CITY OF BENICIA
PUBLIC WORKS DEPARTMENT

Report to Council on the State of Our Roadways

July 16th City Council Meeting

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Public Works Department

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Streets

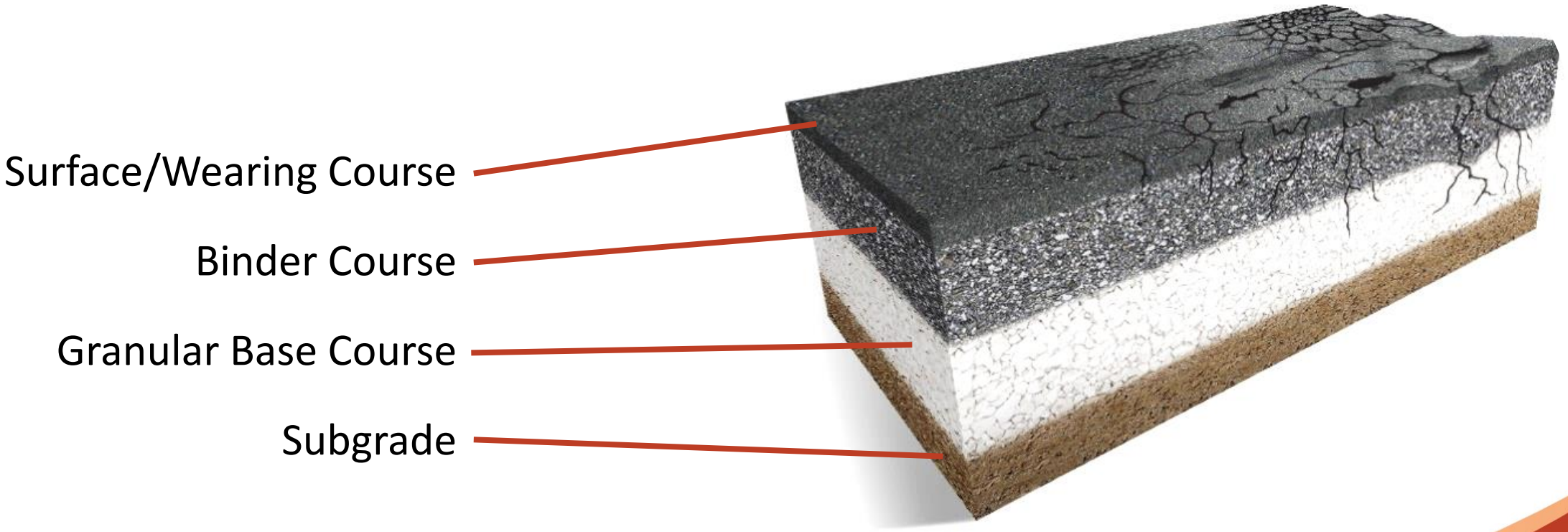
Presentation Overview

- City of Benicia Road Network
- Maintenance and Rehabilitation Treatment Toolbox and Strategies
- Budget Scenarios

City of Benicia's Road Network

- 197.7 lane miles (98.2 centerline miles)
- 0.61 square miles (390 acres) of paved surface
- Benicia's roadways are categorized into four functional classes (FCs): Arterials, Collectors, Residential/Local Streets, Other (alleys)
- $60 million in deferred maintenance

Anatomy of a Roadway



Pavement Condition Index (PCI)

- A numerical grade of the condition of a roadway segment
- Ranges from 100 (best) to 0 (worst)
  - 70-100 – Good
  - 50-69 – Fair
  - 25-49 – Poor
  - < 25 – Failed
- Declines over time if road is left untreated
- “Network PCI” – average PCI over the whole road network area

Pavement Condition Index (PCI)

