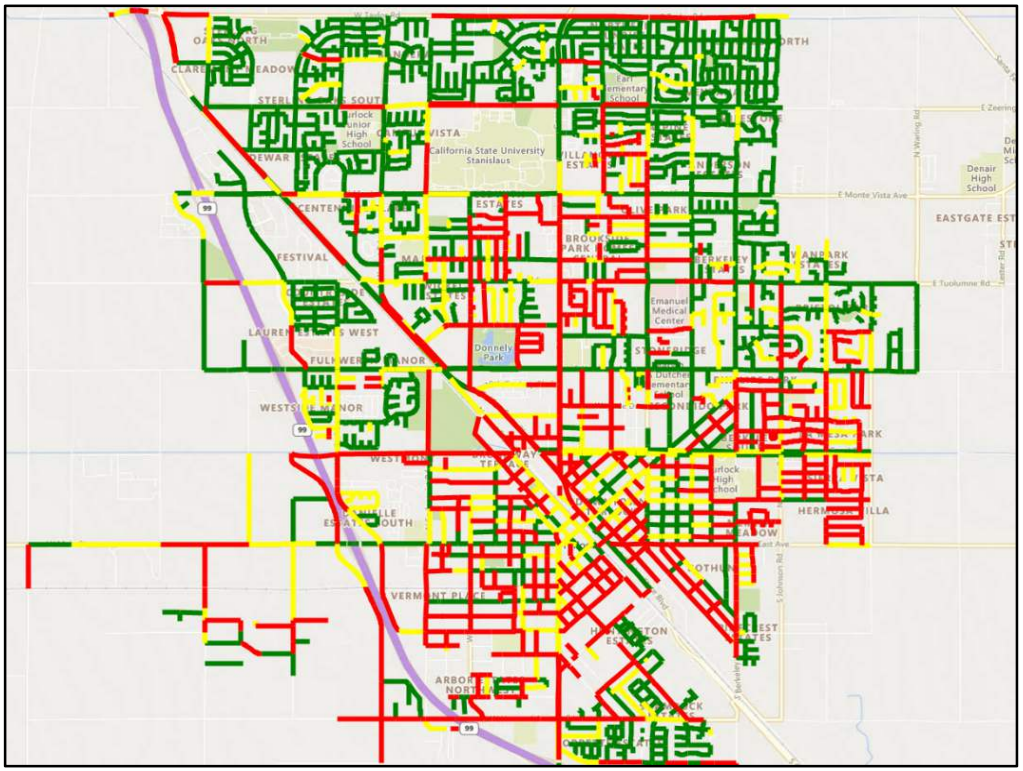


Draft Final Pavement Management Report

CITY OF TURLOCK INC. 1908

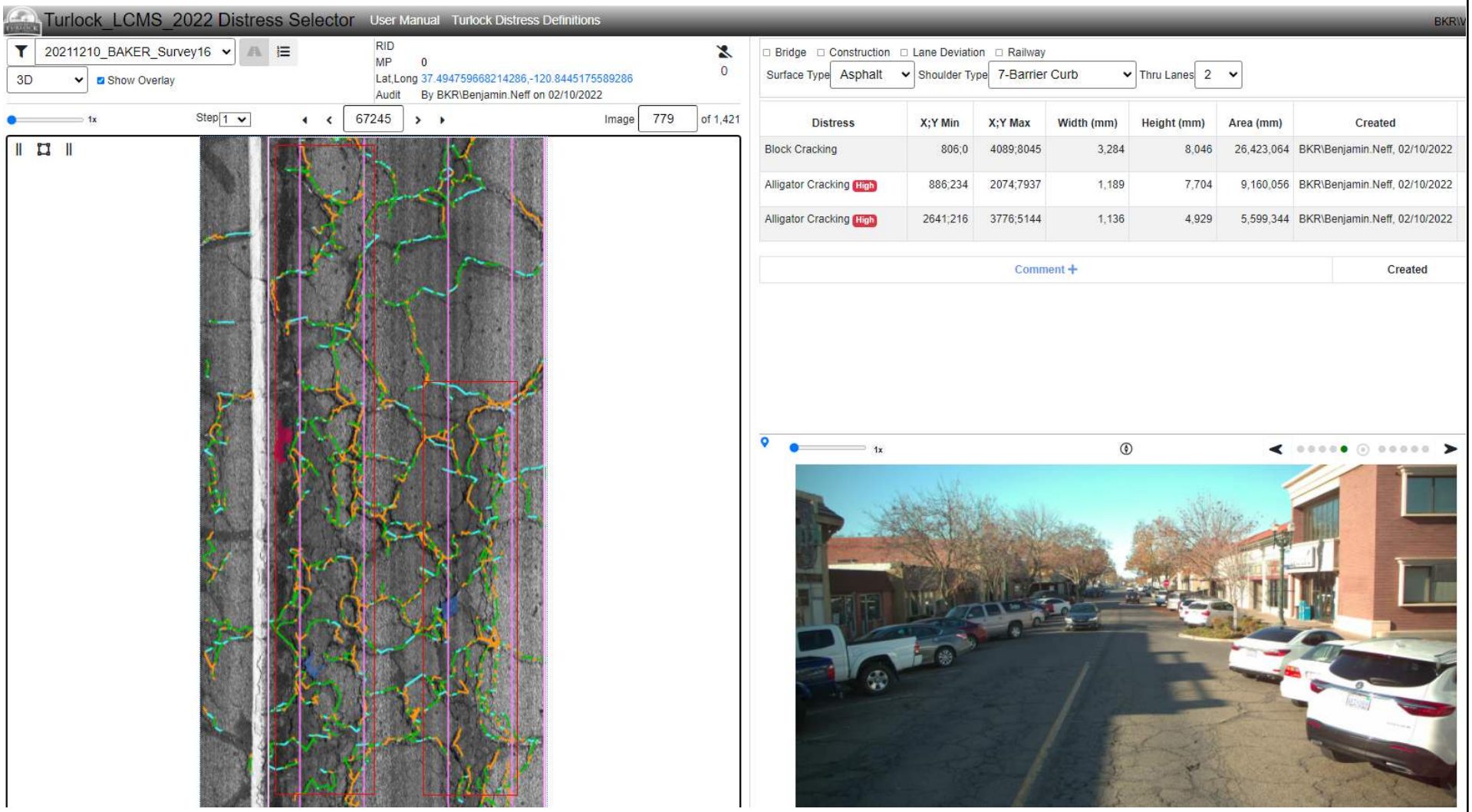
LiDAR

LCMS

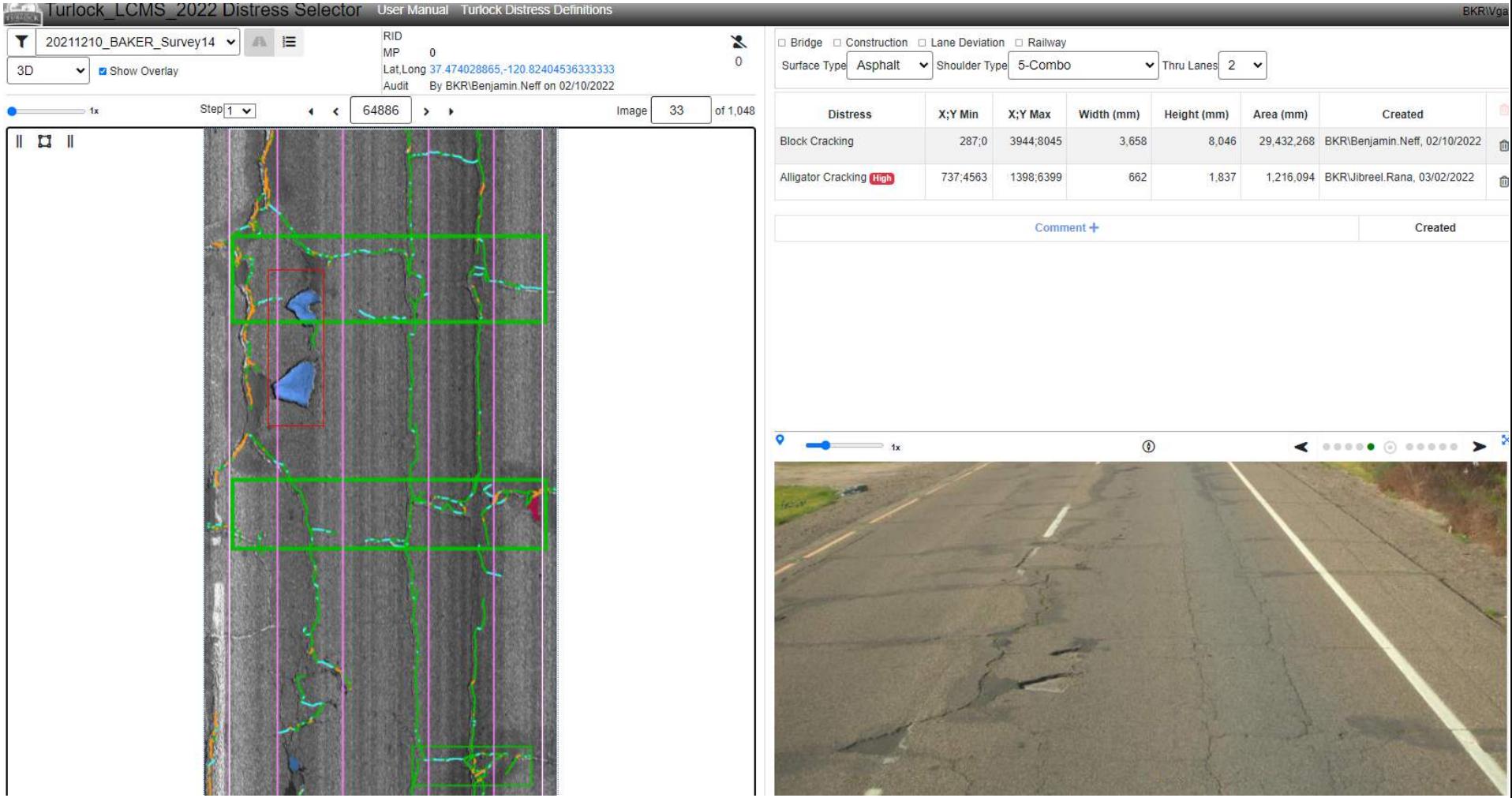
Coring & Soil Testing

GPR

Reviewed 100,000+ Pavement Images for Pavement Distresses

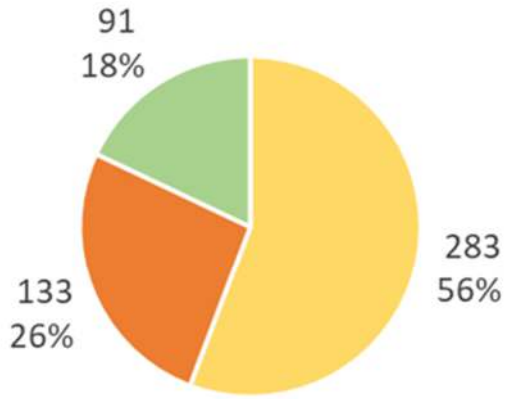


QC'ed 50%+ of Selected Distresses
Performed QA and Validation Checks on Distresses

