



PAVEMENT CONDITION EVALUATION RESULTS TOWN OF PRESCOTT VALLEY, AZ



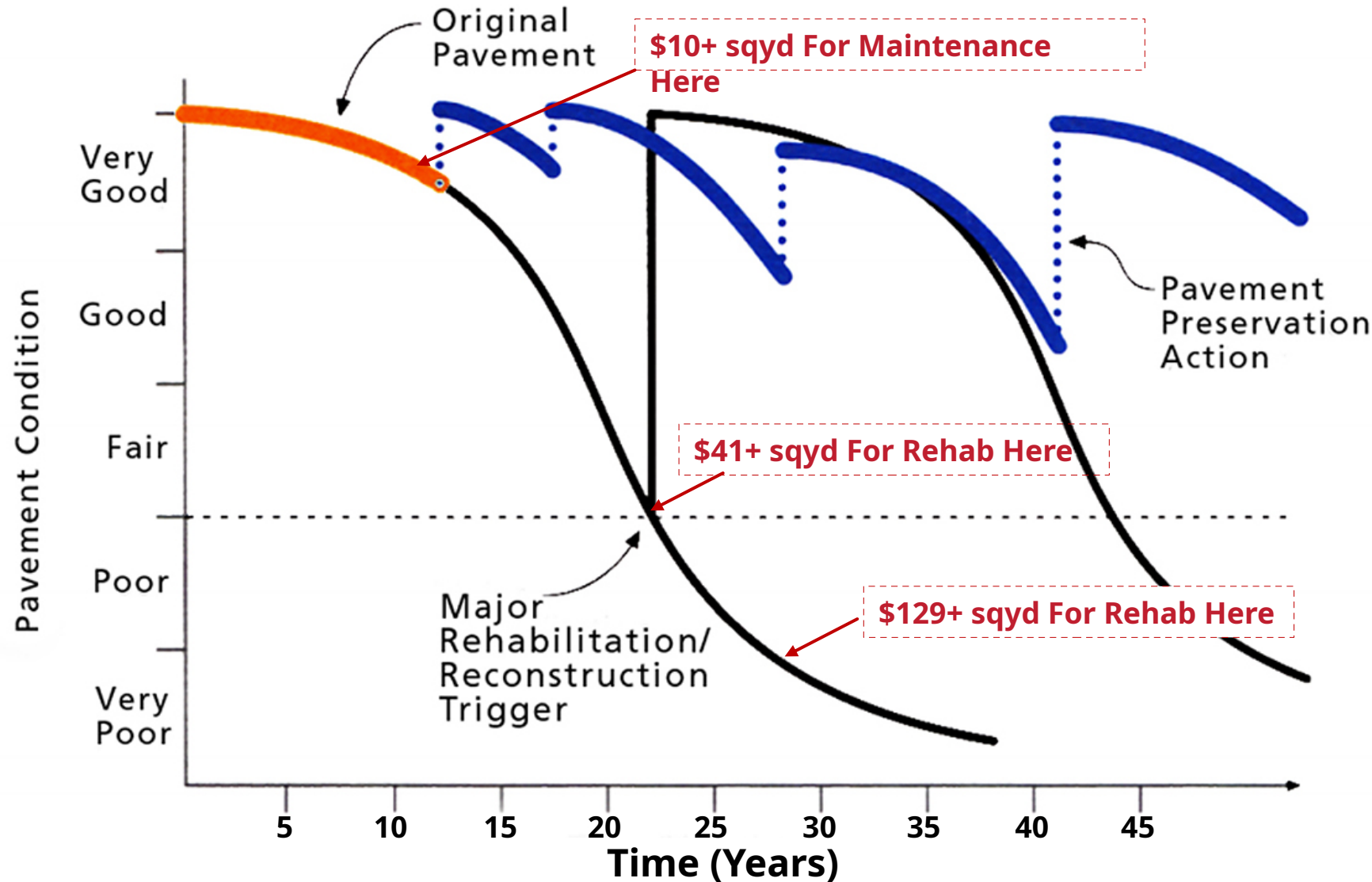


- **Centerline Miles** – Town maintains appx. 290 linear miles of paved roadway
- **Paved Area** – Over 4.46M SQYDS of pavement or enough material to pave a small two-lane road to San Diego California
- **Network Replacement Value** – Over a \$500M Dollar Asset (pavement only)
- **Pavement condition index (PCI)** – score 0 to 100
- **Preservation** – Light weight and cost-effective treatment to extend design life
- **ASTM D 6433** – National guideline for evaluation of pavements