EXECUTIVE DASHBOARD

CITY OF BENICIA

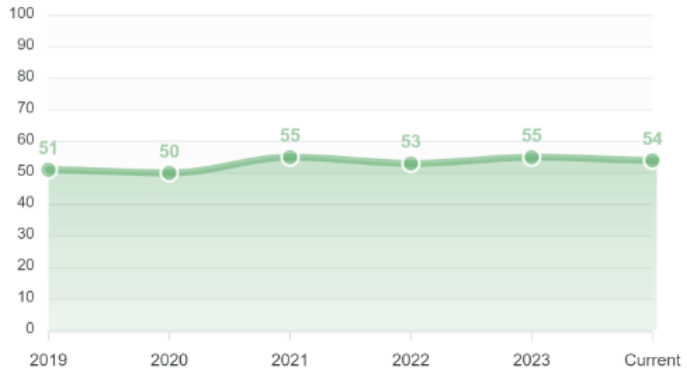
Powered by: StreetSaver

PAVEMENT AREA	CENTERLINE MILES	LANE MILES	SECTIONS
0.61 SQUARE MILES	95.04	197.68	582

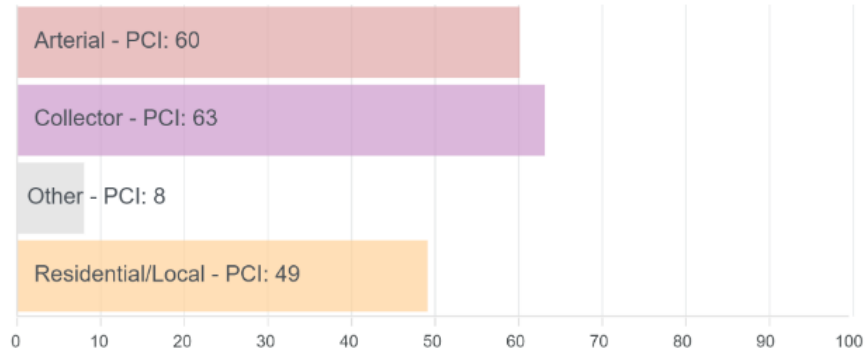
*PEER COMPARISON — AS OF: 5/31/2024

68	24%
SIMILAR SIZE AGENCY PCI	YOUR PERCENTILE RANK

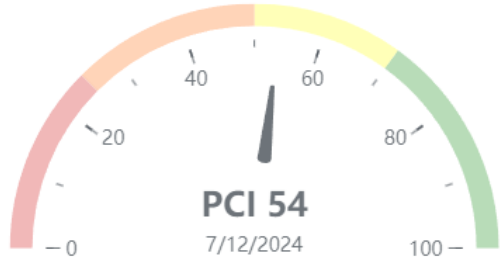
HISTORICAL PAVEMENT CONDITION TRENDS



CURRENT PCI BY: FUNCTIONAL CLASS

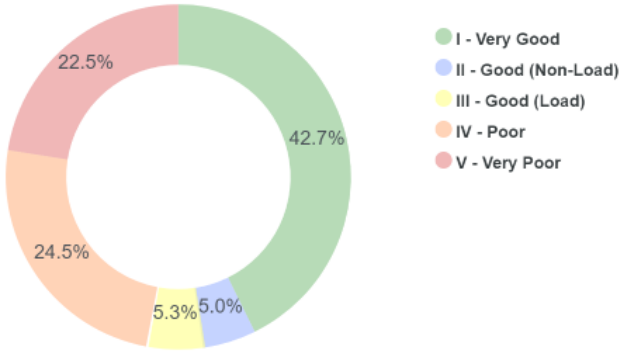


**CURRENT PCI

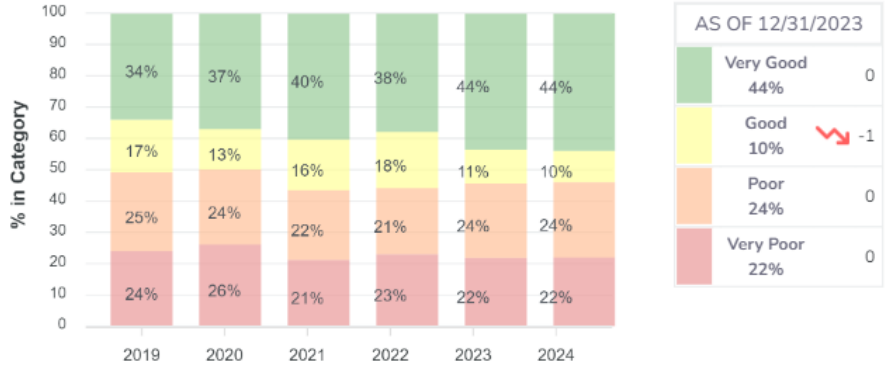


1 since 12/31/2023

PERCENT OF AREA BY: CONDITION CATEGORY



HISTORICAL NETWORK CONDITION TRENDS