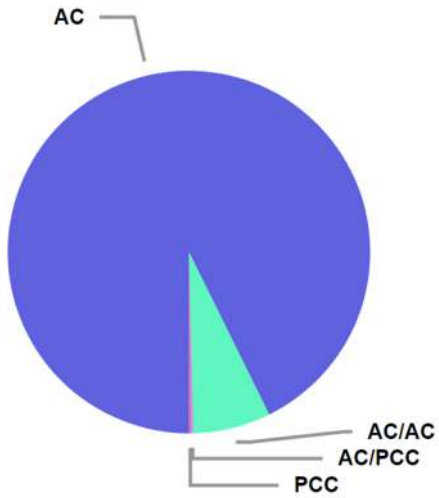


City of Turlock Pavement Network Statistics

Lane Miles by Functional Class



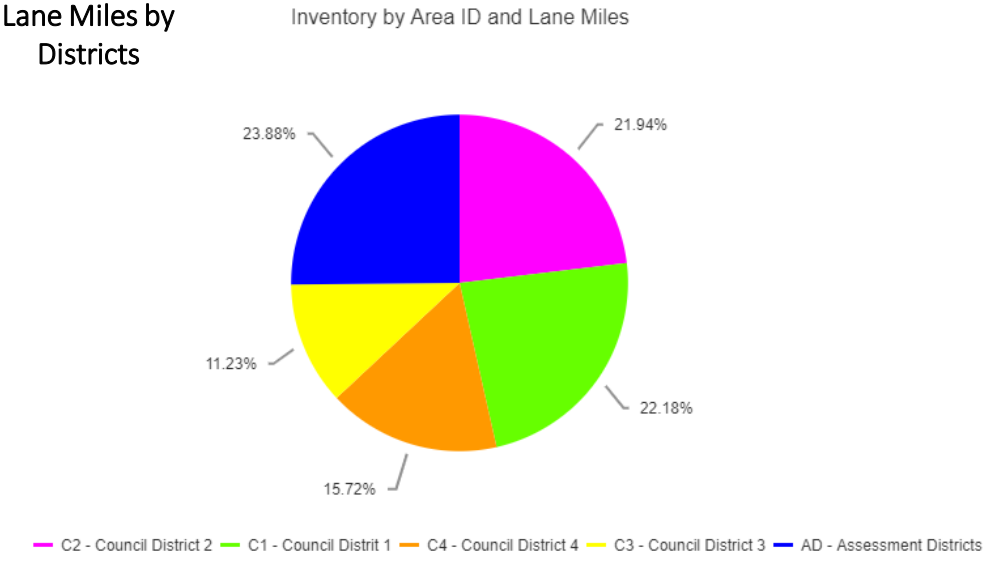
Lane Miles by Surface Type



CATEGORY	%
AC	92.7
AC/AC	06.9
AC/PCC	00.2
PCC	00.2

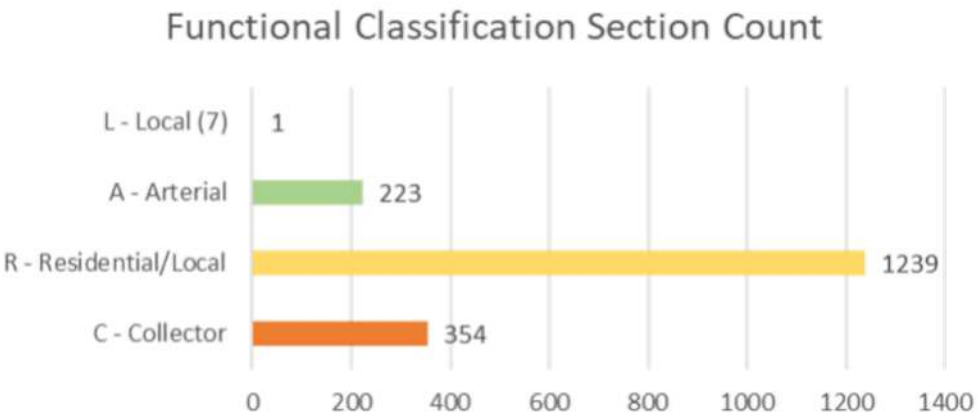
>99.6% AC

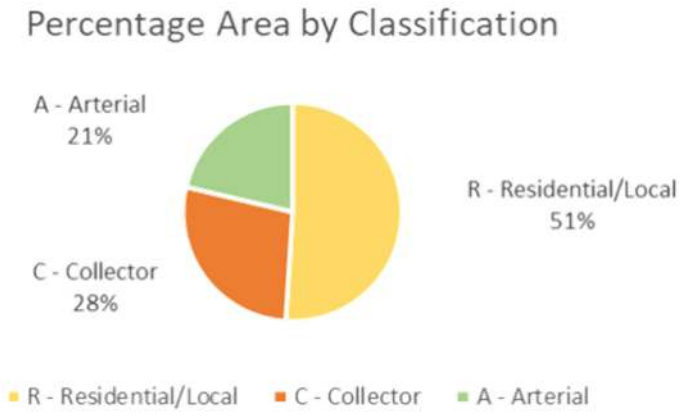
Lane Miles by Districts



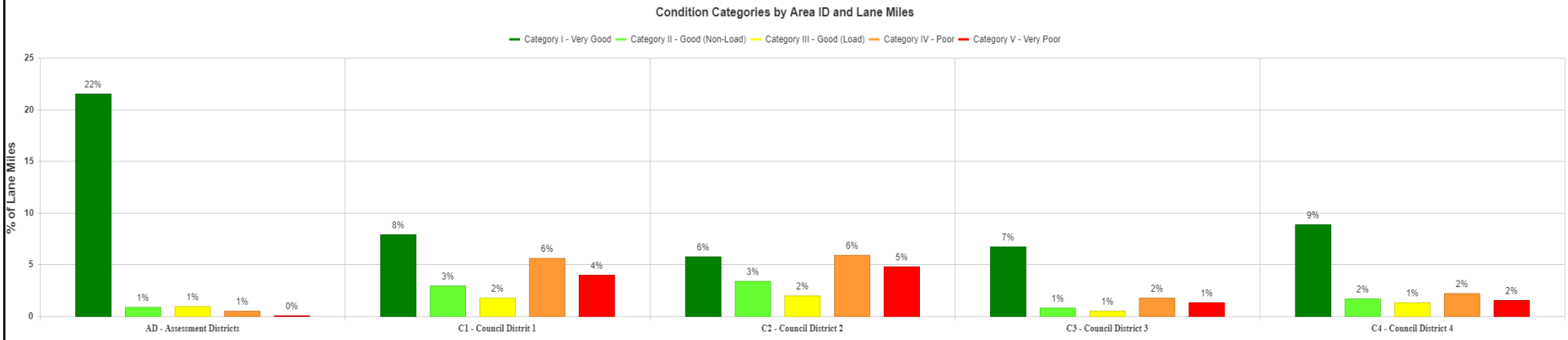
City of Turlock Pavement Network Statistics

	Total Sections	Total Center Miles	Total Lane Miles	Total Area (sq. ft.)	PCI
Arterial	223	43.54	91.26	10,972,335	62
Collector	353	66.52	133.25	14,211,589	54
Residential/Local	1,239	141.44	282.88	26,212,506	66
Local (7)	1	0.12	0.24	38,400	79
Total	**1,816**	**251.62**	**507.63**	**51,434,830**	
			Overall Network PCI as of 5/5/2022:		**62**

