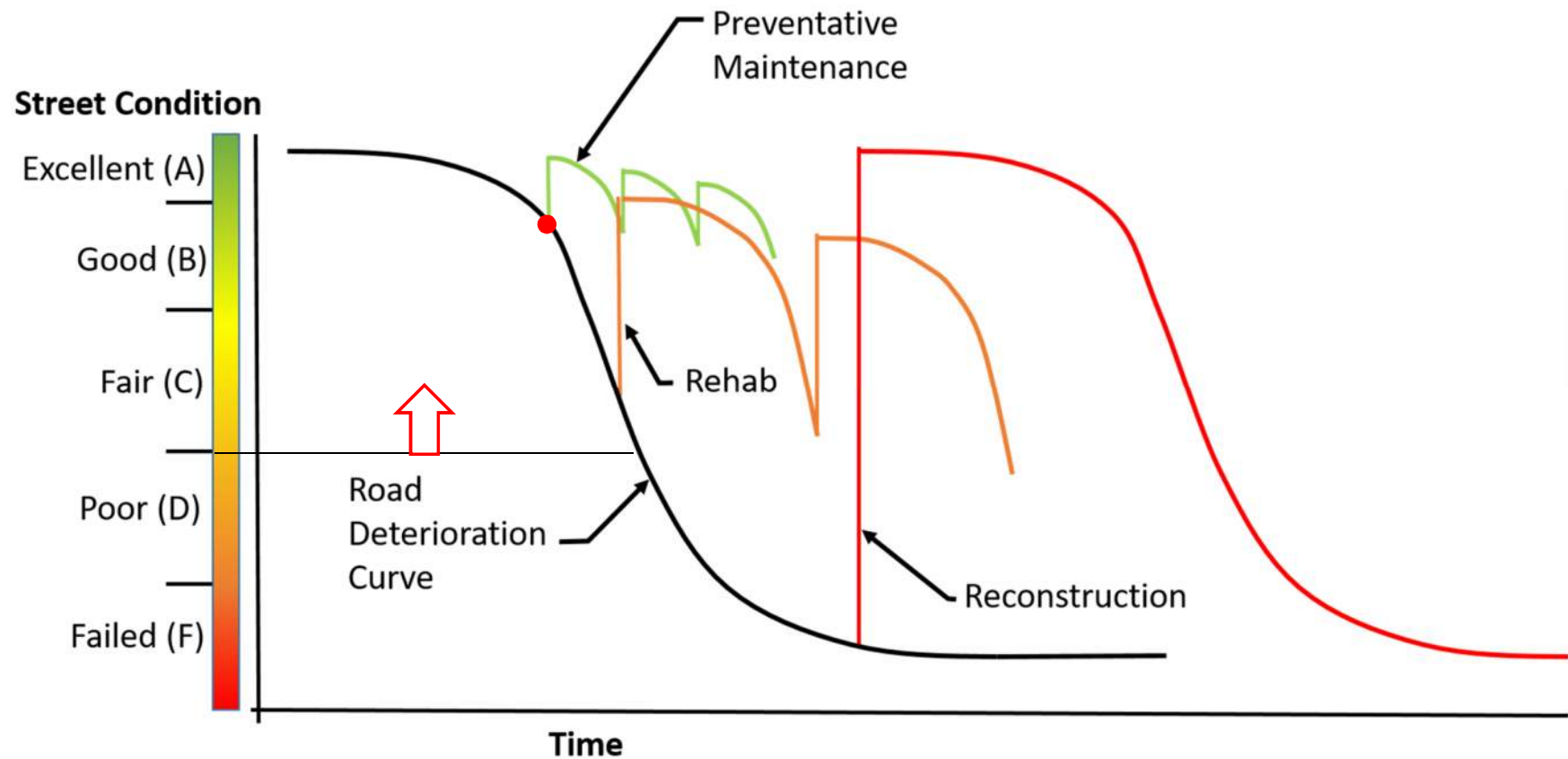
Director of Engineering

Background



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

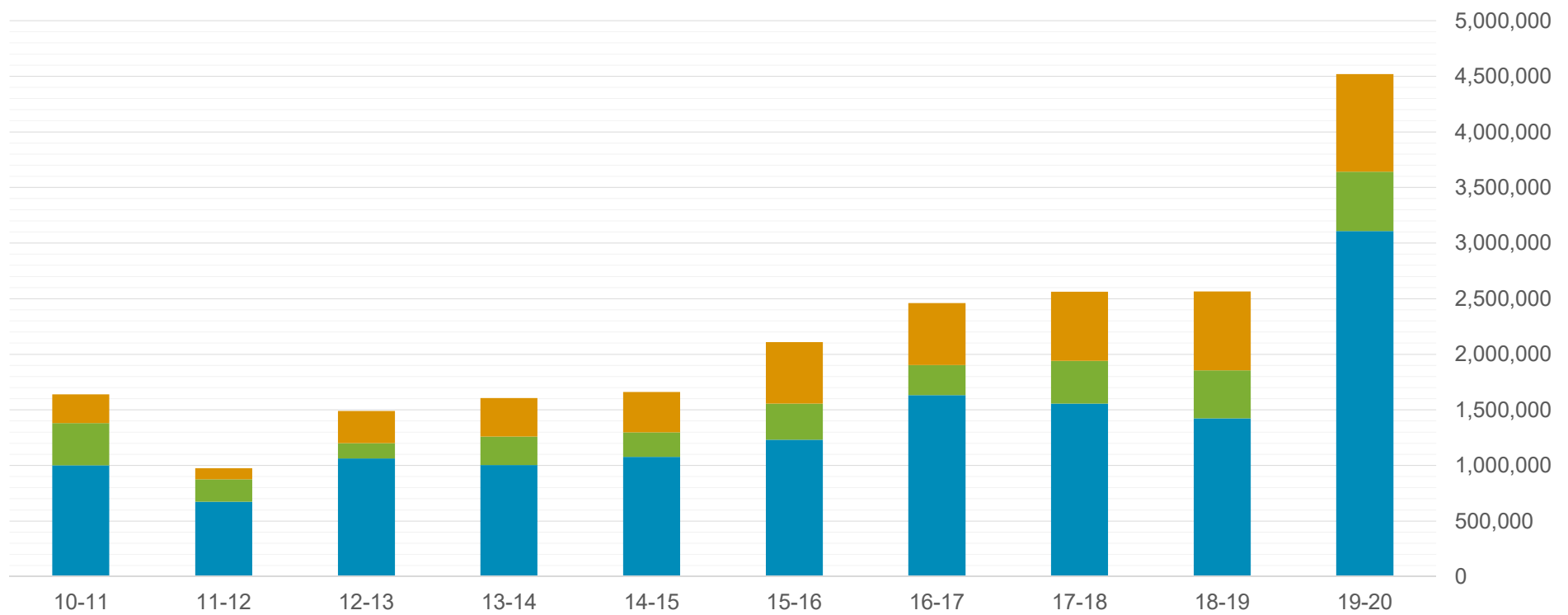
Pavement Management



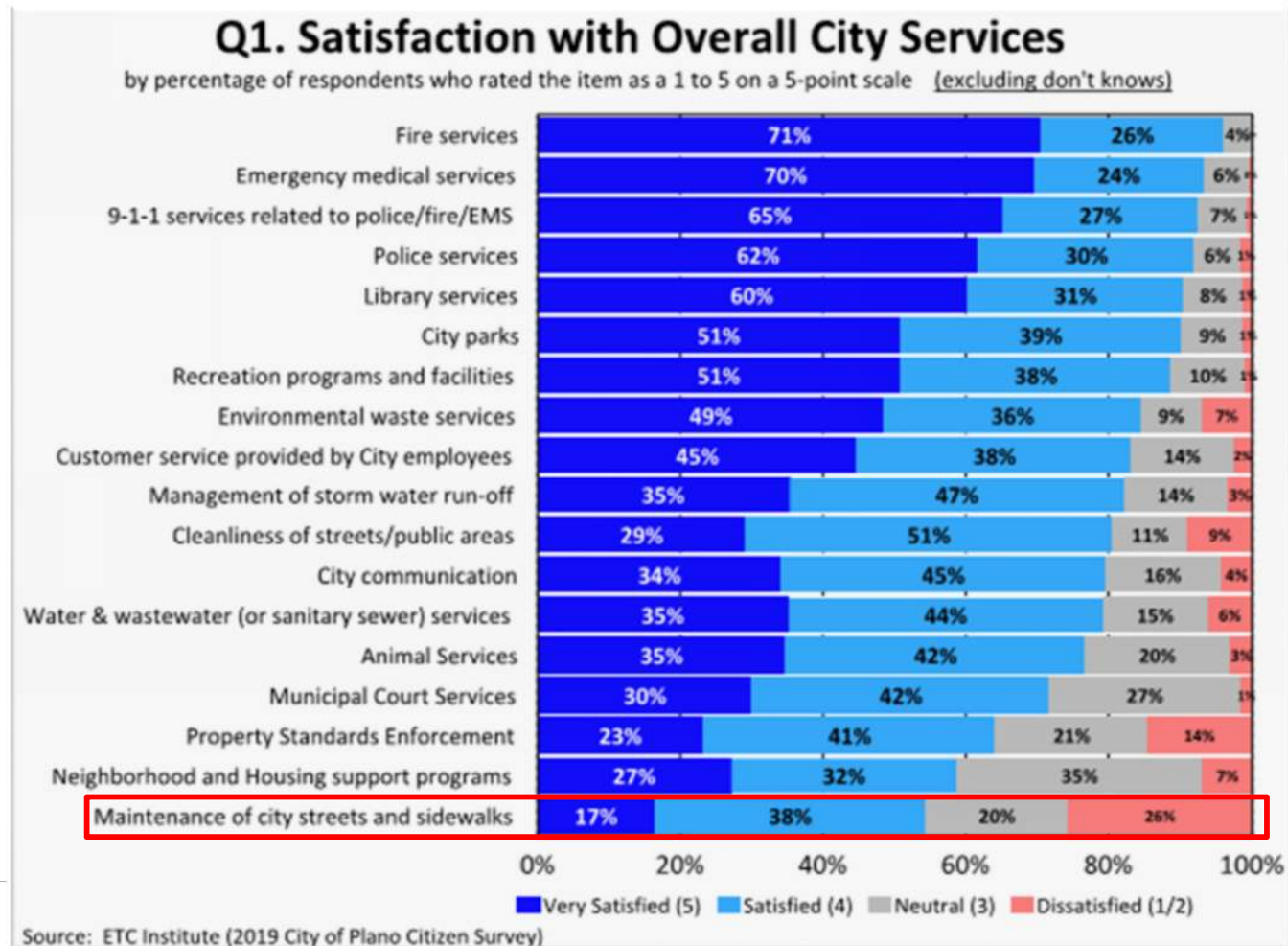
Background

Pavement Replaced (SF) per Fiscal Year by Public Works

Streets Alleys Sidewalks



2019 Citizen Survey Results