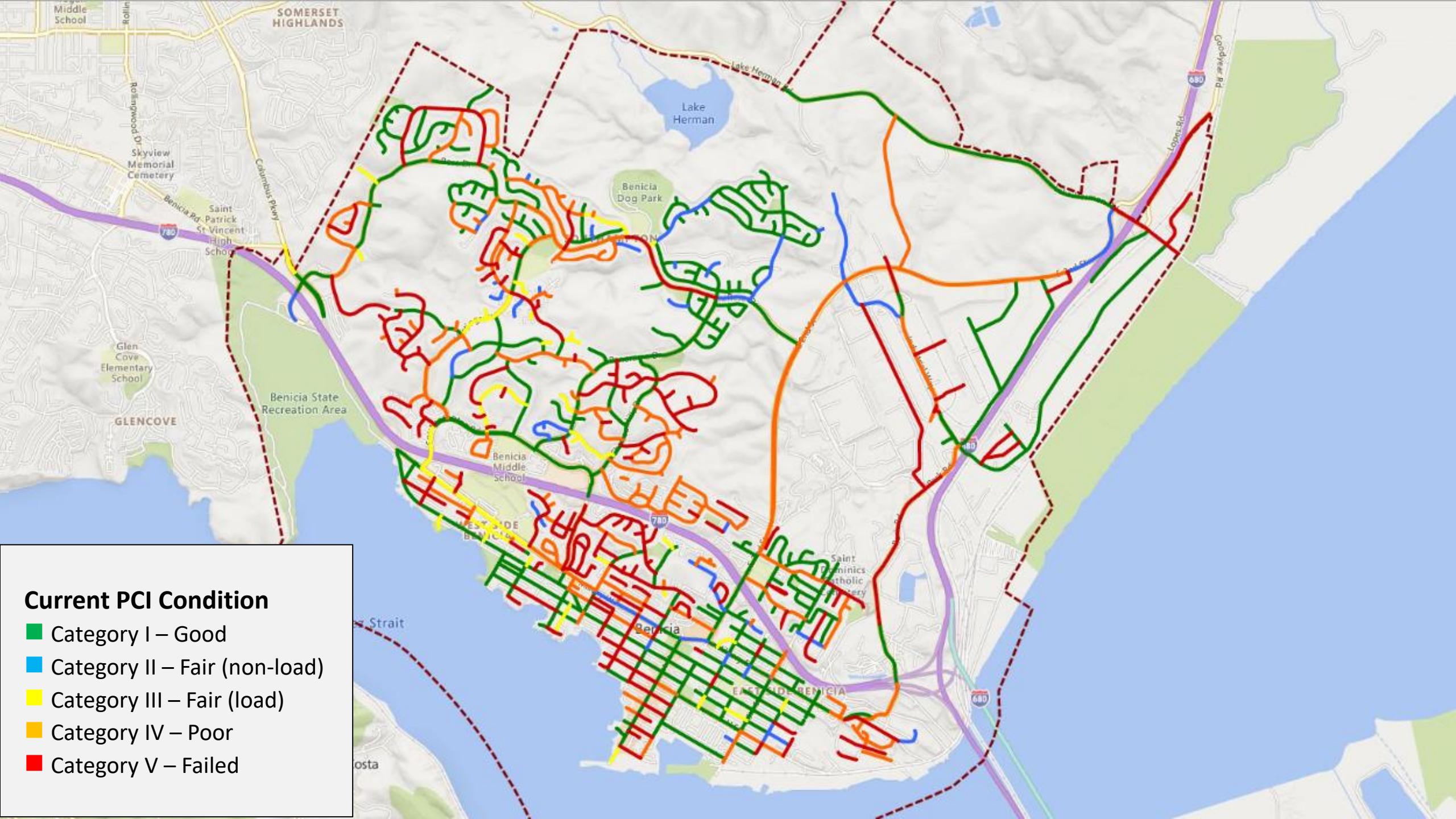


AS OF 12/31/2023

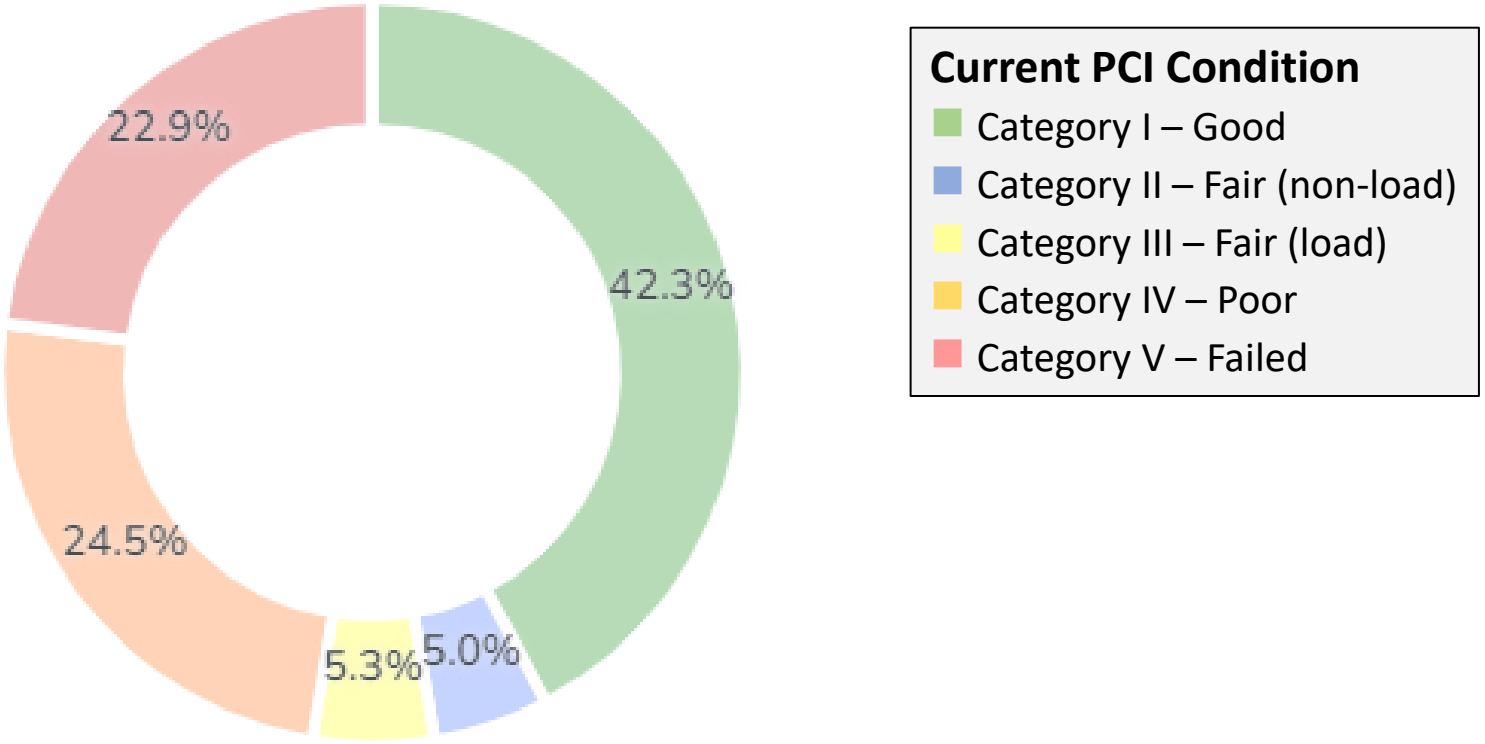
Very Good 44%	0	
Good 10%	-1	↘
Poor 24%	0	
Very Poor 22%	0	

REMAINING SERVICE LIFE (YEARS)

No Change since 12/31/2023

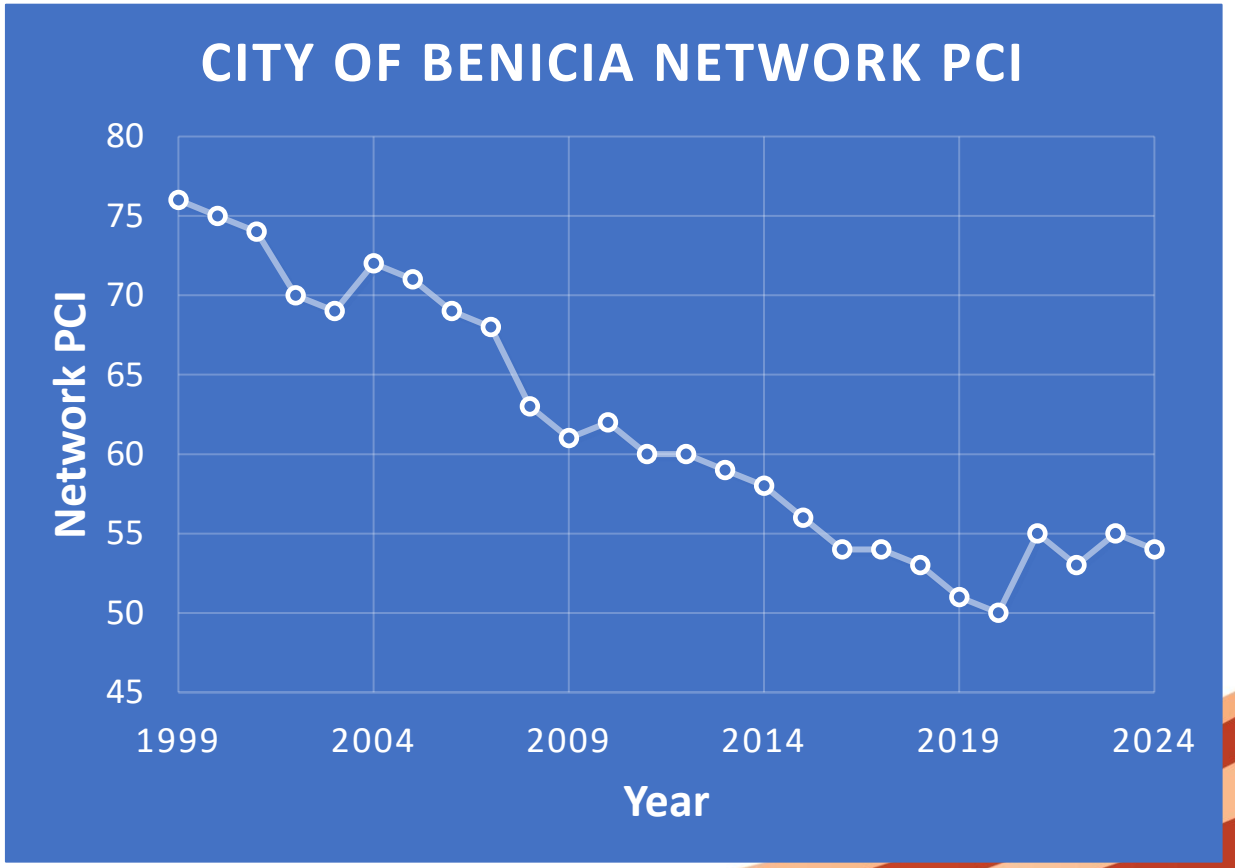

Current PCI Condition
Category I – Good
Category II – Fair (non-load)
Category III – Fair (load)
Category IV – Poor
Category V – Failed
SOMERSET HIGHLANDS
Lake Herman
Benicia Dog Park
Skyview Memorial Cemetery
Saint Patrick St Vincent High School
Glen Cove Elementary School
GLENCOVE
Benicia State Recreation Area
Benicia Middle School
Benicia
Strait
Goodyear Rd
Lopes Rd
780
680