Pavement Condition Index (PCI)	Condition Description
86 – 100	GOOD
71 – 85	SATISFACTORY
56 – 70	FAIR
41 – 55	POOR
26-40	VERY POOR
11-25	SERIOUS
0 – 10	FAILED

System Statistics & Terminology

Purpose of Pavement Management



Benefits of Active Maintenance

- Extend pavement design life at lowest possible cost
- Reduce the cost of roadway ownership
- Improve the level of service over the roadway's life
- Delay costly rehabilitation for as long as possible

Roadway Asset Collection Van

Ladybug 360° Right-of-Way Camera

- Panoramic 360 degree video
- proven Ladybug camera technology
- 32 mega pixel resolution.
- Integrated with onboard DMI to increase relative accuracy
- Processed every 20 feet
- Utilized for asset extraction.

Global Positioning System (GPS)

Laser Crack Measuring System (LCMS-2)

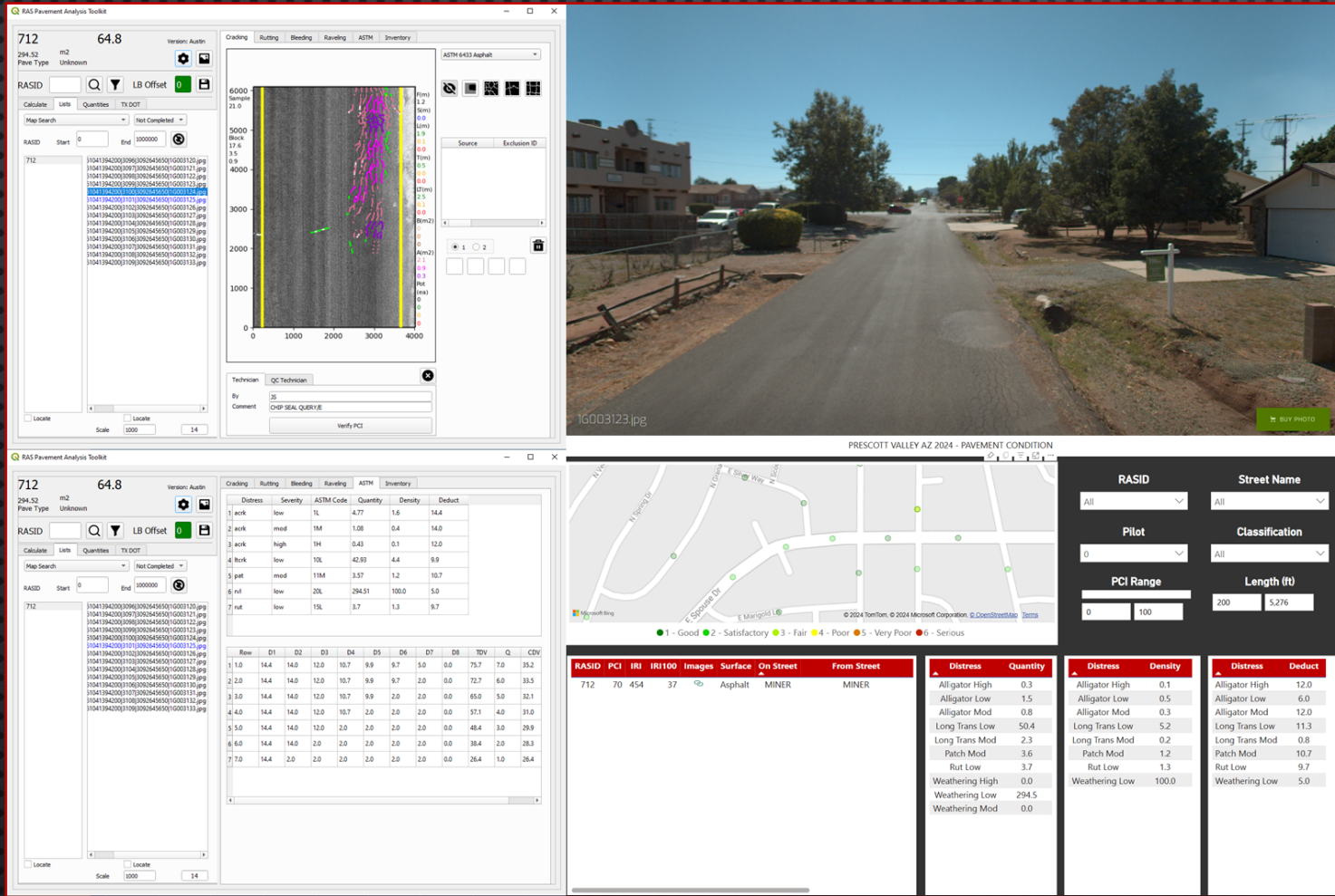
- two 1-millimeter resolution line scan cameras.
- 1mm resolution is equivalent to over 4,000 dedicated laser points.
- 32MP HD imagery
- 100% contiguous survey & processing
- Objective ASTM D6433 assessment

