



Asset Management Pavement Improvement Program

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FREESE & NICHOLS

SEPTEMBER 23, 2024

OUTLINE

- Asset Management
- Council Policy 43
- Pavement Condition Assessment
- Criticality Assessment
- Pavement Management Plan
- Maintenance and Capital Improvement Activities
- Scenario Outline
- Next Steps



ASSET MANAGEMENT

DEFINITION

A strategy used to meet a required level of service, in the most cost-effective manner, by managing assets for present and future customers.

WORKING MODEL

Predictive modeling, risk management, and optimized decision-making techniques to establish asset lifecycle treatment options and related long-term cash flow predictions.

COMPONENTS

Overall asset management typically includes an asset management policy, objectives, strategy, and planning.

COUNCIL POLICY 43

POLICY

City of Burleson Asset Management Policy

Adopted March 2024

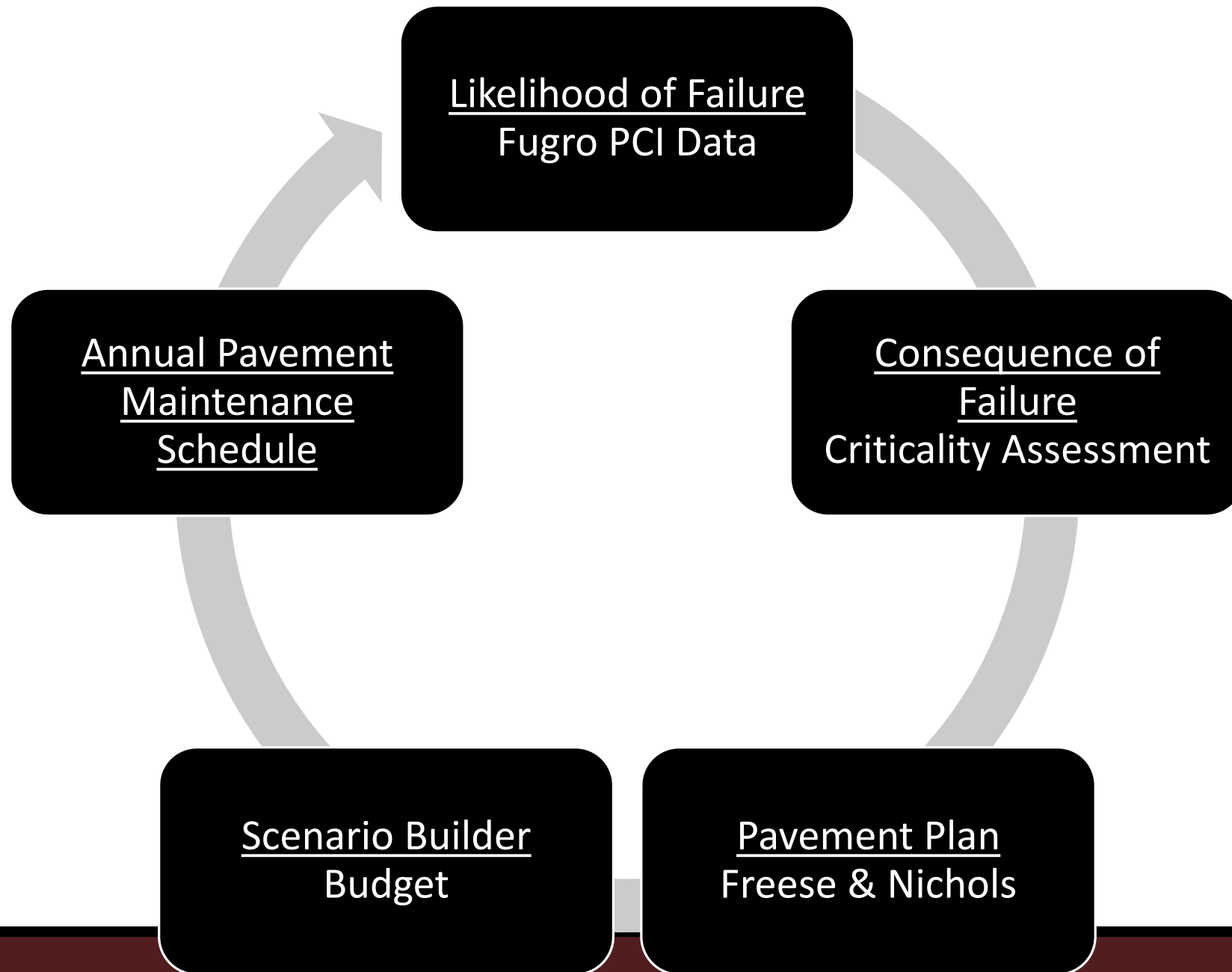
Policy outlines the City's approach to maintaining, preserving, and enhancing its assets.

PURPOSE

The Asset Management Policy expresses the commitment of the City of Burleson to guide the effective and sustainable management of the City's infrastructure assets. This policy will inform the City's approach to maintaining, preserving, and enhancing its assets.

COMMITMENT

Within the resources available each fiscal year, the City shall maintain capital assets and infrastructure at a sufficient level to protect the City's investment, to minimize future replacement and maintenance costs, and to maintain service levels.

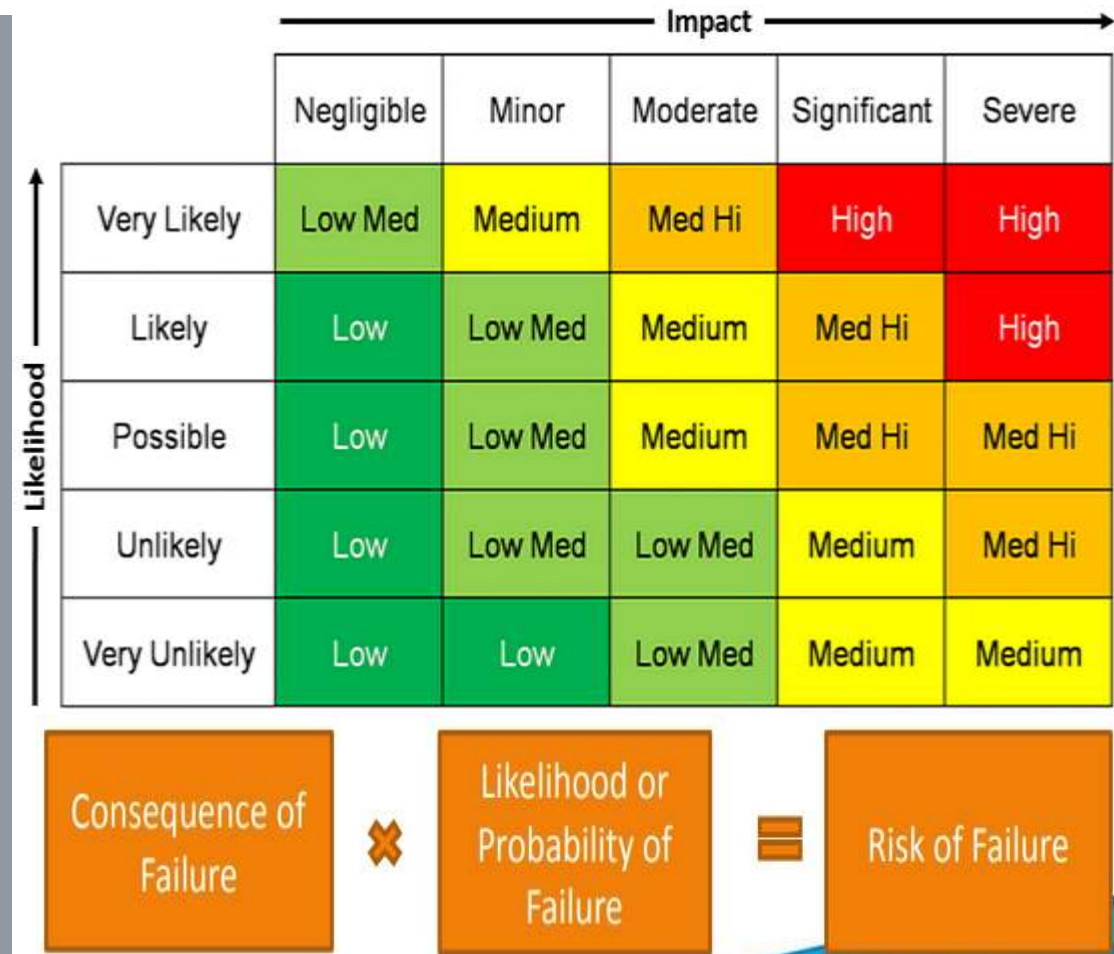


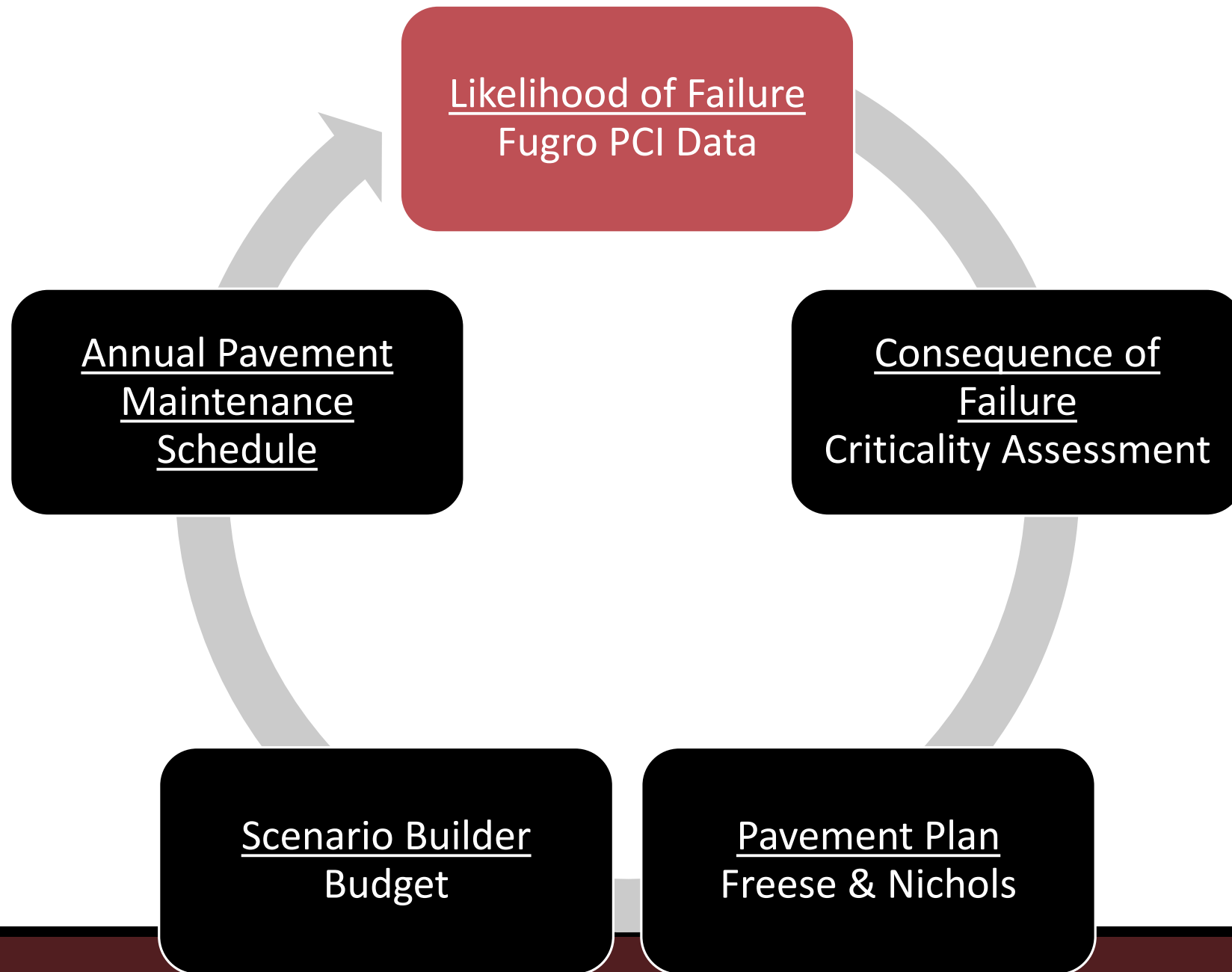
ASSET EVALUATION

CONSEQUENCE OF FAILURE: Consequences in safety, economy, and environment that is evaluated as the outcomes of a failure based on the assumptions that such a failure will occur.

PROBABILITY OF FAILURE: Likelihood that an asset will fail at a given time and an important part of effective risk analyses.

RISK MATRIX: The Consequence of Failure (CoF), calculated together with the Probability of Failure (PoF), helps establish the risk level for a particular piece of equipment and set inspection intervals based on the calculated risk.

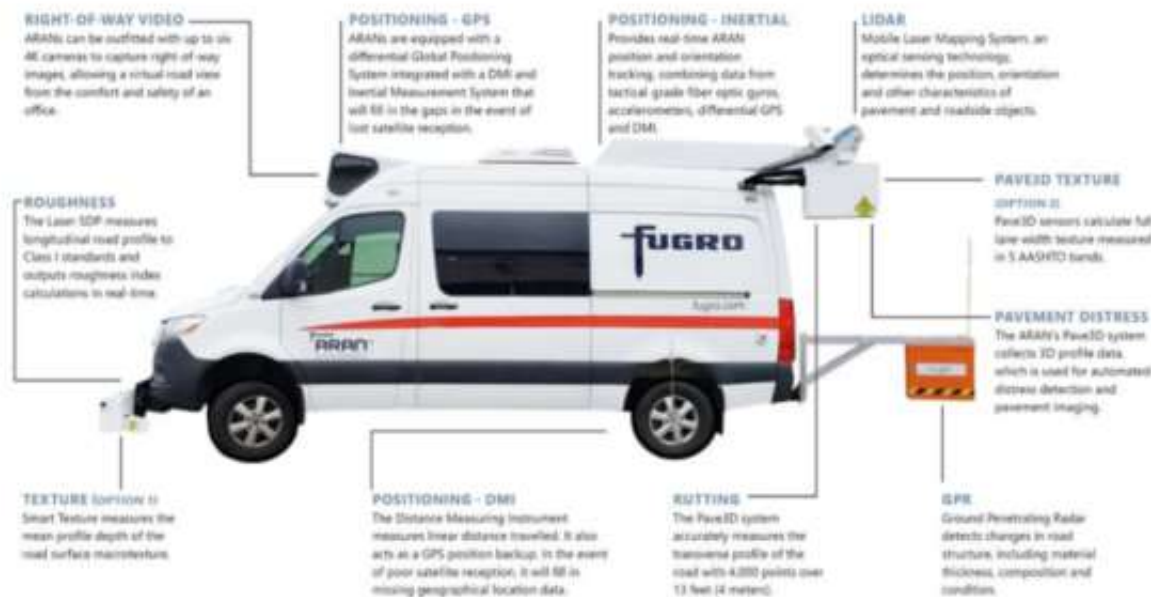




CONDITION ASSESSMENT

Pavement Condition Data Collect
mid 2023

Approximately 567 lane miles of
roadway



Automated collection of
roadways surface defects and
distresses which include
cracking, potholes, rutting,
weathering, and road roughness

*Some ETJ roads were not included in the initial collection and are still being assessed.

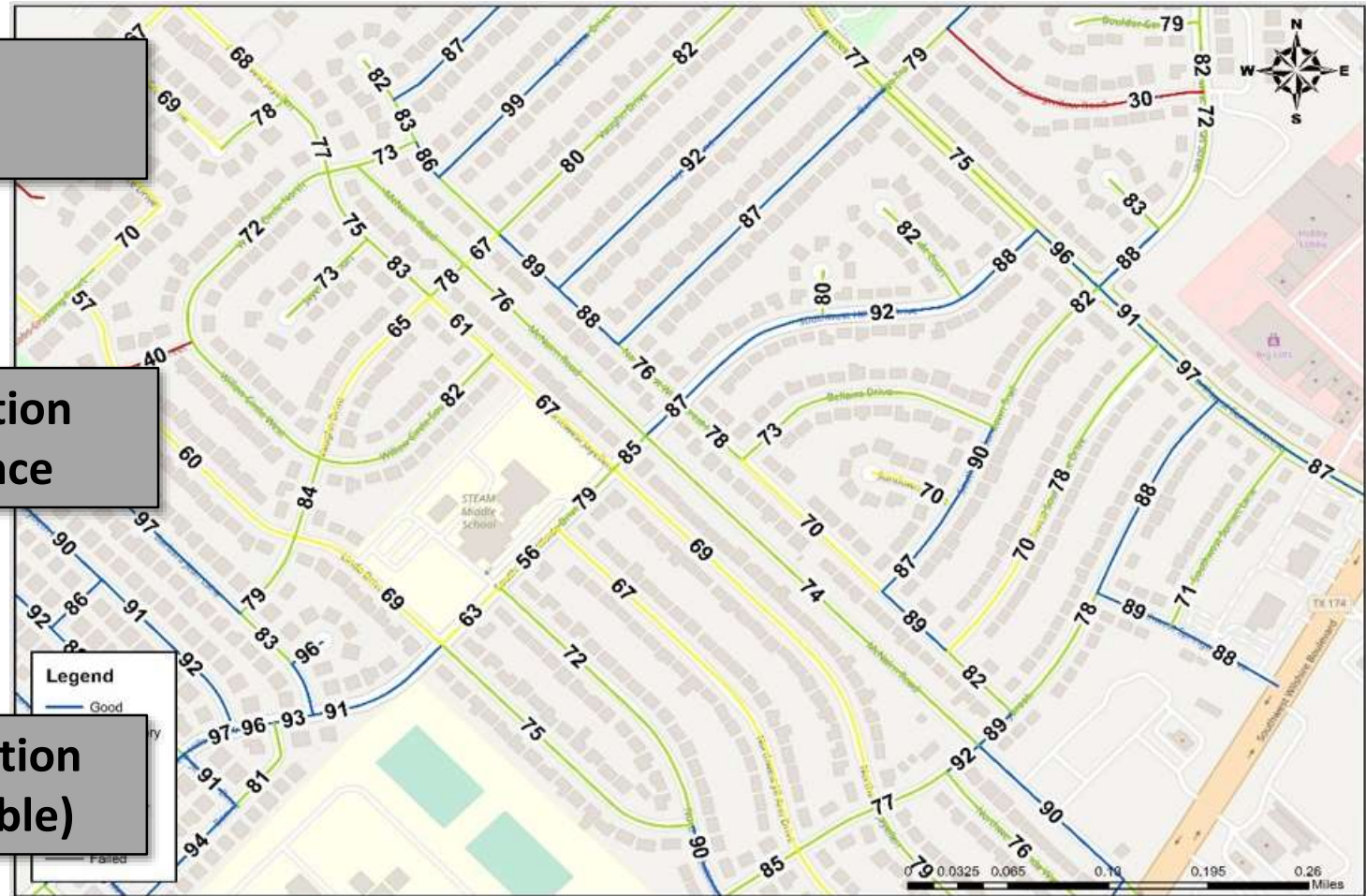
PAVEMENT PCI SCORES

Excellent	91-100
Very Good	81-90
Good	71-80
Fair	51-70
Poor / Failed	0-50

Surface Treatment

Rehabilitation Maintenance

Reconstruction (Bond-eligible)



CONDITION ASSESSMENT

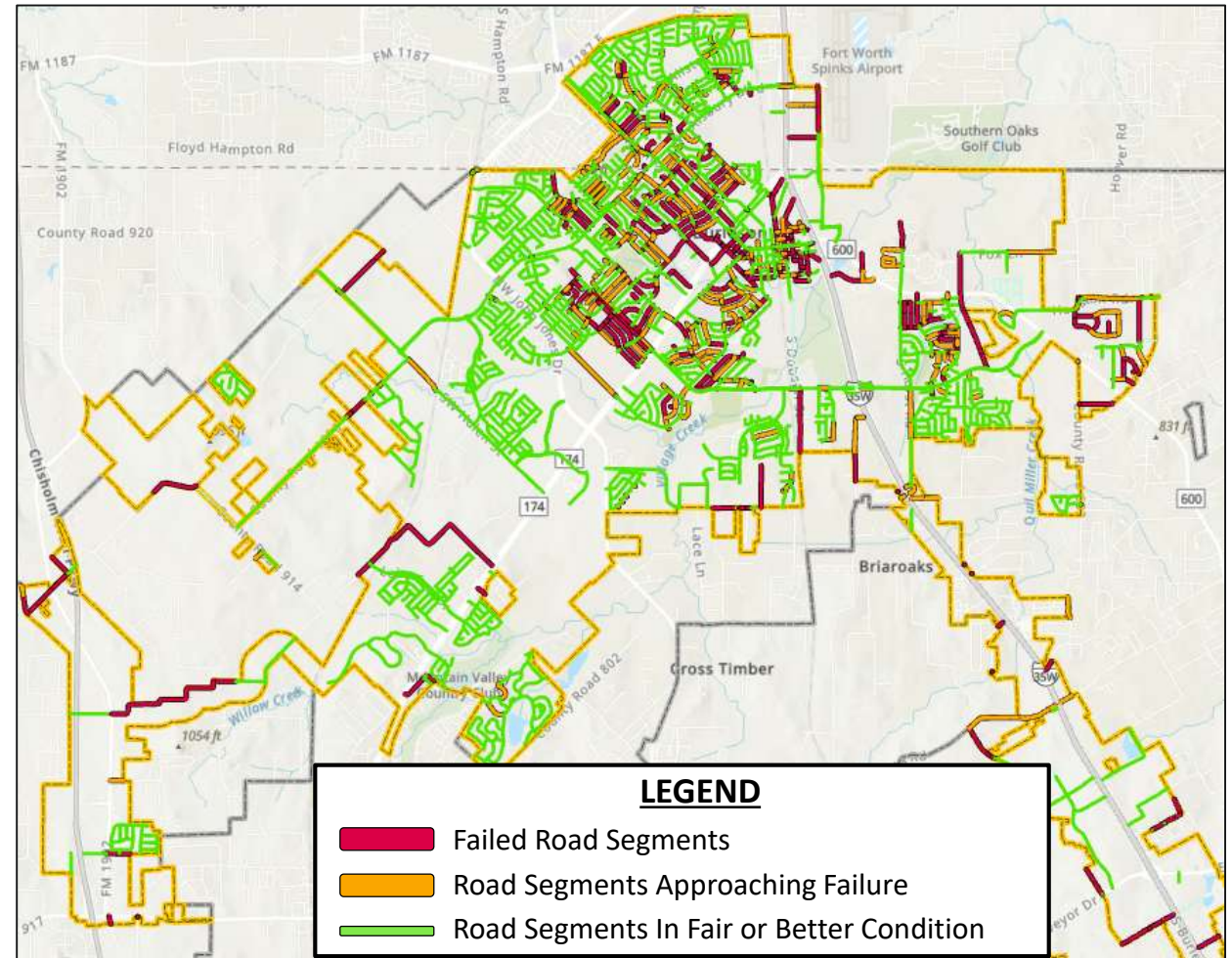


Overall Network OCI	Group	Description	OCI
69	Pavement Type	Asphalt	51
		Concrete	83
	Functional Class	Arterial	71
		Collector	65
		Local	68

*Some ETJ roads were not included in the initial collection and are still being assessed.