Existing Benicia Road Network PCI Distribution by Area

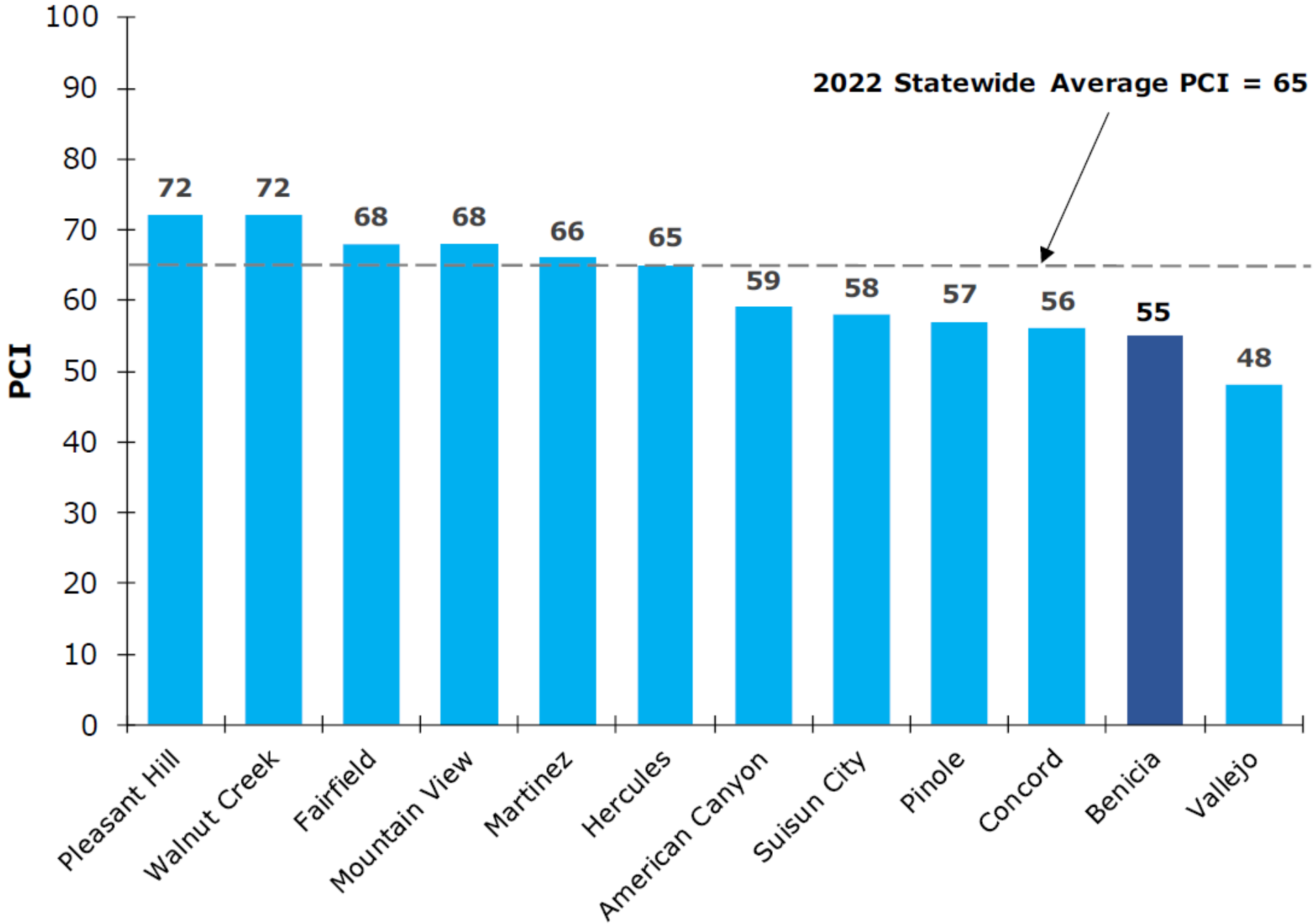


City of Benicia Road Network PCI – Historical Values

- Road section PCI data is used to calculate a PCI score for the entire road network
- "Network PCI" describes the overall health of the City's road network
- Benicia's present-day network PCI is 54
- Significant downward trend over the last two decades