TTI Certified 3-Laser Profiler -Roughness -Rutting

Internal Inertial Measuring Unit (IMU) Distance Measuring Instrument (DMI)

High Quality ROW Images





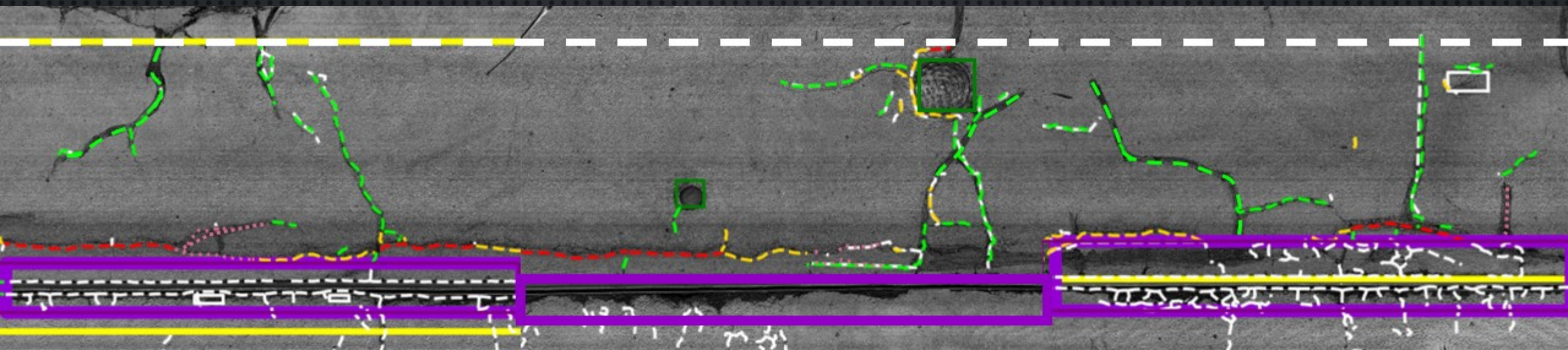
Road TRIP

Technical Rating Intelligence Program

- Sensor processing to detect, classify, and quantify ASTM D6433 distresses
- Detected distresses measured and overlaid on images
- Distresses classified based upon geometry and density algorithm
- GIS coordinates for each distress ties to images for location
- Images available for QC and verification
- Calculated an ASTM D6433 PCI score for every segment of road

