City of Mission

CITY COUNCIL WORK SESSION

September 30, 2020
6:30 p.m.

Virtual Meeting via Zoom

AGENDA

1. Street Preservation Program

   A discussion of criteria and funding scenarios criteria to assist in the development of a multi-year street maintenance program.

2. Adjournment

Mission City Hall
6090 Woodson, Mission, Kansas
913-676-8350

Street Preservation Program Update
Mission, Kansas

Celia J. Duran, P.E.

Public Works Director

September 30, 2020

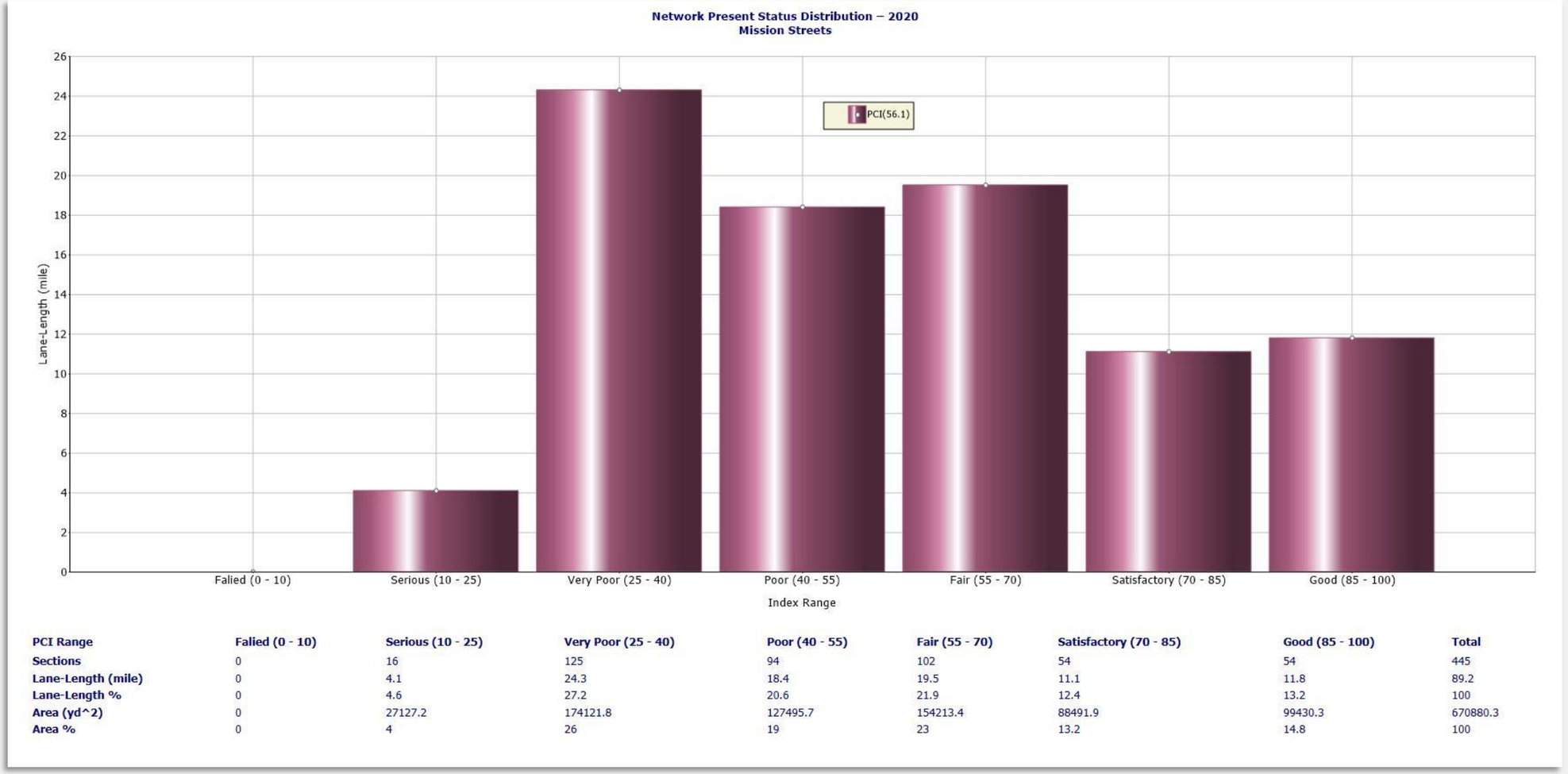
September 30, 2020 – Work Session Agenda

- Recap of August Presentation
- Discussion/Recommendations of Other Factors Influencing Street Program
  - Sidewalks
  - Streetlights
  - ADA Considerations
  - Stormwater
- Potential 10-Year Scenarios
- Next Steps/Next Work Session