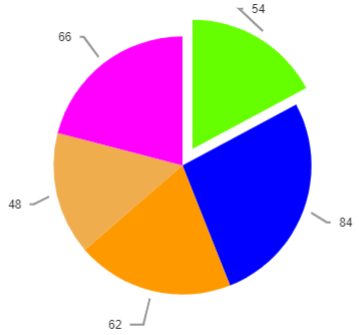


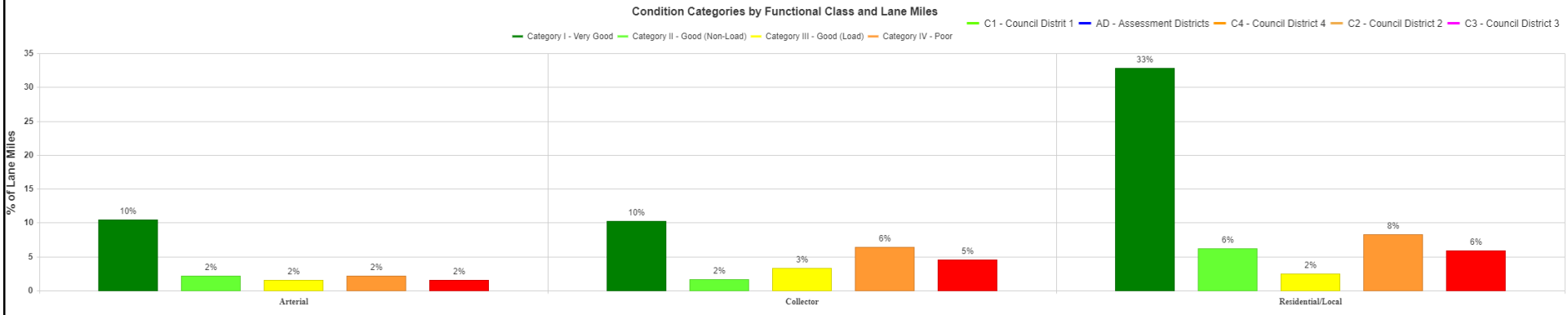


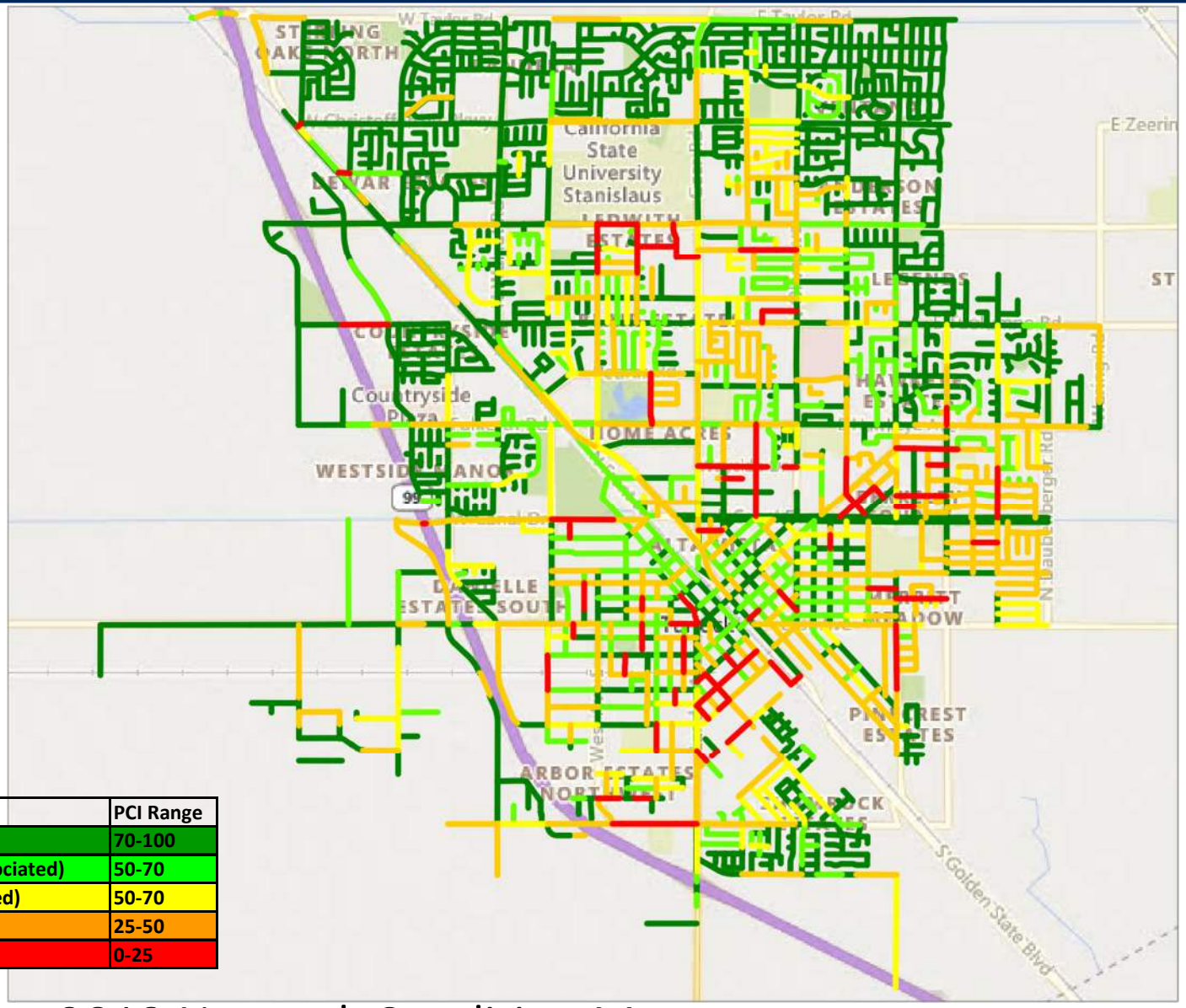
2022 Network Condition Categories by Functional Class and Lane Miles



PCI Category	PCI Range
Very Good	70-100
Good (Non-Load Associated)	50-70
Good (Load Associated)	50-70
Poor	25-50
Very Poor	0-25

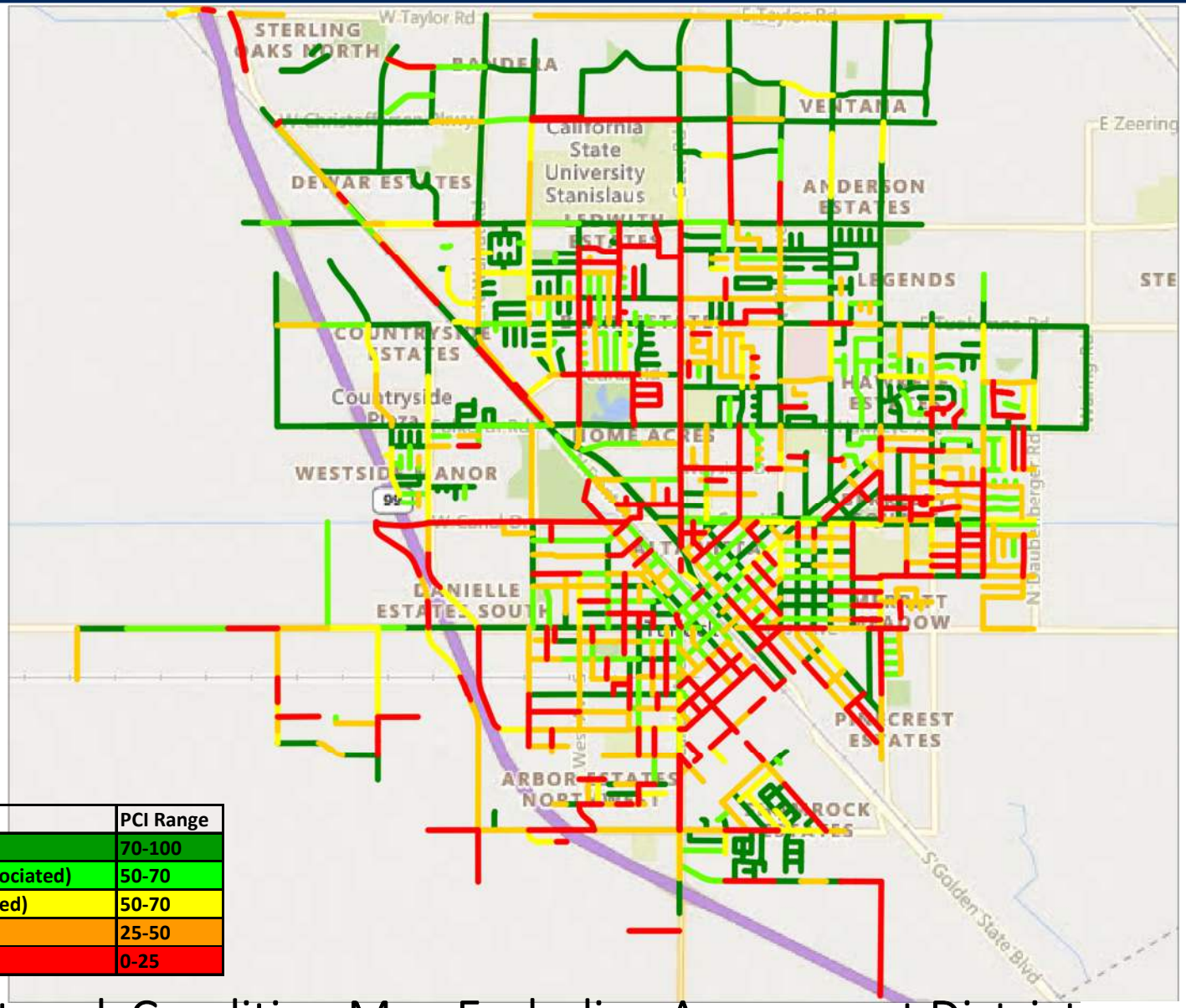






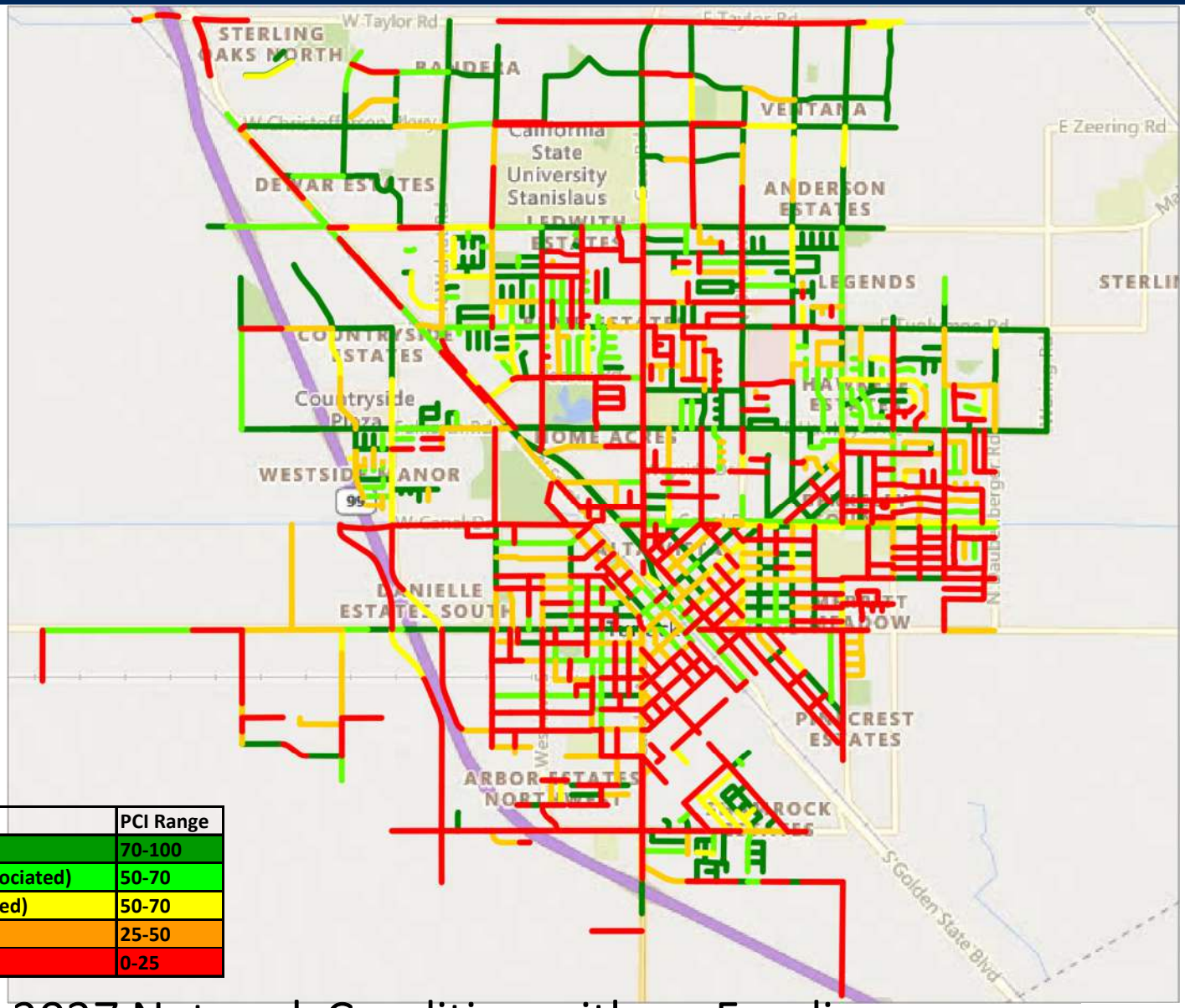
PCI Category	PCI Range
Very Good	70-100
Good (Non-Load Associated)	50-70
Good (Load Associated)	50-70
Poor	25-50
Very Poor	0-25