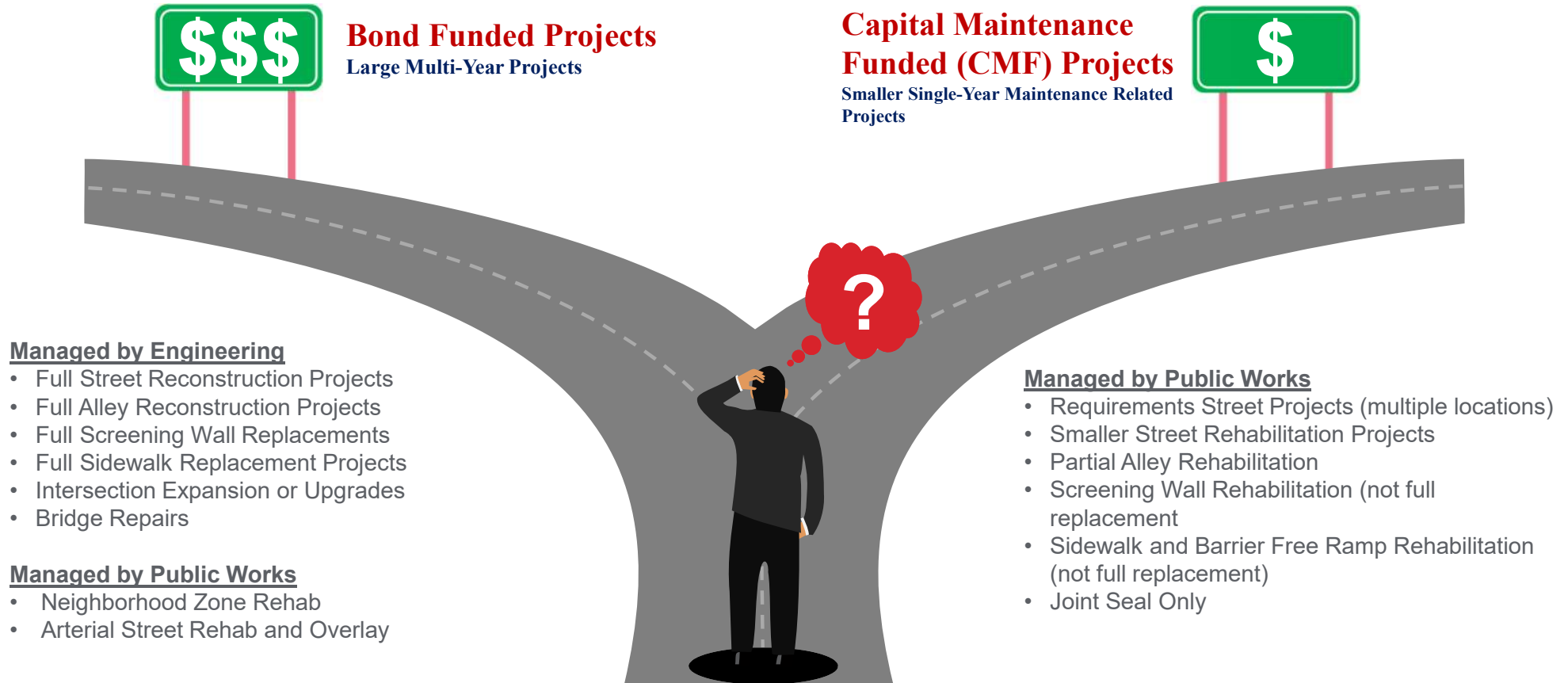


Public Works Operations - Pavement Focus

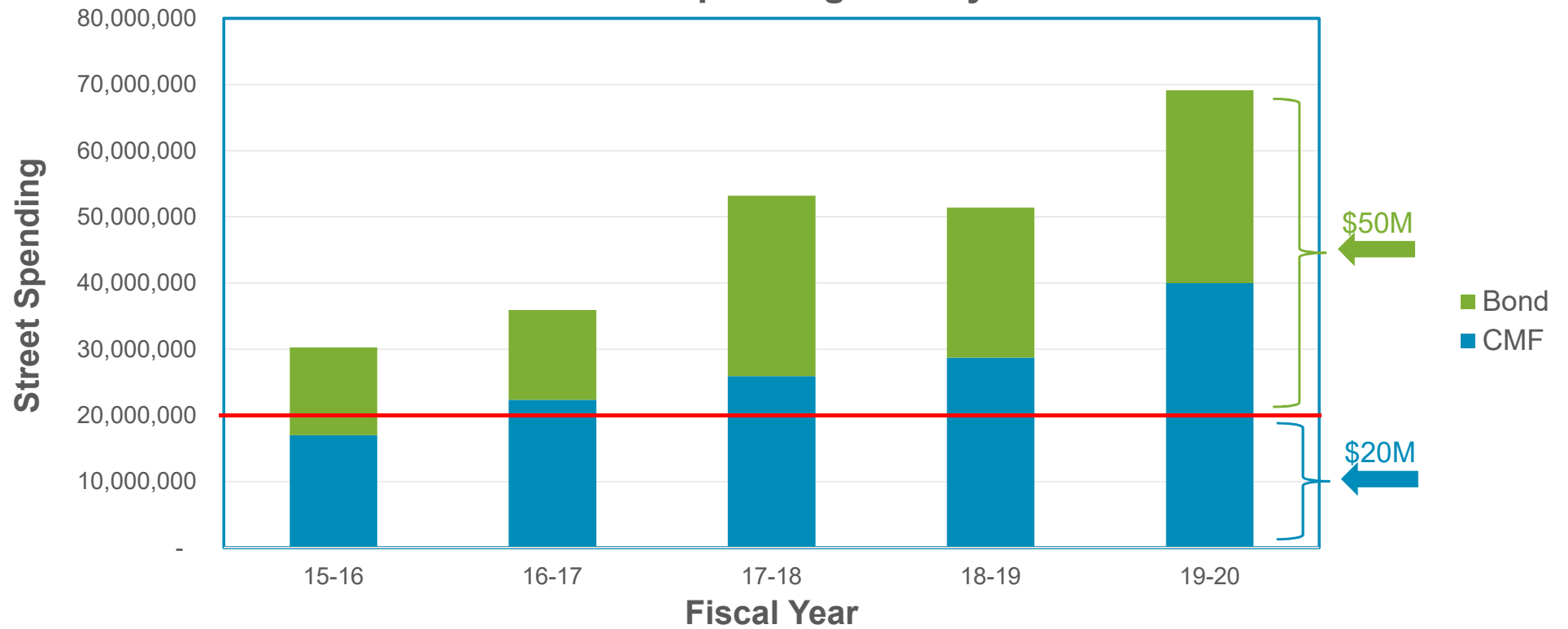
Importance-Satisfaction Rating City of Plano, Texas <u>Major Categories of City Services</u>						
Category of Service	Most Important %	Most Important Rank	Satisfaction %	Satisfaction Rank	Importance-Satisfaction Rating	I-S Rating Rank
<u>Very High Priority (IS >.20)</u>						
Maintenance of city streets and sidewalks	45%	4	54%	18	0.2066	1
<u>Medium Priority (IS <.10)</u>						
Police services	86%	1	92%	4	0.0683	2
Emergency medical services	57%	3	94%	2	0.0372	3
9-1-1 services related to police/fire/EMS	41%	5	93%	3	0.0302	4
Fire services	77%	2	96%	1	0.0293	5
Environmental waste services	18%	6	85%	8	0.0276	6