Recap of Current Street Network and Street Conditions

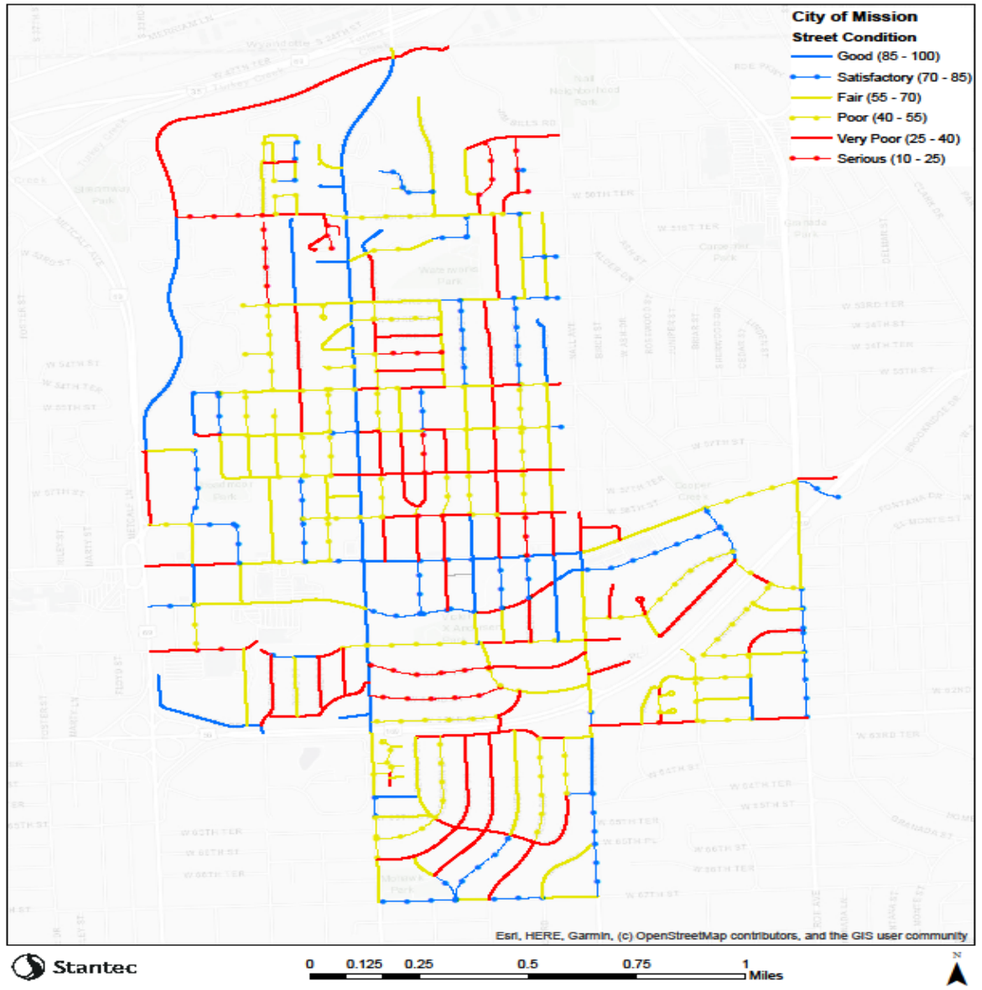
- City Maintained Streets:
  - Approx. 89.3 lane miles
  - Arterials= 19.9 lane miles
  - Collectors=12.1 lane miles
  - Local= 57.3 lane miles

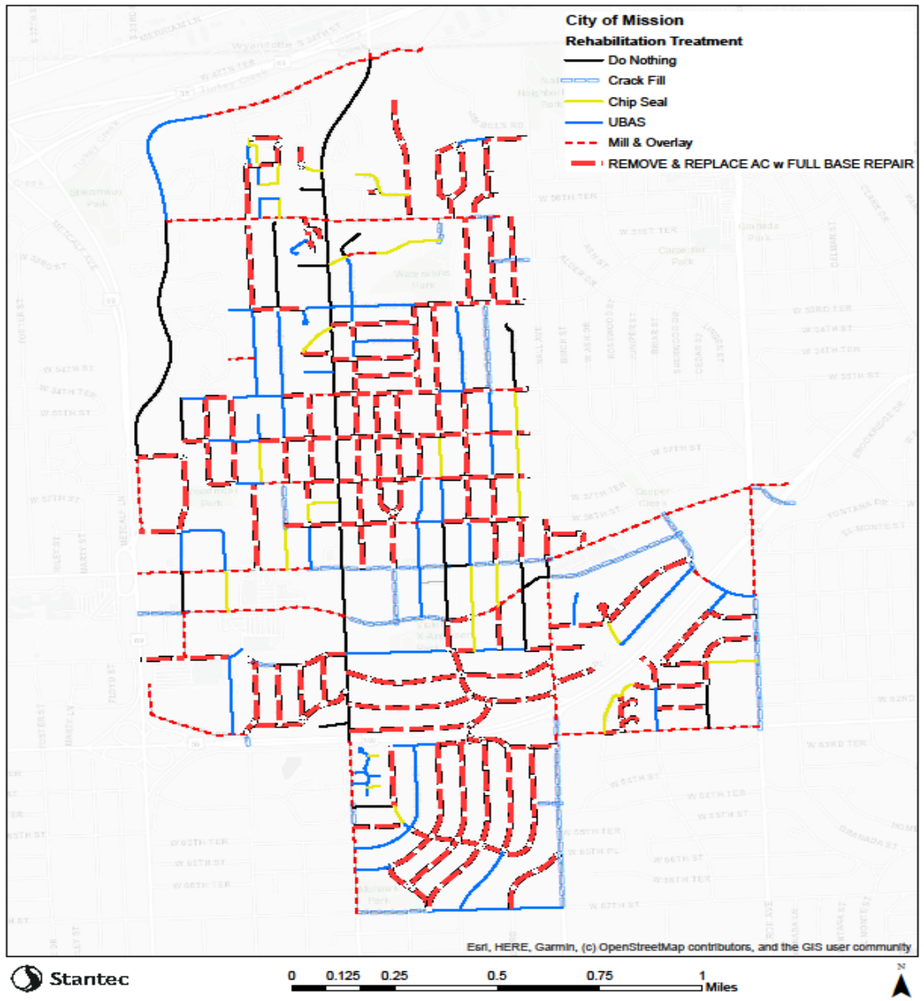
What Condition Is Our Network In? (Overall PCI=56.1)