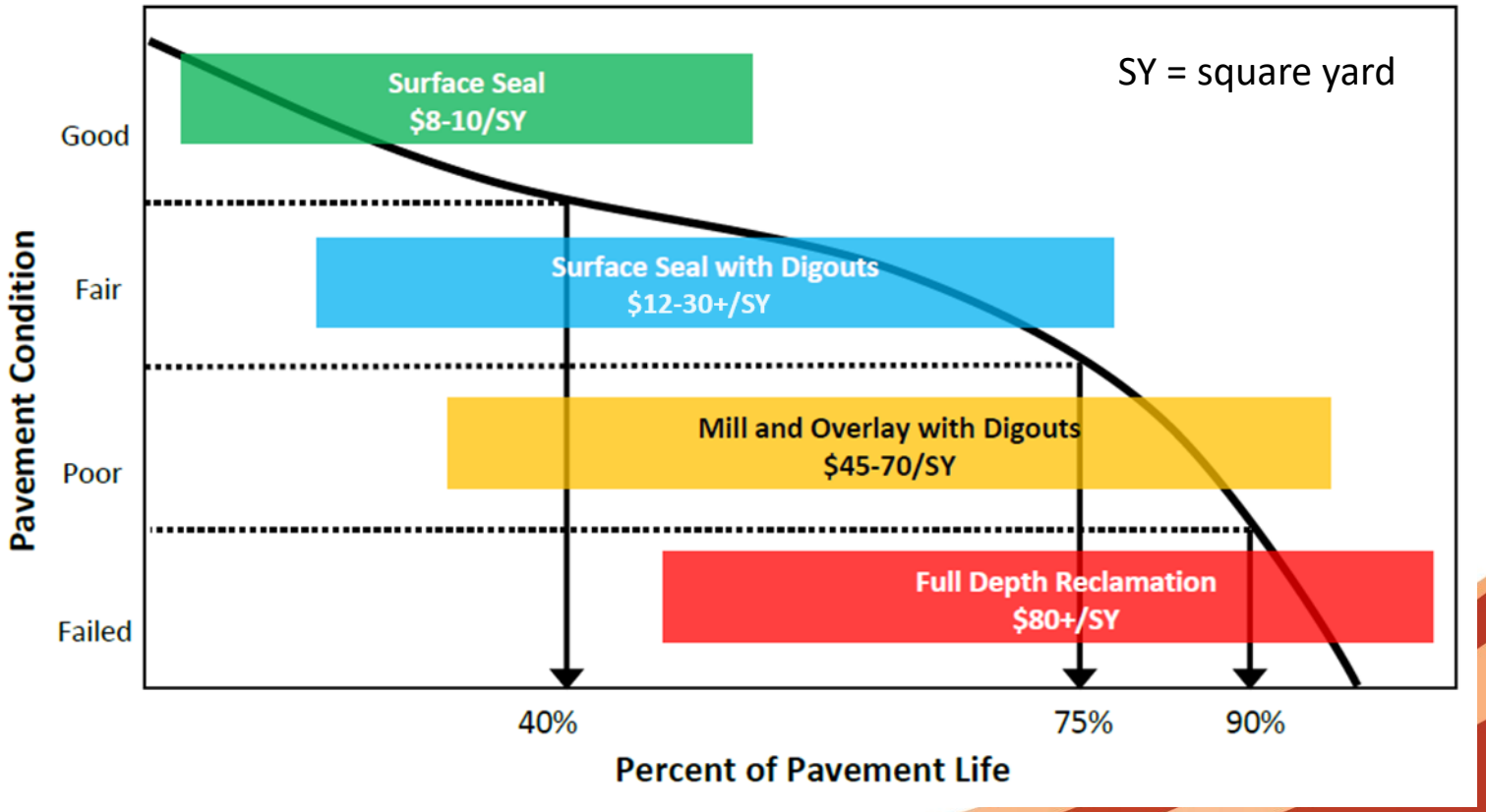
Streets



PCIs from the 2022 Statewide Needs Assessment

Roadway Maintenance vs. Rehabilitation

- Generally, roadway PCI dictates type of treatment
- Two categories of treatments:
  - Maintenance – for roads rated Good (PCI > 70)
  - Rehabilitation – for roads rated less than Good (PCI < 70)
- Treatment costs rise exponentially as roadway deteriorates



Treatment	Segment PCI	Type	Description	Approx. Cost/Sq Yd
Crack Seal	70-100	Maintenance	Filling of cracks with a bitumastic sealant to delay further damage to the driving surface	$1.00
Surface Seal (Slurry/ Microsurfacing)	70-100	Maintenance	Application of water, asphalt emulsion, aggregate, and chemical additives to an existing asphalt pavement surface; provides a new driving surface but does not repair damaged asphalt or subgrade	$8 - $10
Surface Seal with Digouts	50-70	Rehabilitation	Surface seal combined with targeted replacement of the driving surface and subgrade of areas that are severely compromised	$12-30+
Mill and Overlay	25-50	Rehabilitation	Removal and replacement of a specified thickness of hot mix asphalt along a full roadway segment	$45-$70
Hot Mix Asphalt Remove and Replace, Full Depth Reclamation	0-25	Rehabilitation	Full thickness of the hot mix asphalt pavement and a predetermined layer of underlying materials removed and replaced; essentially rebuilding the road	$80+

StreetSaver Budget Scenarios

- StreetSaver can generate an efficient M&R plan for given budget scenarios
  - Maintenance prioritized over rehabilitation
- Staff then applies additional factors to the results
- Iterative process until a satisfactory treatment plan is finalized

Scenario 1 – Using Current Funding Sources

- Historical average roadway spending of $1 million per year
  - Road Maintenance and Rehabilitation Account (RMRA) and Highway Users Tax Account (HUTA)(CA gas tax), franchise fees (Republic Services)
- Results in continued degradation of City's road network in next 15 years
  - **PCI drops to 37**
  - Deferred maintenance increases to $137 million

Base Annual Budget:

Gas tax (RMRA)	$700,000
Gas tax (HUTA)	$100,000
Franchise Fees	$200,000
	$1,000,000

Scenario 1 - Current Funding Sources			
Year	Budget	Network PCI	Deferred Maintenance
2024	$2,600,000	56	$60,600,000
2025	$1,100,000	54	$65,000,000
2026	$1,000,000	52	$70,000,000
2027	$1,000,000	50	$74,400,000
2028	$1,000,000	48	$80,200,000
2029	$1,000,000	47	$83,900,000
2030	$1,000,000	45	$89,900,000
2031	$1,000,000	44	$92,300,000
2032	$1,000,000	43	$96,900,000
2033	$1,000,000	42	$102,100,000
2034	$1,000,000	41	$108,500,000
2035	$1,000,000	40	$116,000,000
2036	$1,000,000	39	$122,700,000
2037	$1,000,000	38	$129,700,000
2038	$1,000,000	37	$137,400,000

Scenario 2 – Current Funding Sources + SOS

- Current funding sources plus additional funding from citizen's initiative Save Our Streets (SOS)
  - Projected $4 million per year from SOS starting 2026, increasing 3% per year thereafter
  - Partial collection of $600,000 in 2025
- Modest improvement of City's road network in next 15 years
  - PCI increases to 65
  - Deferred maintenance decreases to $55 million

Base Annual Budget:

Current funding sources	$1,000,000
SOS	$4,000,000
	$5,000,000

Streets

Scenario 2 – Current Funding Sources + SOS			
Year	Budget	Network PCI	Deferred Maintenance
2024	$2,600,000	56	$60,600,000
2025	$1,700,000	54	$64,500,000
2026	$5,000,000	55	$65,400,000
2027	$5,100,000	55	$65,600,000
2028	$5,200,000	55	$66,800,000
2029	$5,400,000	55	$65,500,000
2030	$5,500,000	56	$66,700,000
2031	$5,600,000	57	$65,300,000
2032	$5,800,000	58	$63,600,000
2033	$5,900,000	59	$61,200,000
2034	$6,100,000	60	$61,400,000
2035	$6,200,000	61	$61,200,000
2036	$6,400,000	63	$60,500,000
2037	$6,500,000	64	$58,300,000
2038	$6,700,000	65	$55,400,000