2013 Network Condition Map → PCI = 69



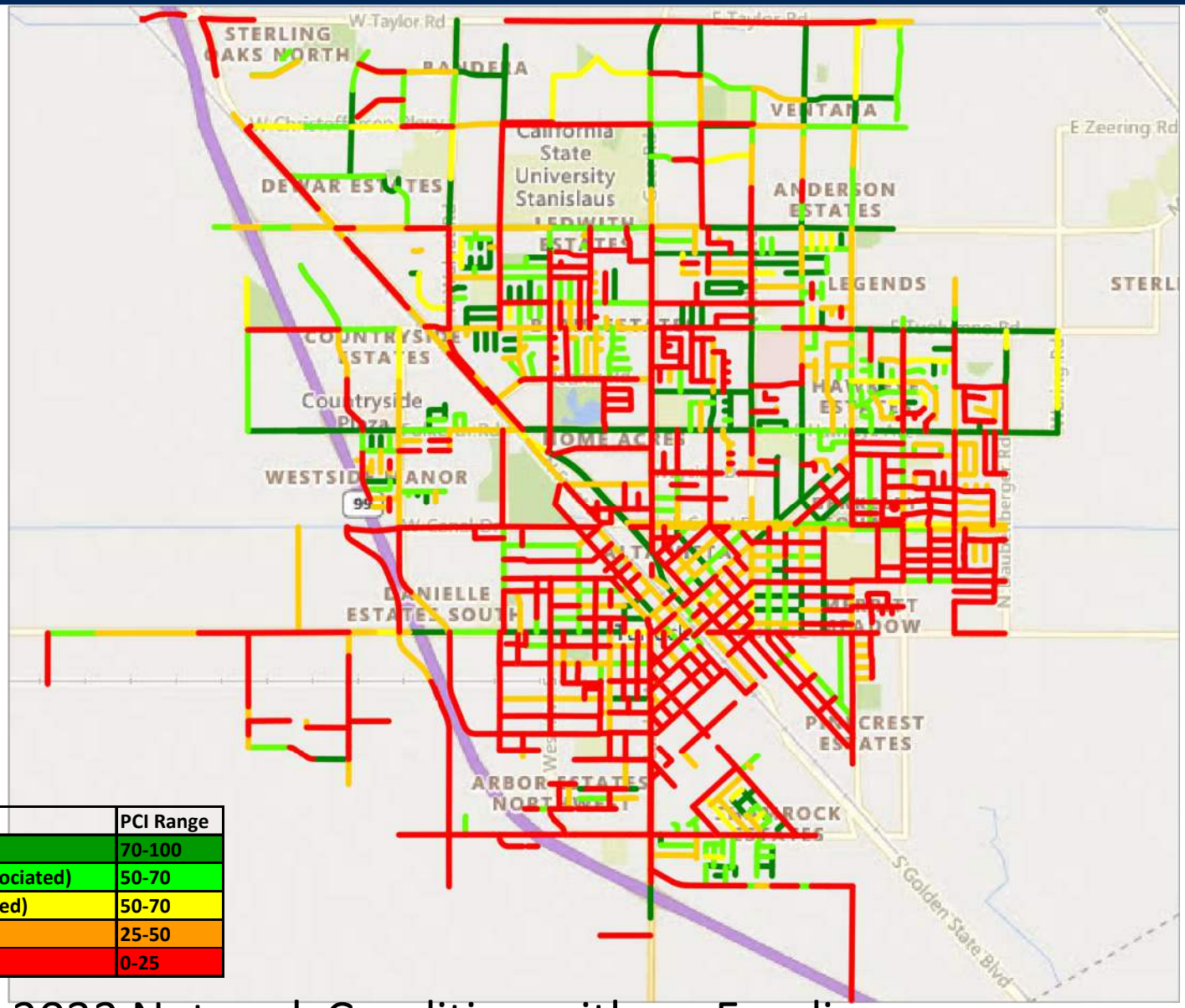
PCI Category	PCI Range
Very Good	70-100
Good (Non-Load Associated)	50-70
Good (Load Associated)	50-70
Poor	25-50
Very Poor	0-25

2022 Network Condition Map Excluding Assessment District → PCI = 62



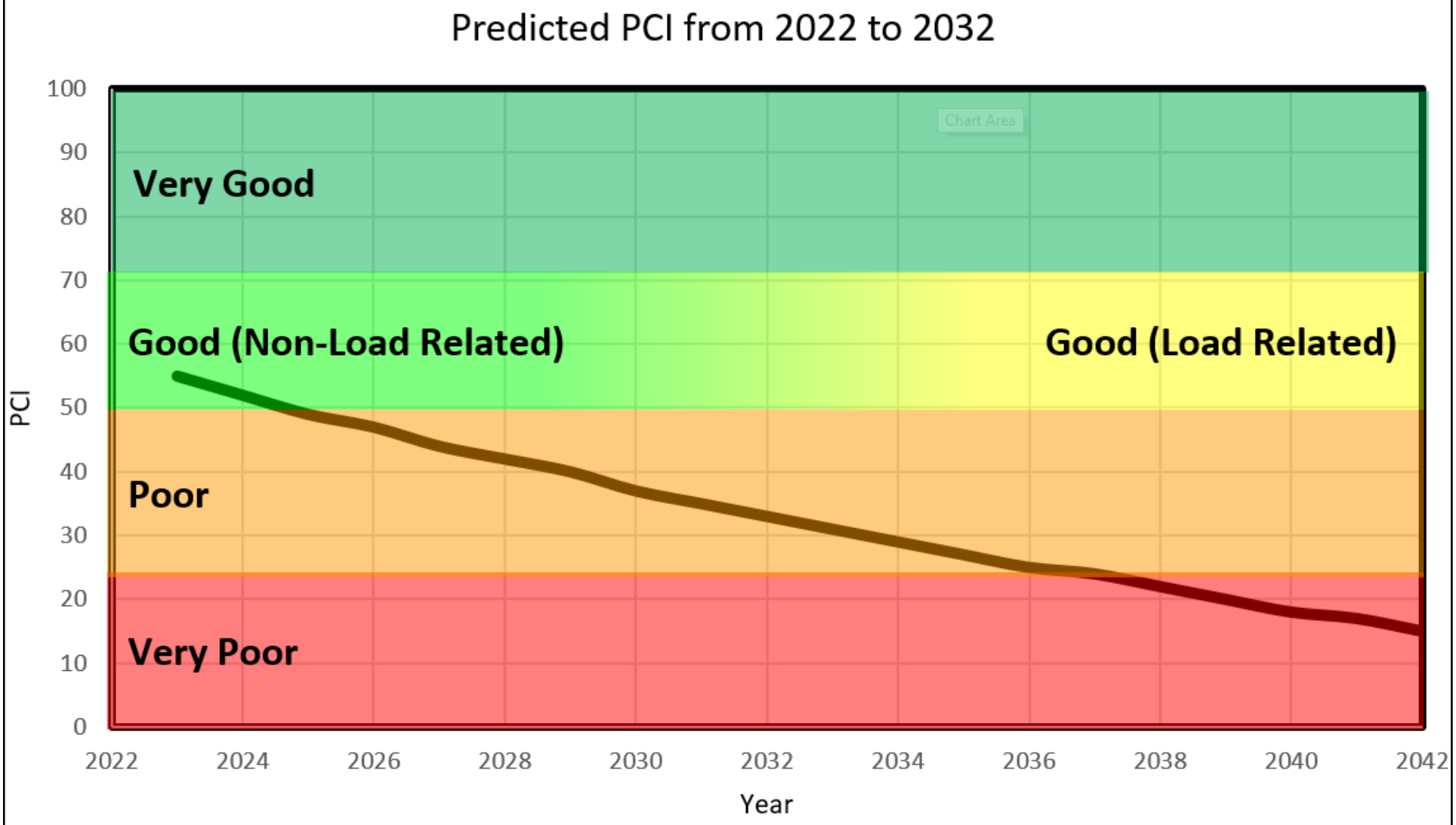
PCI Category	PCI Range
Very Good	70-100
Good (Non-Load Associated)	50-70
Good (Load Associated)	50-70
Poor	25-50
Very Poor	0-25

2027 Network Condition with no Funding → PCI = 44



PCI Category	PCI Range
Very Good	70-100
Good (Non-Load Associated)	50-70
Good (Load Associated)	50-70
Poor	25-50
Very Poor	0-25

2032 Network Condition with no Funding → PCI = 33



Pavement Deterioration over Time with No Funding

Pavement deterioration over time with no funding.

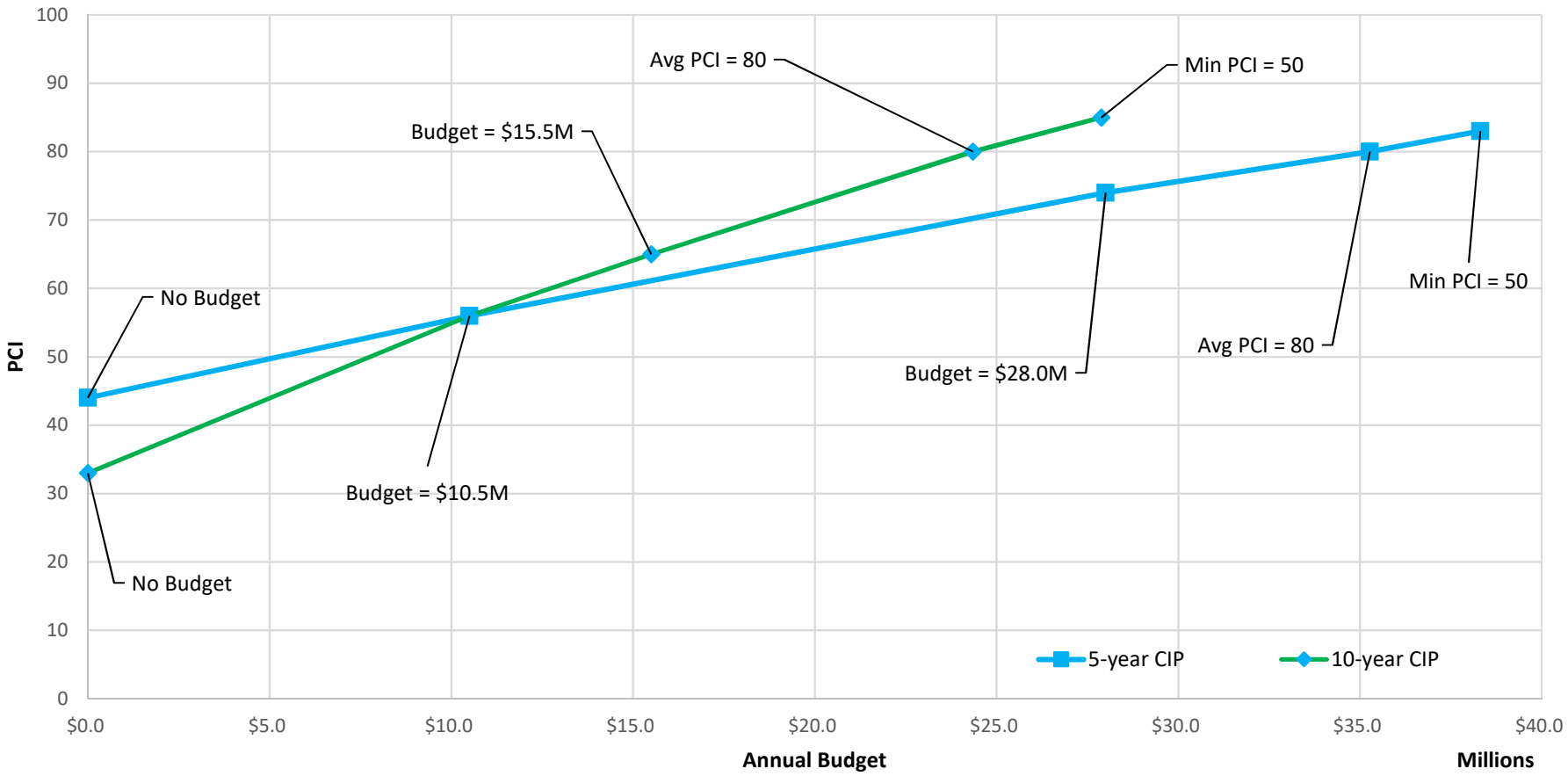
What to do to stop the deterioration? Provide funding for M&R → City
What street needs which treatment, when, and what is the cost → PMS