PCI Range	Falied (0 - 10)	Serious (10 - 25)	Very Poor (25 - 40)	Poor (40 - 55)	Fair (55 - 70)	Satisfactory (70 - 85)	Good (85 - 100)	Total
Sections	0	16	125	94	102	54	54	445
Lane-Length (mile)	0	4.1	24.3	18.4	19.5	11.1	11.8	89.2
Lane-Length %	0	4.6	27.2	20.6	21.9	12.4	13.2	100
Area (yd^2)	0	27127.2	174121.8	127495.7	154213.4	88491.9	99430.3	670880.3
Area %	0	4	26	19	23	13.2	14.8	100

PCI Condition and Recommended Treatments





CURRENT ESTIMATED STREET REPAIR COSTS CITY-WIDE

Treatment	Treatment Costs	Curb Repair Cost	Sidewalk Repair Cost	Ramp Replacement Cost
Do Nothing	$ -)	$ 683,300.00	$ 13,380.00	$ 148,500.00
Crack Fill	$ -)	$ 452,650.00	$ 15,498.00	$ 276,000.00
Chip Seal	$ 28,507.00	$ 90,250.00	$ 2,544.00	$ 19,500.00
Chip Seal w up to 5% Base Repair	$ 26,438.00	$ 37,150.00	$ 486.00	$ 9,000.00
Chip Seal w up to 10% Base Repair	$ 174,943.00	$ 200,950.00	$ 978.00	$ 15,000.00
Chip Seal w up to 33% Base Repair	$ 113,468.00	$ 46,900.00	$ 681.00	$ 4,500.00
Chip Seal Subtotal	$ 343,356.00			
UBAS	$ 53,086.00	$ 38,550.00	$ 933.00	$ 15,000.00
UBAS w up to 5% Base Repair	$ 72,316.00	$ 88,000.00	$ 1,641.00	$ 15,000.00
UBAS w up to 10% Base Repair	$ 404,864.00	$ 302,450.00	$ 4,830.00	$ 40,500.00
UBAS w up to 20% Base Repair	$ 545,542.00	$ 291,000.00	$ 2,658.00	$ 16,500.00
UBAS w up to 33% Base Repair	$ 1,011,835.00	$ 471,150.00	$ 2,547.00	$ 10,500.00
UBAS w up to 50% Base Repair	$ 322,942.00	$ 98,150.00	$ 852.00	$ 28,500.00
UBAS Subtotal	$ 2,410,585.00			
MILL 2 in. & 2 in. OVERLAY	$ 1,231,051.00	$ 424,450.00	$ 8,673.00	$ 183,000.00
MILL 2 in. & 2 in. OL w up to 5% Base Repair	$ 564,603.00	$ 152,300.00	$ 2,568.00	$ 28,500.00
MILL 2 in. & 2 in. OL w up to 10% Base Repair	$ 568,202.00	$ 144,350.00	$ 4,647.00	$ 33,000.00
MILL 2 in. & 2 in. OL w up to 20% Base Repair	$ 297,833.00	$ 80,000.00	$ 1,725.00	$ 25,500.00
MILL 2 in. & 2 in. OL w up to 33% Base Repair	$ 437,725.00	$ 73,550.00	$ 1,638.00	$ 34,500.00
MILL 2 in & 2 in OL w up to 50% Base Repair	$ 265,890.00	$ 78,800.00	$ 1,038.00	$ 10,500.00
Mill and Overlay Subtotal	$ 3,365,304.00			
REMOVE & REPLACE AC w FULL BASE REPAIR	$ 21,559,156.00	$ 6,615,755.00	$ 13,698.00	$ 151,500.00
TOTAL	$ 27,678,401.00	$ 10,369,705.00	$ 81,015.00	$ 1,065,000.00
GRAND TOTAL	**$ 39,194,121**			

Other Factors Influencing Program Costs

- Sidewalks
  - Will repair or replace existing sidewalks as part of street project
  - Develop stand alone sidewalk plan recommendations
- Street lights
  - Develop street light plan to include type of lighting, location and funding source for replacement
- ADA Considerations