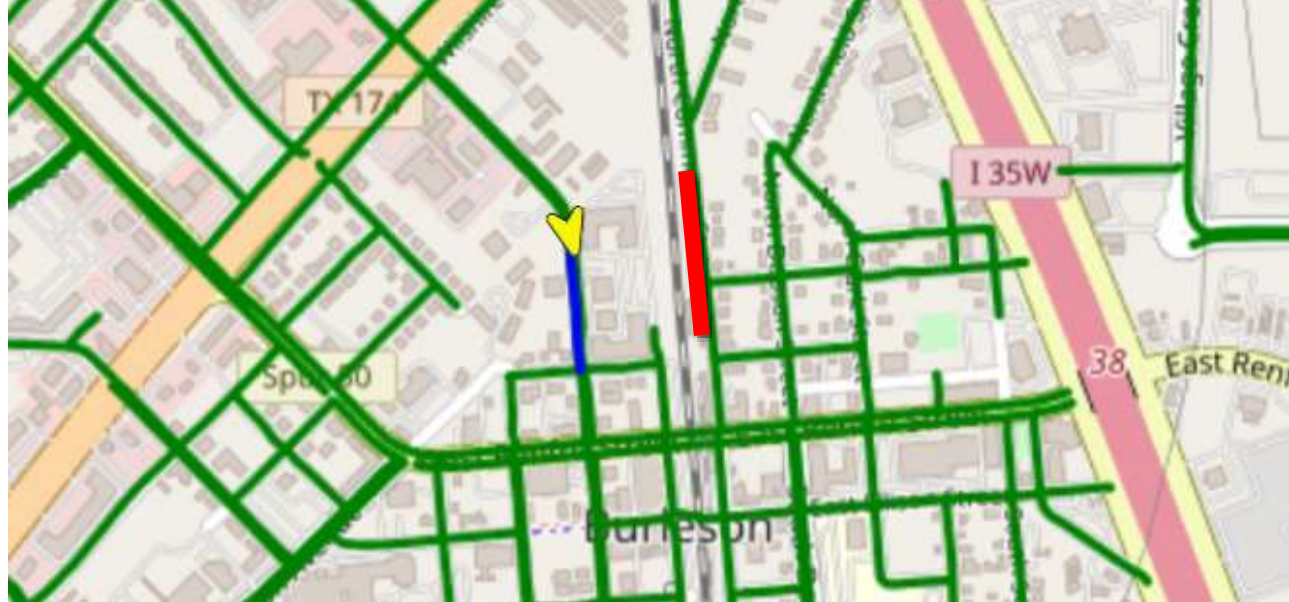
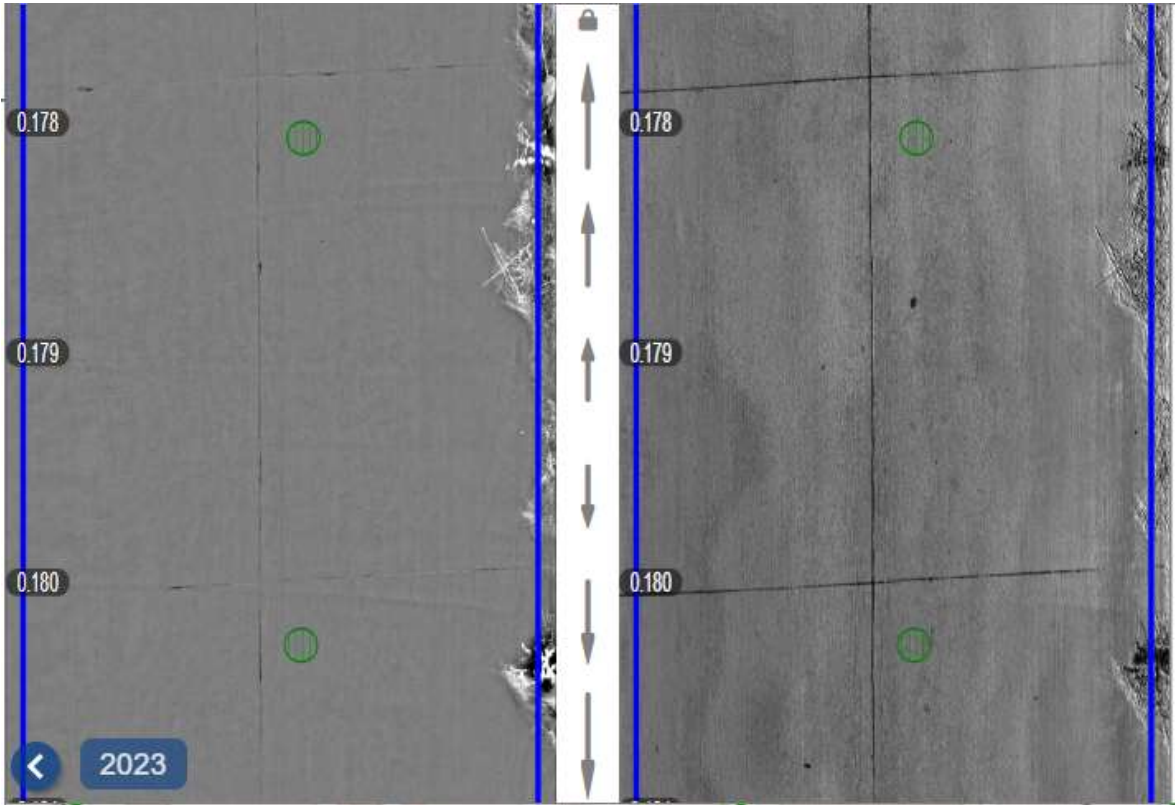
CONDITION ASSESSMENT

- Based on the Condition Assessment approximately:
 - 73% of the roads are in Good or better condition
 - 13% of the roads are approaching a Failed Condition
 - 14% of the roads are in a Failed Condition



*Some ETJ roads were not included in the initial collection and are still being assessed.

Excellent (91-100)

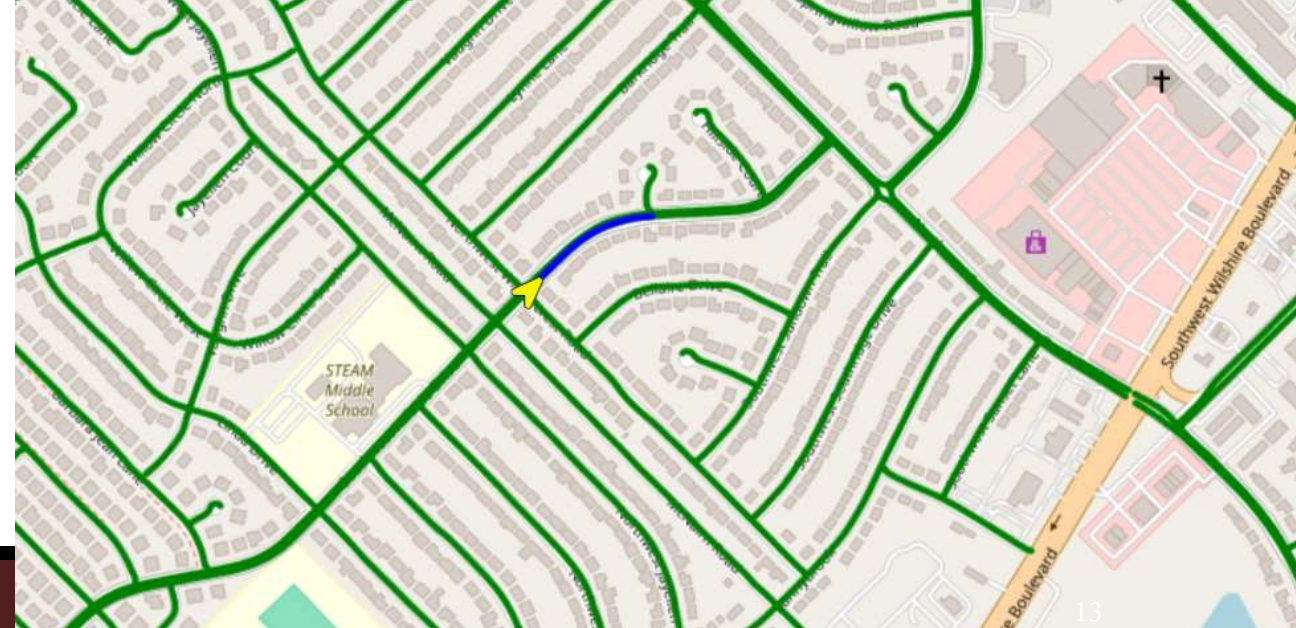
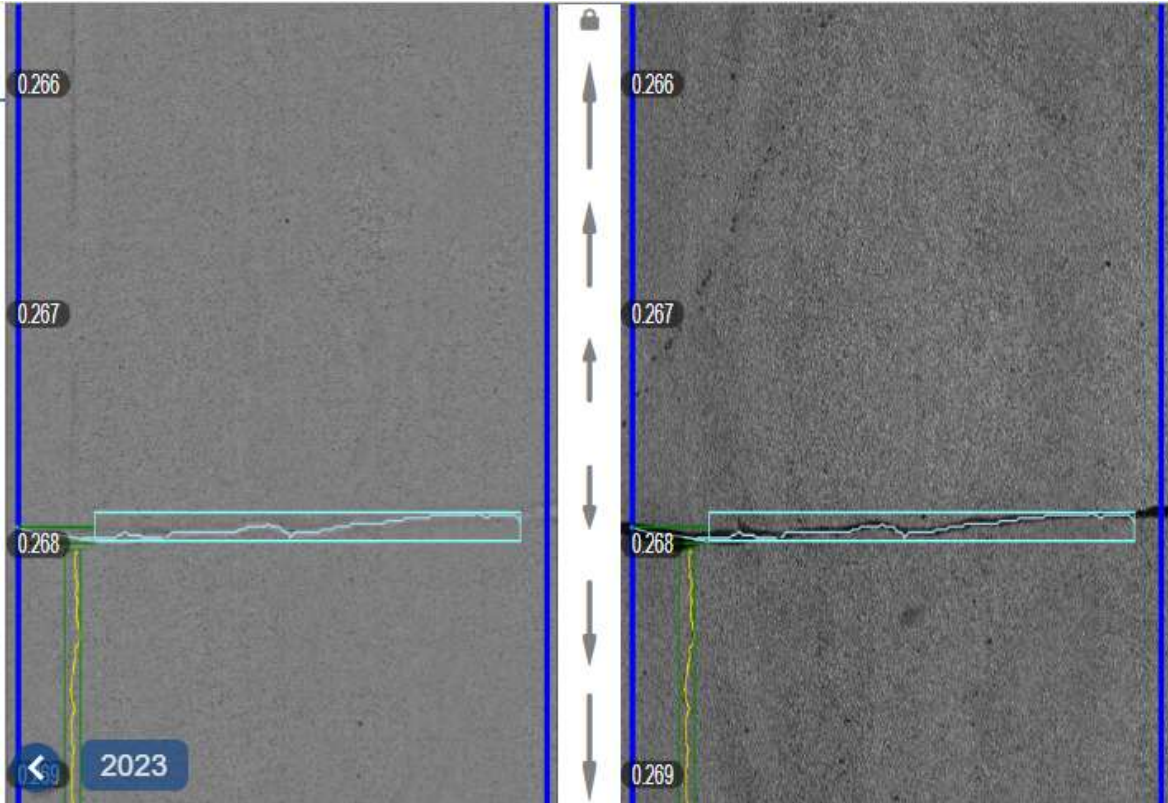


N Wilson
Street

Collected OCI:
92.6

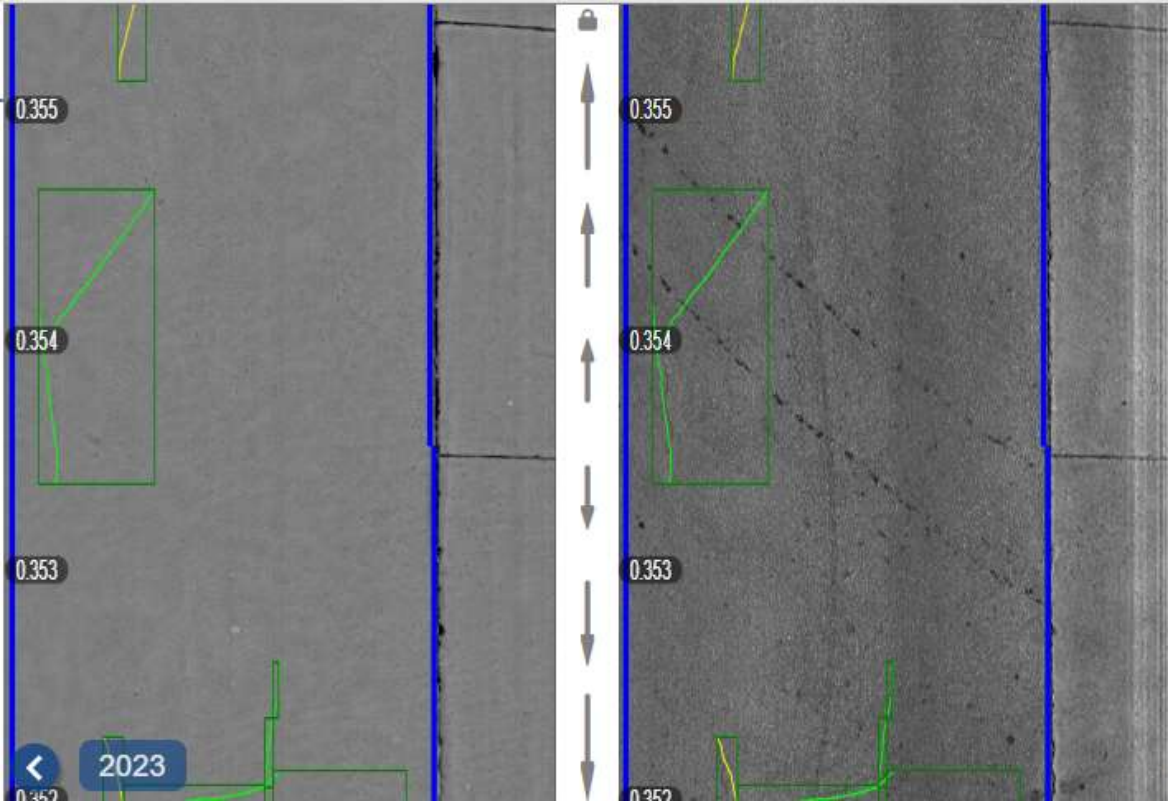
Classification:

Very Good (81-90)

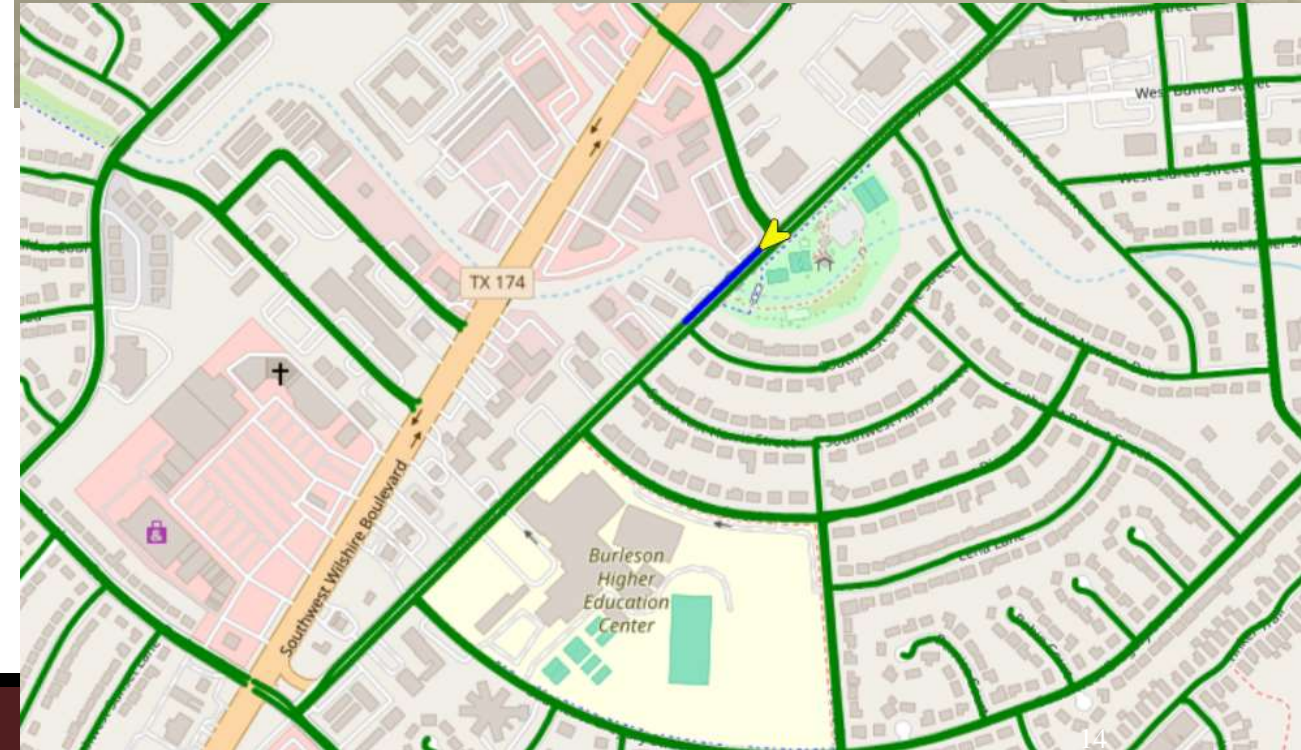


SW Hillside
Collected OCI: 87.1
Classification: Asphalt

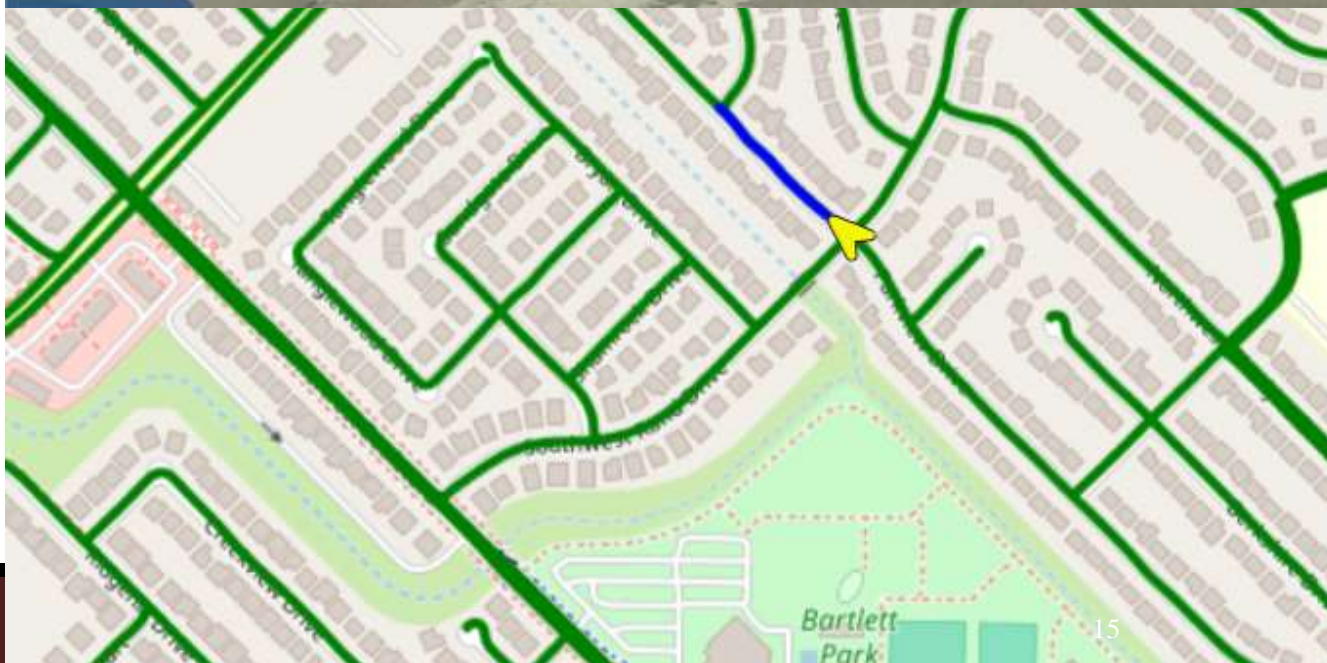
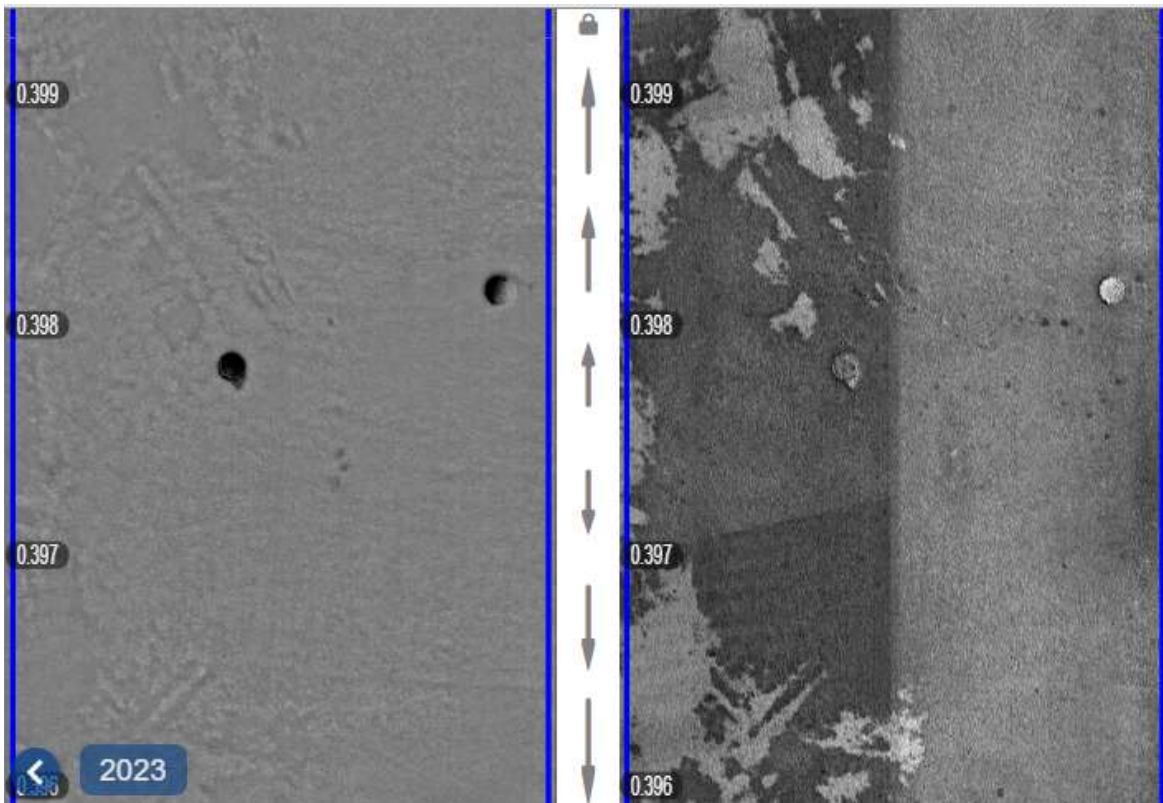
Good (71-80)