Once the PMS provides the cost for different scenarios and funding levels, the policy maker need to decide what level of funding is available and what level of network PCI is acceptable to the citizens

Turlock - Decision Tree 2022 Update

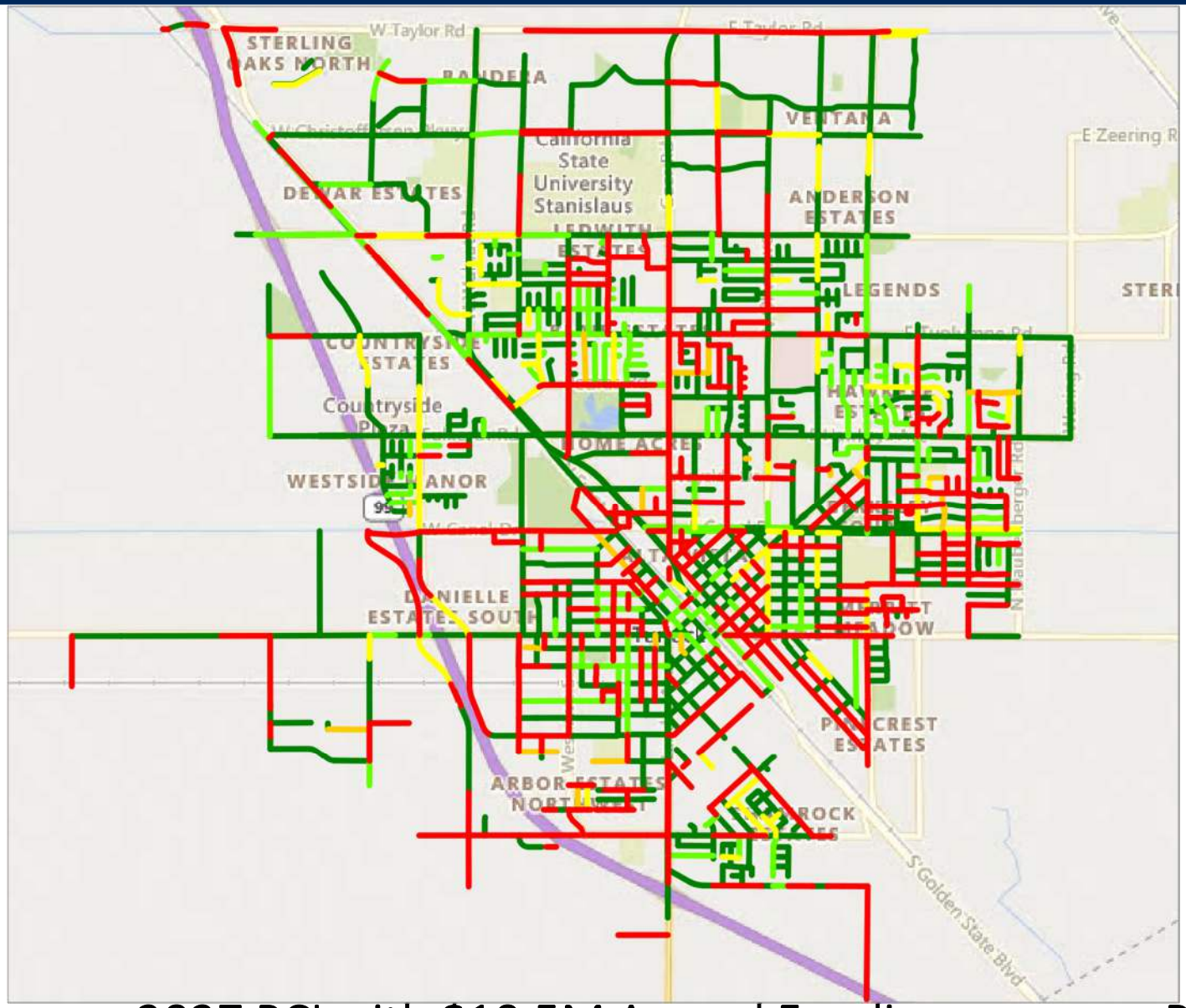
Surface Type	Condition Category	PCI Range	Functional Classification					
			Arterial	Est. Cost ($/SY)	Collector	Est. Cost ($/SY)	Residential	Est. Cost ($/SY)
AC or AC/AC	I	70-100	Crack Seal	$ 1.00	Crack Seal	$ 1.00	Crack Seal	$ 1.00
			Microsurfacing	$ 12.00	Microsurfacing	$ 10.00	Slurry Seal	$ 8.00
			Do Nothing	$ -	Do Nothing	$ -	Do Nothing	$ -
	II	50-69 (Non-Load)	Asphalt Rubber Cape Seal	$ 25.00	Asphalt Rubber Cape Seal	$ 23.00	Asphalt Rubber Cape Seal	$ 21.00
	III	50-69 (Load)	AR Cape/TypeIII Micro/Digouts	$ 37.00	AR Cape/TypeIII Micro/Digouts	$ 33.00	AR Cape/TypeIII Micro/Digouts	$ 29.00
	IV	25-49	3" Mill & HMA Overlay	$ 50.00	3" Mill & HMA Overlay	$ 46.00	3" Mill & HMA Overlay	$ 40.00
	V	0-24	FDR w/5"HMA	$ 78.00	FDR w/4"HMA	$ 69.00	FDR w/3"HMA	$ 57.00
			Reconstruct: 5"HMA/6"AB	$ 102.00	Reconstruct: 4"HMA/6"AB	$ 85.00	Reconstruct: 3"HMA/6"AB	$ 67.00