6300 W 51st St

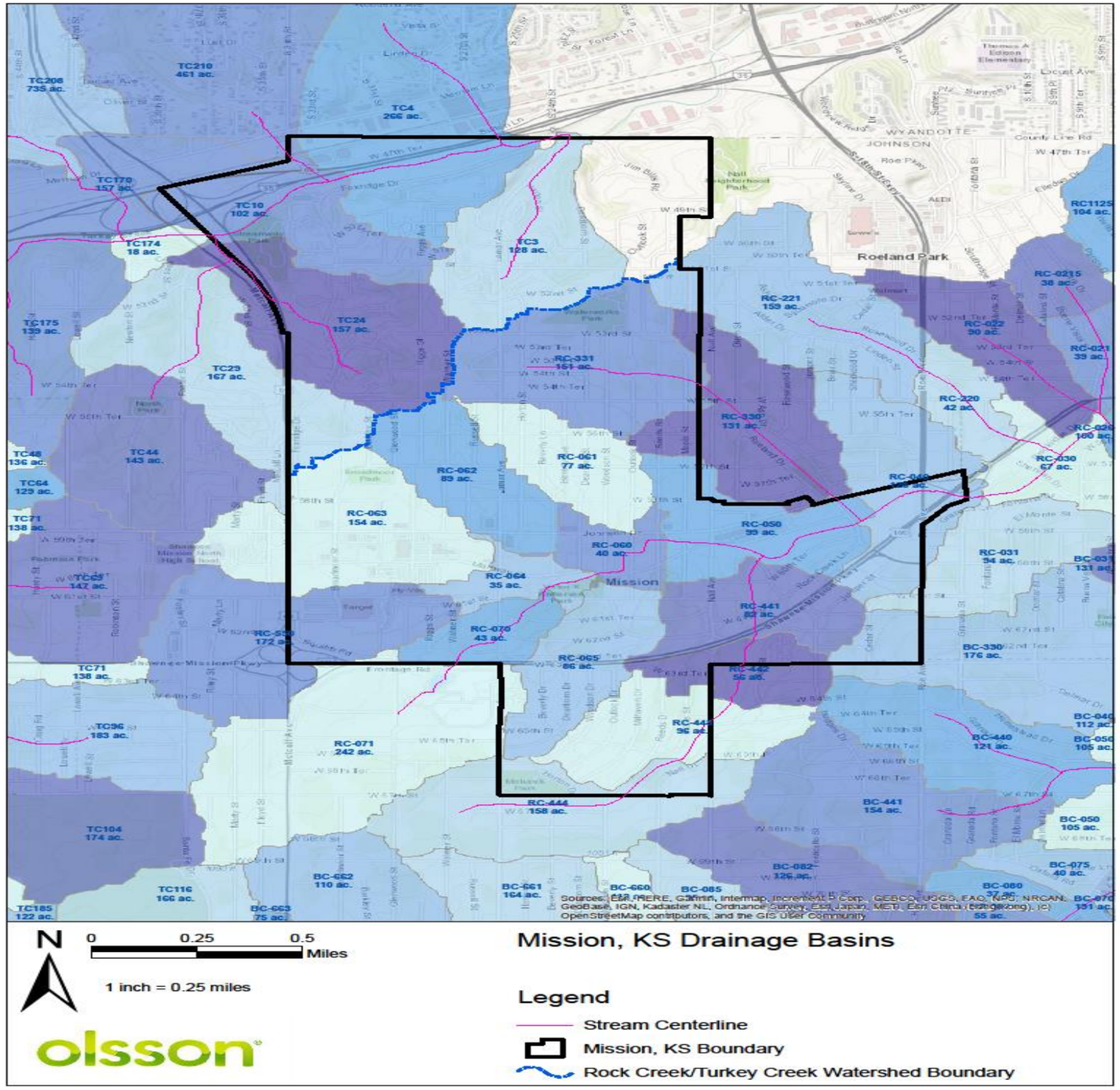
Other Factors Influencing Program Costs

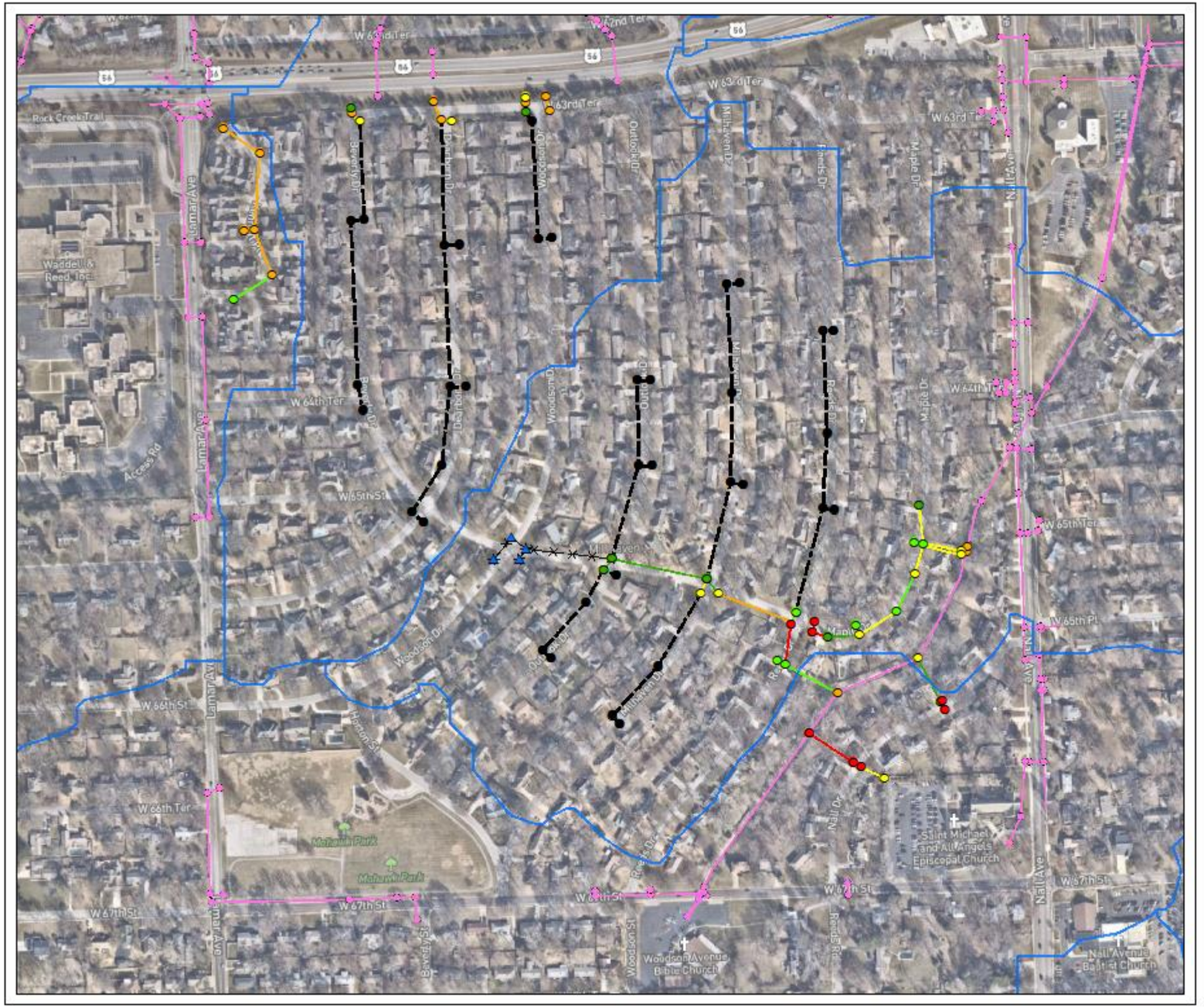
- Stormwater Infrastructure
  - Aging system with pipe/structures in need of repair ($48 MIL replacement cost)
  - Existing system not to APWA standards; however:
    - General stormwater coverage due to topography
    - No major street/house flooding
    - Some localized ponding at intersections and sump pump issues