SW Johnson Ave
Collected OCI: 74.53
Classification: Asphalt

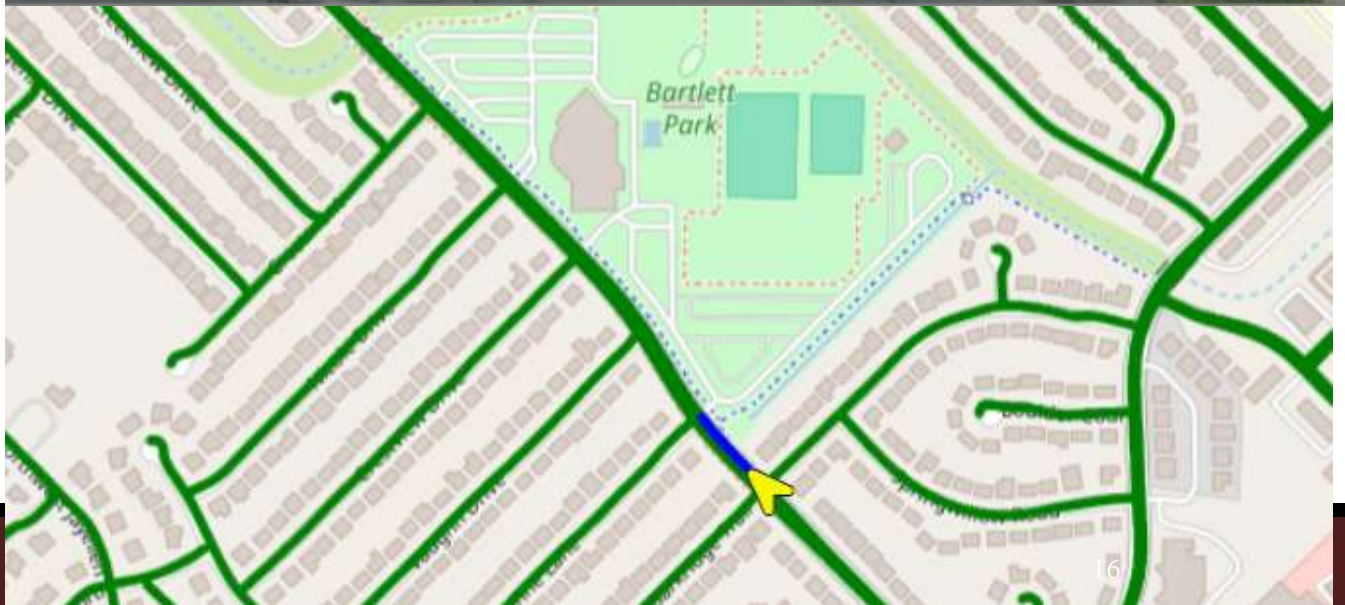
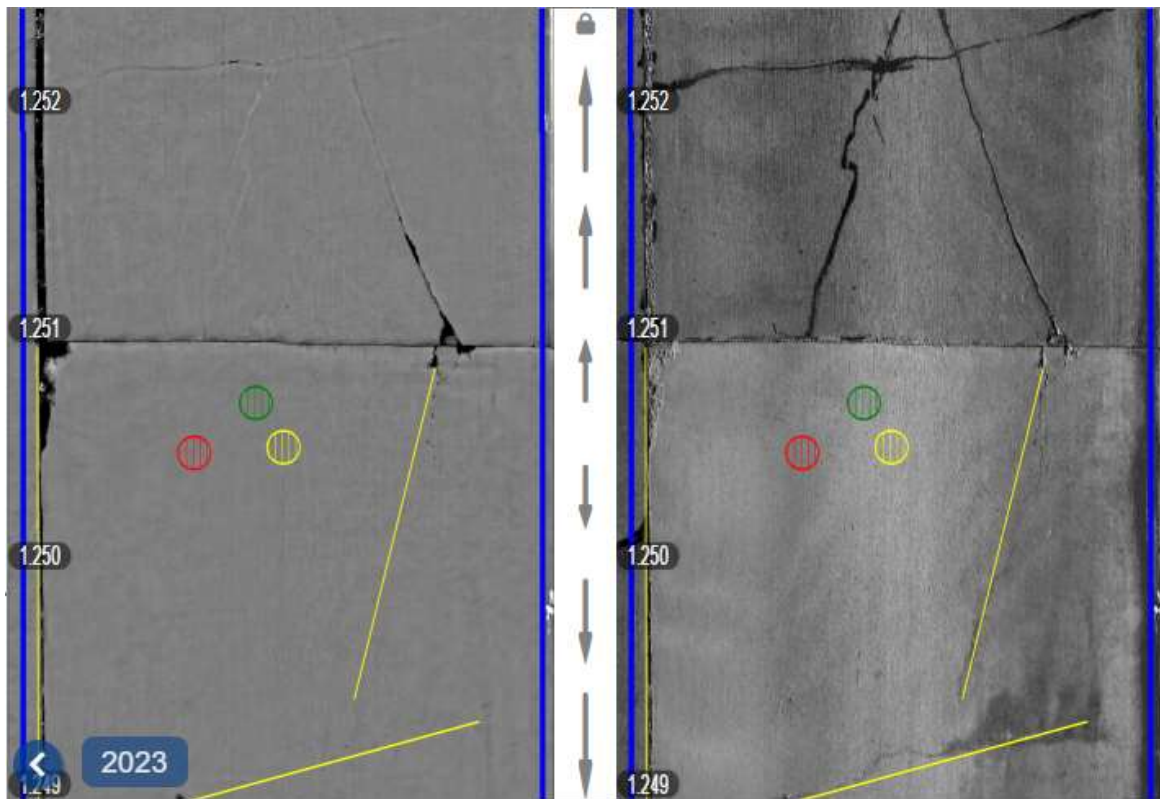


Fair (51-70)



Parkview Drive
Collected OCI: 56.79
Classification: Asphalt

Failed (0-50)

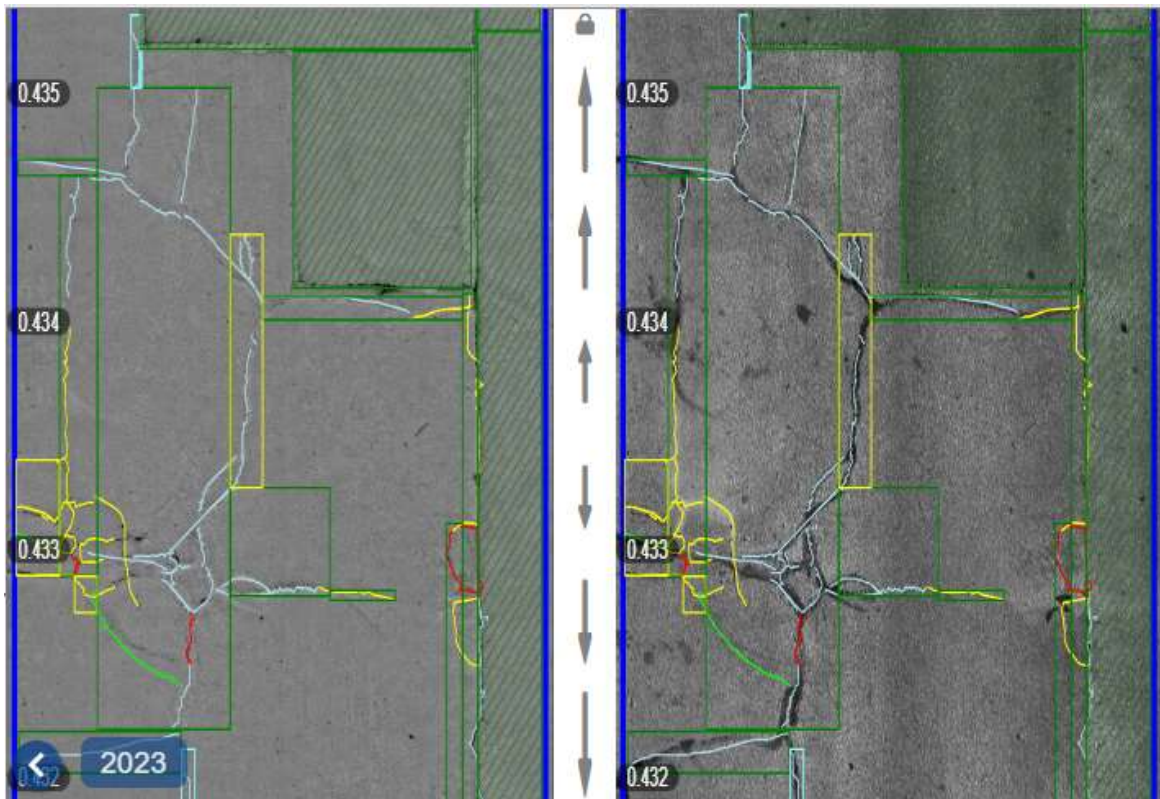


NW Renfro
Street

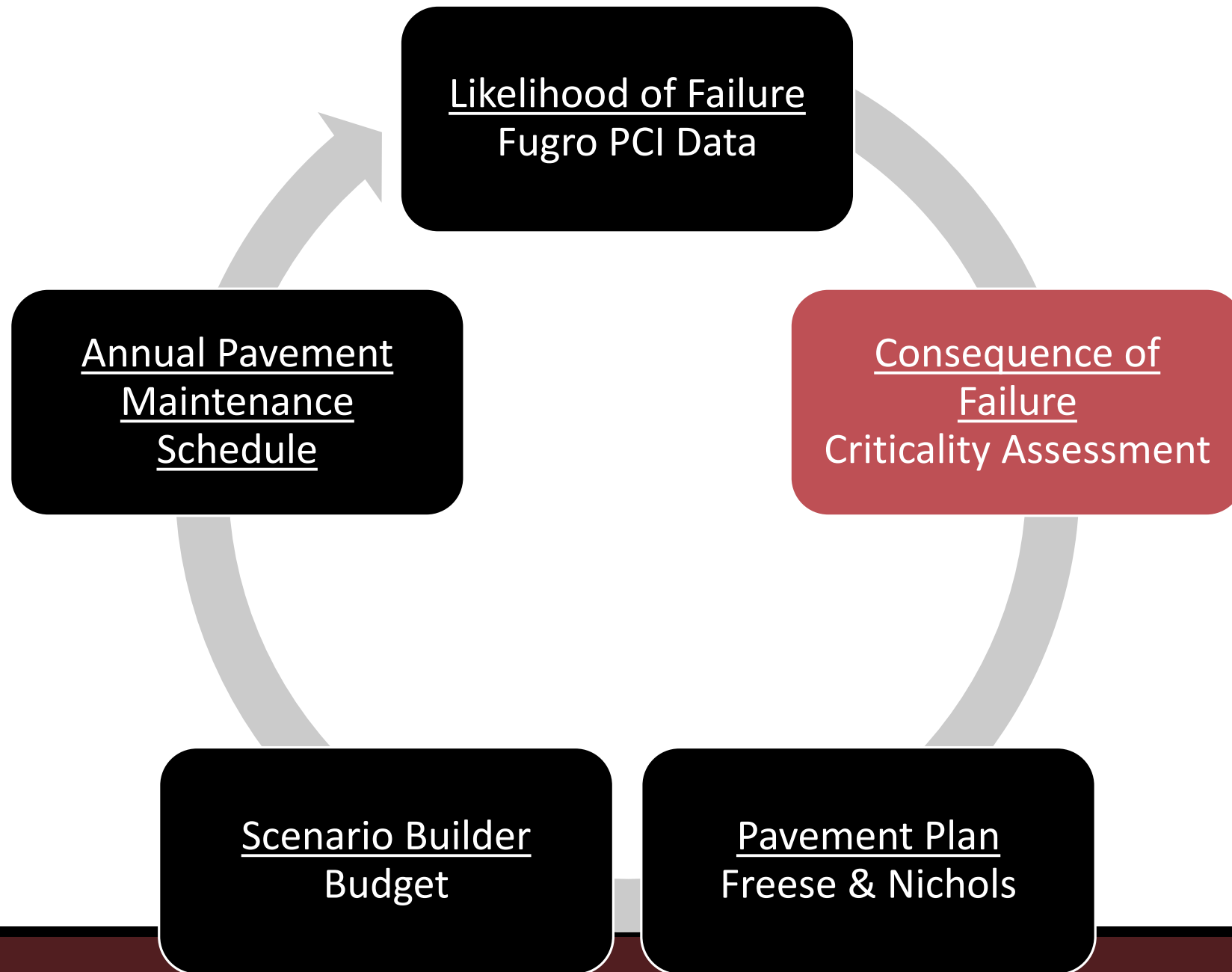
Collected OCI: 34.89

Classification: Concrete

Failed (0-50)

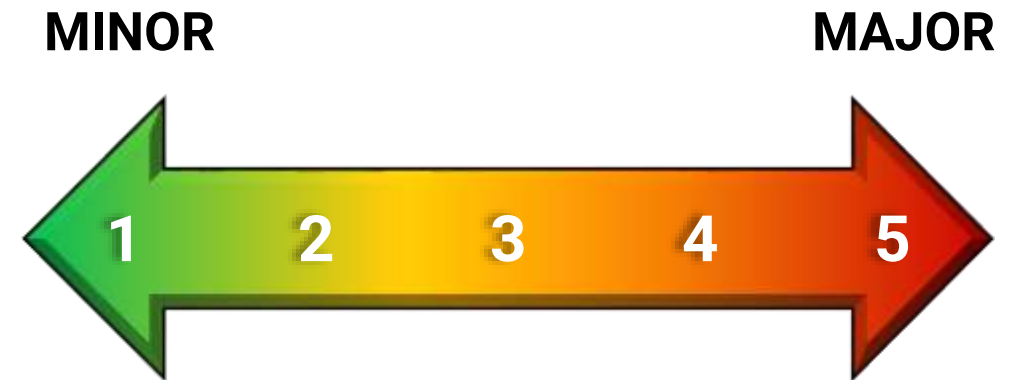


NW Summercrest
Collected OCI: 34.89
Classification: Asphalt



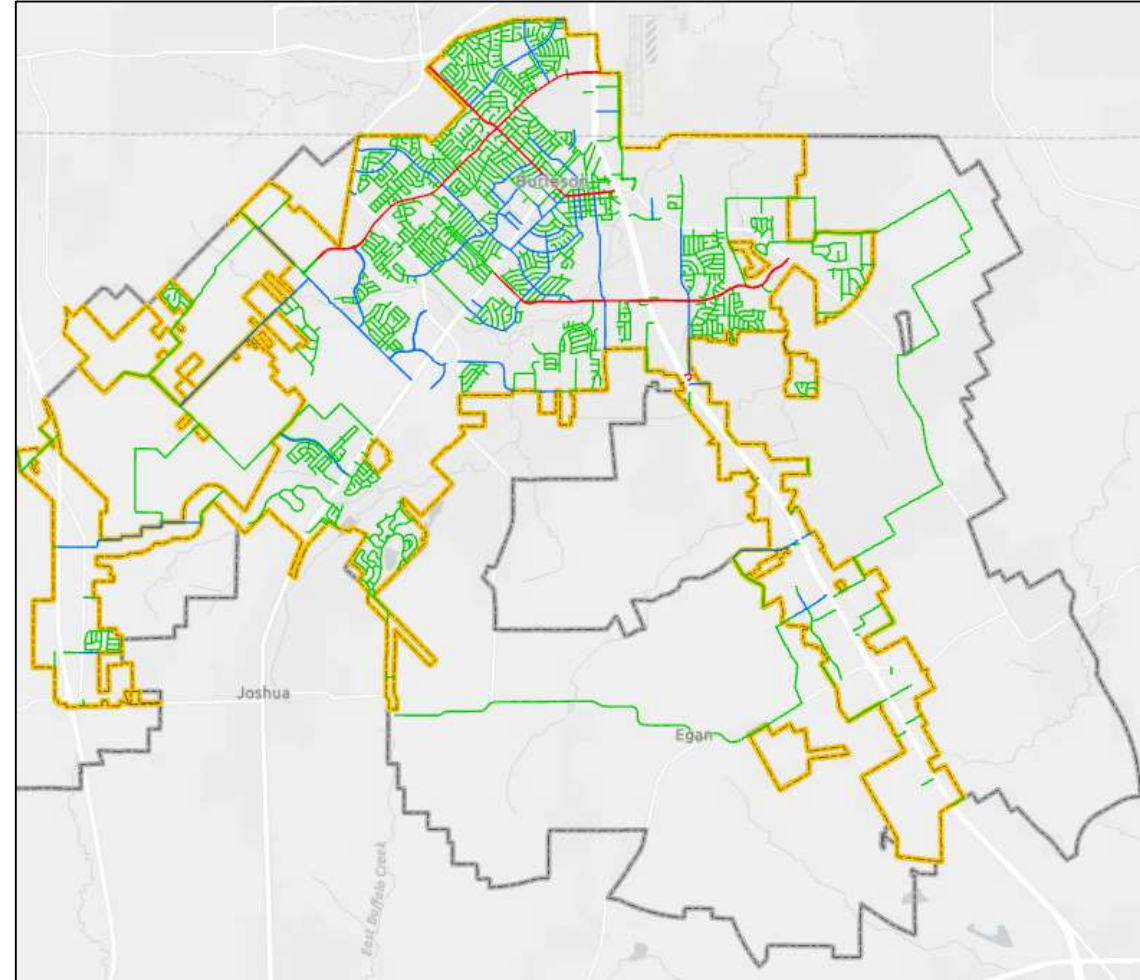
CRITICALITY ASSESSMENT



Parameter	Weight	Category	Subcategory
Access to Fire Departments and Police Station	40%	Social	Health & Safety
Proximity to City Hall, Courthouse, or School	10%	Economic	Operational Impact
Proximity to Old Town Square and Community Recreation Centers	10%	Social	City Reputation
Creek crossings	20%	Environmental	Environmental Impact
Functional classification: Arterial, Collector, or Local	20%	Economic	Delivery/Loss of Service






PARAMETER SCALE (1-5)