Annual Budget vs. Final Network PCI for 5- and 10-Year CIP

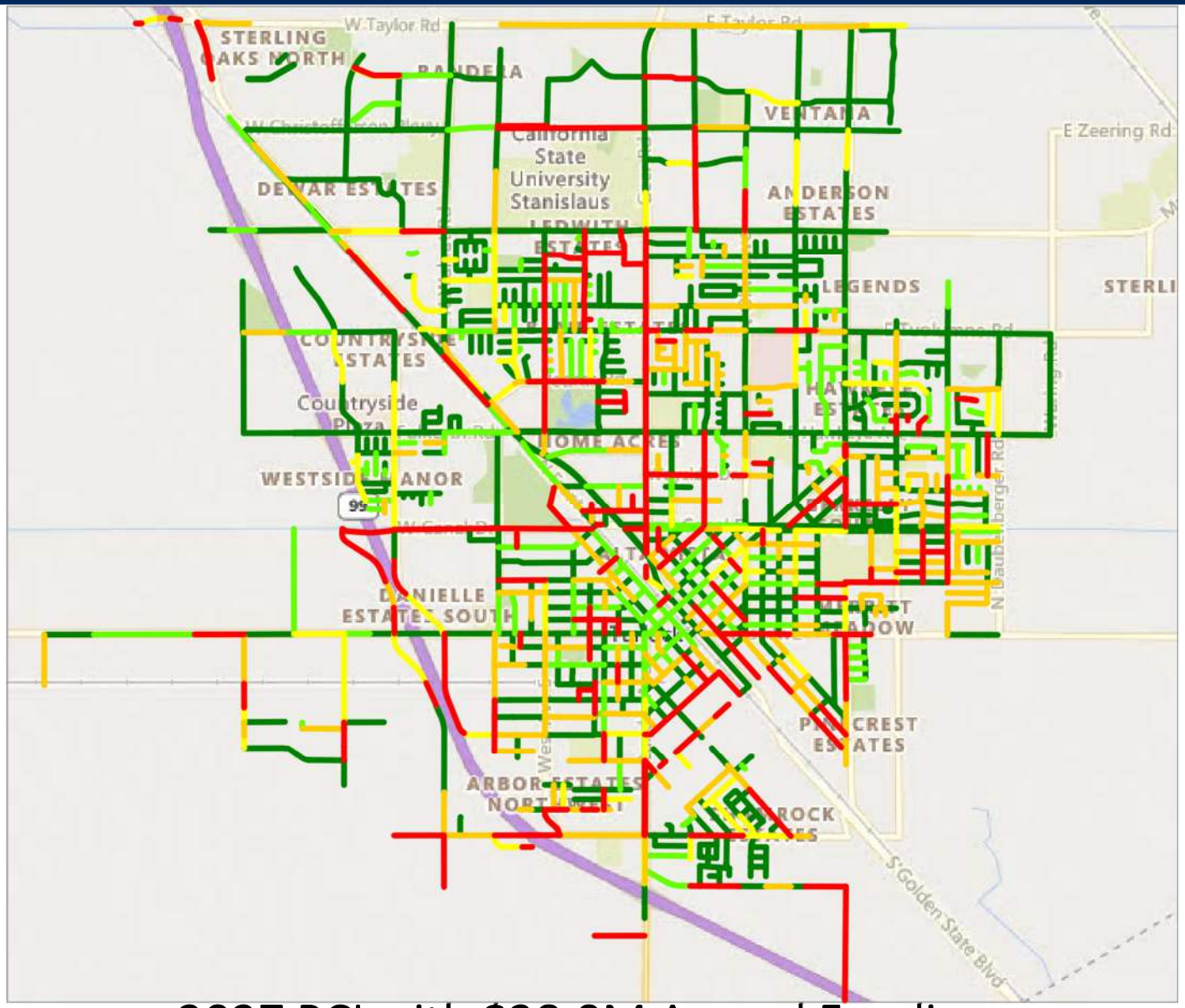


Summary of Various Scenarios for both 5- and 10-Year CIP

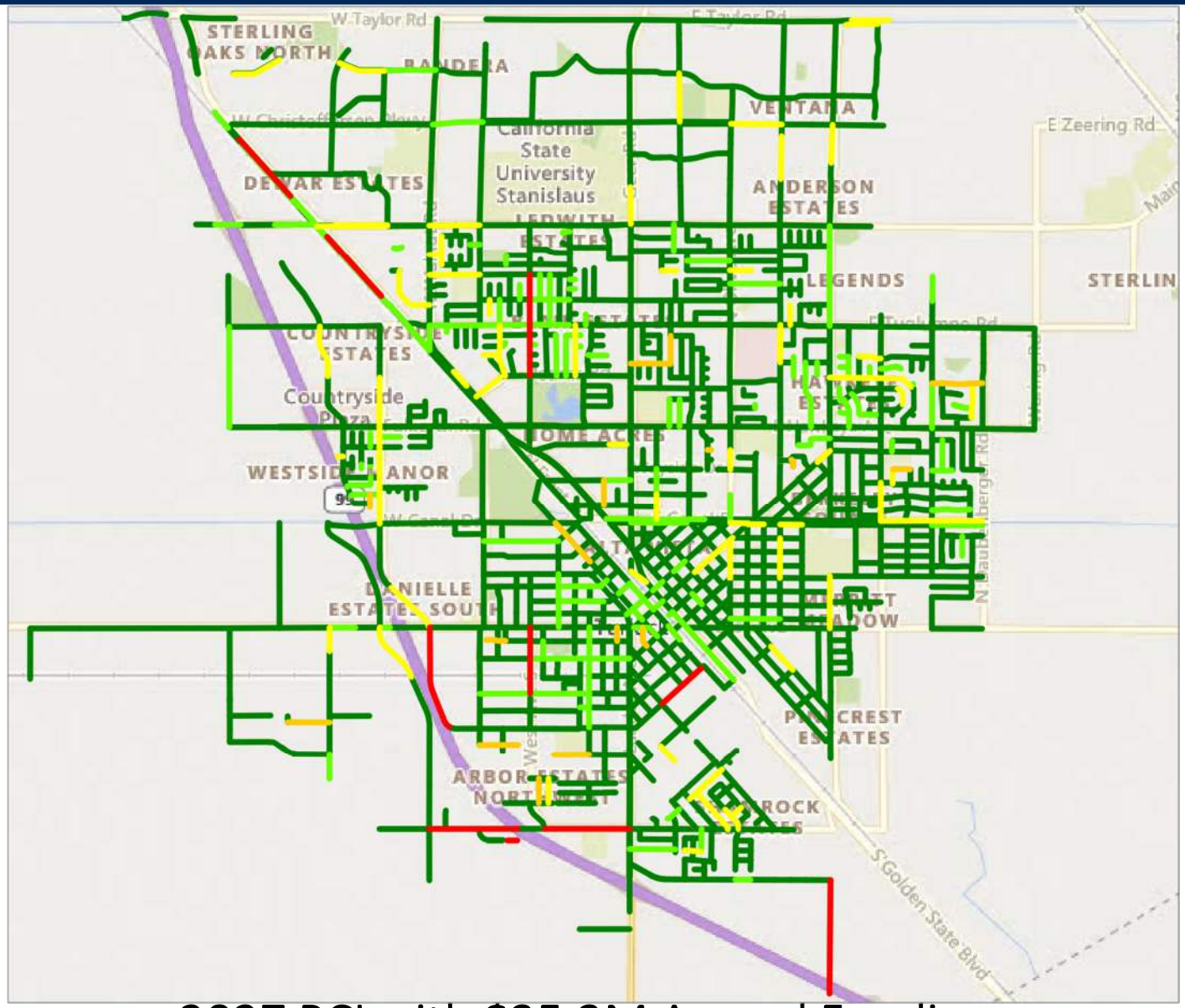
Scenario	CIP Period (yrs)	CIP Period	Final PCI with Treatment	Final PCI without Treatment	PCI Improvement	Annual Cost	Total Cost
Min. PCI = 70	5	2023-2027	84	44	40	$40,541,266	$202,706,328
Min. PCI = 50	5	2023-2027	83	44	39	$38,309,508	$191,547,538
Avg. PCI = 80	5	2023-2027	80	44	36	$35,272,272	$176,361,361
Budget = $28.0M	5	2023-2027	74	44	30	$28,000,000	$140,000,000
Budget = $10.5M	5	2023-2027	56	44	12	$10,500,000	$52,500,000
Do Nothing	5	2023-2027	44	44	0	$0	$0
Min. PCI = 70	10	2023-2032	83	33	50	$27,471,284	$274,712,842
Min. PCI = 50	10	2023-2032	85	33	52	$27,880,552	$278,805,522
Avg. PCI = 80	10	2023-2032	80	33	47	$24,351,191	$243,511,914
Budget = $15.5M	10	2023-2032	65	33	32	$15,500,000	$155,000,000
Budget = $10.5M	10	2023-2032	56	33	23	$10,500,000	$105,000,000
Do Nothing	10	2023-2032	33	33	0	$0	$0



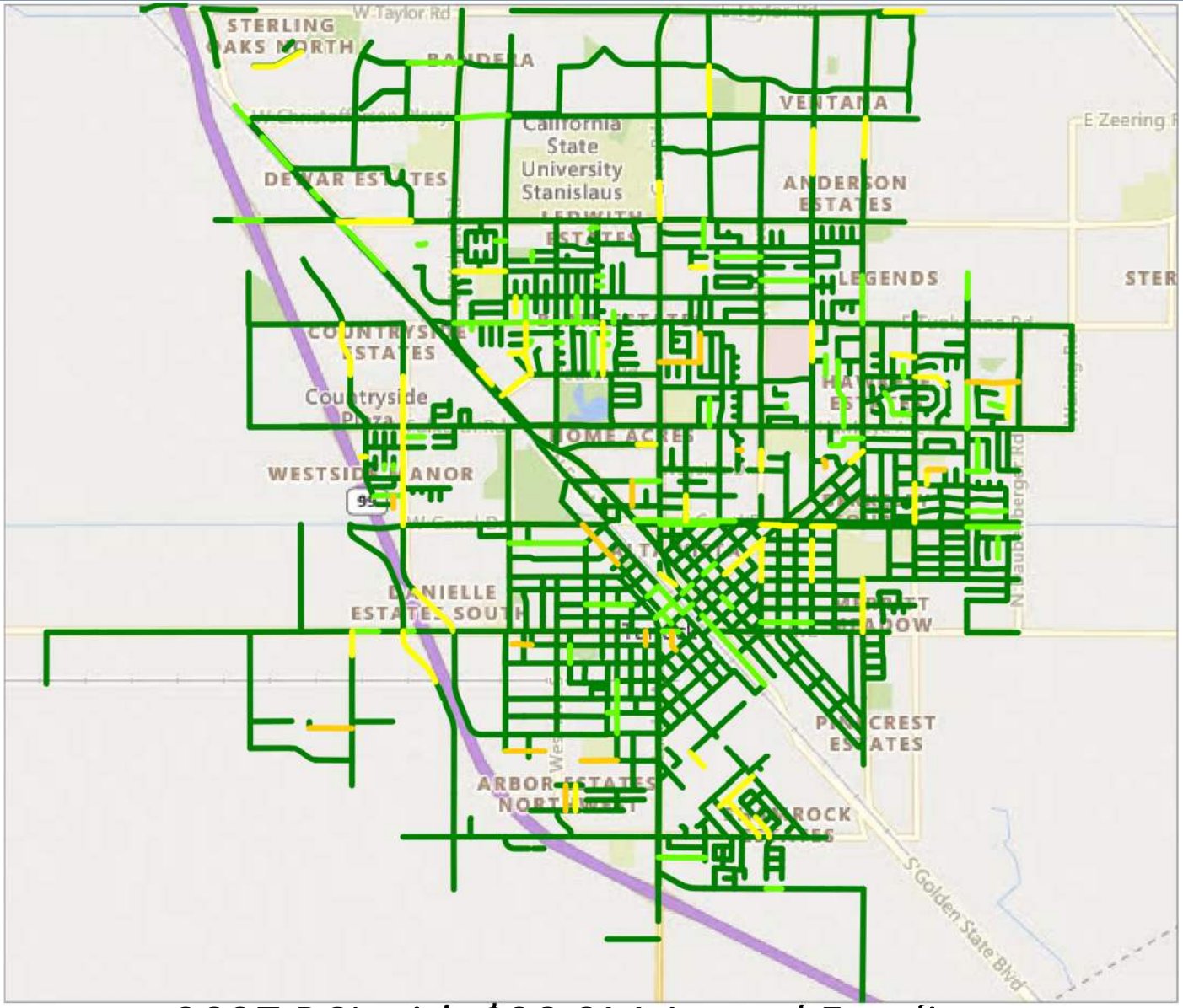
2027 PCI with $10.5M Annual Funding → PCI = 56