Street/Screening Wall Project Funding



Street Spending History



2021 Street Improvement Projects

No. Street Improvements

- 1 Alley Reconstruction
- 2 Arterial Concrete Street Repair - PW
- 3 Arterial Concrete Street Repair - ENGR
- 4 Bridge Inspection and Repairs
- 5 Collector Street Reconstruction
- 6 Computerized Signal System
- 7 Intersection Improvements
- 8 Miscellaneous Right of Way
- 9 Neighborhood Park Streets
- 10 New Concrete Alleys
- 11 Oversize participation
- 12 Redevelopment Street Improvements
- 13 Residential Street and Alley Repair - PW
- 14 Roadway Median Landscaping
- 15 Screening Wall Reconstruction
- 16 Sidewalks
- 17 Street lighting
- 18 Street Reconstruction
- 19 Traffic Signalization
- 20 Traffic Safety



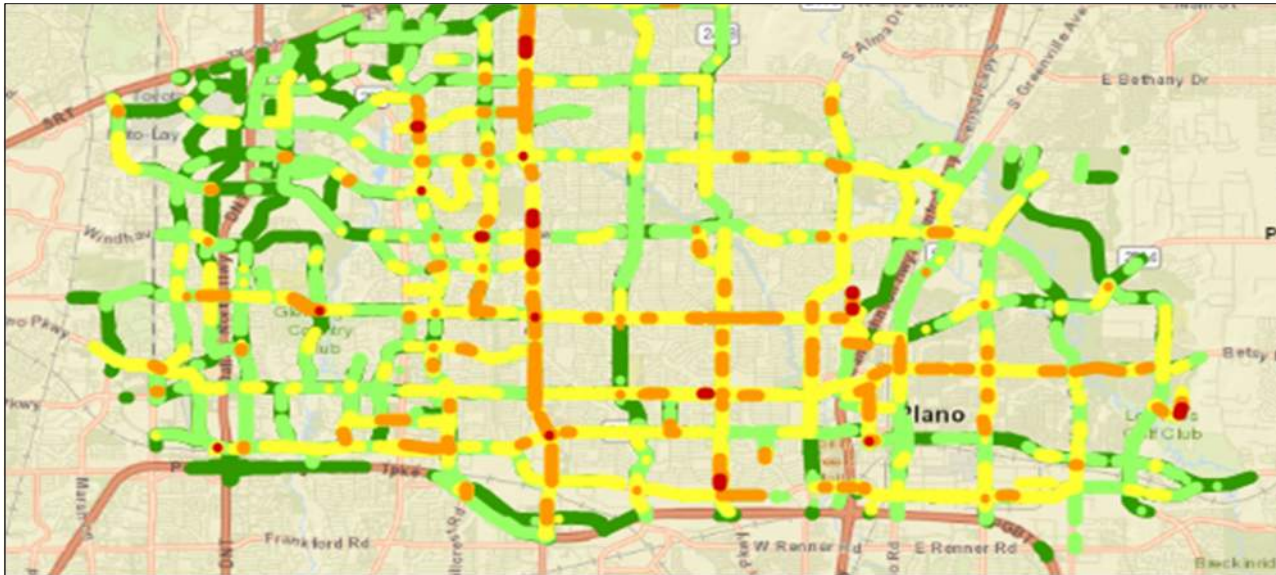
Updated Street/Screening Wall Bond Project List

- | No. | Street Improvements |
|-----|---|
| 1 | Arterial Concrete Street Reconstruction and Overlay |
| 2 | Residential Street & Alley Repair |
| 3 | Residential and Collector Street Reconstruction |
| 4 | Screening Wall Reconstruction |
| 5 | Sidewalks |
| 6 | Intersection Improvements |
| 7 | Alley Reconstruction |
| 8 | Traffic Improvements |