Scenario 3 – Current Funding Sources + SOS + RPTT

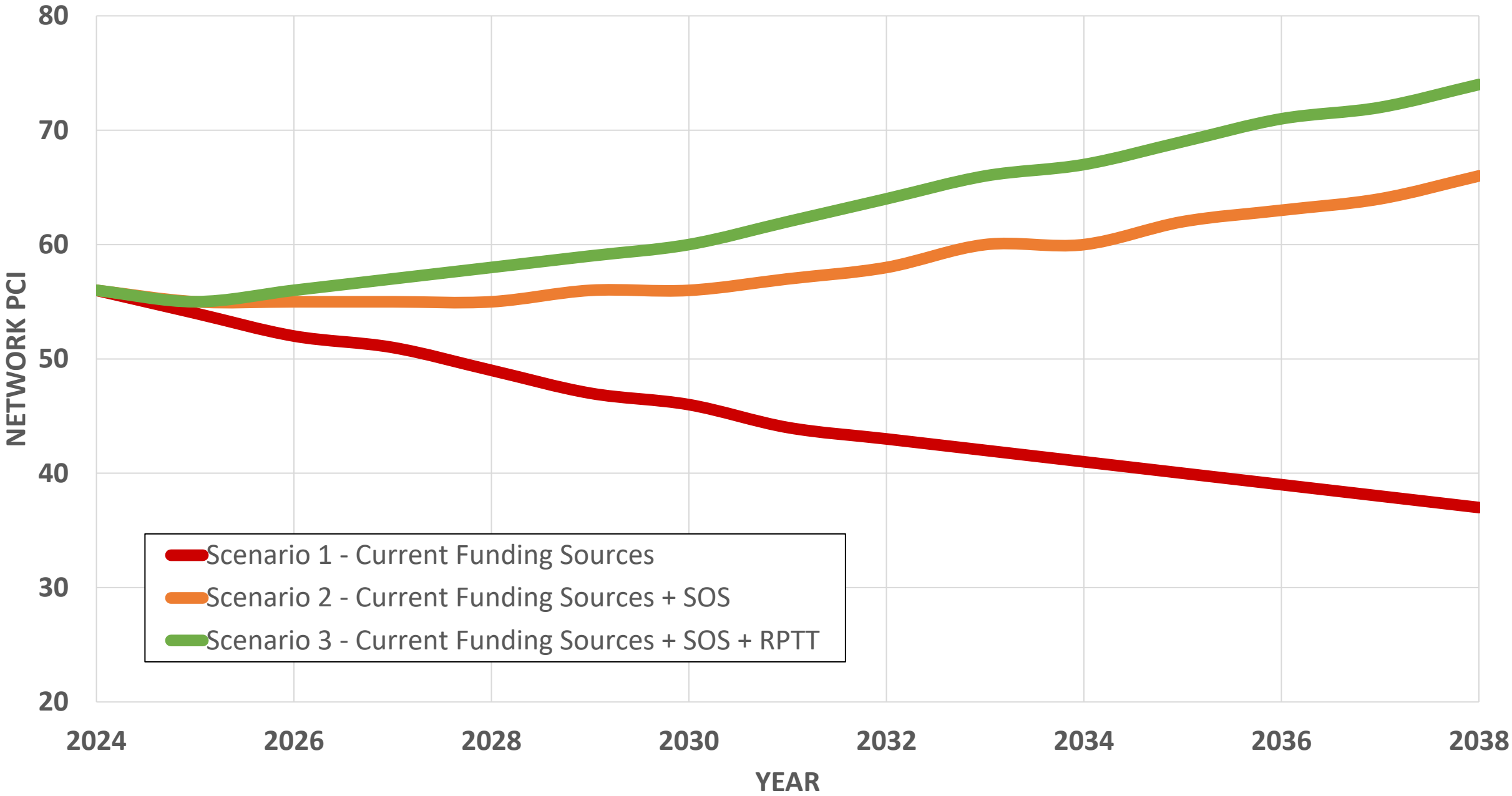
- Current funding sources, SOS funding, and additional funding from Real Property Transfer Tax (RPTT)
  - RPTT estimated contribution of $1.4 million per year starting 2026
  - Partial collection of $500,000 in 2025
- Substantial improvement of City's road network in next 15 years
  - **PCI increases to 73**
  - Deferred maintenance decreases to $32 million

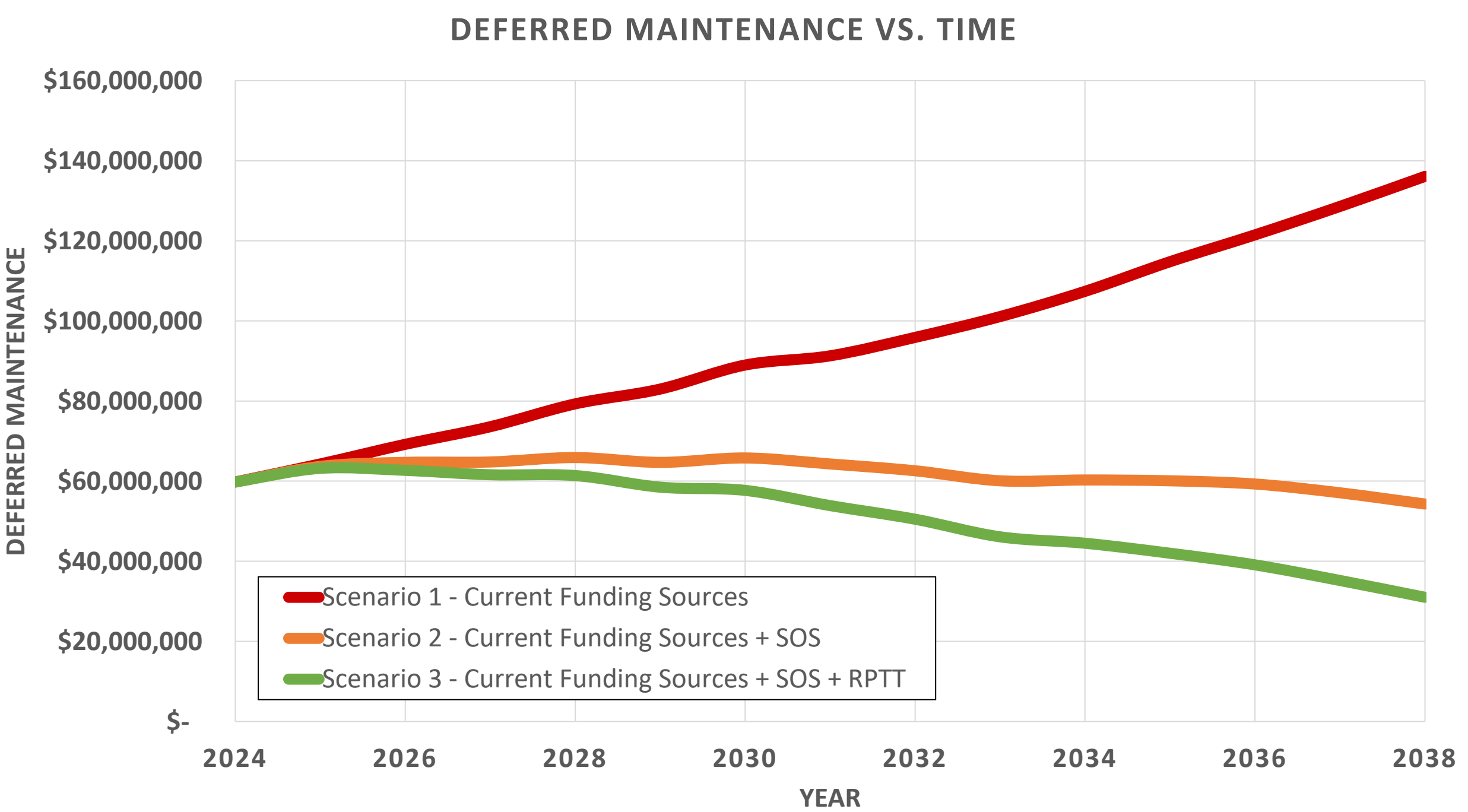
Base Annual Budget:

Current funding sources	$1,000,000
SOS	$4,000,000
RPTT	$1,400,000
	$6,400,000

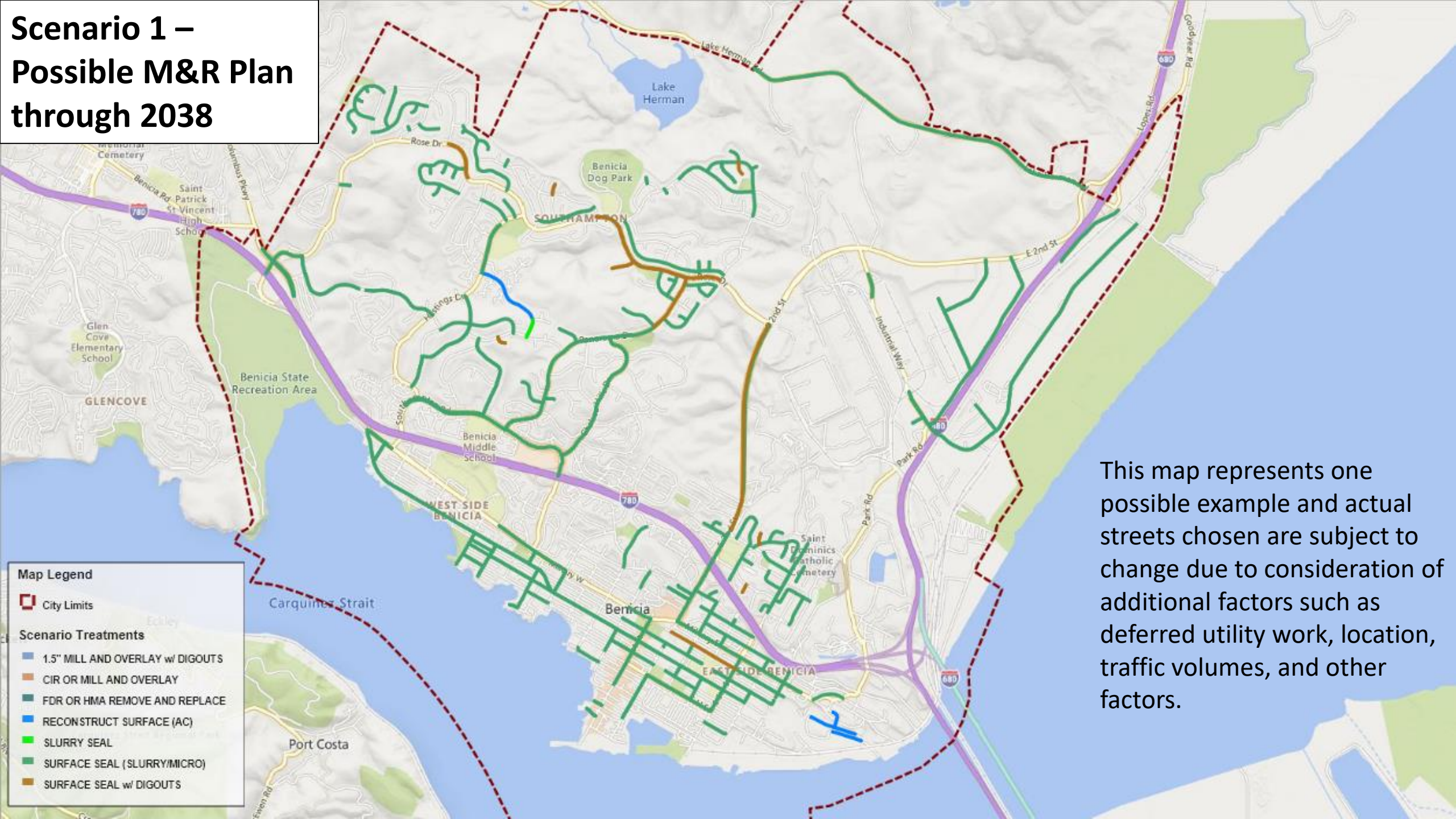
Streets

Scenario 3 - Historical Avg. + SOS + RPTT			
Year	Budget	Network PCI	Deferred Maintenance
2024	$2,600,000	56	$60,600,000
2025	$2,200,000	55	$64,000,000
2026	$6,400,000	55	$63,500,000
2027	$6,500,000	56	$62,400,000
2028	$6,600,000	57	$62,200,000
2029	$6,800,000	59	$59,300,000
2030	$6,900,000	60	$58,600,000
2031	$7,000,000	62	$54,900,000
2032	$7,200,000	64	$51,500,000
2033	$7,300,000	66	$47,100,000
2034	$7,500,000	67	$45,600,000
2035	$7,600,000	69	$43,200,000
2036	$7,800,000	71	$40,300,000
2037	$7,900,000	72	$36,400,000
2038	$8,100,000	73	$32,100,000


NETWORK PCI VS. TIME
80
70
60
50
40
30
20
NETWORK PCI
2024
2026
2028
2030
2032
2034
2036
2038
YEAR
Scenario 1 - Current Funding Sources
Scenario 2 - Current Funding Sources + SOS
Scenario 3 - Current Funding Sources + SOS + RPTT