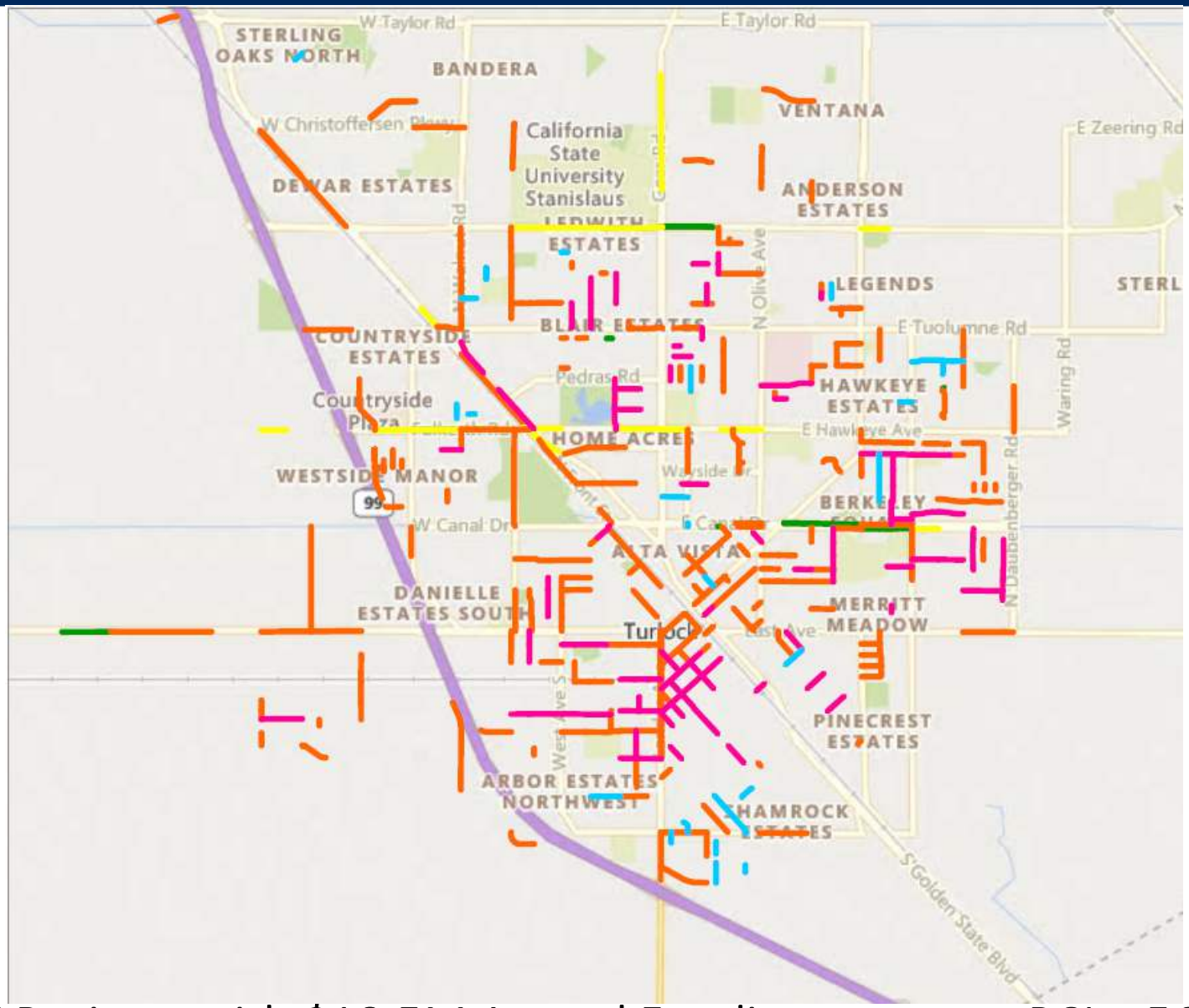
2027 PCI with $28.0M Annual Funding → PCI = 74



2027 PCI with $35.3M Annual Funding → PCI = 80



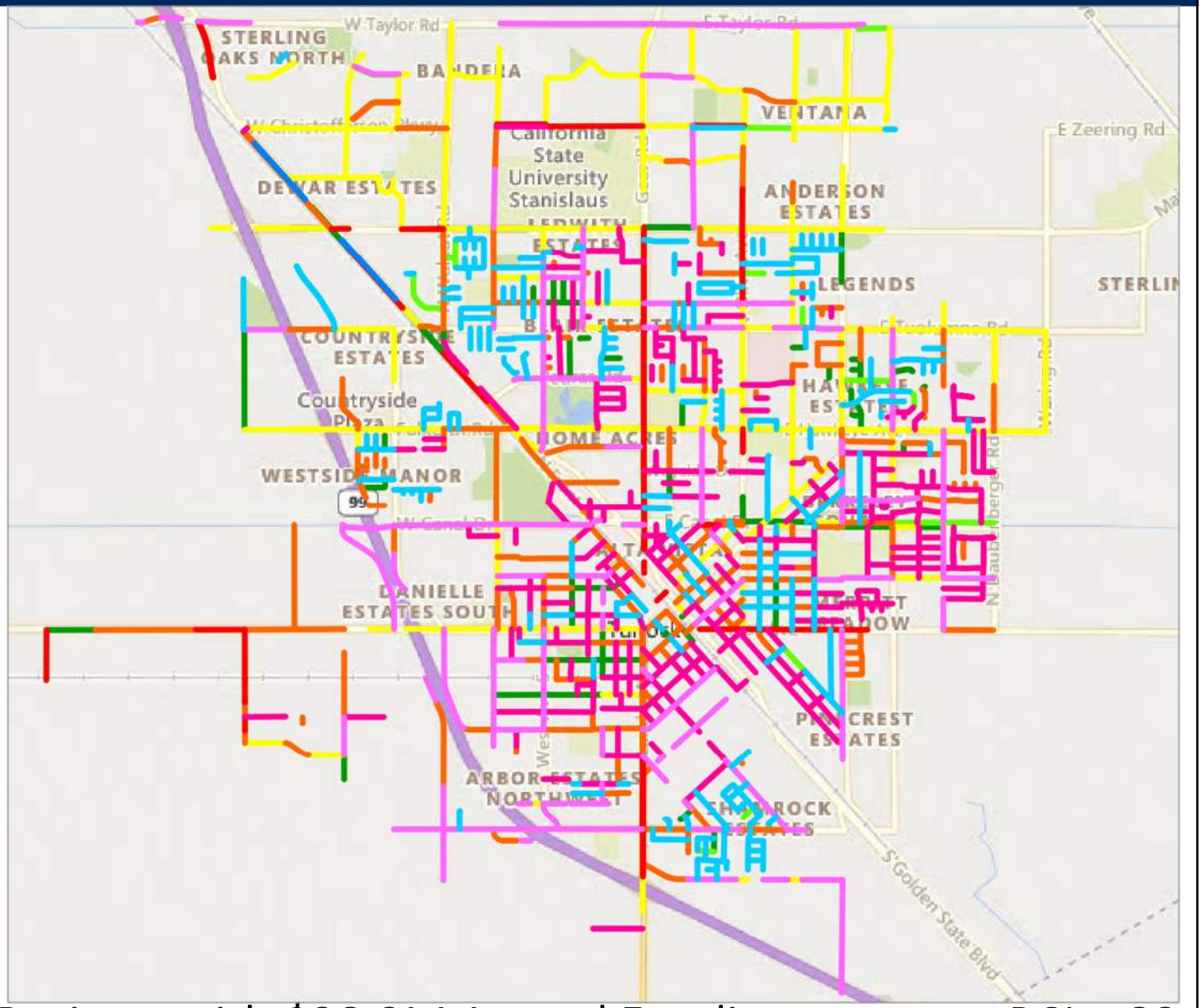
2027 PCI with $38.3M Annual Funding → PCI = 83



2023-2027 Projects with $10.5M Annual Funding → PCI = 56

Feature Legend

- AR CAPE SEAL
- AR CAPE SEAL W/DIGOUTS
- MICROSURFACING
- MILL AND 3 IN OVERLAY
- Reconstruct 5" HMA/6" AB
- RECONSTRUCT SURFACE (AC)
- Reconstruct with 3" HMA/6" AB
- Reconstruct with 4" HMA/6" AB
- SLURRY SEAL



2023-2027 Projects with $38.3M Annual Funding → PCI = 83

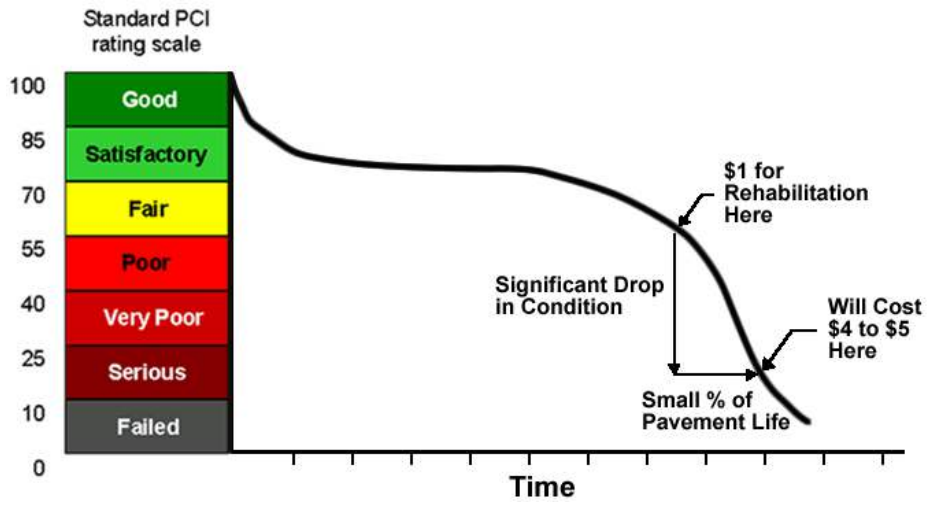
Distribution of Funding for Each District for 5-Year CIP to Bring Min. PCI to 50

	2023	2024	2025	2026	2027	All Years	
District 1	$ 7,863,715	$ 13,635,625	$ 10,769,019	$ 8,850,486	$ 11,130,822	$ 52,249,667	29%
District 2	$ 8,114,208	$ 9,950,773	$ 10,772,259	$ 17,682,229	$ 16,530,165	$ 63,049,634	35%
District 3	$ 2,996,589	$ 2,536,089	$ 11,011,763	$ 5,150,955	$ 6,574,713	$ 28,270,109	16%
District 4	$ 4,468,503	$ 4,464,135	$ 7,804,951	$ 5,931,458	$ 11,766,551	$ 34,435,598	19%
All Districts	$ 23,443,015	$ 30,586,622	$ 40,357,992	$ 37,615,128	$ 46,002,251	$ 178,005,008	100%
	13%	17%	23%	21%	26%	100%	