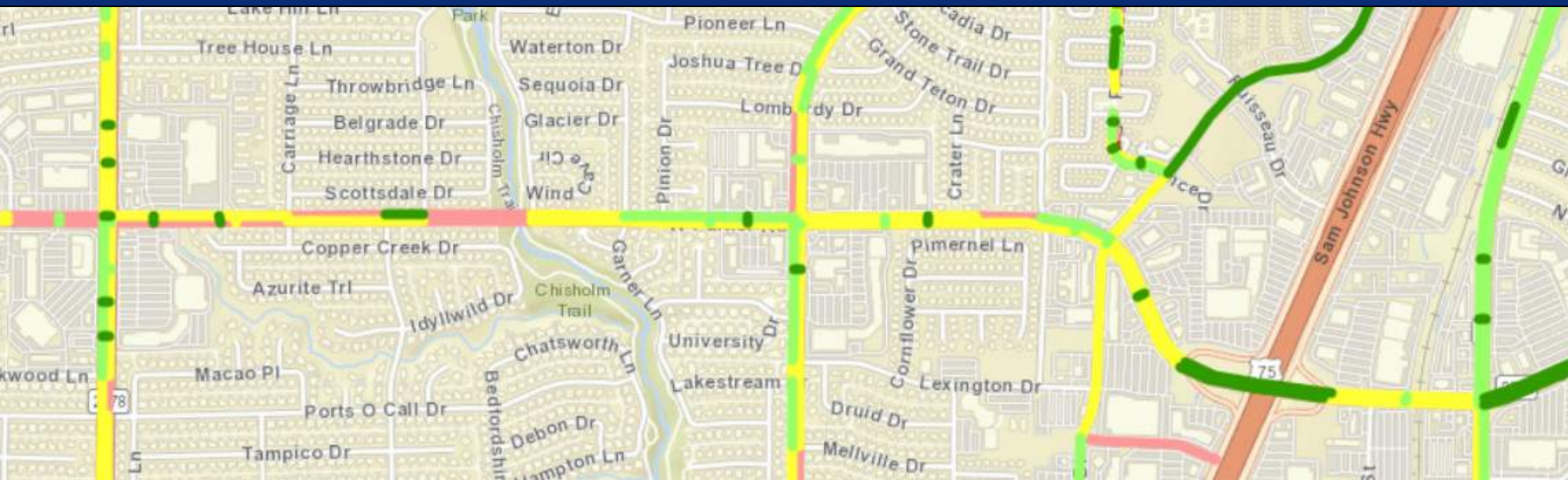
	2021 Street Bond Program Priorities								
No.	Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
1	Arterial Concrete Street Reconstruction and Overlay	\$2M per Mile	50 Miles	\$70,000,000	35 Miles	\$10,000,000	5 Miles	\$20,000,000	10 Miles
2	Residential Street & Alley Repair	\$5M per Zone	14 of 50 Zones	\$65,000,000	13 Zones	\$5,000,000	1 Zone	\$0	0 Zones
3	Residential and Collector Street Reconstruction	\$2M per Mile	12 Miles	\$16,000,000	8 Miles	\$4,000,000	2 Miles	\$4,000,000	2 Miles
4	Screening Wall Reconstruction	\$1M per 1,000 Ft	26,400 Feet	\$12,000,000	12,000 Feet	\$2,000,000	2,000 Feet	\$2,000,000	2,000 Feet
5	Sidewalks	\$200,000 per Mile	100 Miles	\$4,000,000	20 Miles	\$0	0 Miles	\$1,000,000	5 Miles
6	Intersection Improvements	\$1M per Intersection	6 Intersections	\$3,000,000	3 Intersections	\$0	0 Intersections	\$1,000,000	1 Intersection
7	Alley Reconstruction	\$1M per Mile	6 Miles	\$4,000,000	4 Miles	\$1,000,000	1 Miles	\$1,000,000	1 Mile
8	Traffic Improvements	Signals, Tech Upgrades, Misc		\$6,000,000		\$3,000,000		\$3,000,000	
		Bond Funding Total		\$180,000,000		\$25,000,000		\$32,000,000	
		Cumulative Total		\$180,000,000		\$205,000,000		\$237,000,000	

Arterial Street Reconstruction and Overlay

Type	Renovation/Repair – Replacement
Projected Cost	\$100,000,000
Projected O&M	\$194,984



Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Arterial Concrete Street Reconstruction and Overlay	\$2M per Mile	50 Miles	\$70,000,000	35 Miles	\$10,000,000	5 Miles	\$20,000,000	10 Miles
Cumulative Total			\$70,000,000	35 Miles	\$80,000,000	40 Miles	\$100,000,000	50 Miles



LEGEND

- A
- B
- C
- D
- F

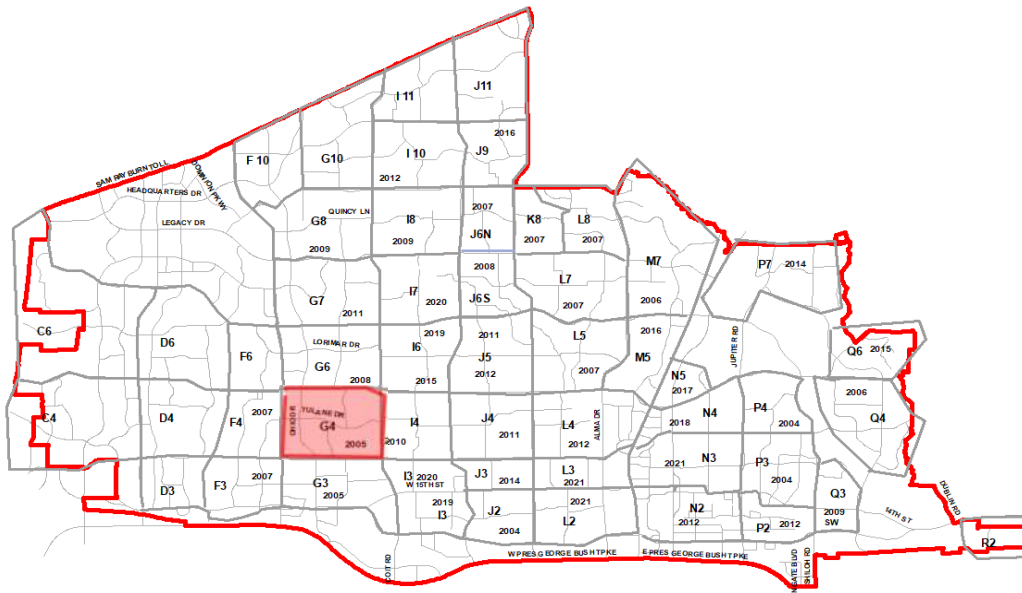
Arterial Rehab

- Pavement maintenance along a continuous stretch of arterial roadway with thin asphalt overlay
- Maintenance treatment depends on condition of road (A-F)
- Typical cost = \$2M per mile
- Total amount in preliminary bond package = \$70M to \$100M which covers 35 to 50 miles

Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Arterial Concrete Street Reconstruction and Overlay	\$2M per Mile	50 Miles	\$70,000,000	35 Miles	\$10,000,000	5 Miles	\$20,000,000	10 Miles
Cumulative Total			\$70,000,000	35 Miles	\$80,000,000	40 Miles	\$100,000,000	50 Miles