Onsite Pilot Field Review

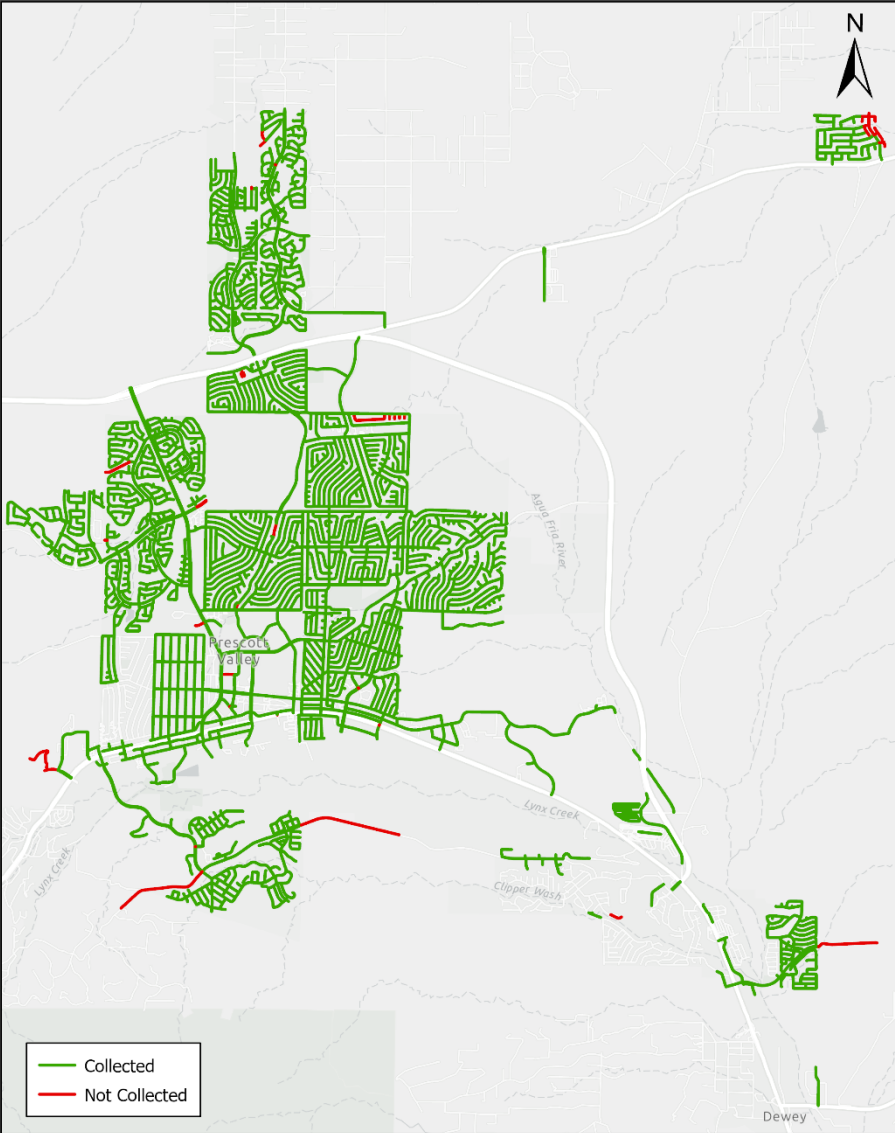
- Perform field visit with Town staff to review pilot data and results
- 100% Linear Survey
- Automated processing evolution
 - Block cracking vs Alligator cracking
- Select Good / Fair / Poor roads for pilot
 - Perform QC on collected data in the field
- Discuss conditions and expectations with Staff