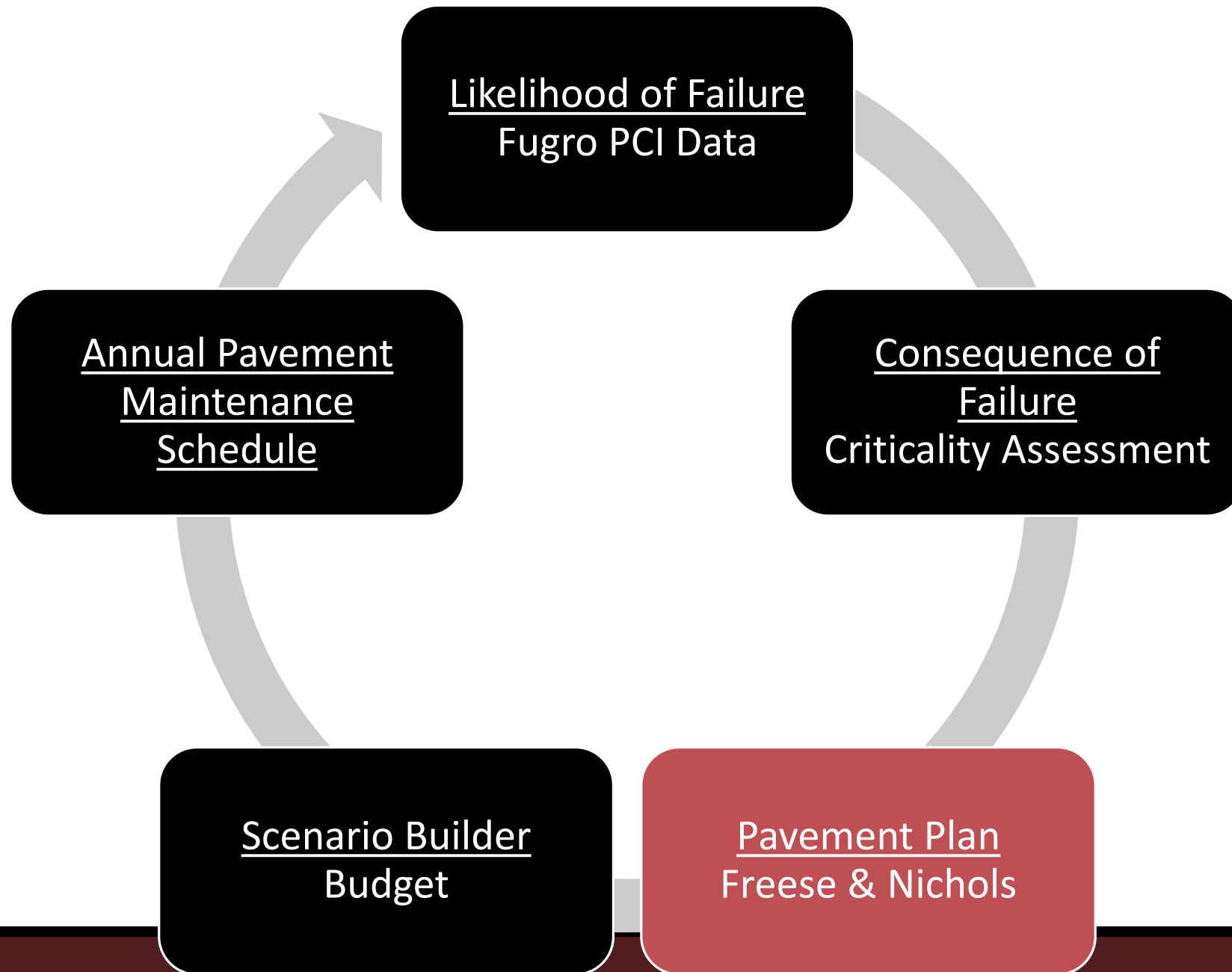
CRITICALITY ASSESSMENT



 City Limit
 ETJ

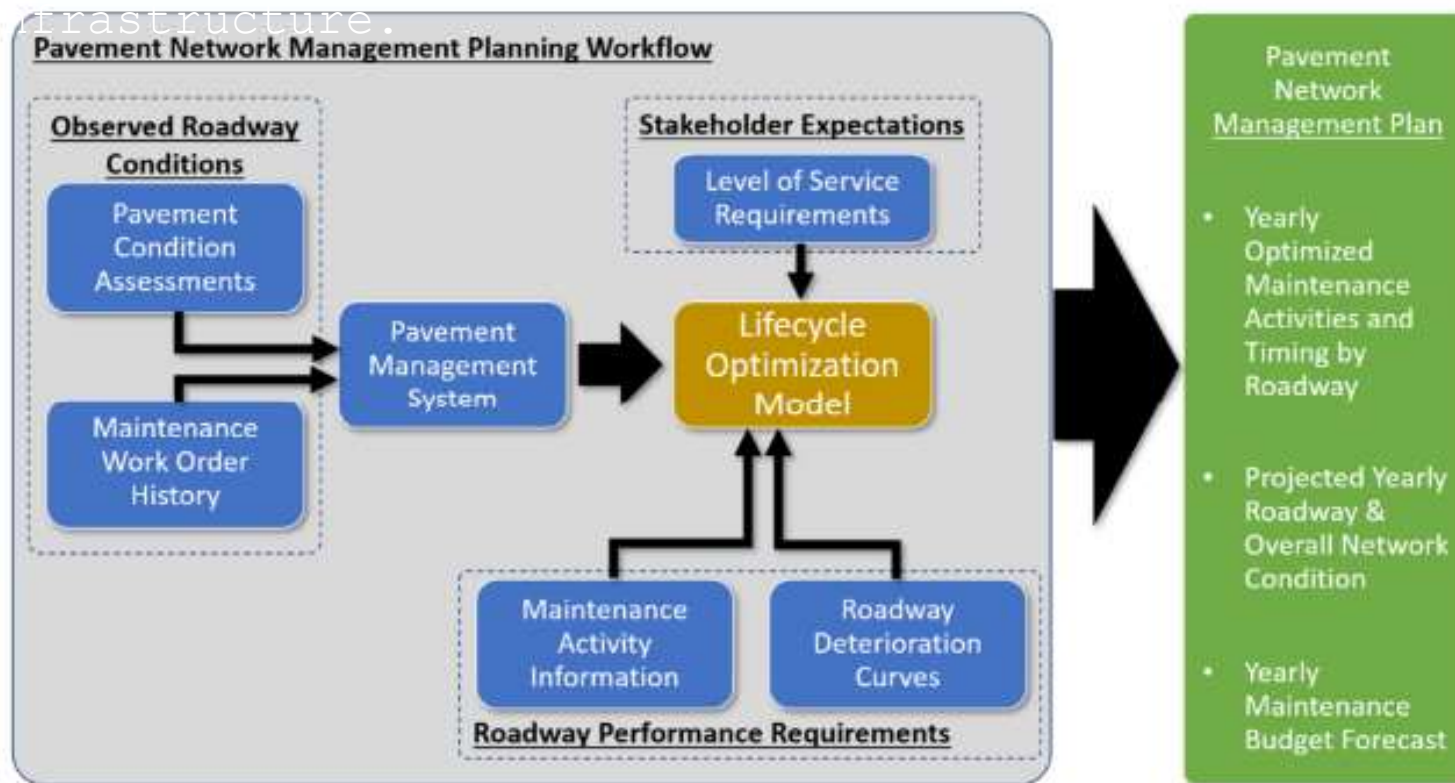
 LOCAL
 COLLECTOR
 ARTERIAL

ROAD CLASSIFICATION



PAVEMENT MANAGEMENT PLAN

A comprehensive program allowing city staff to provide optimized maintenance recommendations to reduce overall lifecycle cost of the roadway network, and extend the life of the city's roadway

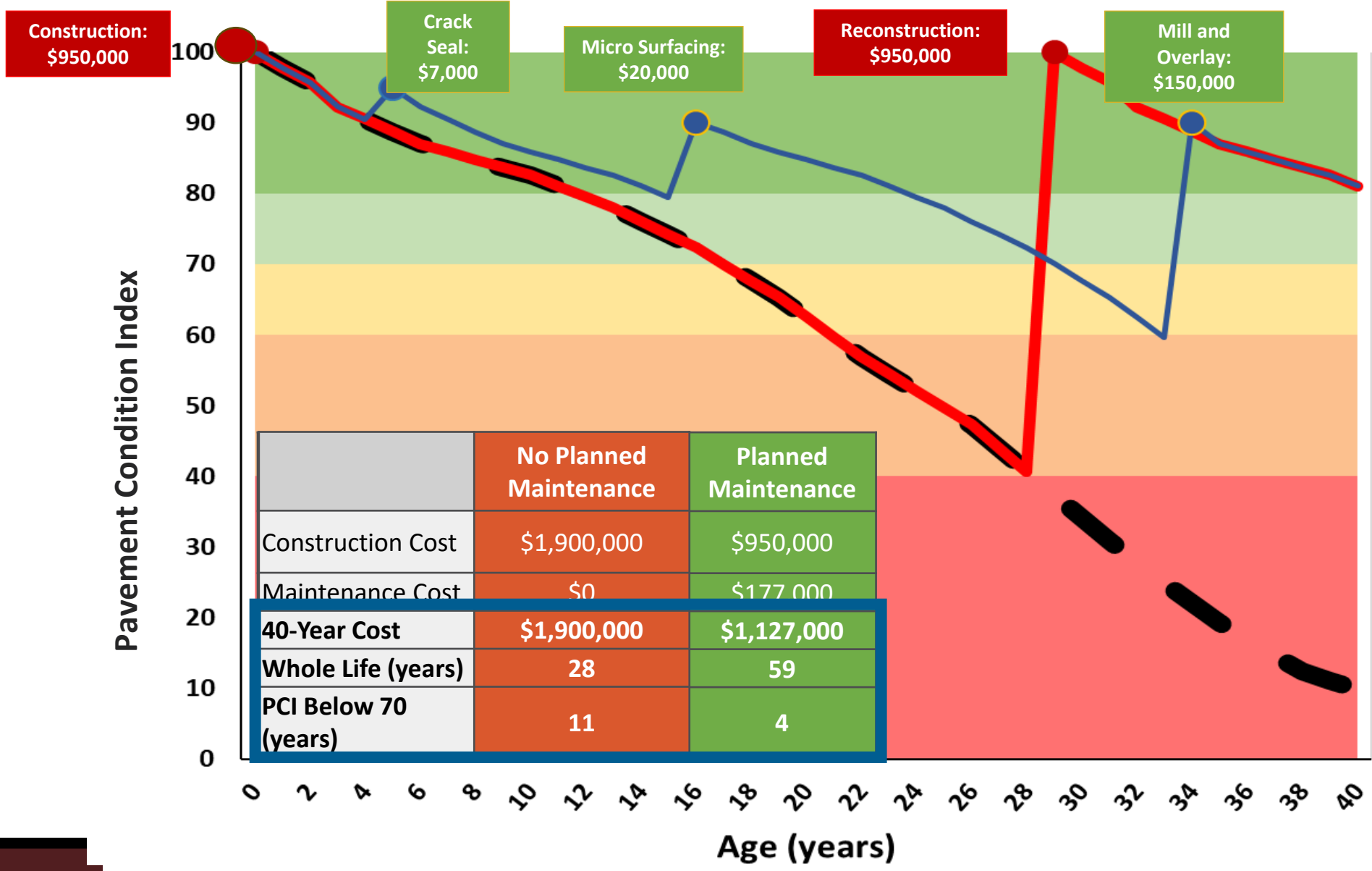


Incorporated completed pavement condition results into Cartegraph

Utilize Cartegraph to evaluate strategies and build an efficient maintenance plan

- Use budgets efficiently for maintenance activities
- Achieve an overall network condition target
- Maintain network conditions long-term

PAVEMENT LIFECYCLE EXAMPLE



PAVEMENT MAINTENANCE AND CAPITAL IMPROVEMENT ACTIVITIES

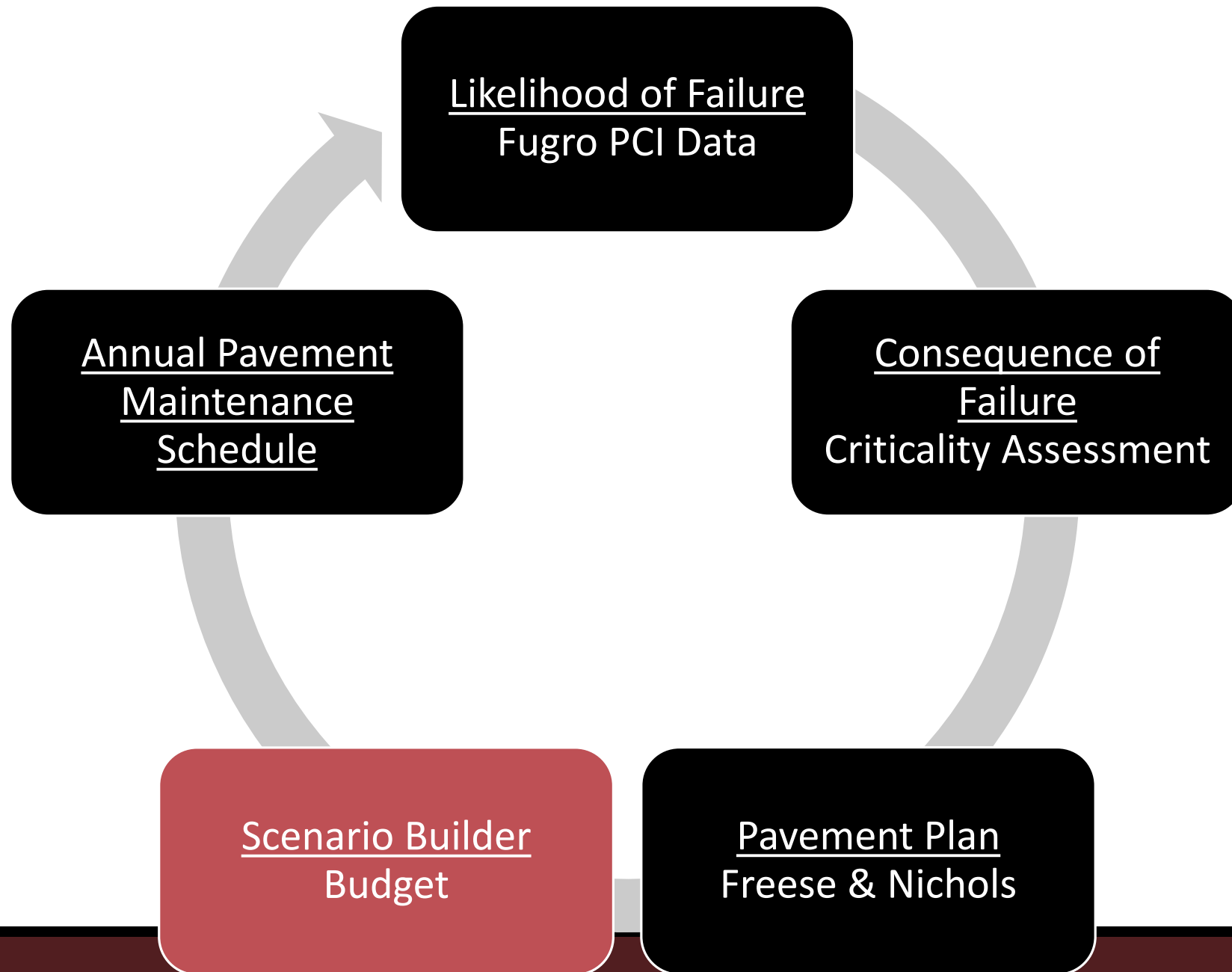


Asphalt

Concrete

Maintenance Activity	Applicable Condition Range (PCI)	Condition Impact Type	Condition Impact (PCI)
Crack Seal	91-100	Modifier	+5 pts
Rejuvenator Application & Crack Seal	81-90	Modifier	+8 pts
Microsurface	71-80	Modifier	+15 pts
Mill & 2" Overlay	51-70	Modifier	+20 pts
Reconstruction	0-50	Absolute	100

Maintenance Activity	Applicable Condition Range (PCI)	Condition Impact Type	Condition Impact (PCI)
Joint Sealing	81-90	Modifier	+5 pts
Small Full Depth Repair	71-80	Absolute	90
Medium Full Depth Repair	61-70	Absolute	90
Large Full Depth Repair	41-60	Absolute	90
Reconstruction	0-40	Absolute	100



SCENARIO ASSUMPTIONS

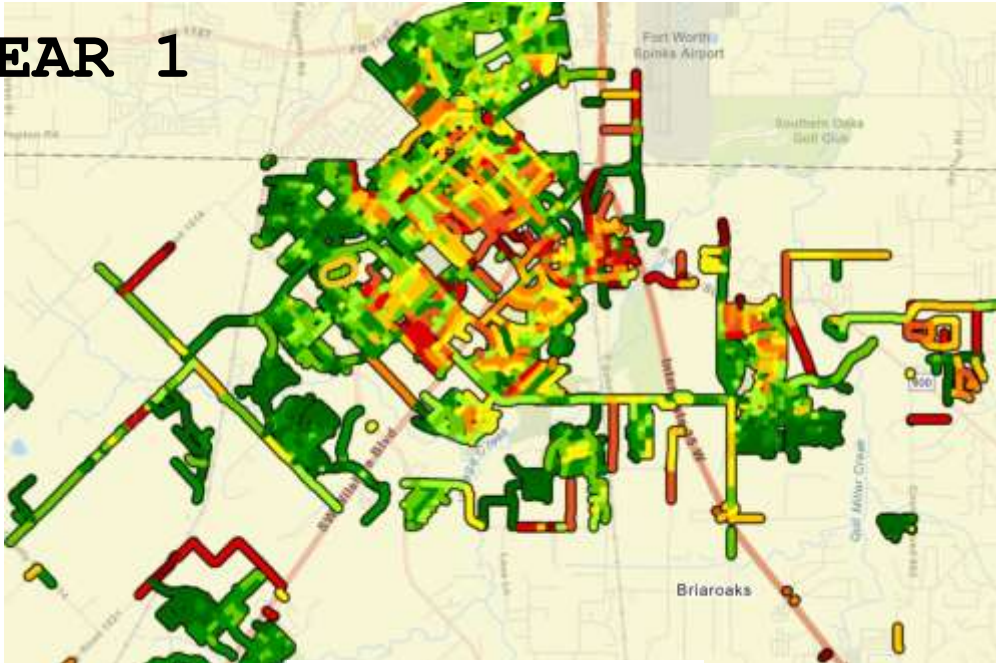
Presented to I & D Committee in August

<p>SCENARIO 1: <i>Do Nothing</i> O&M Budget - \$0 Capital Budget - \$0</p>	<p>SCENARIO 2: <i>Current Budget</i> O&M Budget - \$1.1m Annually Capital Budget - 5 YR Capital Plan Escalation - 3% Maintenance</p>	<p>SCENARIO 3: <i>Increased O&M</i> O&M Budget - \$2.7m Annually Capital Budget - 5 YR Capital Plan Escalation - 3% Maintenance</p>
		<i>Cost</i>
<p>SCENARIO 4: <i>Increased Capital</i> O&M Budget - \$1.1m Annually Capital Budget - \$5.0m Annually Escalation - 3% Maintenance Cost</p>	<p>SCENARIO 5: <i>Increased O&M & Capital</i> O&M Budget - \$2.7m Annually Capital Budget - \$5.0m Annually Escalation - 3% Maintenance</p>	
		<i>Cost</i>
<p>SCENARIO 6: <i>OCI 75 in 5 Years</i> O&M Budget - ~\$5.0m Annually Capital Budget - ~\$14.3m Annually</p>	<p>SCENARIO 7: <i>OCI 75 in 10 Years</i> O&M Budget - ~\$3.3m Annually</p>	

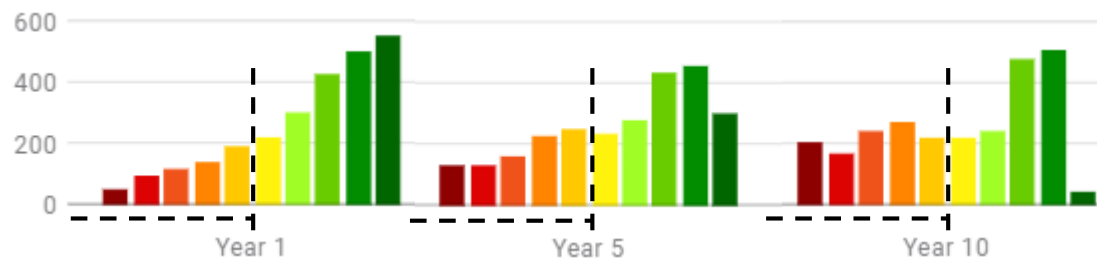
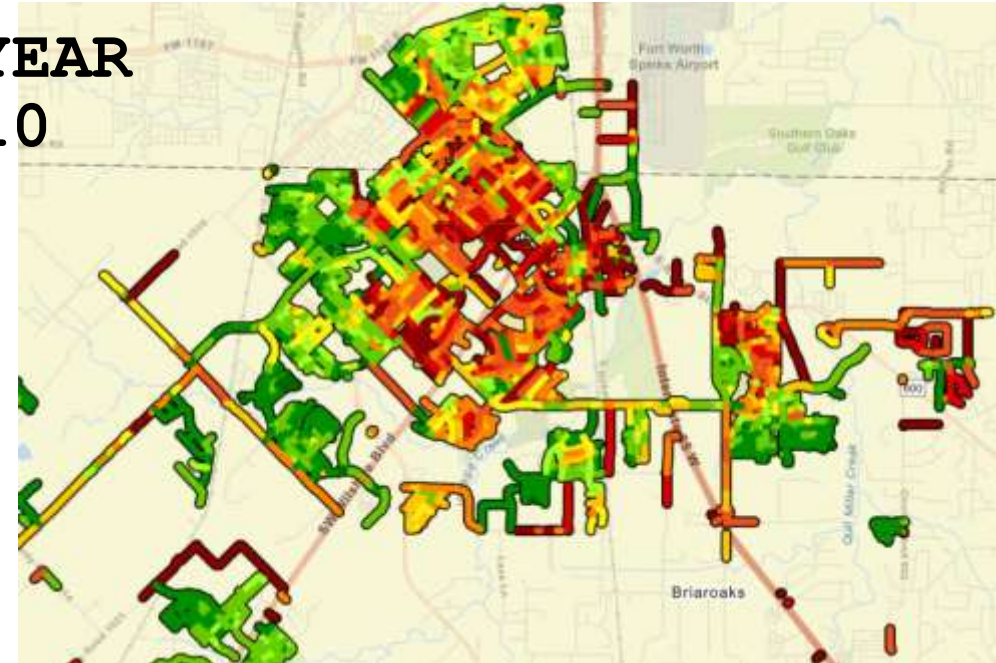
SCENARIO 1