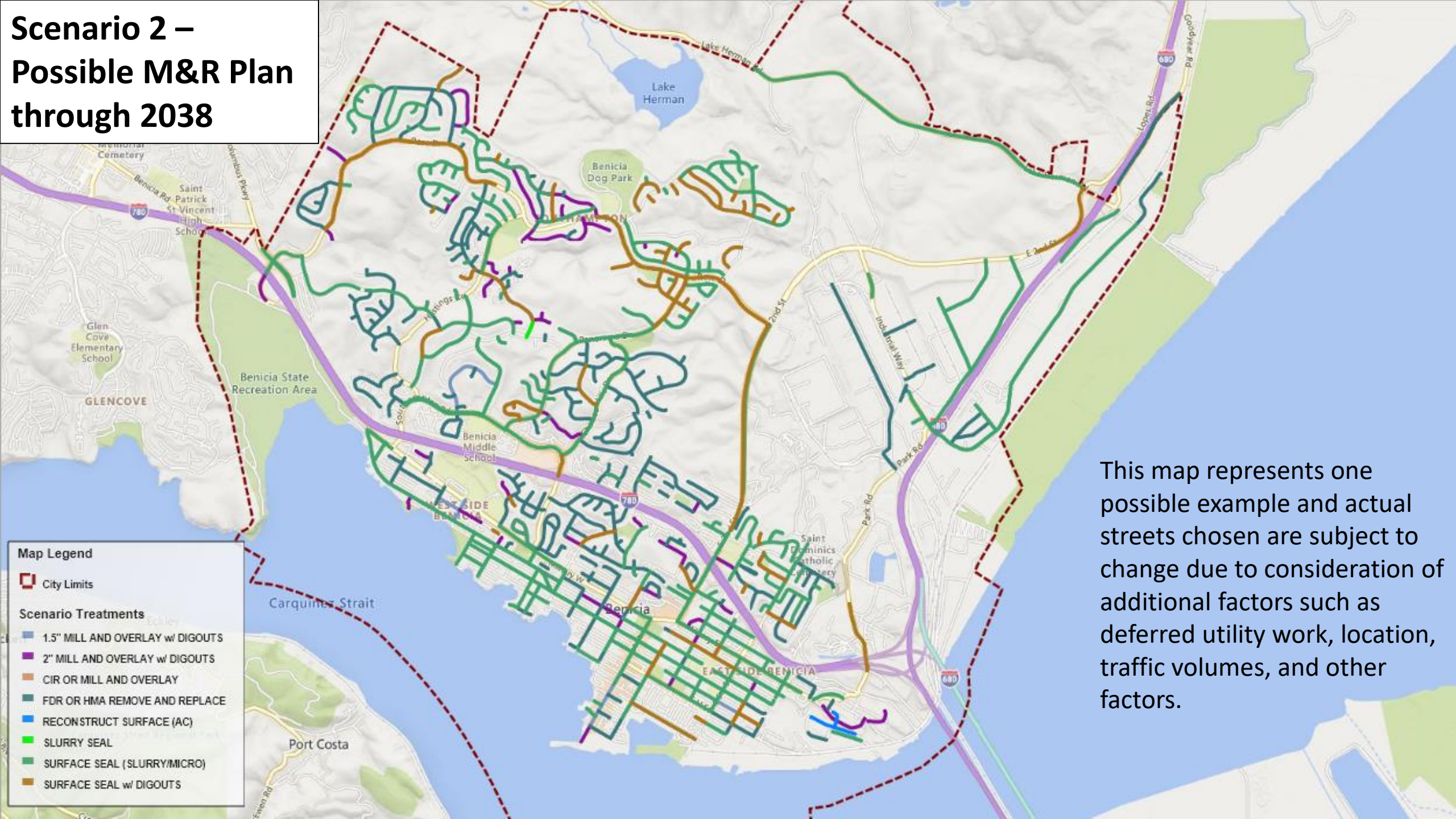

DEFERRED MAINTENANCE VS. TIME
$160,000,000
$140,000,000
$120,000,000
$100,000,000
$80,000,000
$60,000,000
$40,000,000
$20,000,000
$-
DEFERRED MAINTENANCE
2024
2026
2028
2030
2032
2034
2036
2038
YEAR
Scenario 1 - Current Funding Sources
Scenario 2 - Current Funding Sources + SOS
Scenario 3 - Current Funding Sources + SOS + RPTT

Scenario 1 – Possible M&R Plan through 2038



This map represents one possible example and actual streets chosen are subject to change due to consideration of additional factors such as deferred utility work, location, traffic volumes, and other factors.

Scenario 2 – Possible M&R Plan through 2038



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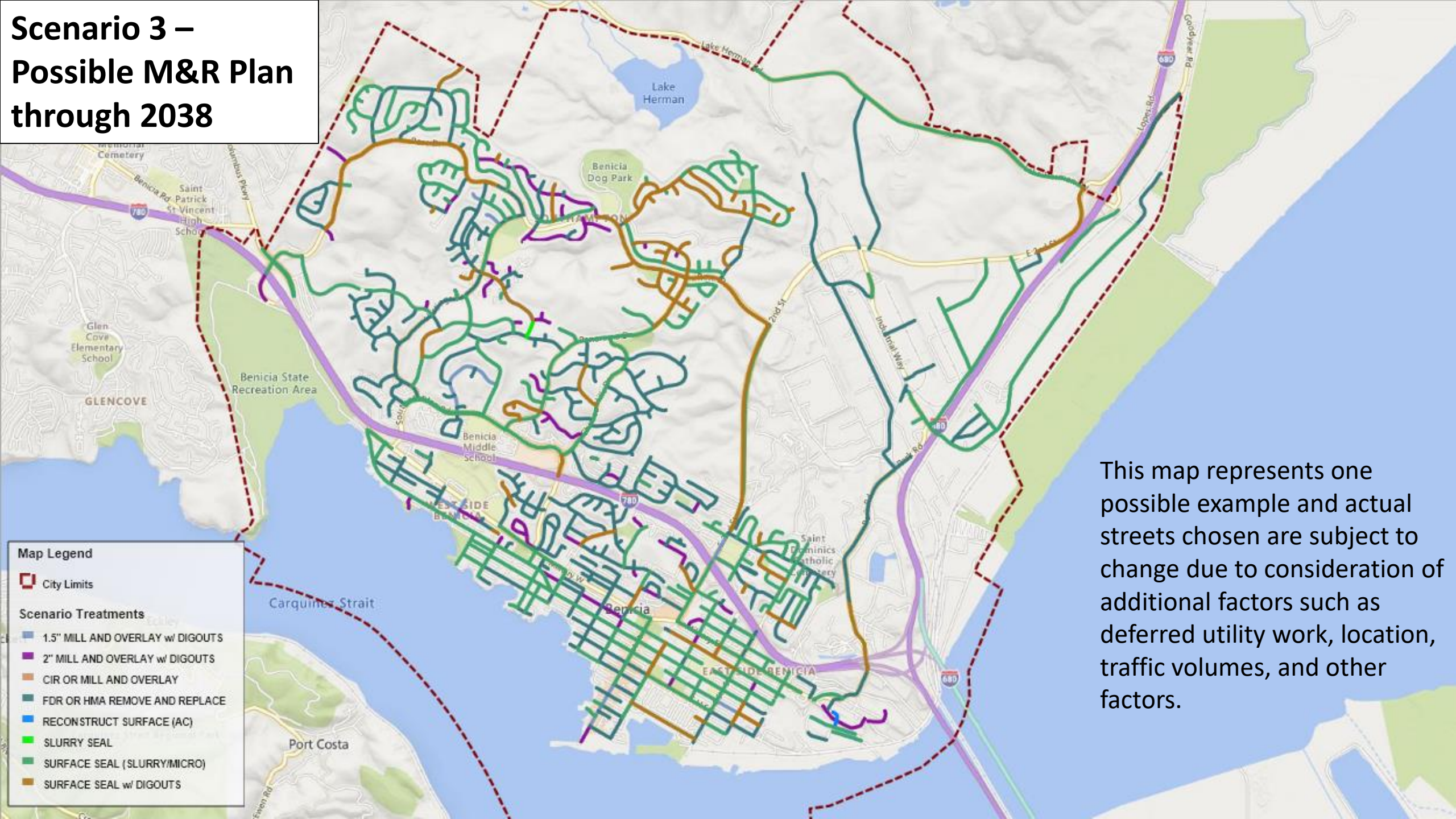
Scenario 3 – Possible M&R Plan through 2038



This map represents one possible example and actual streets chosen are subject to change due to consideration of additional factors such as deferred utility work, location, traffic volumes, and other factors.

Conclusions

- The present-day network PCI for Benicia's road network is 54 (Fair)
- The network PCI is in a multi-decade downward trend
- M&R spending that uses current fund sources is insufficient to maintain the network PCI at its present level
- Increases in roadway M&R spending are needed to lift the network PCI over time
  - Consistent increased expenditures over 12 years can bring network PCI back to 70
- Neglecting roadway maintenance increases the lifecycle cost of the road network

Questions

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