Residential Street & Alley Repair

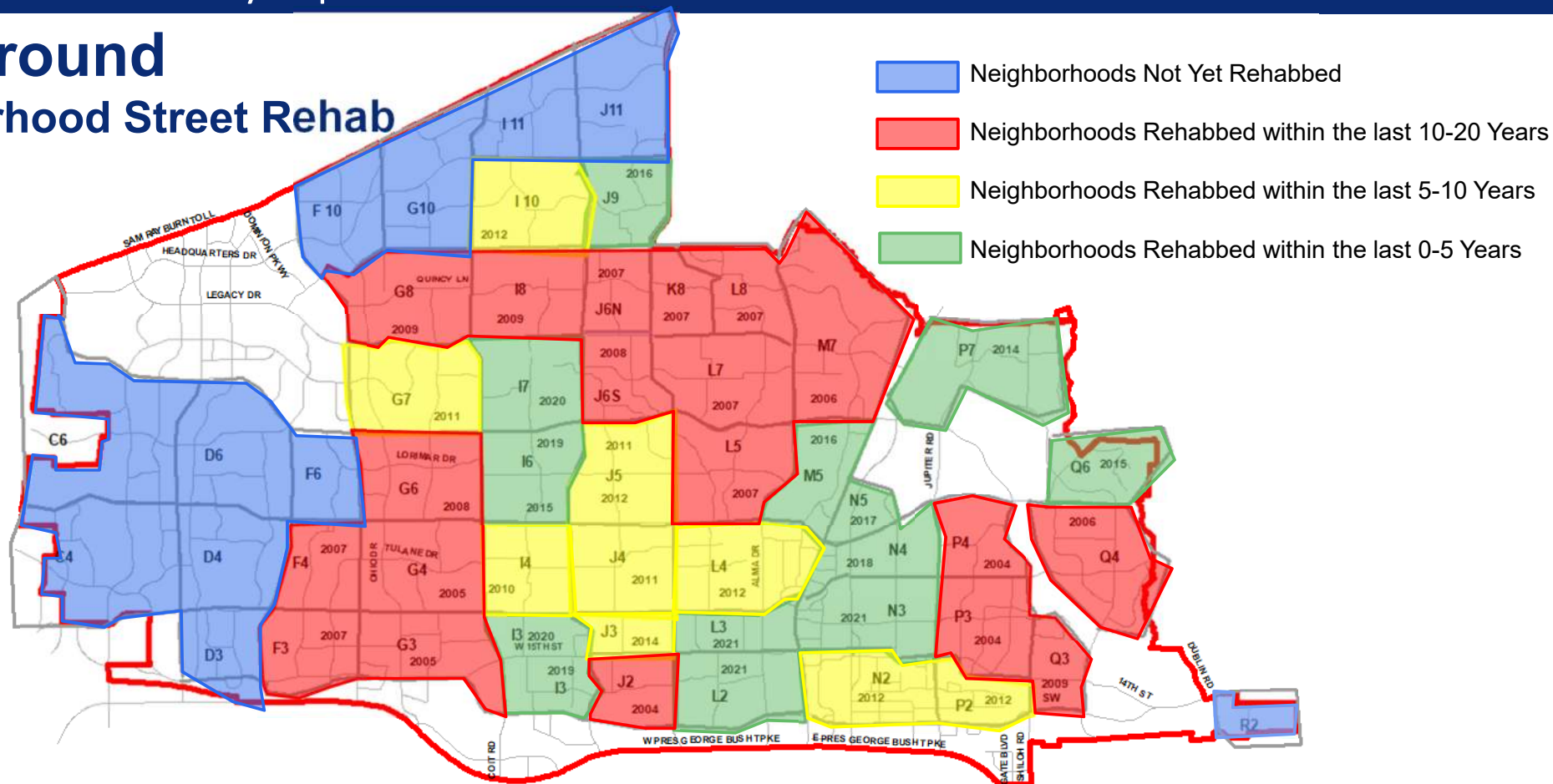
Type	Renovation/Repair
Projected Cost	\$70,000,000
Projected O&M	\$194,983



Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Residential Street & Alley Repair	\$5M per Zone	14 of 50 Zones	\$65,000,000	13 Zones	\$5,000,000	1 Zone	\$0	0 Zones
Cumulative Total			\$65,000,000	13 Zones	\$70,000,000	14 Zones	\$70,000,000	14 Zones

Background

Neighborhood Street Rehab



Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Residential Street & Alley Repair	\$5M per Zone	14 of 50 Zones	\$65,000,000	13 Zones	\$5,000,000	1 Zone	\$0	0 Zones
Cumulative Total			\$65,000,000	13 Zones	\$70,000,000	14 Zones	\$70,000,000	14 Zones

Residential Street & Alley Repair

Assets

Add layer +

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SAVE LAYER

Residential A

2384

Advanced Filter

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SAVE LAYER

Residential B

3174

Advanced Filter

Like this layer?