Do Nothing - No Budget

YEAR 1



YEAR 10



Beginning OCI: 69

5 Year OCI: 59.81

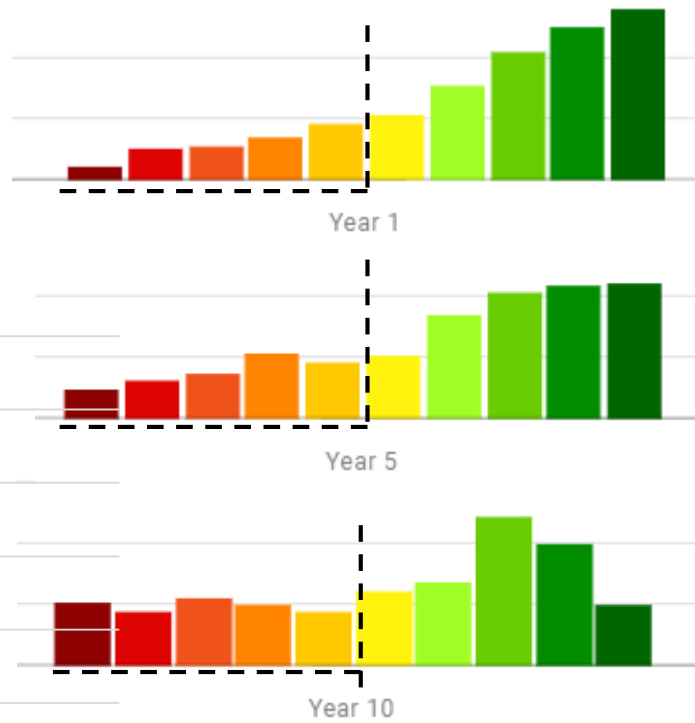
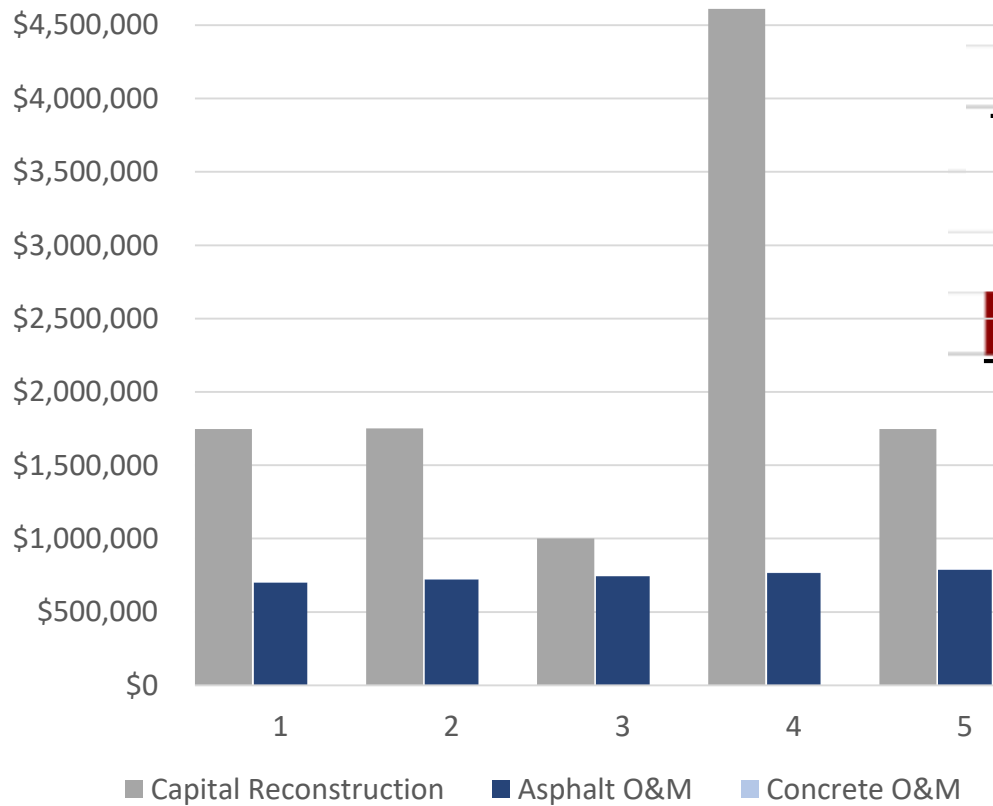
10 Year OCI:

51.87

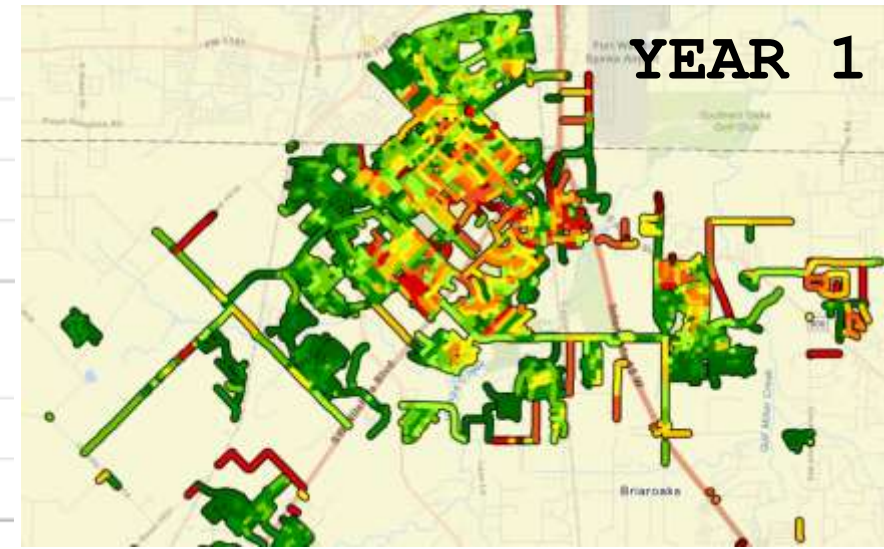
Budget: \$0

SCENARIO 2

O&M 700k
(1.1m)
Capital Plan



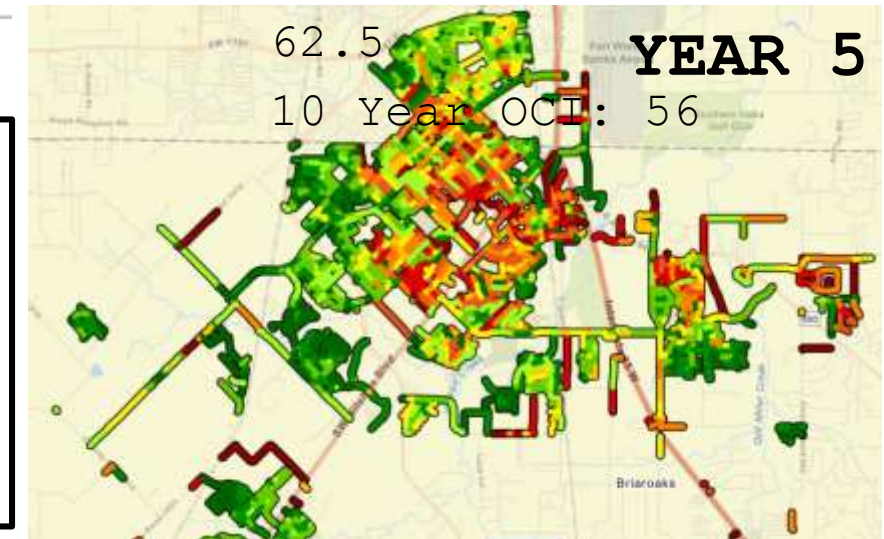
<u>O&M Budget</u>
\$3,716,394
<u>Capital Budget</u>
\$10,855,620
<u>Total 5-Year Budget</u>
\$14,572,014



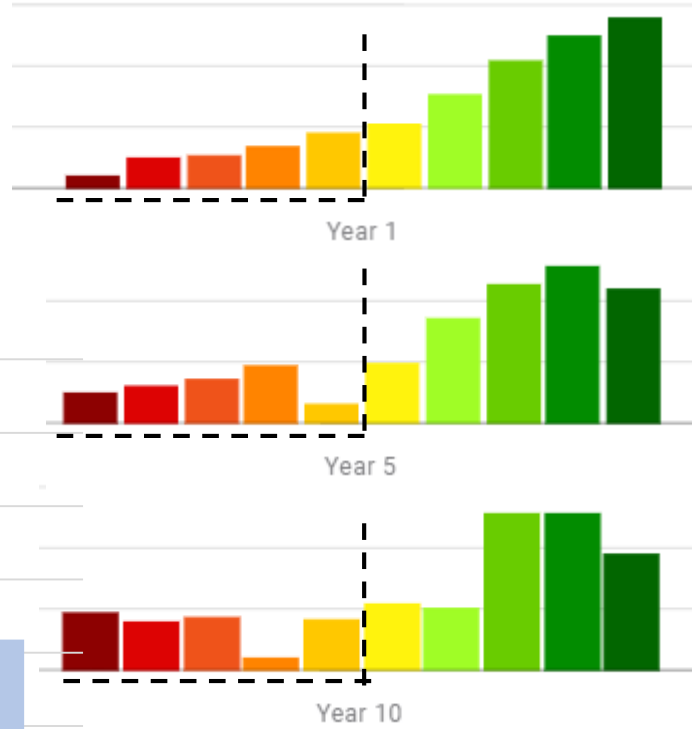
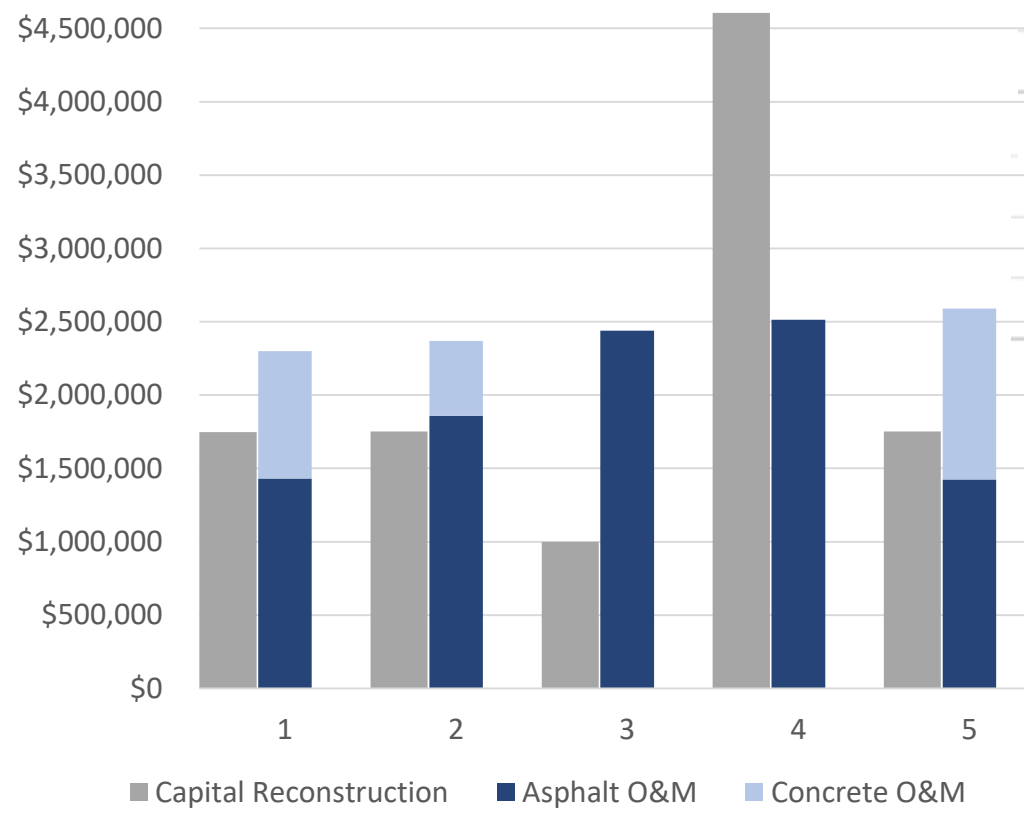
Beginning OCI:
69

5 Year OCI:

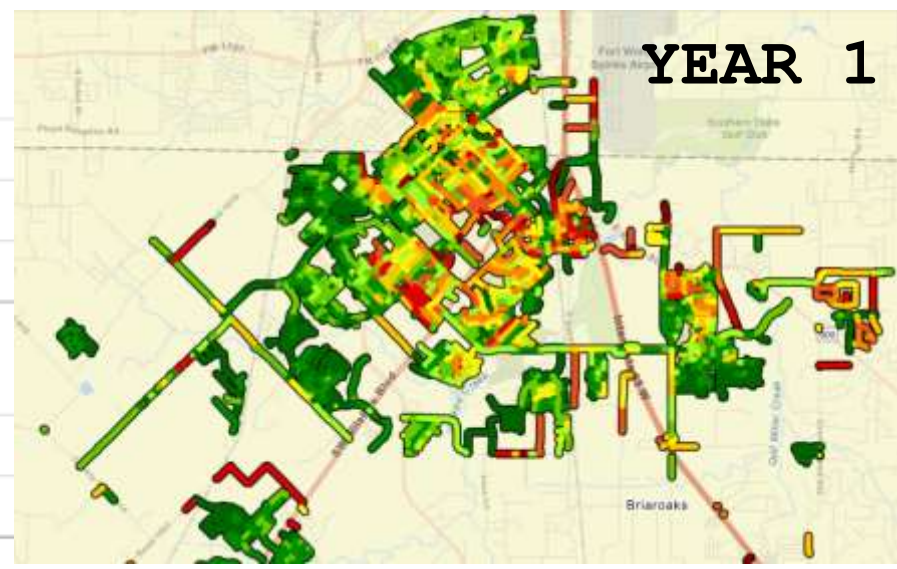
62.5
10 Year OCI: 56



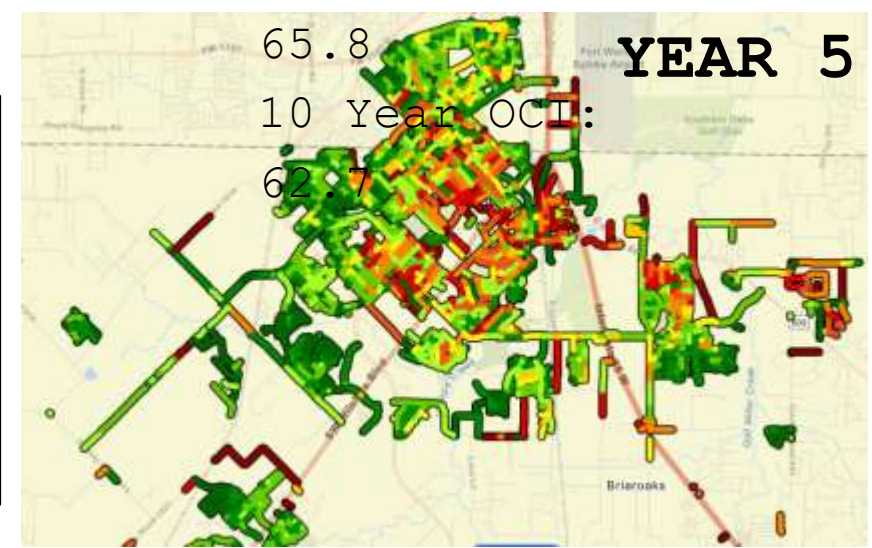
SCENARIO 3
 O&M 2.3m
 (2.7m)
 Capital Plan



O&M Budget
 \$12,211,011
 Capital Budget
 \$10,855,146
 Total 5-Year
 Budget
 \$23,066,157



Beginning OCI:
 69
 5 Year OCI:
 65.8
 10 Year OCI:
 62.7

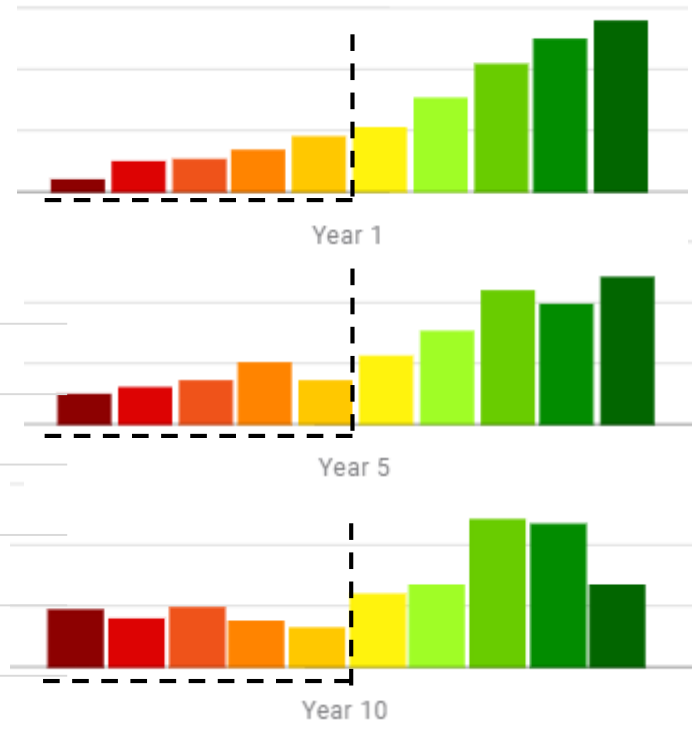
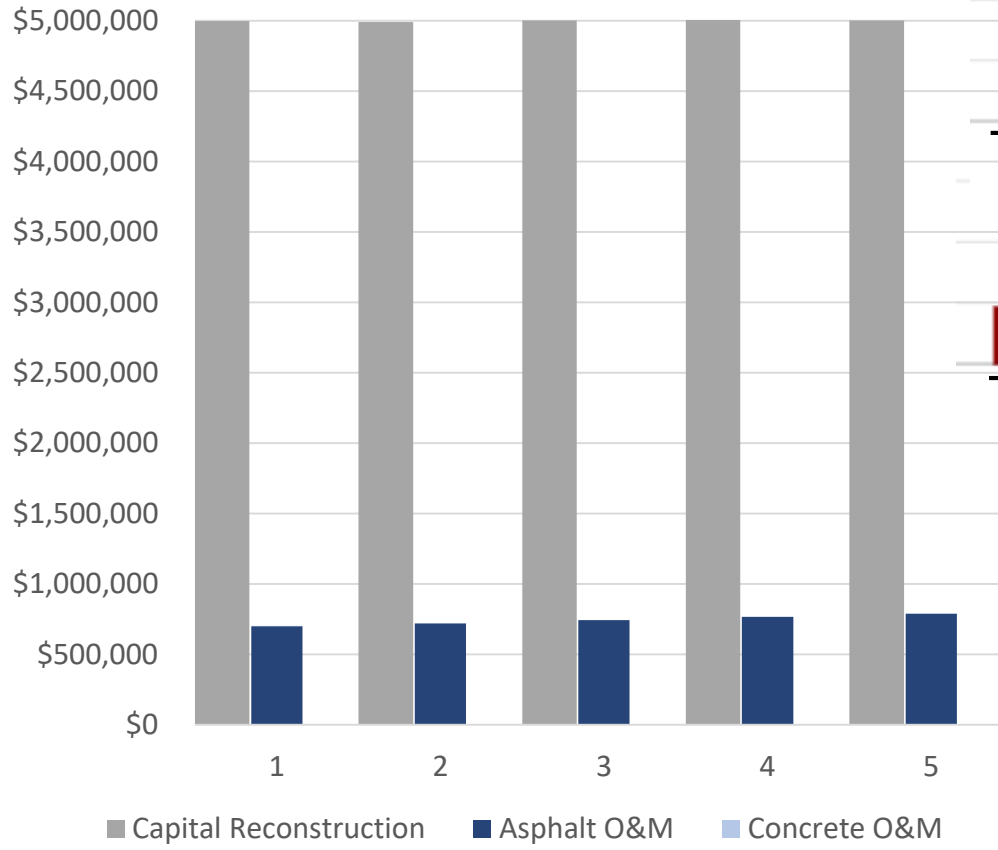


SCENARIO 4

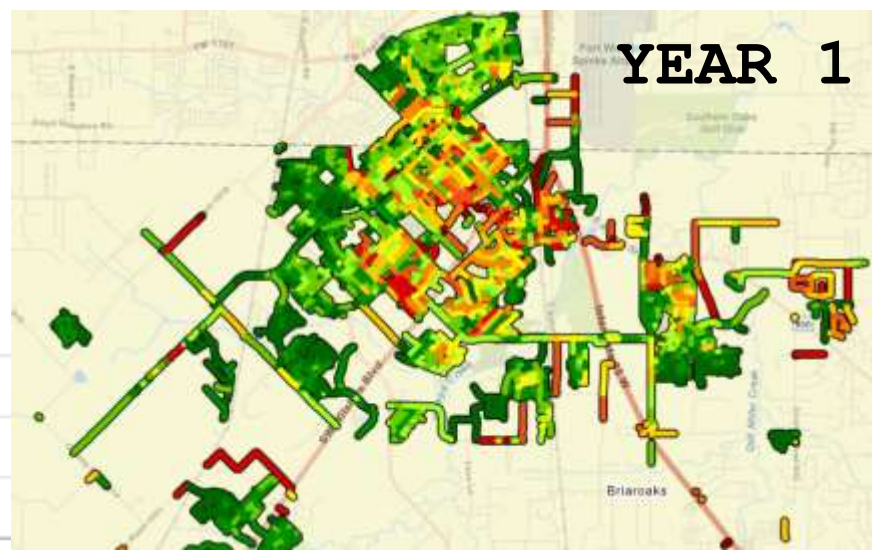
O&M 700k

(1.1m)

Capital 5.0m



<u>O&M Budget</u>
\$3,716,395
<u>Capital Budget</u>
\$24,998,033
<u>Total 5-Year Budget</u>
\$28,714,428



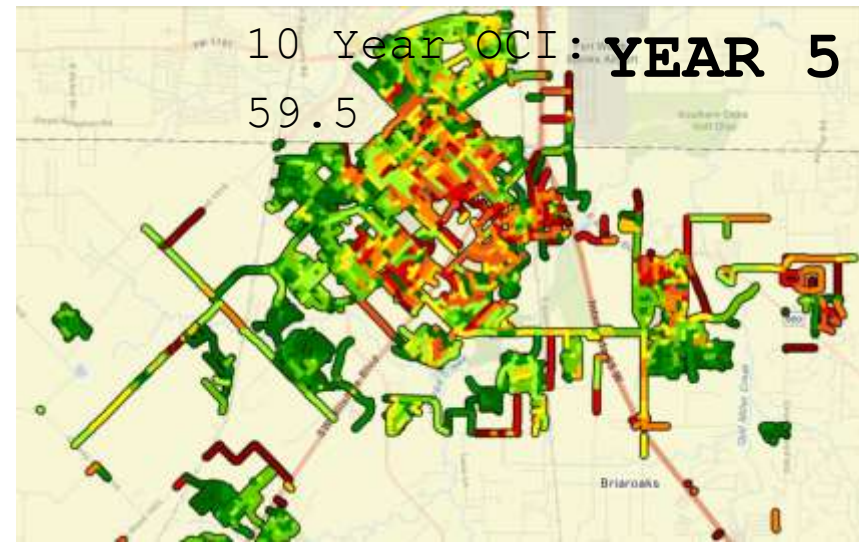
Beginning OCI:

69

5 Year OCI: 64

10 Year OCI: **YEAR 5**

59.5

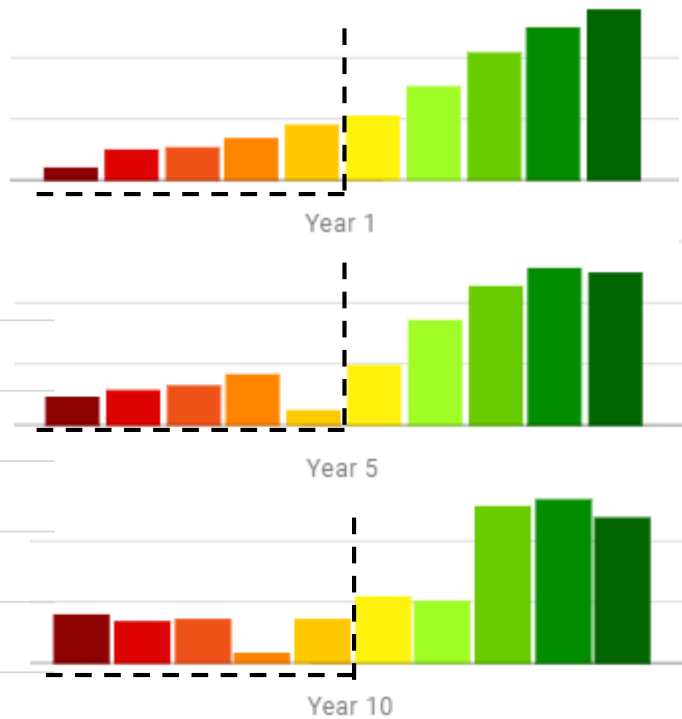
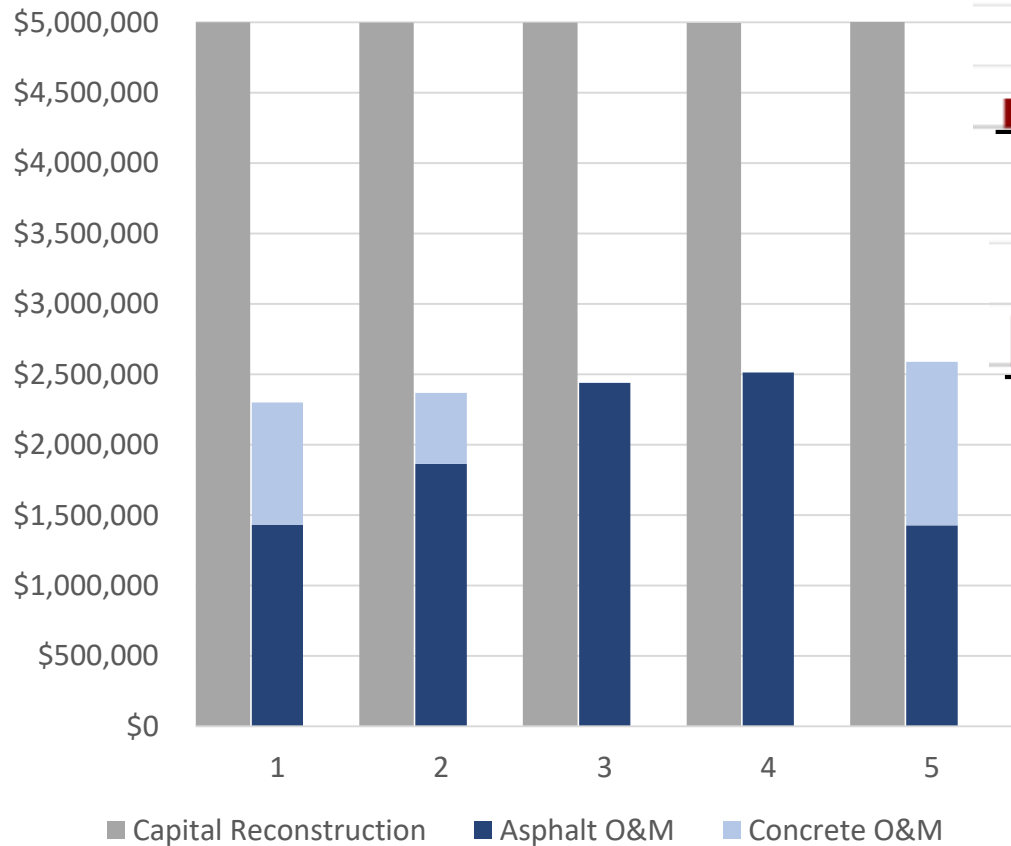


SCENARIO 3

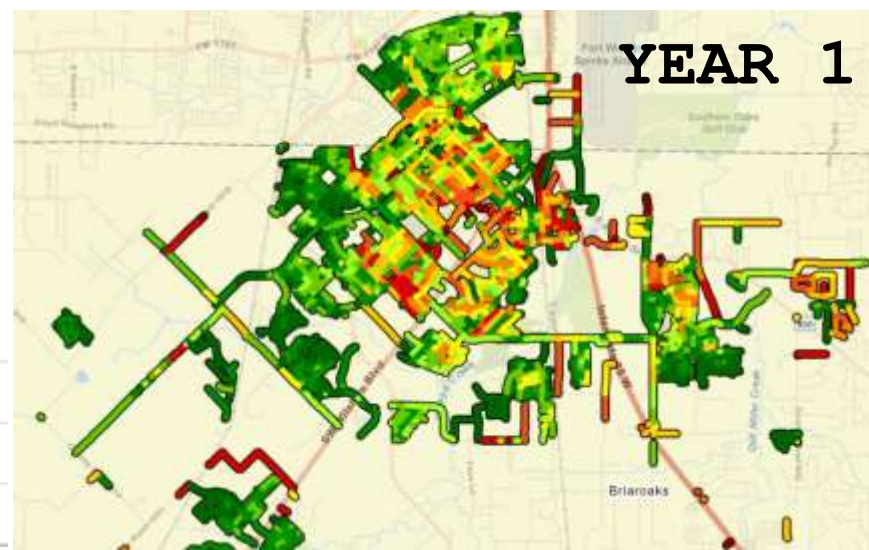
O&M 2.3m

(2.7m)

Capital 5.0m



<u>O&M Budget</u>
\$12,211,011
<u>Capital Budget</u>
\$24,993,389
<u>Total 5-Year Budget</u>
\$37,204,400



Beginning OCI:

69

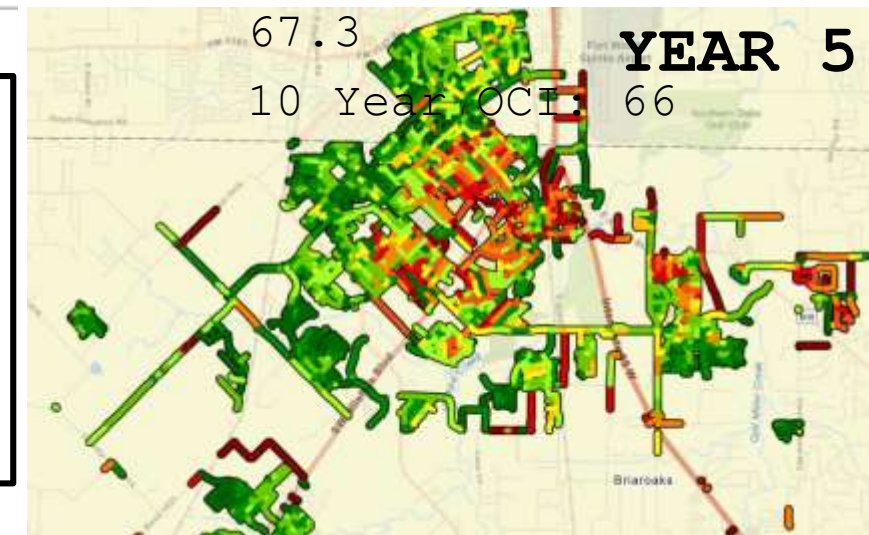
5 Year OCI:

67.3

10 Year OCI:

YEAR 5

66

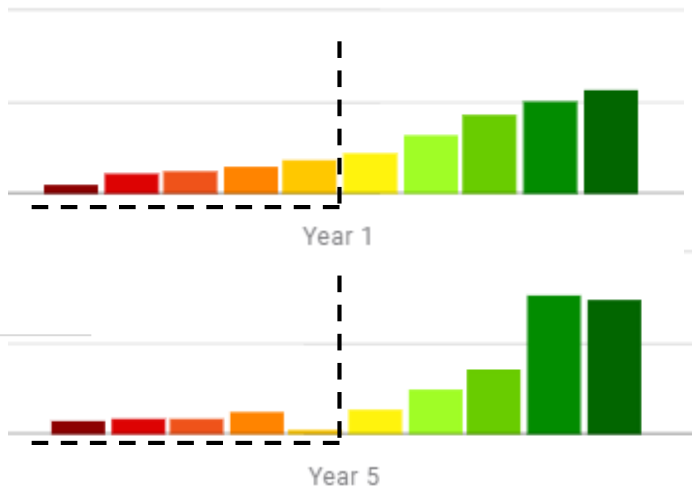
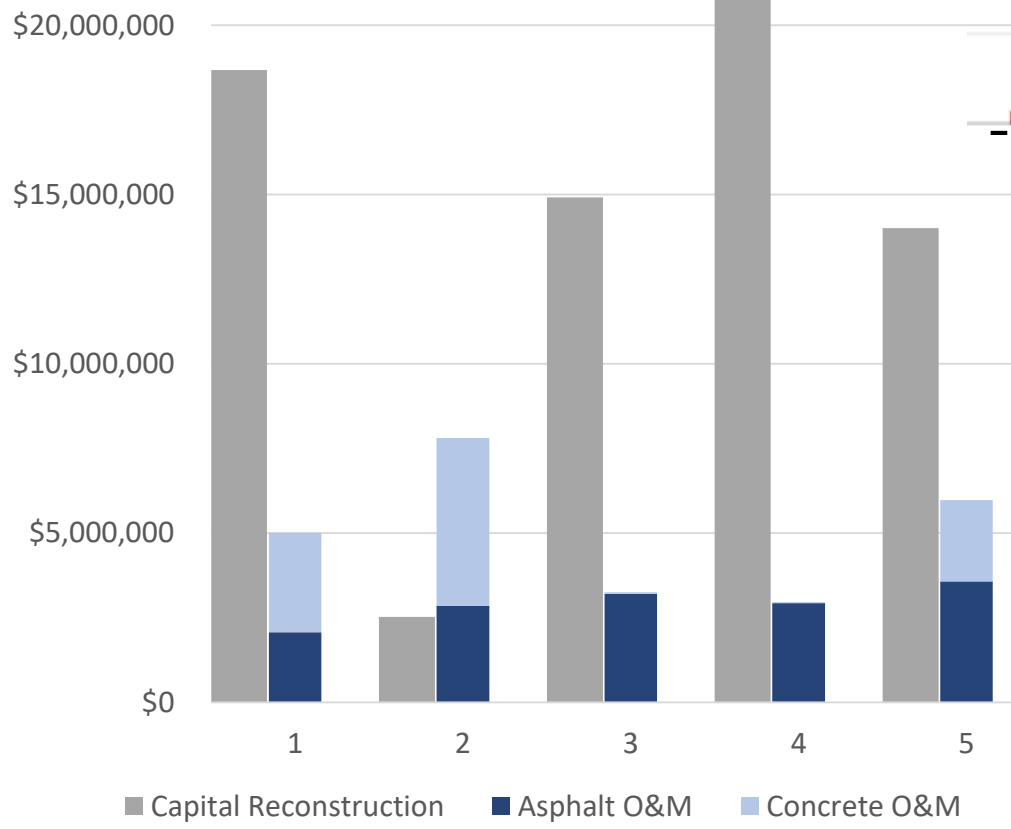


SCENARIO 0

75 OCI

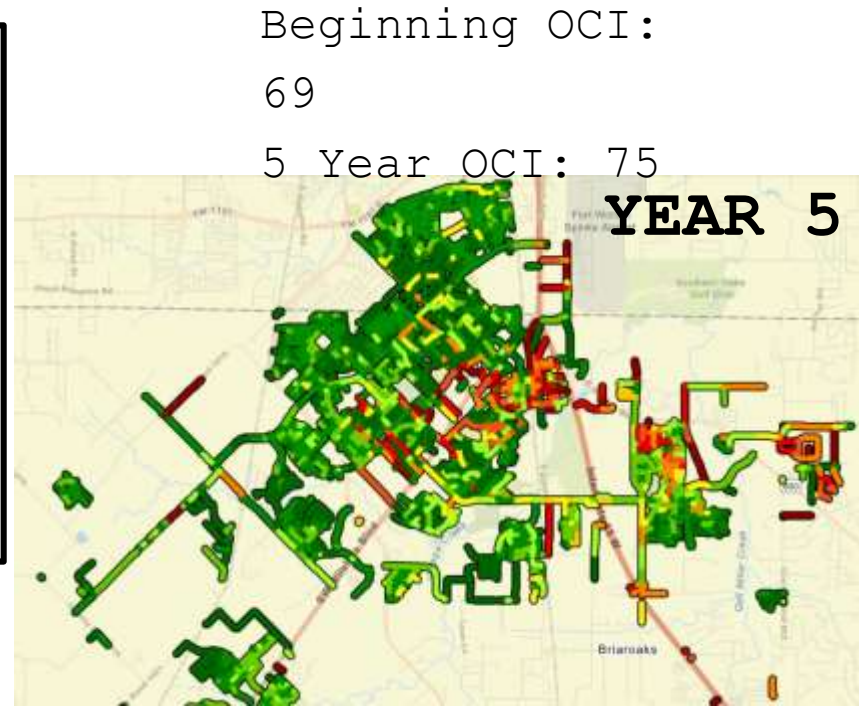
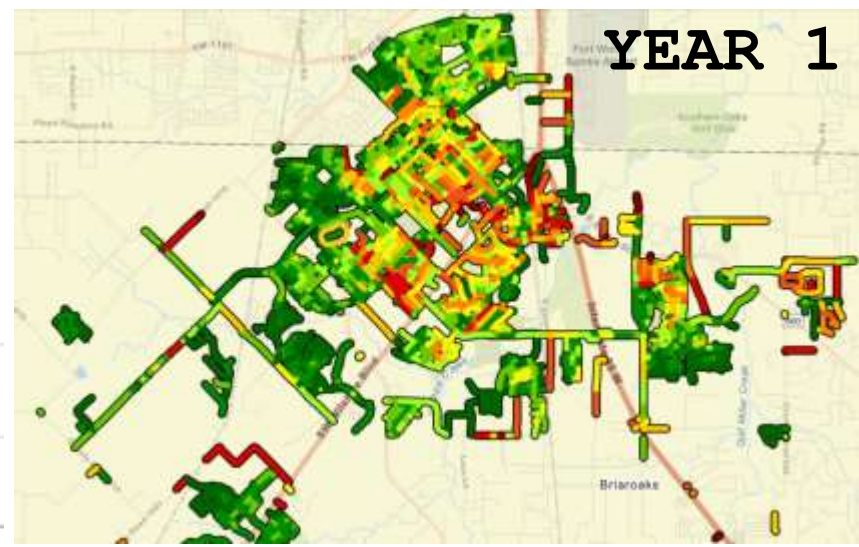
Score 5

YRS



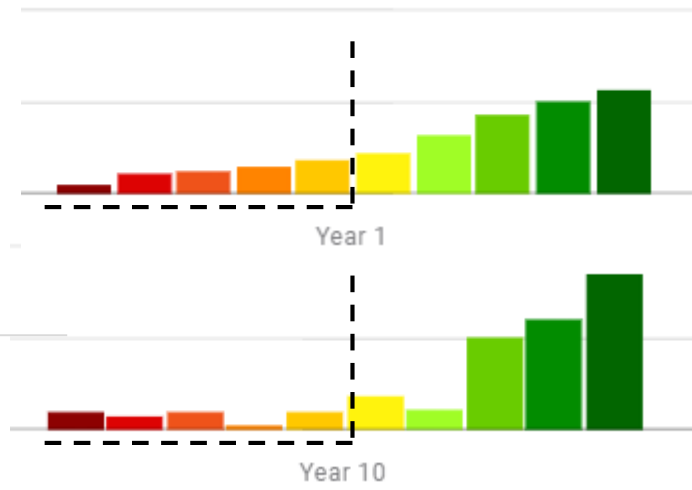
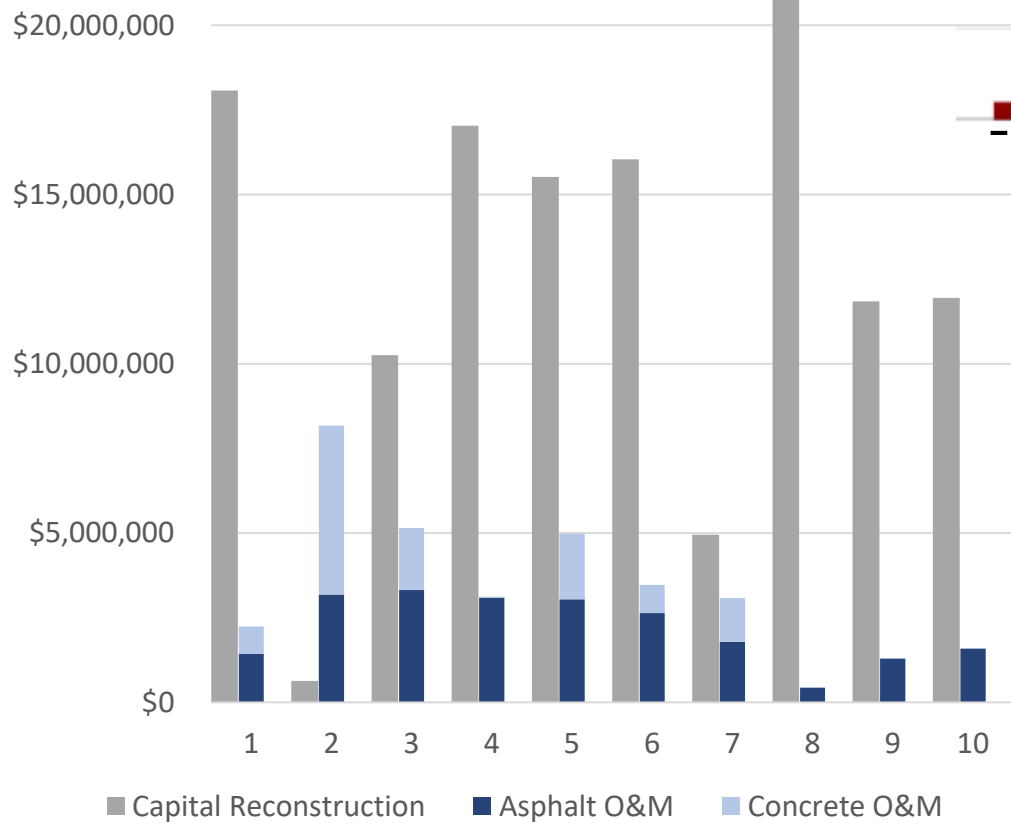
O&M Budget
 \$24,984,410
 (\$4,996,882 Annually)
 Capital Budget
 \$71,869,910
 (\$14,373,982 Annually)

Total 5-Year Budget
 \$96,854,320



Beginning OCI: 69
 5 Year OCI: 75

SCENARIO 75 OCI Score 10 YRS

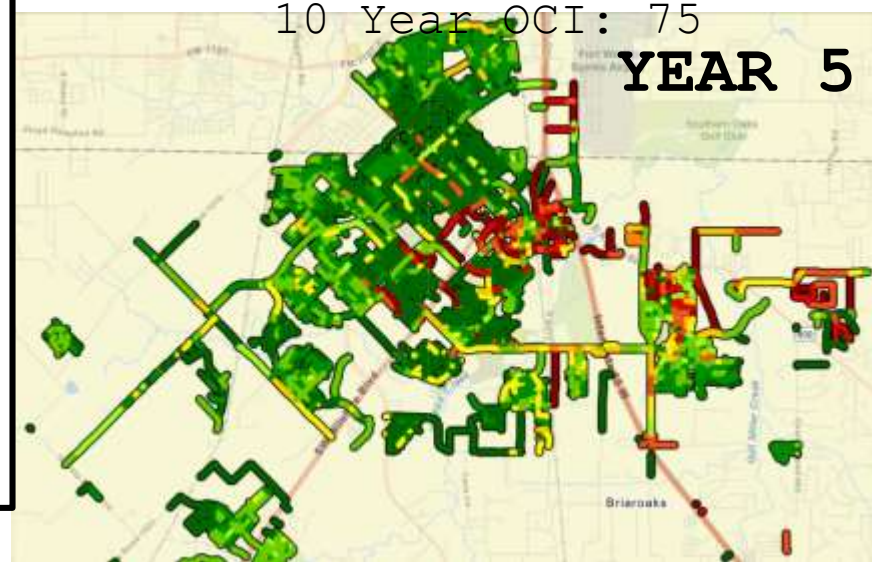


O&M Budget
 \$33,554,832
 (\$3,355,483 Annually)

Capital Budget
 \$127,444,231
 (\$12,744,423 Annually)

Total 10-Year Budget

Beginning OCI: 69
 10 Year OCI: 75



Budget
 \$160,999,063

ADDITIONAL SCENARIOS

SCENARIO 8: *Increased O&M*

*O&M Budget - \$700,000 Annually
Additional O&M - \$1,600,000 Annually
Capital Budget - 5 YR Capital Plan
Escalation - 3% Maintenance Cost*

SCENARIO 9: *Increased Rehabilitation*

*O&M Budget - \$700,000 Annually
Reconstruction - \$1,600,000
Annually
Capital Budget - 5 YR Capital Plan
Escalation - 3% Maintenance Cost*