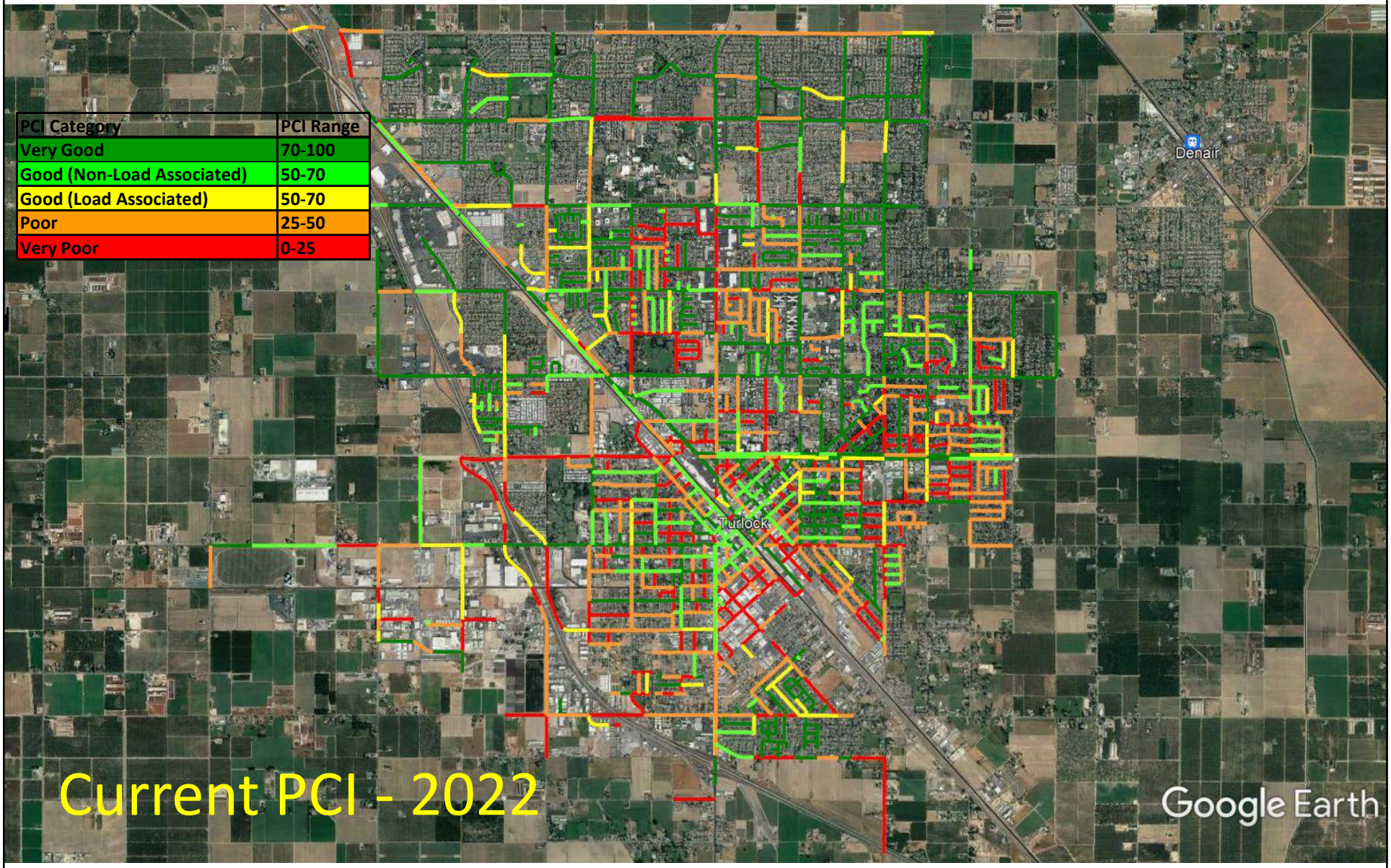
Executive Dashboard

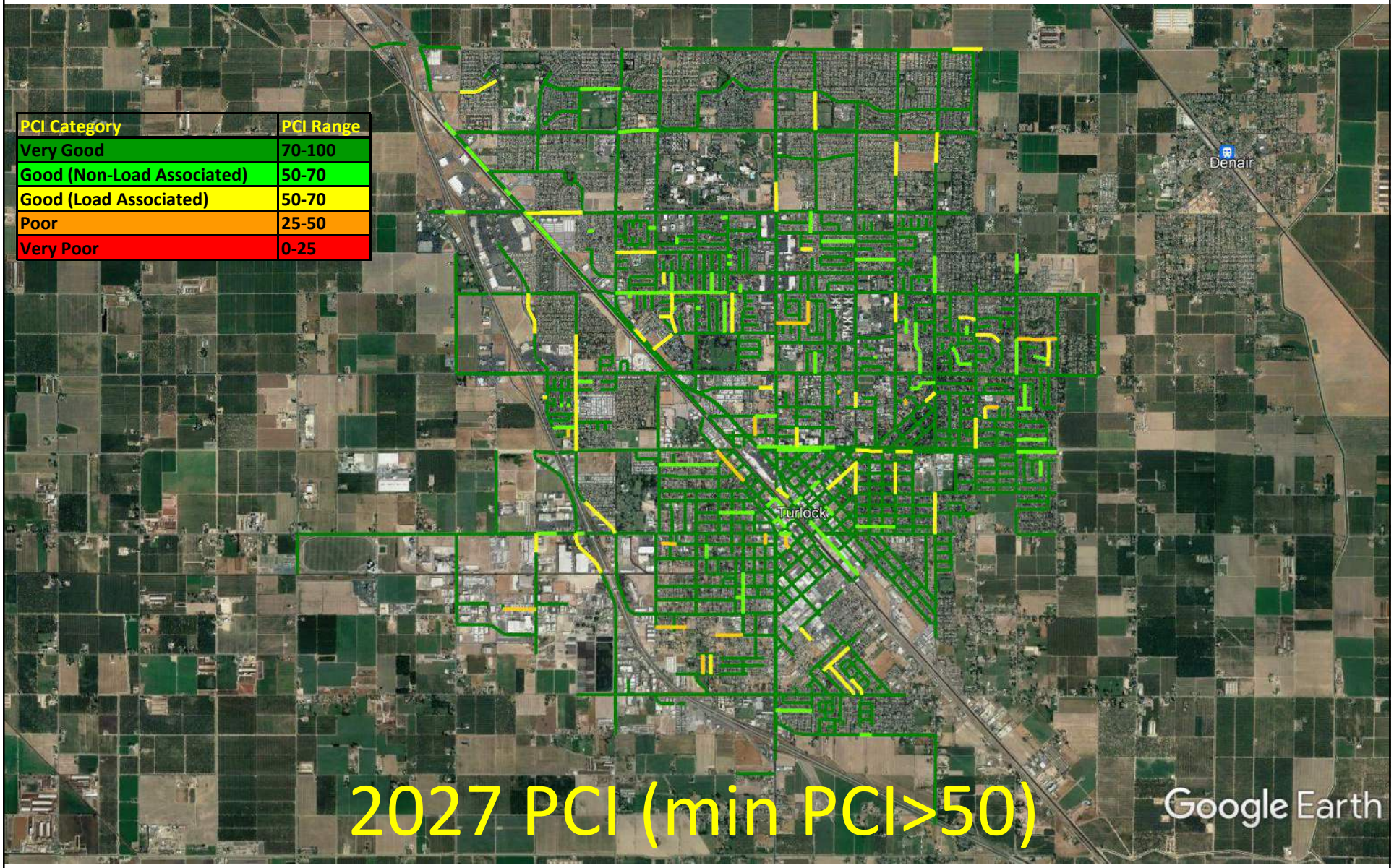
Pavement Preservation

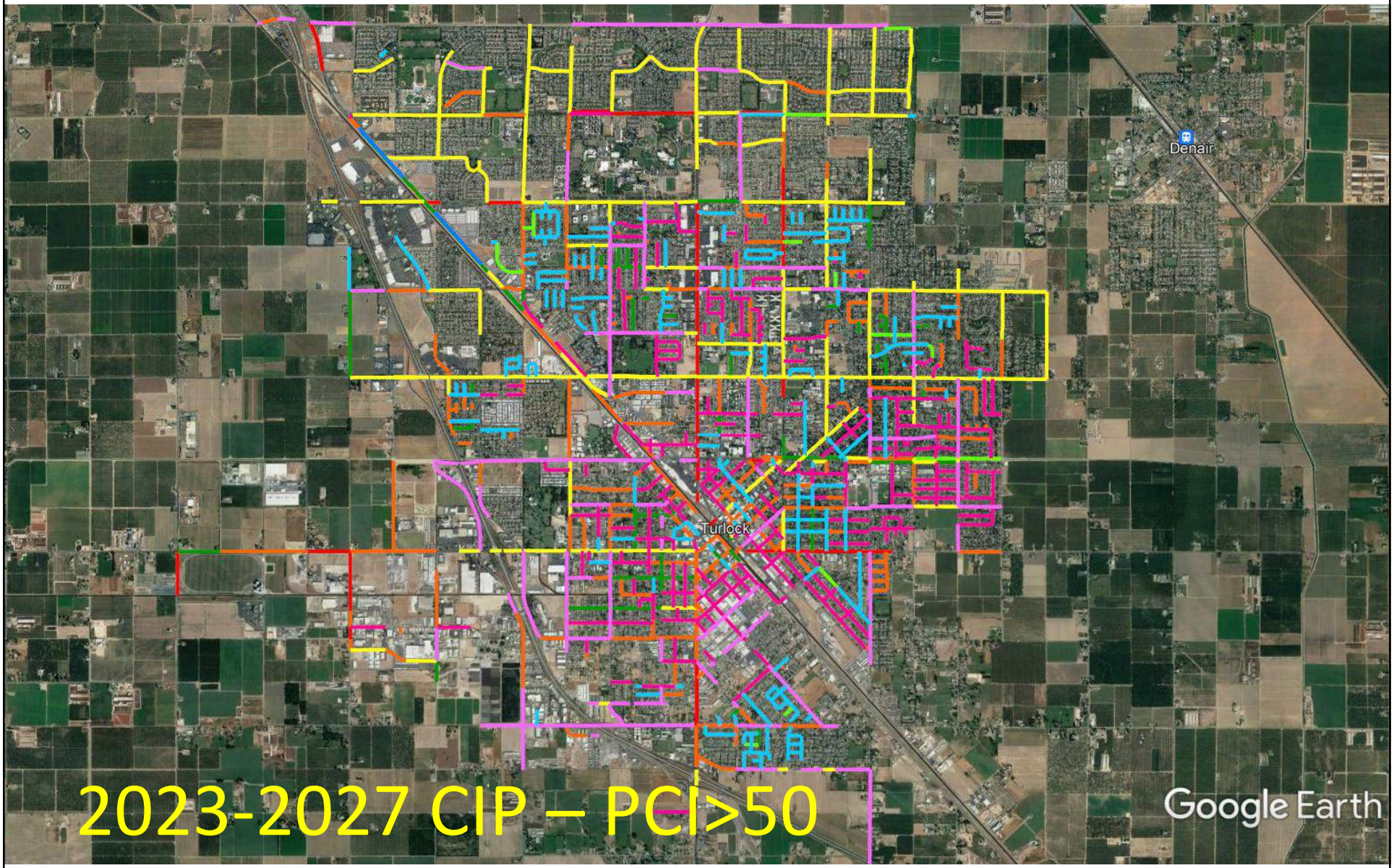
- The worse the pavement condition is, the more expensive treatment is required to restore the pavement to good condition
- Pavement preservation is most effective when a pavement is structurally sound and exhibits little or no distress
- Considerably inexpensive compared to resurfacing or reconstruction projects



Thank You!


PCI Category | PCI Range
Very Good | 70-100
Good (Non-Load Associated) | 50-70
Good (Load Associated) | 50-70
Poor | 25-50
Very Poor | 0-25
Denair
Turlock
Current PCI - 2022
Google Earth


PCI Category | PCI Range
Very Good | 70-100
Good (Non-Load Associated) | 50-70
Good (Load Associated) | 50-70
Poor | 25-50
Very Poor | 0-25
Denair
Turlock
2027 PCI (min PCI>50)
Google Earth



2023-2027 CIP – PCI>50