- General Stormwater Analysis Completed
  - Five areas evaluated using 3 criteria:
    - Repair only
    - Minimal Improvement
    - APWA Criteria

- Staff Recommendation:
    - No “one size fits all”; evaluate factors during design
    - In retrofit areas, may use minimal improvement approach due to existing conditions
    - 50% cost reduction to replace infrastructure with street projects
    - Develop budget; leverage County funds (50% matching funds)

DRAINAGE BASINS





Residential Storm Sewer Analysis
Mission, KS

Area #2
Lamar Ave to Nall Ave
Shawnee Mission Pkwy to W 67th St

Legend

Existing Structures	Existing Pipes
CONDITION	**CONDITION**
Excellent	Excellent
Good	Good
Fair	Fair
Poor	Poor
Immediate Repair	Immediate Repair
Proposed Structures	**Proposed Pipes**
Criteria	**Criteria**
APWA Criteria	APWA Criteria
Minimal Improvement	Minimal Improvement
Remaining SW Features	**Subbasins**

Notes:
Only residential stormwater infrastructure is included; stormwater systems along collectorsb& arterials are not included. Infrastructure that has a condition of "poor" or "immediate repair" are recommended for repairs and have been included in the opinion of probable cost.

0 300 600 Feet

N

1 inch equals 300 feet

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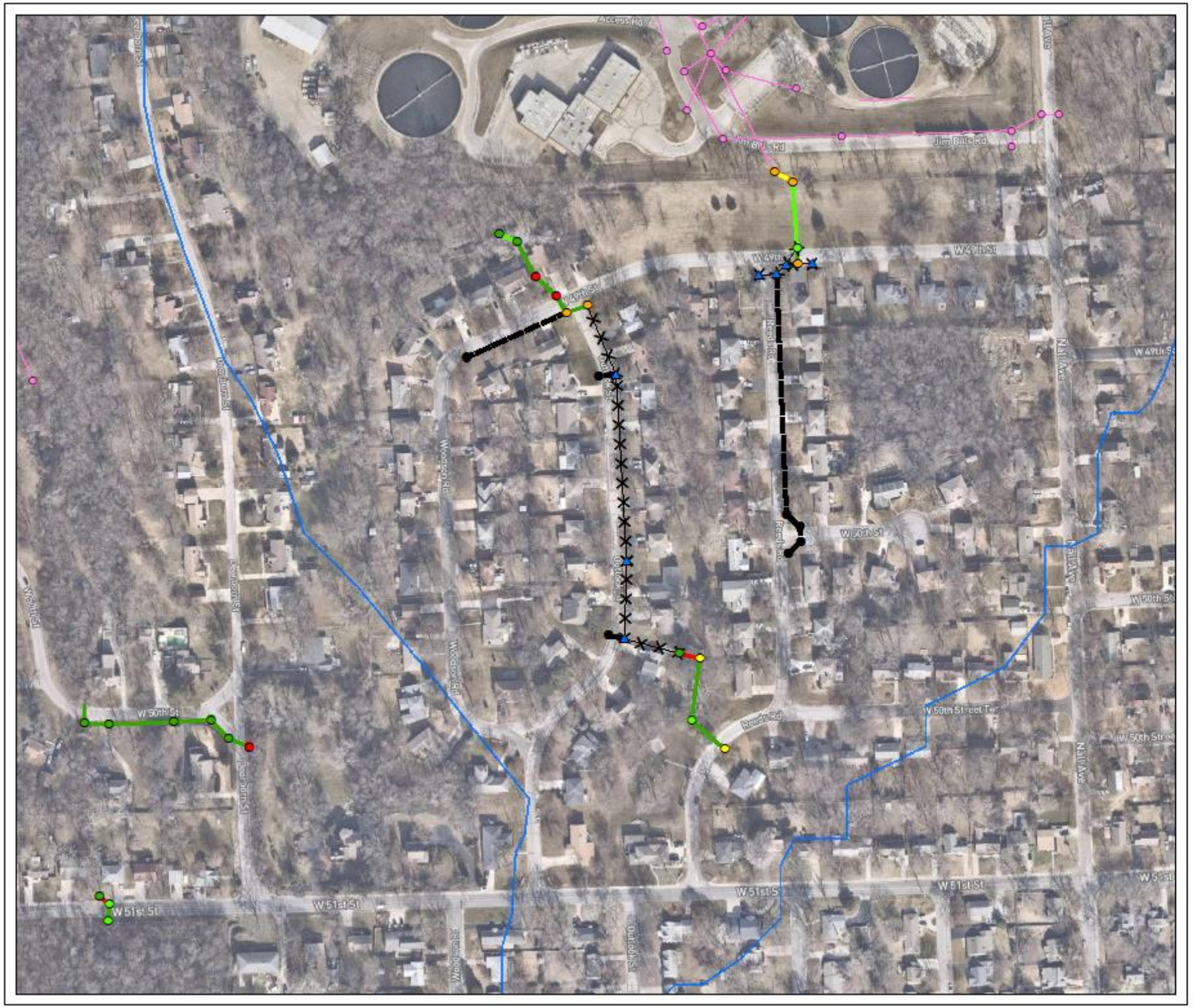