SCENARIO 10: *Split*

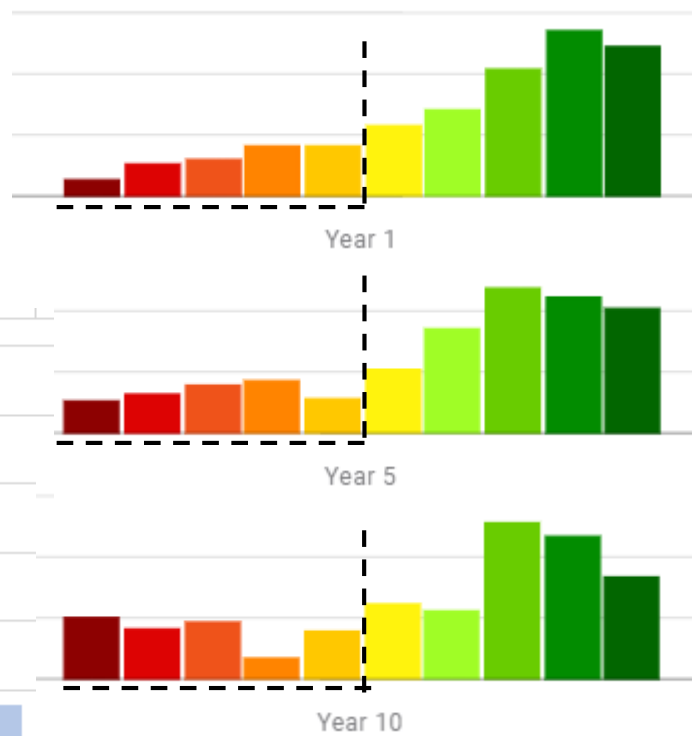
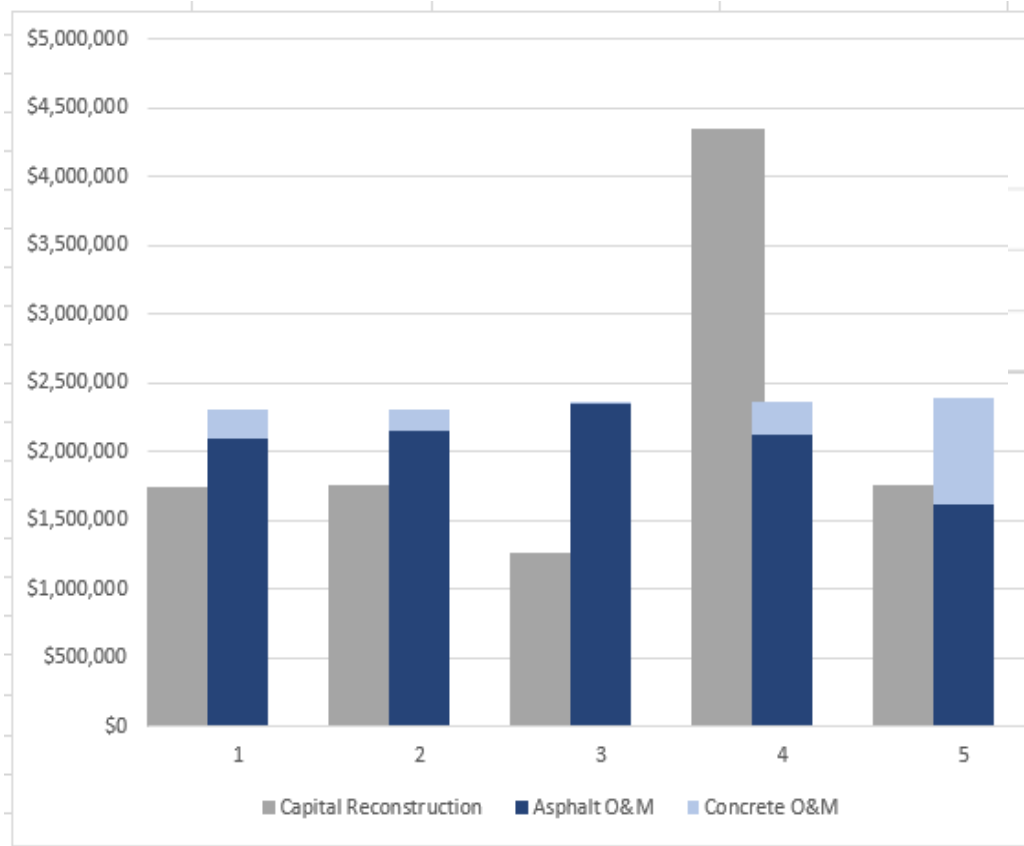
*O&M Budget - \$700,000 Annually
Additional O&M - \$1,000,000 Annually
Reconstruction - \$600,000 Annually
Capital Budget - 5 YR Capital Plan
Escalation - 3% Maintenance Cost*

SCENARIO 11: *Split*

*O&M Budget - \$700,000 Annually
Additional O&M - \$600,000 Annually
Reconstruction - \$1,000,000
Annually
Capital Budget - 5 YR Capital Plan
Escalation - 3% Maintenance Cost*

SCENARIO 8

Additional 1.6m in O&M



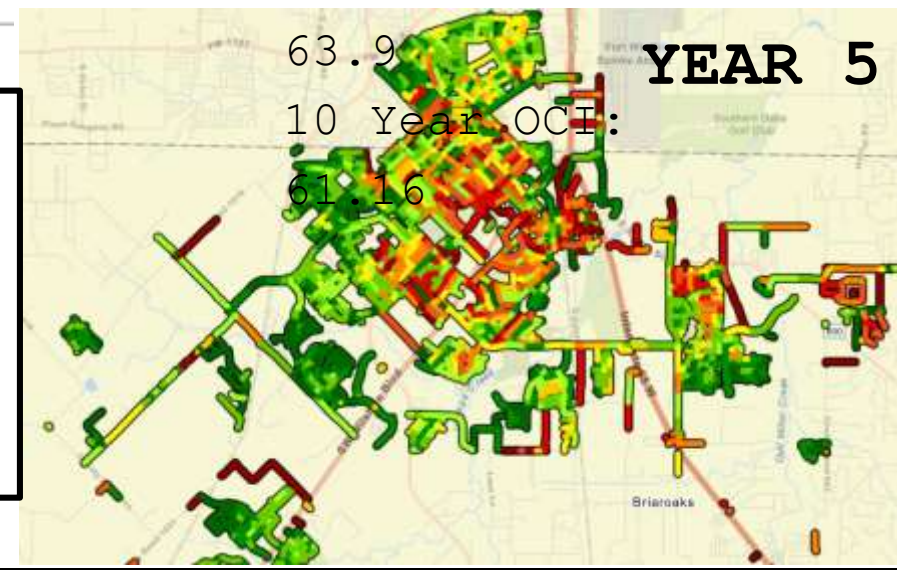
<u>O&M Budget</u>
\$11,700,539
<u>Capital Budget</u>
\$10,859,167
<u>Total 5-Year Budget</u>
\$22,559,706



Beginning OCI:
69

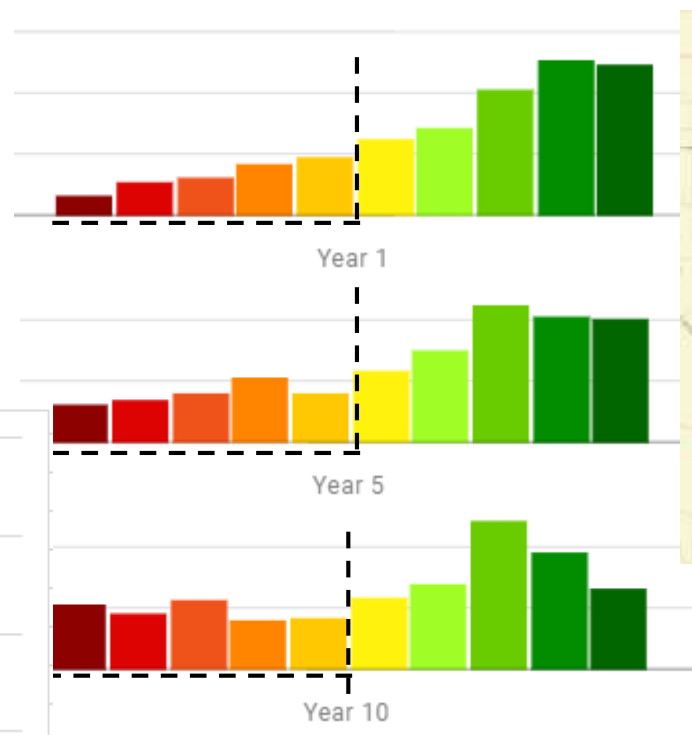
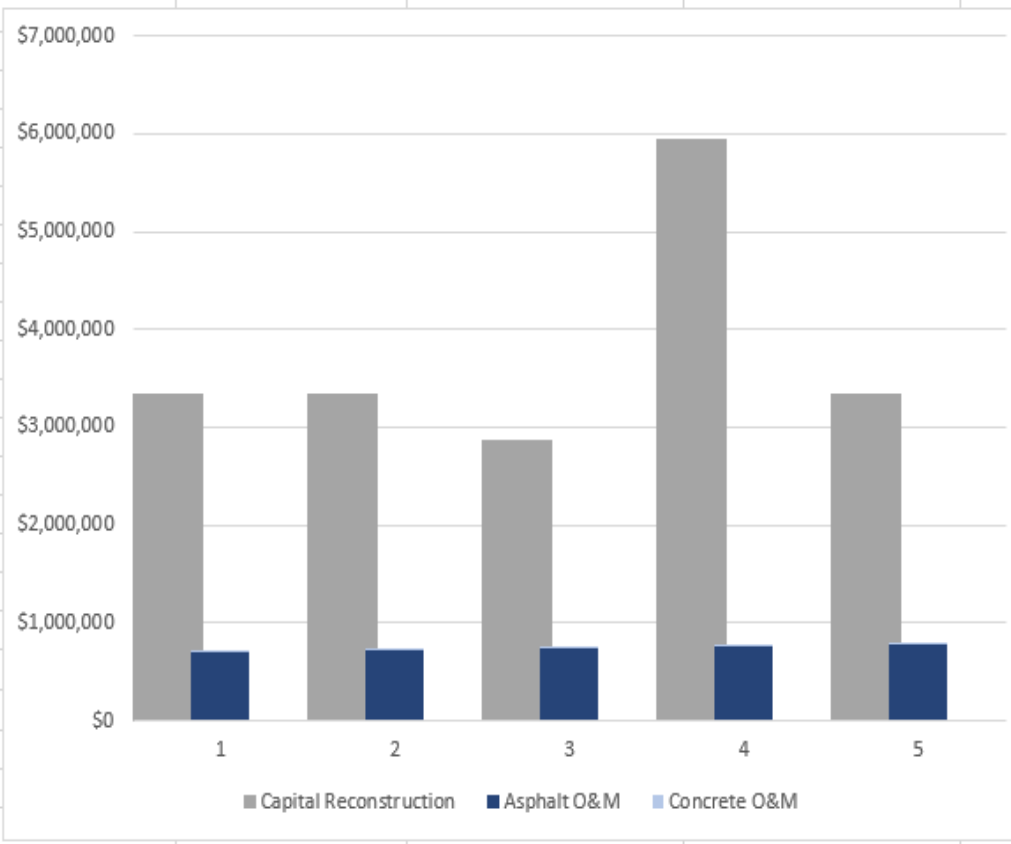
5 Year OCI:
63.9

10 Year OCI:
61.16



* 3% Escalation on maintenance cost and original O&M budget

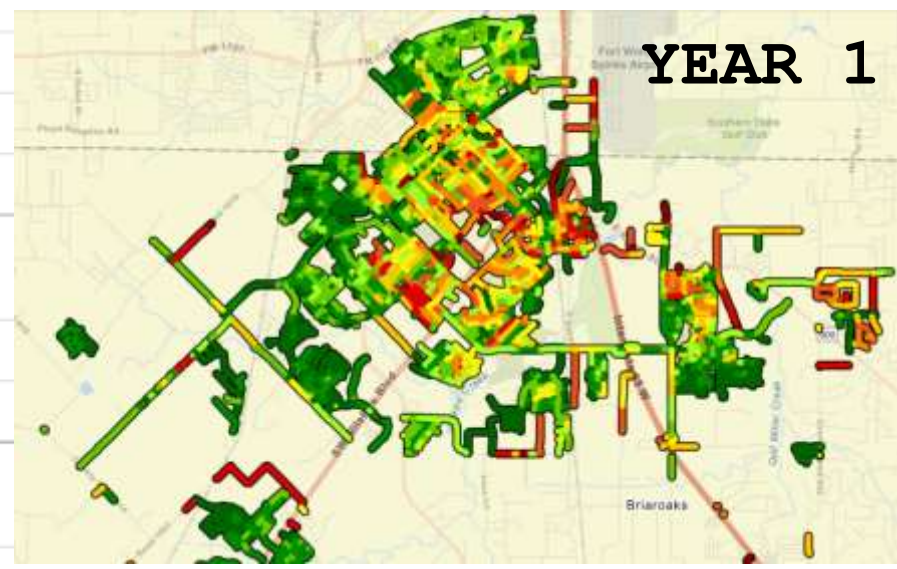
1.0 MILLION in Rehabilitati on



O&M Budget
\$3,716,394

Capital/Rehabilitati
on Budget
\$18,856,710

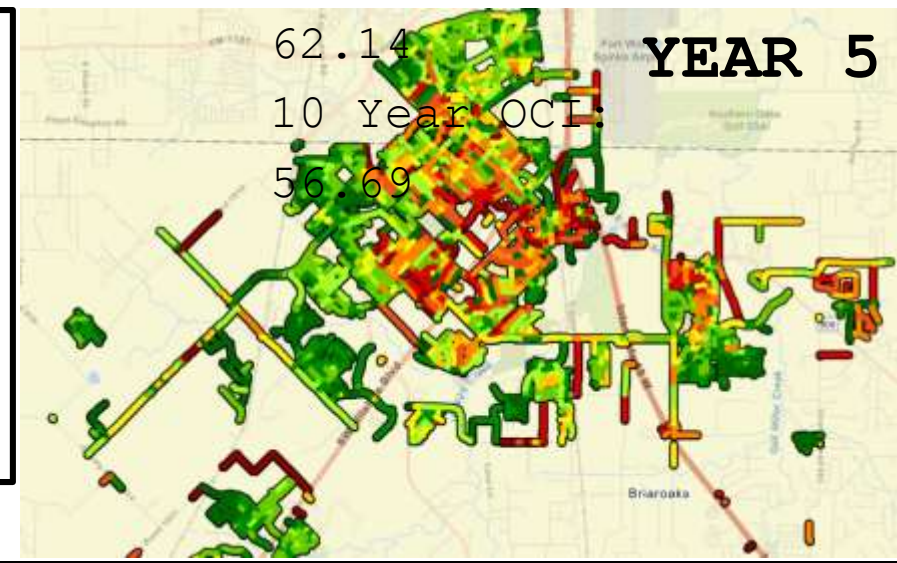
Total 5-Year
Budget
\$22,573,104



Beginning OCI:
69

5 Year OCI:
62.14

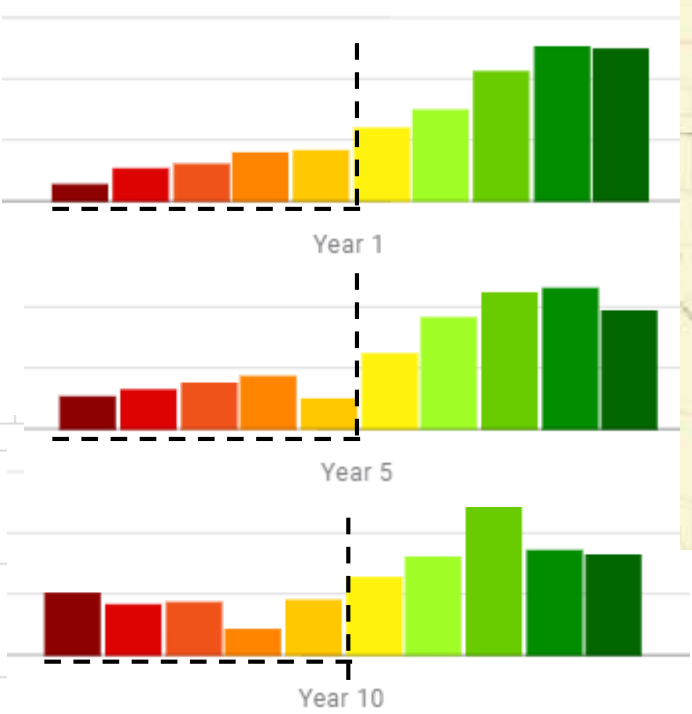
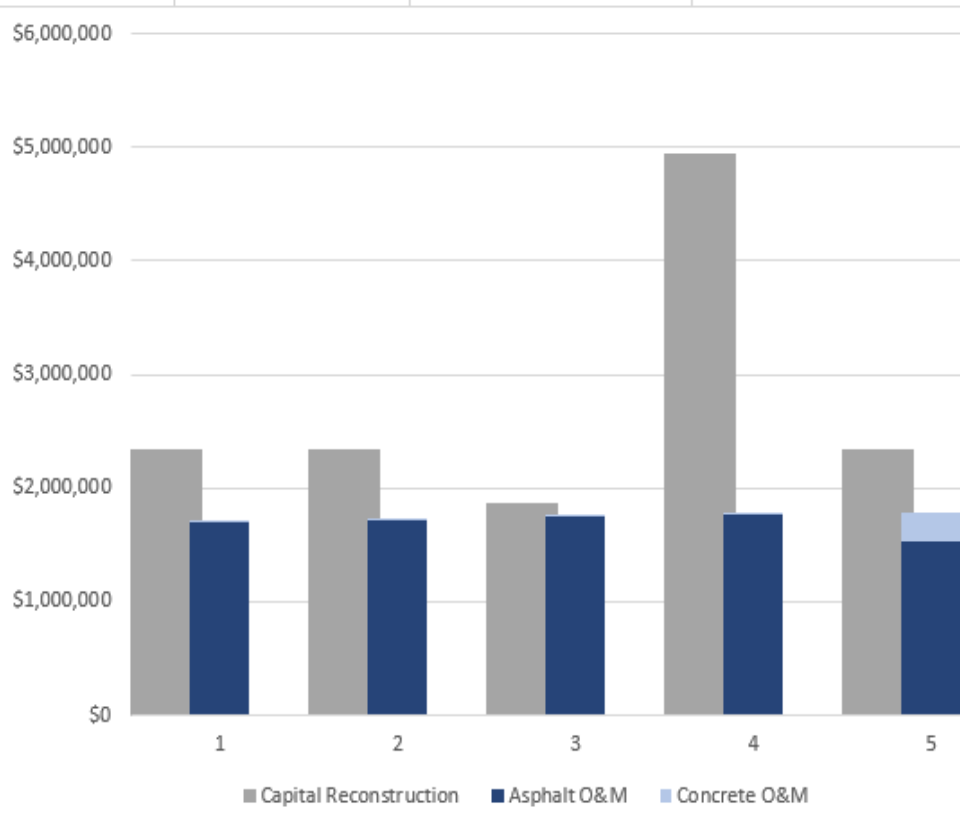
10 Year OCI:
56.69