SAVE LAYER

Residential C

2876

Advanced Filter

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SAVE LAYER

Residential D

976

Advanced Filter

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SAVE LAYER

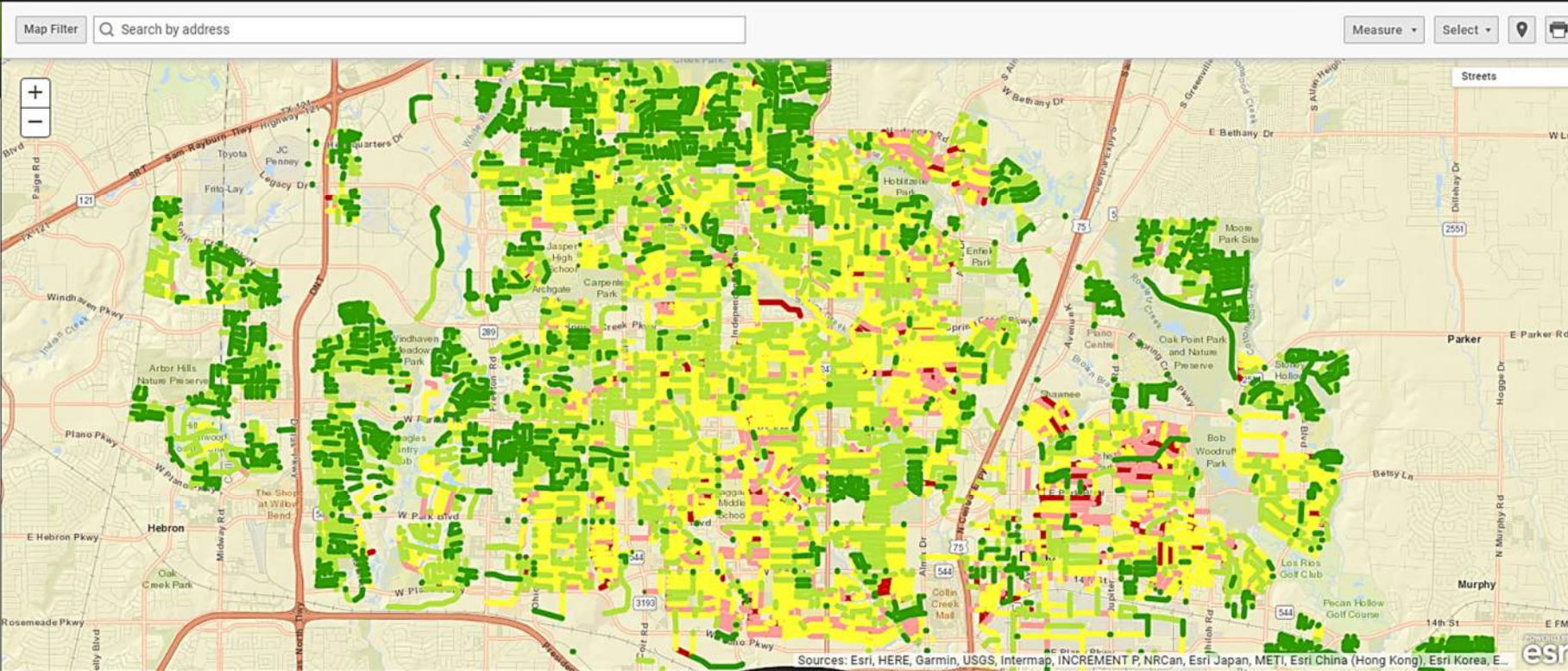
Residential F

328

Advanced Filter

Like this layer?

SAVE LAYER



ID	ROADSID	Street	Maintained...	Owner	Functional Classifica...	Length	Inspected OCI
<input type="checkbox"/> 1000	9362	N HILLBRIER CIR	City of Plano	City of Plano	R2U	733.78 ft	60.45
<input type="checkbox"/> 10000	11345	RIDGEWOOD DR	City of Plano	City of Plano	R2U	305.82 ft	62.12



Residential Street & Alley Repair

Residential Rehab

- Maintenance of all streets in a neighborhood zone
- Maintenance treatment depends on condition of road (A-F)
- Complete maintenance project performed on streets and alleys
- Repair major sidewalk issues
- Typical cost = ~5M per zone
- Total amount in preliminary bond package = \$65M to \$70M which covers 13 to 14 zones

LEGEND

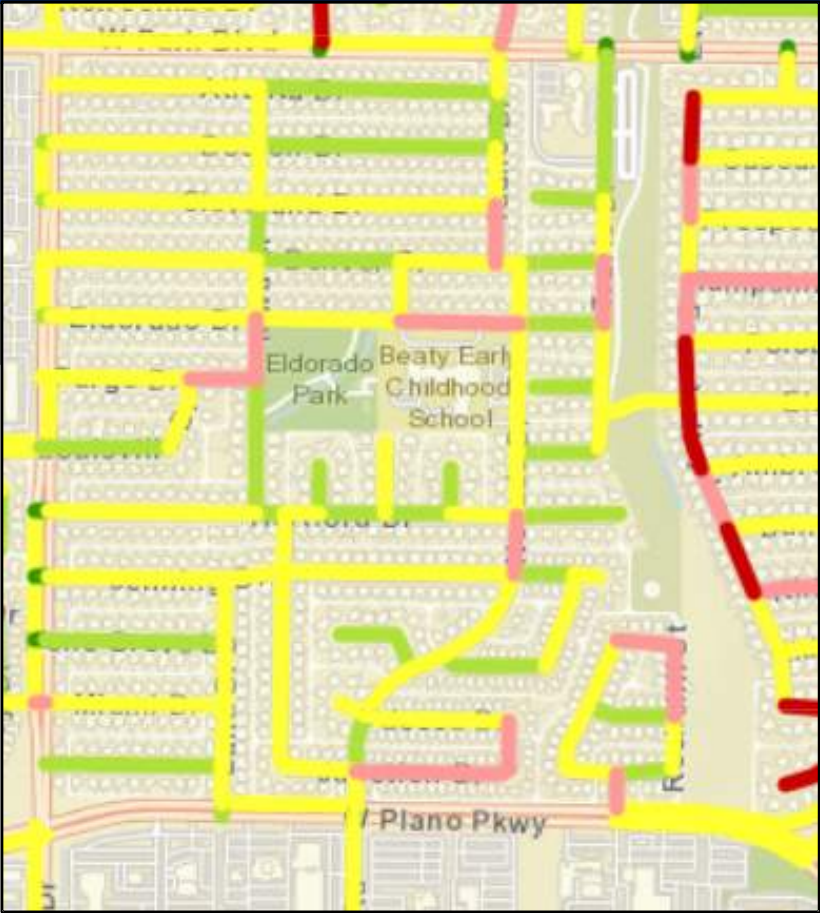
A

B

C

D

F



Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Residential Street & Alley Repair	\$5M per Zone	14 of 50 Zones	\$65,000,000	13 Zones	\$5,000,000	1 Zone	\$0	0 Zones
Cumulative Total			\$65,000,000	13 Zones	\$70,000,000	14 Zones	\$70,000,000	14 Zones

RESIDENTIAL & COLLECTOR STREET RECONSTRUCTION

Type	Reconstruction/Replacement
Projected Cost	\$ 24,000,000
Projected O&M	\$ N/A



Reconstruction/replacement of residential and collector roadways throughout Plano.

Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Residential and Collector Street Reconstruction	\$2M per Mile	12 Miles	\$16,000,000	8 Miles	\$4,000,000	2 Miles	\$4,000,000	2 Miles
Cumulative Total			\$16,000,000	8 Miles	\$20,000,000	10 Miles	\$24,000,000	12 Miles





Dallas North Estates No. 2 –
Westwood Drive Reconstruction



Valley Creek and Arborcove Drive
Reconstruction

SCREENING WALL RECONSTRUCTION

Type	Reconstruction/Replacement
Projected Cost	\$ 16,000,000
Projected O&M	\$ N/A



Spring Creek Parkway at Mission Ridge –
Screening Wall Reconstruction

Complete reconstruction of concrete screening walls along major thoroughfares. Funding will be transferred to specific projects as they are identified.

Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Screening Wall Reconstruction	\$1M per 1,000 ft	5 Miles	\$12,000,000	12,000 ft	\$2,000,000	2,000 ft	\$2,000,000	2,000 ft
Cumulative Total			\$12,000,000	2.3 Miles	\$14,000,000	2.7 Miles	\$16,000,000	3 Miles



SIDEWALKS

Type	Reconstruction/Replacement/Voids
Projected Cost	\$ 5,000,000
Projected O&M	\$ N/A



Russell Creek Drive – Trail Improvements

Reconstruction, replacement or installation of sidewalks as necessary at locations throughout Plano.

Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Sidewalks	\$200,000 per Mile	100 Miles	\$4,000,000	20 Miles	\$0	0 Miles	\$1,000,000	5 Miles
Cumulative Total			\$4,000,000	20 Miles	\$0	20 Miles	\$5,000,000	25 Miles



INTERSECTION IMPROVEMENTS

Type	Reconstruction/Capacity Improv.
Projected Cost	\$ 4,000,000
Projected O&M	\$ N/A



Plano Parkway at Custer Road
Intersection Improvements

Addition of left- and/or right-turn lanes at various intersections throughout the City. Funding will be transferred to specific projects as they are identified.

Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Intersection Improvements	\$1M per location	6 Locations	\$3,000,000	3 Locations	\$0	0 Locations	\$1,000,000	1 Location
Cumulative Total			\$3,000,000	3 Locations	\$0	3 Locations	\$4,000,000	4 Locations





Preston and Plano Parkway
Intersection Improvements



SH 121 at Legacy Intersection
Improvements

ALLEY RECONSTRUCTION

Type	Reconstruction/Replacement
Projected Cost	\$ 6,000,000
Projected O&M	\$ N/A



Reconstruction of deteriorated concrete alleys or construction of new alleys in existing residential areas. Funding will be transferred to specific projects as they are identified.

Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Alley Reconstruction	\$1M per Mile	6 Miles	\$4,000,000	4 Miles	\$1,000,000	1 Mile	\$1,000,000	1 Mile
Cumulative Total			\$4,000,000	4 Miles	\$5,000,000	5 Miles	\$6,000,000	6 Miles



TRAFFIC IMPROVEMENTS

Type	Transportation Systems
Projected Cost	\$ 12,000,000
Projected O&M	\$ N/A

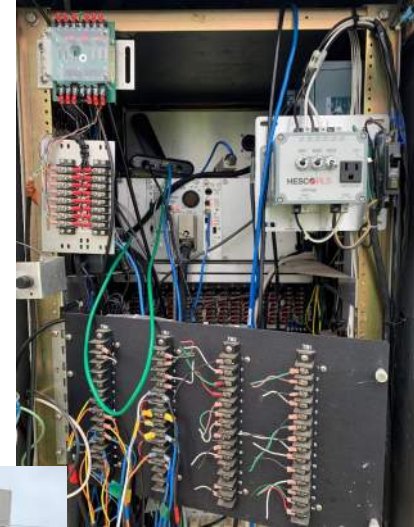
- Traffic Technology
 - Traffic signal controller hardware and software
 - Traffic signal cabinets
 - Vehicle/Pedestrian detection systems
 - Communications system
- Traffic Safety Improvements
 - Median nose curb improvements
 - Pedestrian ramps, crosswalk signing, pavement markings
 - Neighborhood traffic calming improvements



Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity
Traffic Improvements	N/A	N/A	\$6,000,000		\$3,000,000		\$3,000,000	
Cumulative Total			\$6,000,000		\$9,000,000		\$12,000,000	



- Traffic Signalization – 4 to 7 new signals/year
- Traffic Control Systems (past useful end-of-life)
 - Signal System Software – installed 15+ years ago
 - Vehicle Detection – video detection is 15+ years old
 - Communications – convert cellular modems to fiber optic
 - Traffic Controllers/Cabinets – average age is 15+ years old
- Safety Improvements – signing, markings, ramps
- Street Lighting – update roadway lighting standards



	Summary									
No.	Project	Cost	Need	High Priority	Quantity	Medium Priority	Quantity	Low Priority	Quantity	Projected O&M
1	Arterial Concrete Street Reconstruction and Overlay	\$2M per Mile	50 Miles	\$70,000,000	35 Miles	\$10,000,000	5 Miles	\$20,000,000	10 Miles	\$194,984
2	Residential Street & Alley Repair	\$5M per Zone	14 of 50 Zones	\$65,000,000	13 Zones	\$5,000,000	1 Zone	\$0	0 Zones	\$194,983
3	Residential and Collector Street Reconstruction	\$2M per Mile	12 Miles	\$16,000,000	8 Miles	\$4,000,000	2 Miles	\$4,000,000	2 Miles	\$400,000
4	Screening Wall Reconstruction	\$1M per 1,000 Ft	26,400 Feet	\$12,000,000	12,000 Feet	\$2,000,000	2,000 Feet	\$2,000,000	2,000 Feet	\$250,000
5	Sidewalks	\$200,000 per Mile	100 Miles	\$4,000,000	20 Miles	\$0	0 Miles	\$1,000,000	5 Miles	\$80,500
6	Intersection Improvements	\$1M per Intersection	6 Intersections	\$3,000,000	3 Intersections	\$0	0 Intersections	\$1,000,000	1 Intersection	\$65,000
7	Alley Reconstruction	\$1M per Mile	6 Miles	\$4,000,000	4 Miles	\$1,000,000	1 Miles	\$1,000,000	1 Mile	\$91,969
8	Traffic Improvements	Signals, Tech Upgrades, Misc		\$6,000,000		\$3,000,000		\$3,000,000		\$0
		Bond Funding Total		\$180,000,000		\$25,000,000		\$32,000,000		\$1,277,336
		Cumulative Total		\$180,000,000		\$205,000,000		\$237,000,000		\$1,277,336



Questions?

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