Residential Storm Sewer Analysis
Mission, KS

Area #4
Dearborn St to Nall Ave
W 49th St to W 51st St

Legend

Existing Structures
CONDITION
- Excellent
- Good
- Fair
- Poor
- Immediate Repair

Proposed Structures
Criteria
- APWA Criteria
- Minimal Improvement

Proposed Pipes

Criteria
- APWA Criteria
- Minimal Improvement

Remaining SW Features

Existing Pipes
CONDITION
- Excellent
- Good
- Fair
- Poor
- Immediate Repair

Subbasins

Notes:
Only residential stormwater infrastructure is included; stormwater systems along collectorsb& arterials are not included. Infrastructure that has a condition of "poor" or "immediate repair" are recommended for repairs and have been included in the opinion of probable cost.

0 175 350 Feet

N

1 inch equals 175 feet

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STORMWATER COST COMPARISON

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Summary of Areas

September 29, 2020

Residential Storm Sewer Analysis
Mission, KS

			Opinion of Probable Cost		
Area of Interest	**Location**		**Repair Only**	**Minimal Improvement**	**APWA Criteria**
Area #1	Lamar Ave to Nall Ave, W 61st St to Shawnee Mission Pkwy		$236,050	N / A	N / A
Area #2	Lamar Ave to Nall Ave, Shawnee Mission Pkwy to W 67th St		$310,950	$394,400	$1,616,900
Area #3	Lamar Ave to Nall Ave, W 55th St to Johnson Dr		$603,075	$722,025	$1,008,100
Area #4	Dearborn St to Nall Ave, W 49th St to W 51st St		$48,775	$203,925	$362,125
Area #5	Foxridge Dr to Barkley Rd, W 55th St to W 56th St		$189,350	N / A	N / A
Totals			**$1,388,200**	**$1,745,750**	**$3,412,525**

Notes:

1. N/A - was used to denote areas where additional stormwater infrastructure is not recommended. Opinion of Probable Cost for "Minimal Improvement" and "APWA Criteria" are the same as "Repair Only" in these areas.
2. Estimates are for construction costs only and do not include a contingency. Surface restoration was limited to driveways and assumed that the street reconstruction project would cover the street, curb and gutter, sidewalks, etc.
3. Opinion of Probable Cost for "Minimal Improvement" include cost for "Repair Only", unless otherwise noted
4. Opinion of Probable Cost for "APWA Criteria" includes costs for "Repair Only" and "Minimal Improvement", unless otherwise noted