* 3% Escalation on maintenance cost and original O&M budget

SCENARIO 10

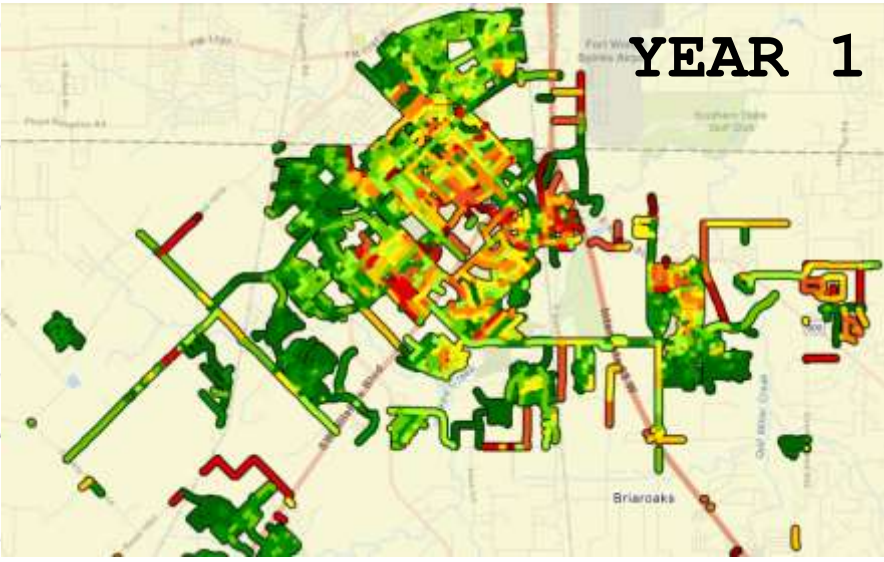
1.6 Million
1.0m/600k Split



O&M Budget
\$8,716,393

Capital/Rehabilita
tion Budget
\$13,856,670

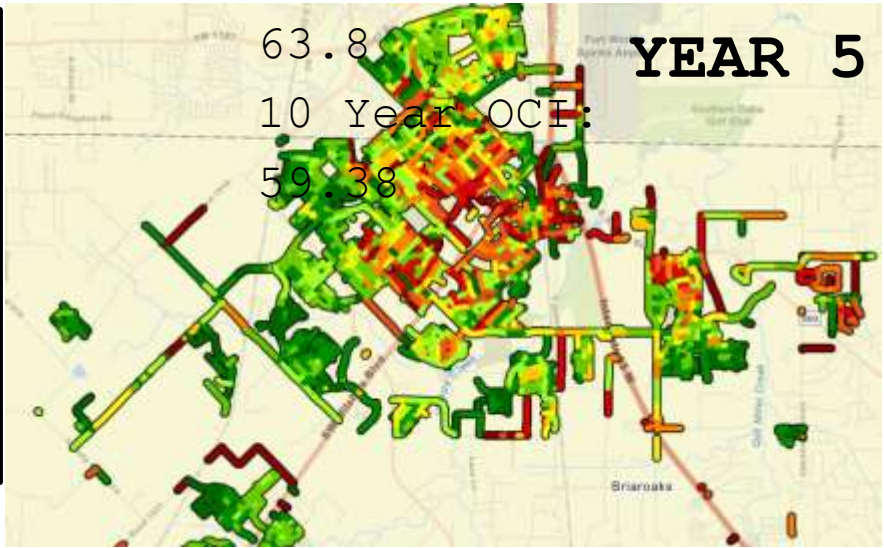
Total 5-Year
Budget
\$22,573,063



Beginning OCI:
69

5 Year OCI:
63.8

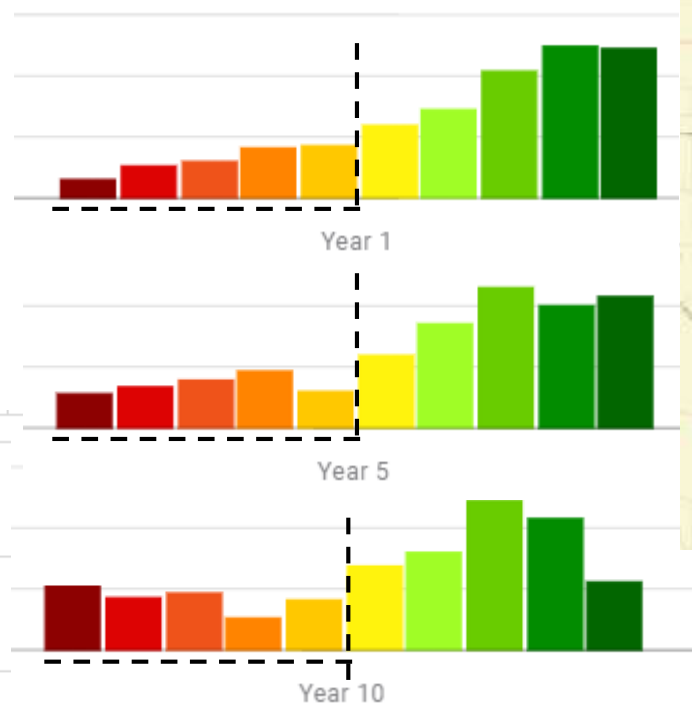
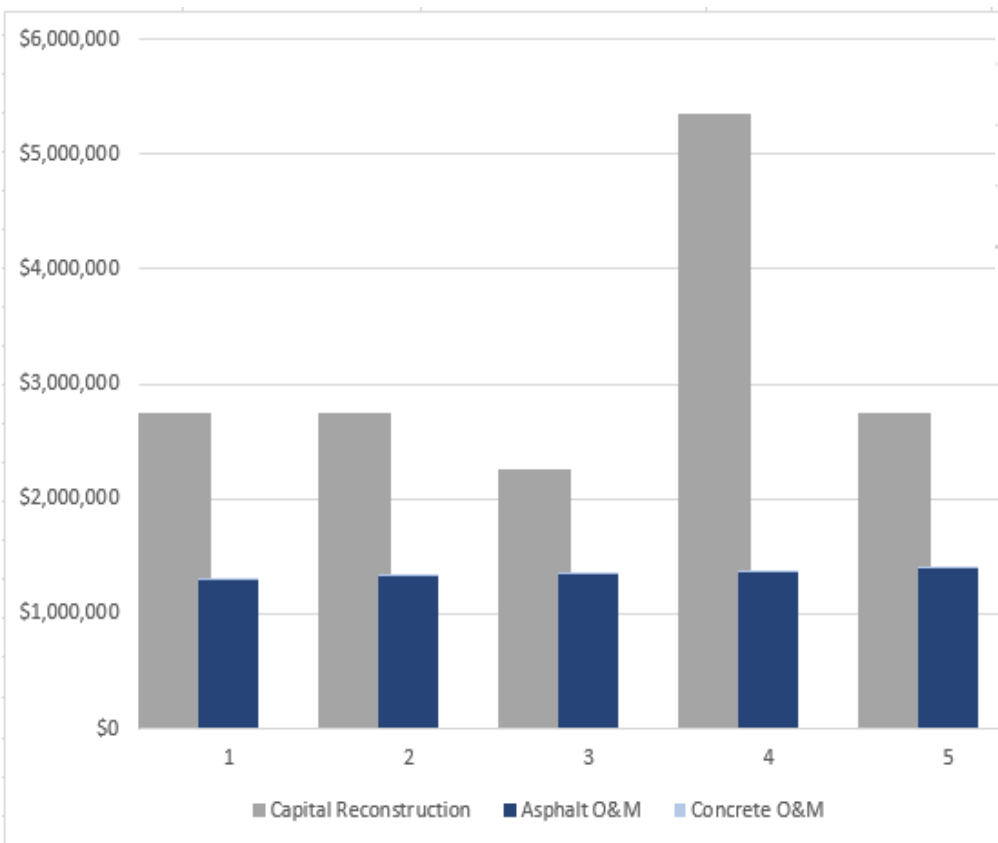
10 Year OCI:
59.38



* 3% Escalation on maintenance cost and original O&M budget

SCENARIO 11

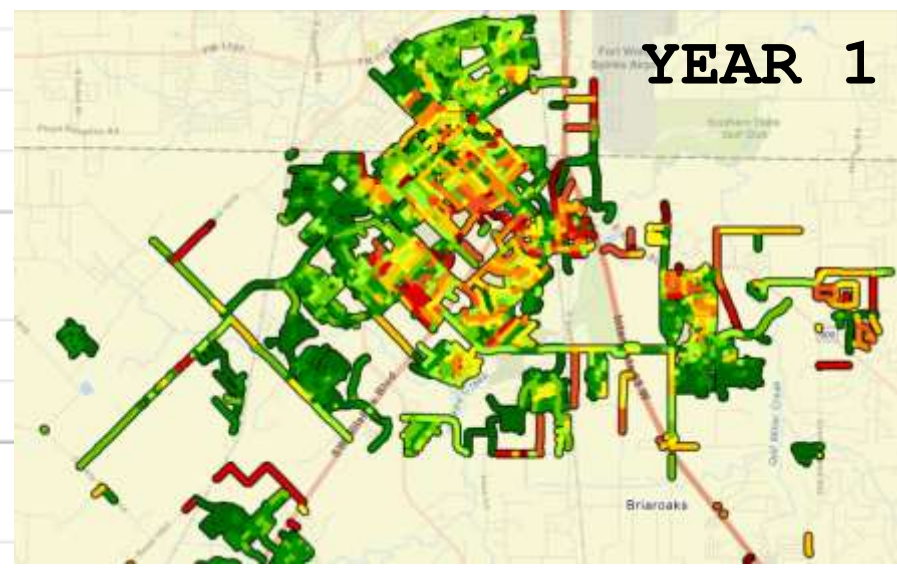
1.6 Million
600k/1.0m Split



O&M Budget
\$6,716,395

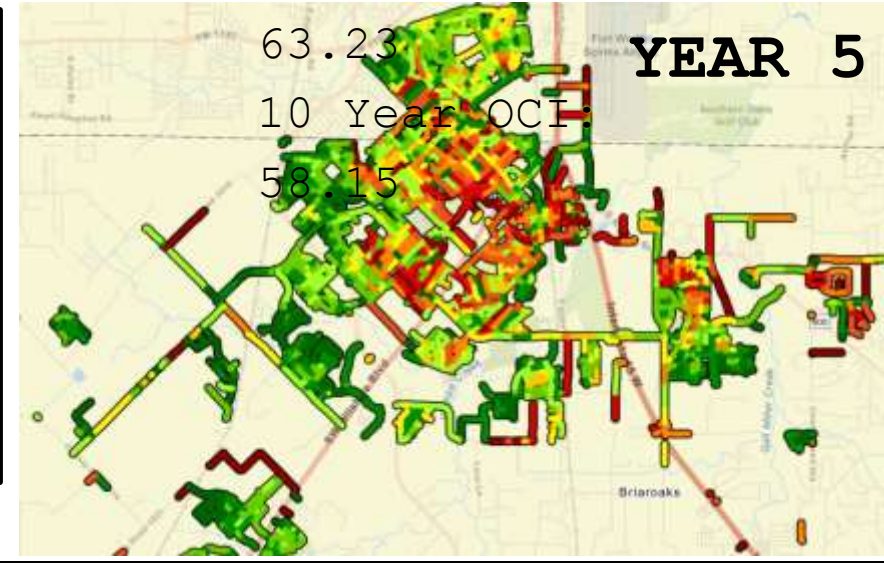
Capital/Rehabilita
tion Budget
\$15,858,275

Total 5-Year
Budget
\$22,574,670



Beginning OCI:
69

5 Year OCI:



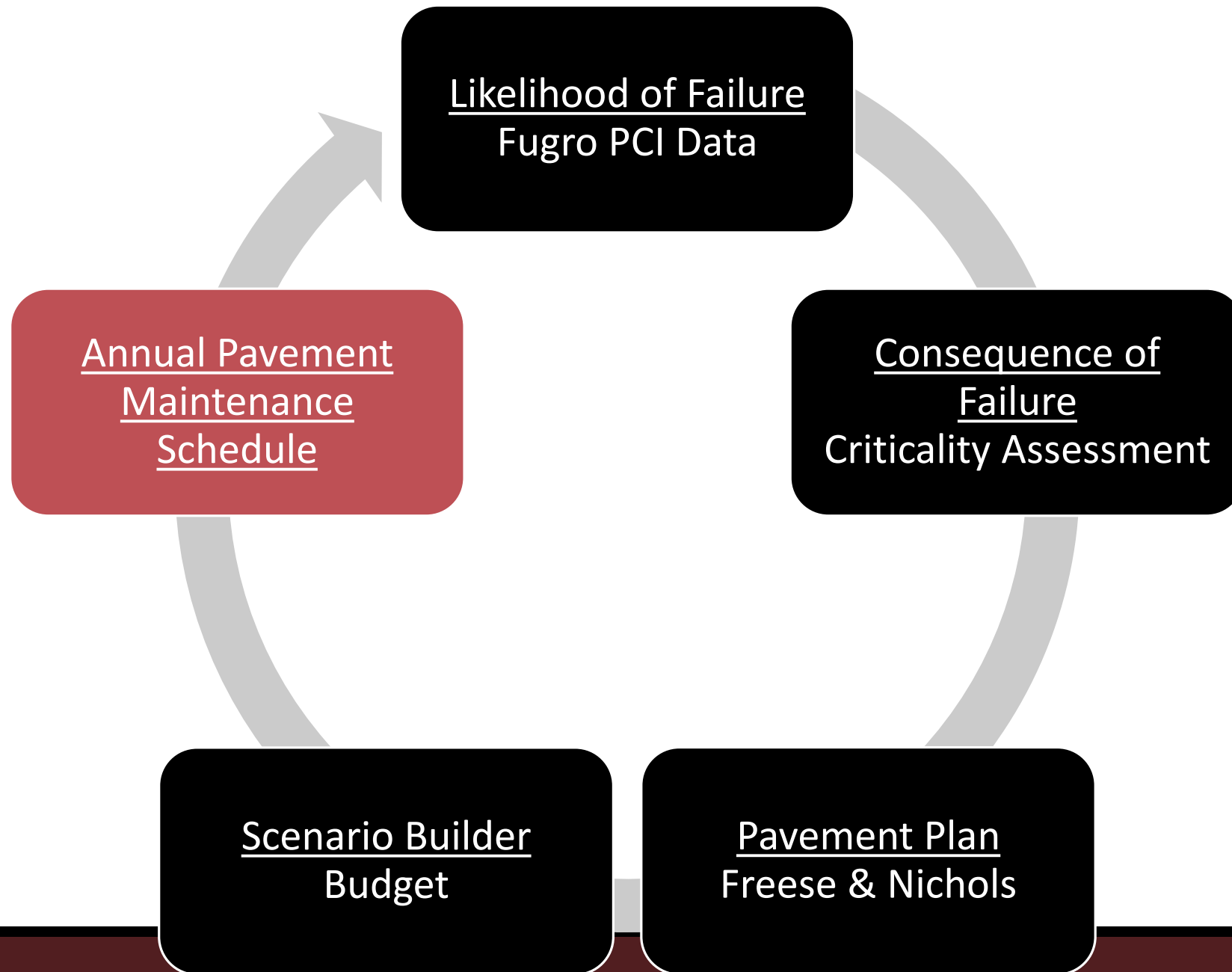
63.23

10 Year OCI:
58.15

* 3% Escalation on maintenance cost and original O&M budget

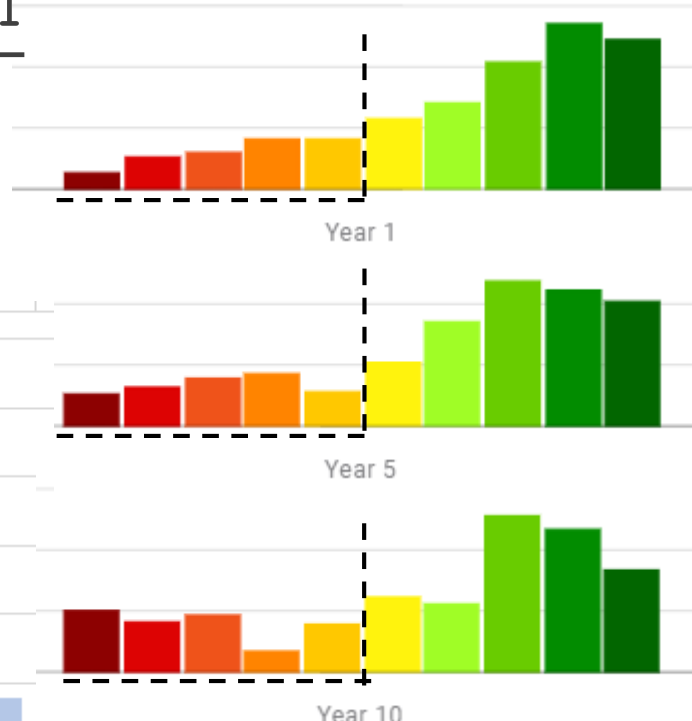
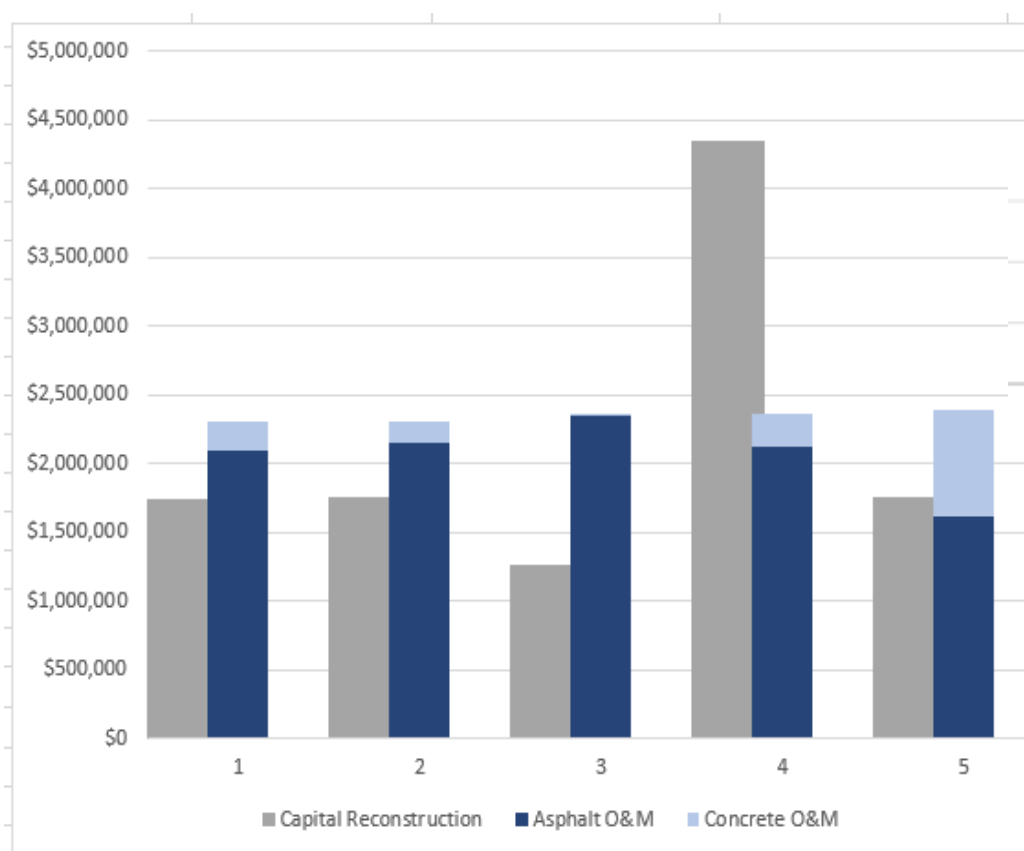
Summary of Scenarios

Scenario	Years	O&M Dollars	Capital Dollars	Total Budget	Beginning OCI	5 Year OCI	10 Year OCI
1	10	\$ -	\$ -	\$ -	69.0	60.0	52.0
2	5	\$ 3,716,394	\$ 10,855,620	\$ 14,572,014	69.0	62.5	56.0
3	5	\$ 12,211,011	\$ 10,855,146	\$ 23,066,157	69.0	65.8	62.7
4	5	\$ 3,716,395	\$ 24,998,033	\$ 28,714,428	69.0	64.0	59.5
5	5	\$ 12,211,011	\$ 24,993,389	\$ 37,204,400	69.0	67.3	66.0
6	5	\$ 24,984,410	\$ 71,869,910	\$ 96,854,320	69.0	75.0	--
7	10	\$ 33,554,832	\$ 127,444,231	\$ 160,999,063	69.0	--	75.0
8	5	\$ 11,700,539	\$ 10,859,167	\$ 22,559,706	69.0	63.9	61.2
9	5	\$ 3,716,394	\$ 18,856,710	\$ 22,573,104	69.0	62.1	56.7
10	5	\$ 8,716,393	\$ 13,856,670	\$ 22,573,063	69.0	63.8	59.4
11	5	\$ 6,716,395	\$ 15,858,275	\$ 22,574,670	69.0	63.2	58.2



Recommendation

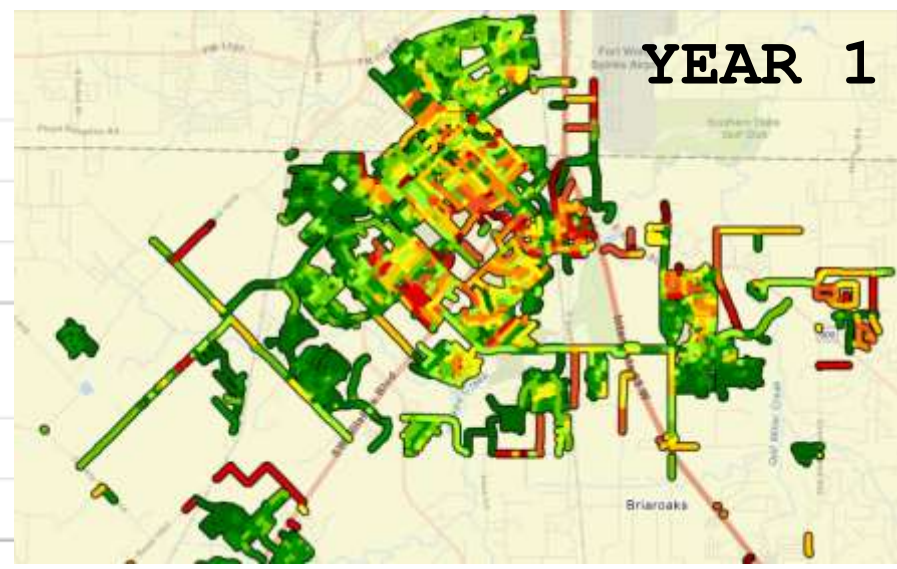
Additional 1.6m in O&M



O&M Budget
\$11,700,539

Capital Budget
\$10,859,167

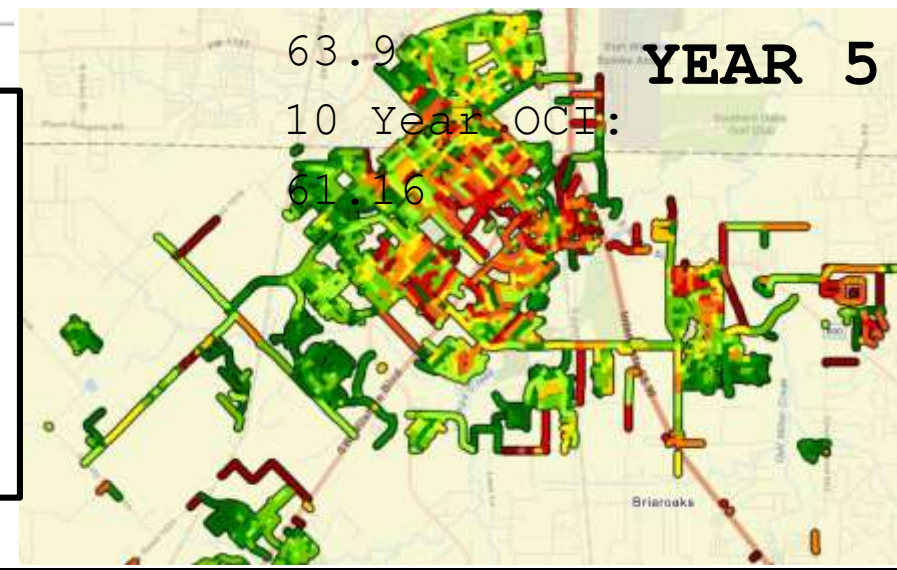
Total 5-Year Budget
\$22,559,706



Beginning OCI:
69

5 Year OCI:
63.9

10 Year OCI:
61.16



* 3% Escalation on maintenance cost and original O&M budget

Next Steps

- Based on direction staff will prepare a maintenance plan to be reviewed by Public Works.
- Staff will present to council the pavement management plan and pavement maintenance schedule for FY 24/25.

Questions / Comments

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