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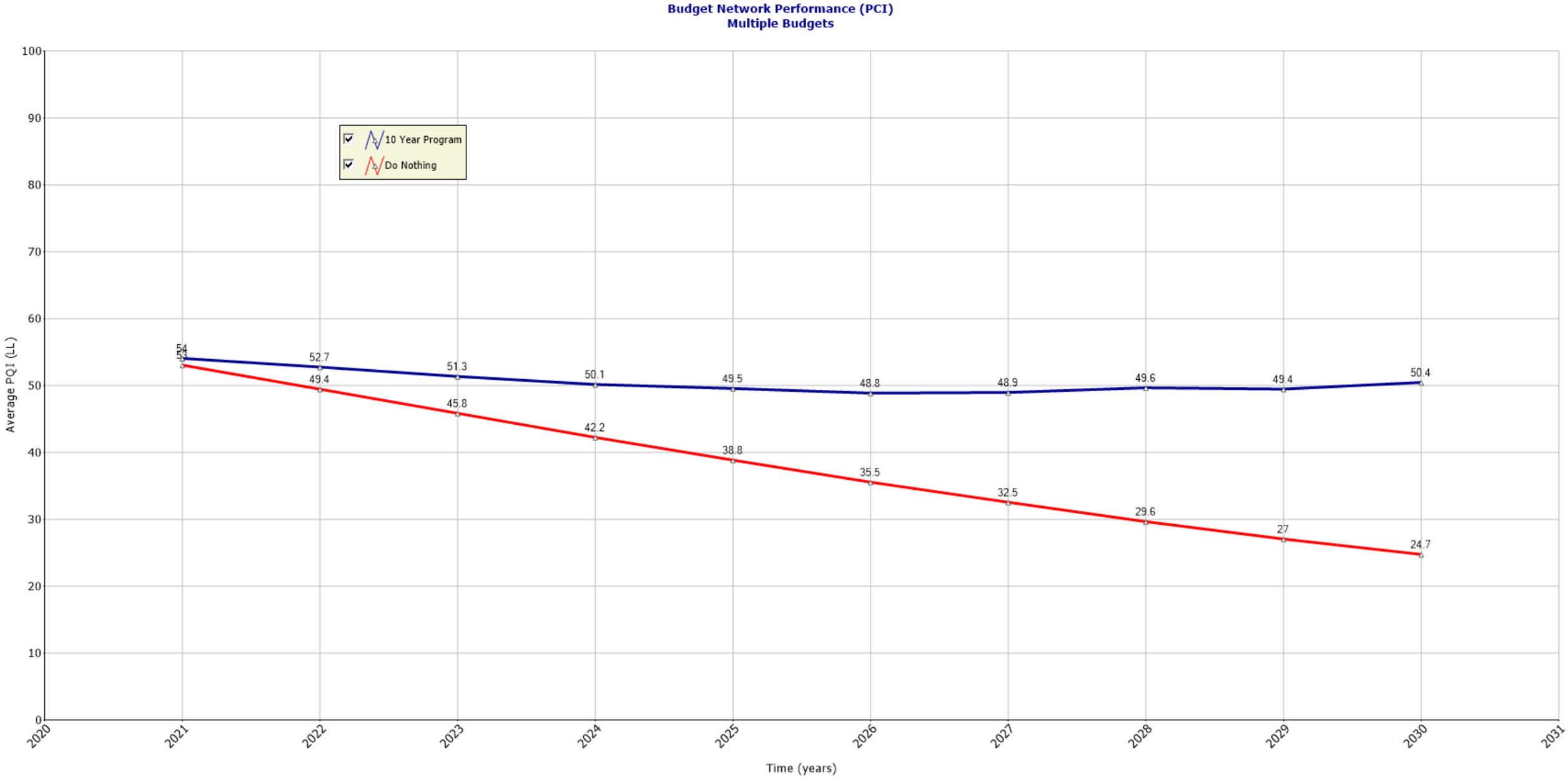
Potential 10-Year Scenarios

- "Cost/Benefit" Program-Generated Scenario
  - Program selects streets based on cost/benefit analysis resulting in higher overall network PCI
  - Selects longer road segments, higher traffic volume roads, less expensive treatments
  - If arterials completed first, Mission can't take advantage of annual CARs funding
- $2 MIL Local Street Scenario
  - Approximately ¾ of Mission streets have insufficient asphalt depth and require base repair (need to bring back up to baseline)
  - Focuses on repair of local streets with low PCIs for first 10 years
  - Less streets touched at first, but "fixes it right" so less costly maintenance over time
  - Results in lower increase in overall network PCI over 10 years vs. "cost/benefit" approach, but begins to address backlog
  - Potentially aligns with resident perceptions/expectations
  - Arterials funded separately


Budget Network Performance (PCI)
Multiple Budgets
10 Year Program
Do Nothing
Average PQI (LL)
Time (years)
100
90
80
70
60
50
40
30
20
10
0
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
54
52.7
51.3
50.1
49.5
48.8
48.9
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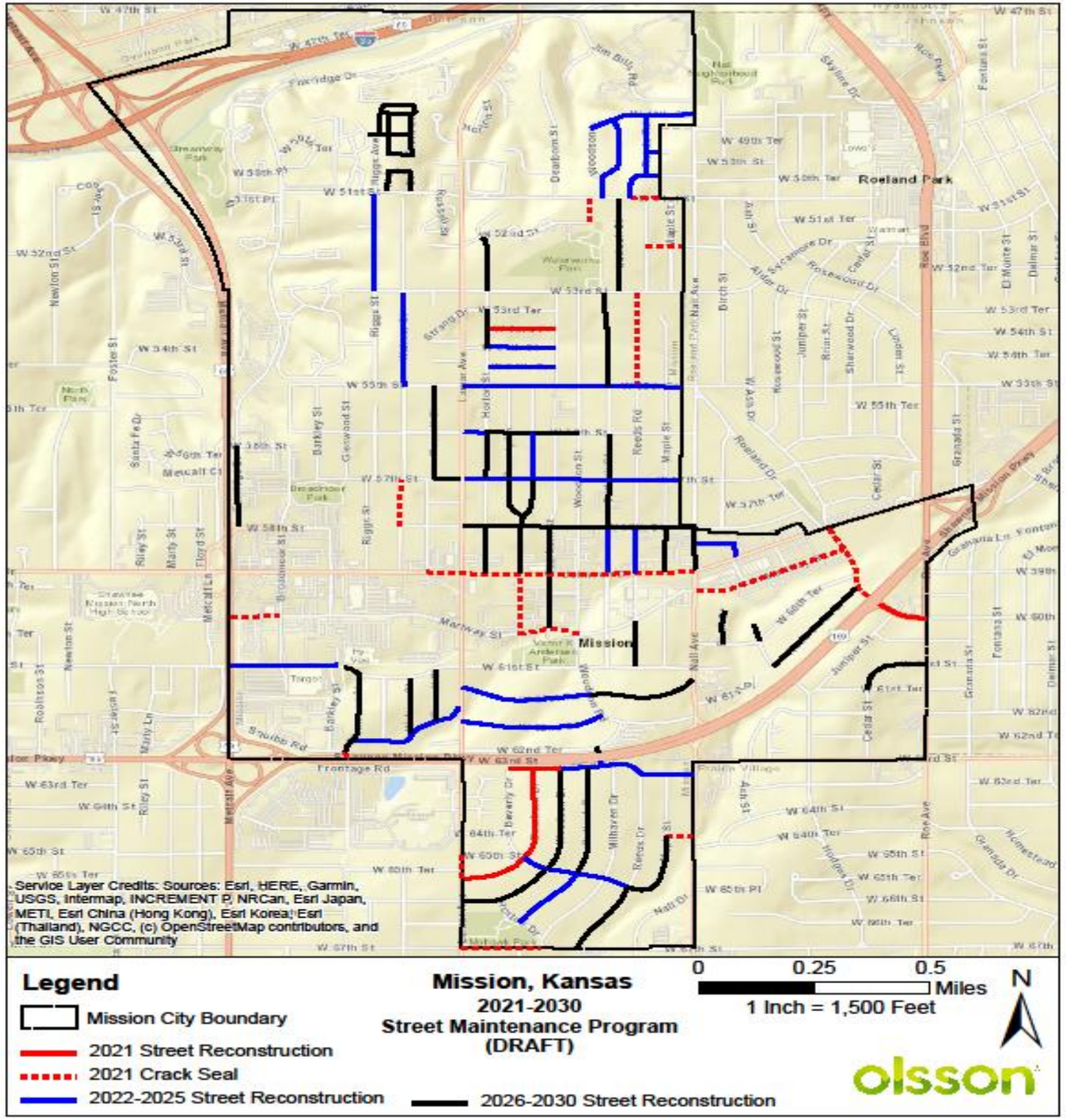
42.2
38.8
35.5
32.5
29.6
27
24.7


Roeland Park
Mission
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Legend
Mission City Boundary
2021 Street Reconstruction
2021 Crack Seal
2022-2025 Street Reconstruction
2026-2030 Street Reconstruction
Mission, Kansas
2021-2030
Street Maintenance Program
(DRAFT)
0
0.25
0.5
Miles
1 Inch = 1,500 Feet
N
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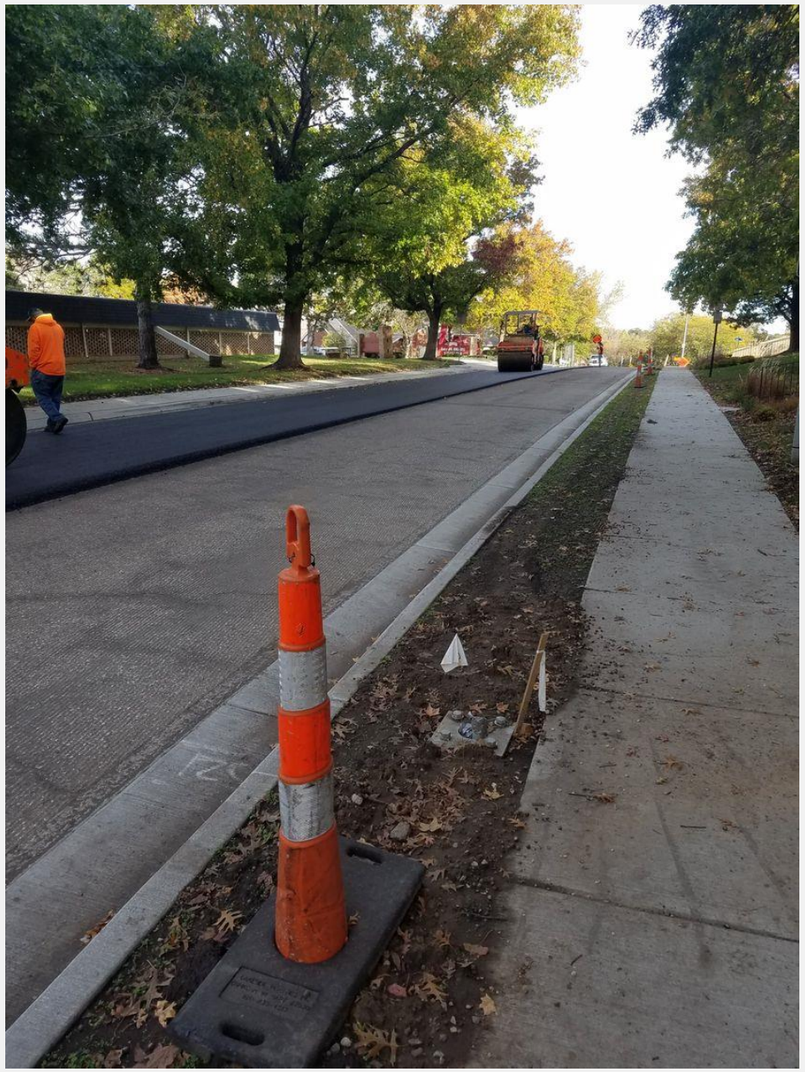
Next Steps Toward Final Recommended Program

- Continue to evaluate funding scenarios and network performance (how much for streets and stormwater?)
- Create separate funding/program for arterials
- Evaluate funding scenarios – revenue generation and debt financing options to accomplish goals and objectives
- Consider setting aside funding for sidewalks and curb for streets outside of 10-year program
- Create final report and recommendations



Thank You!
Questions?