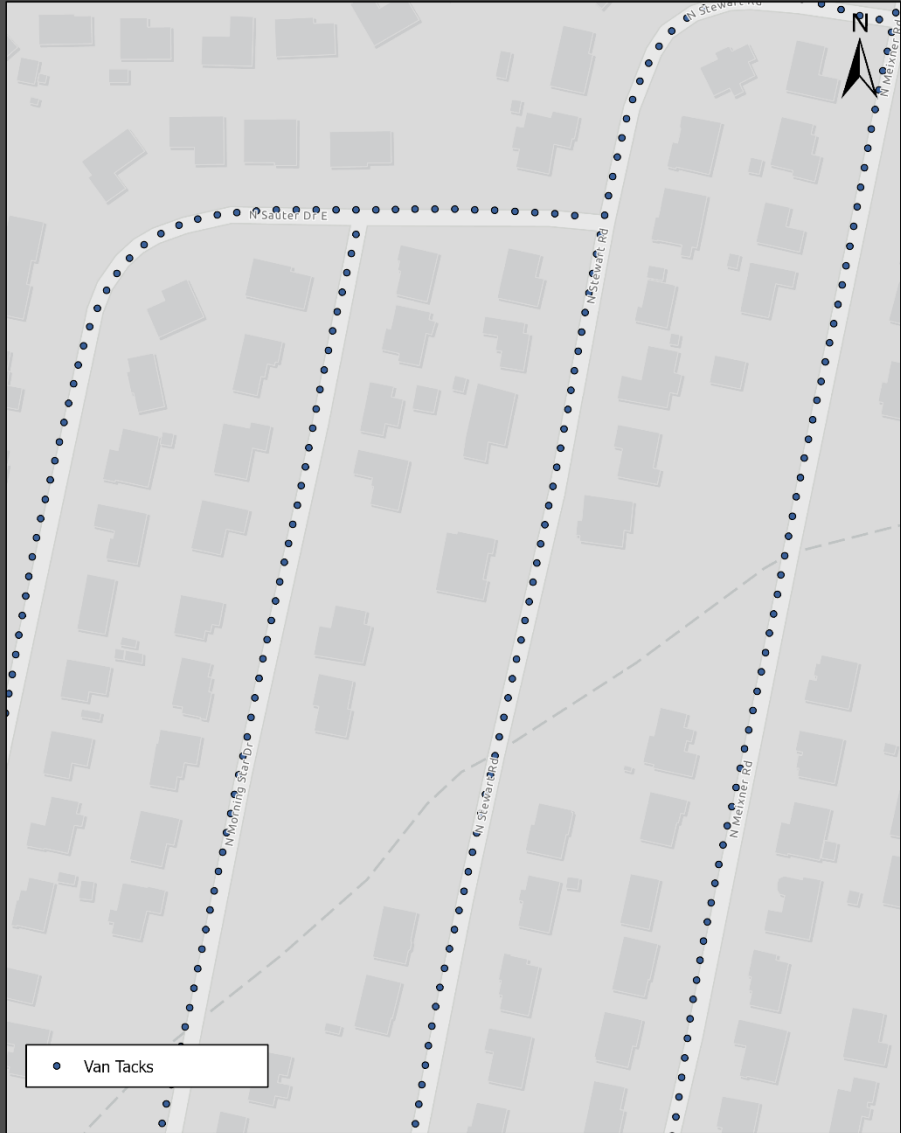
CENTERLINE FILE VERIFICATION



Collection Status | Prescott Valley, AZ



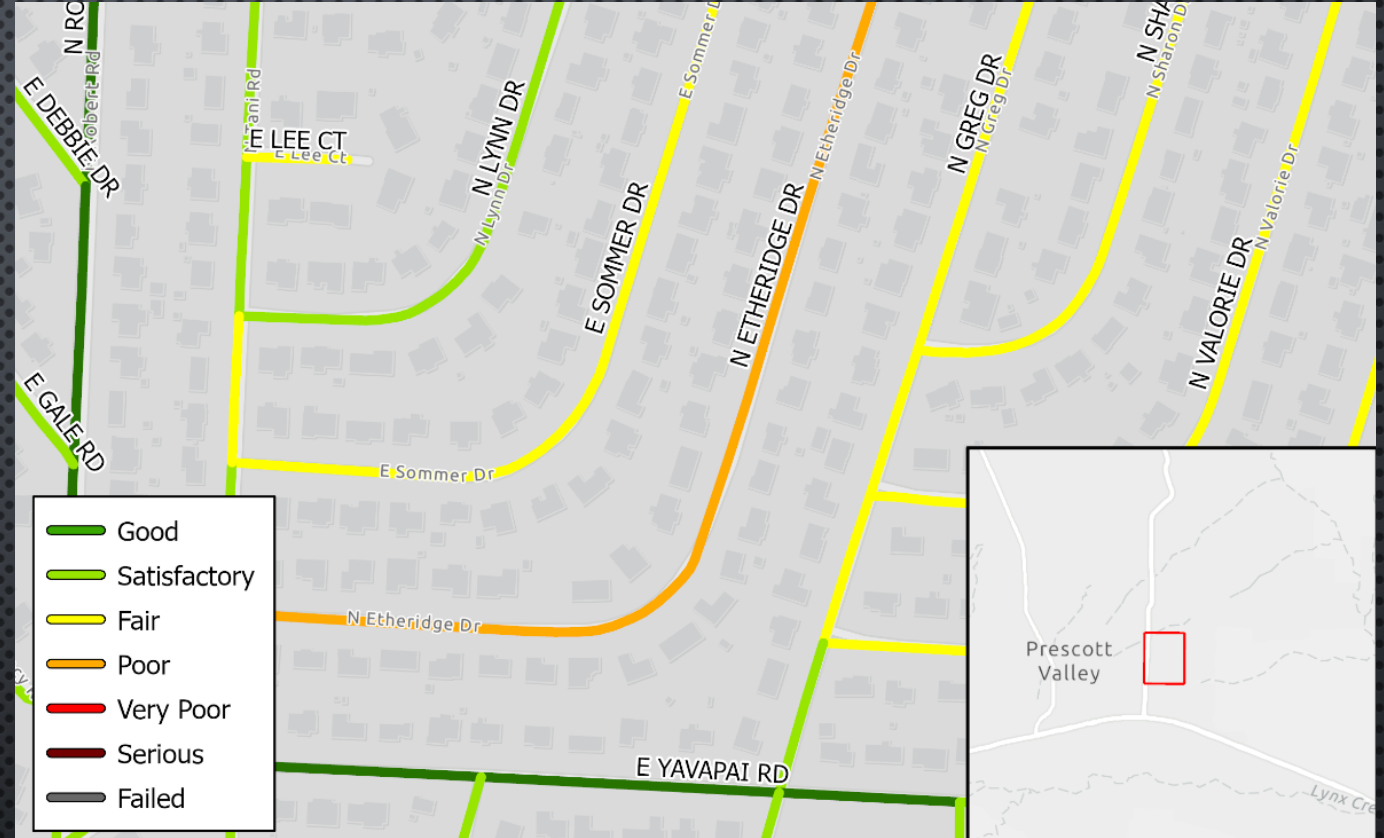
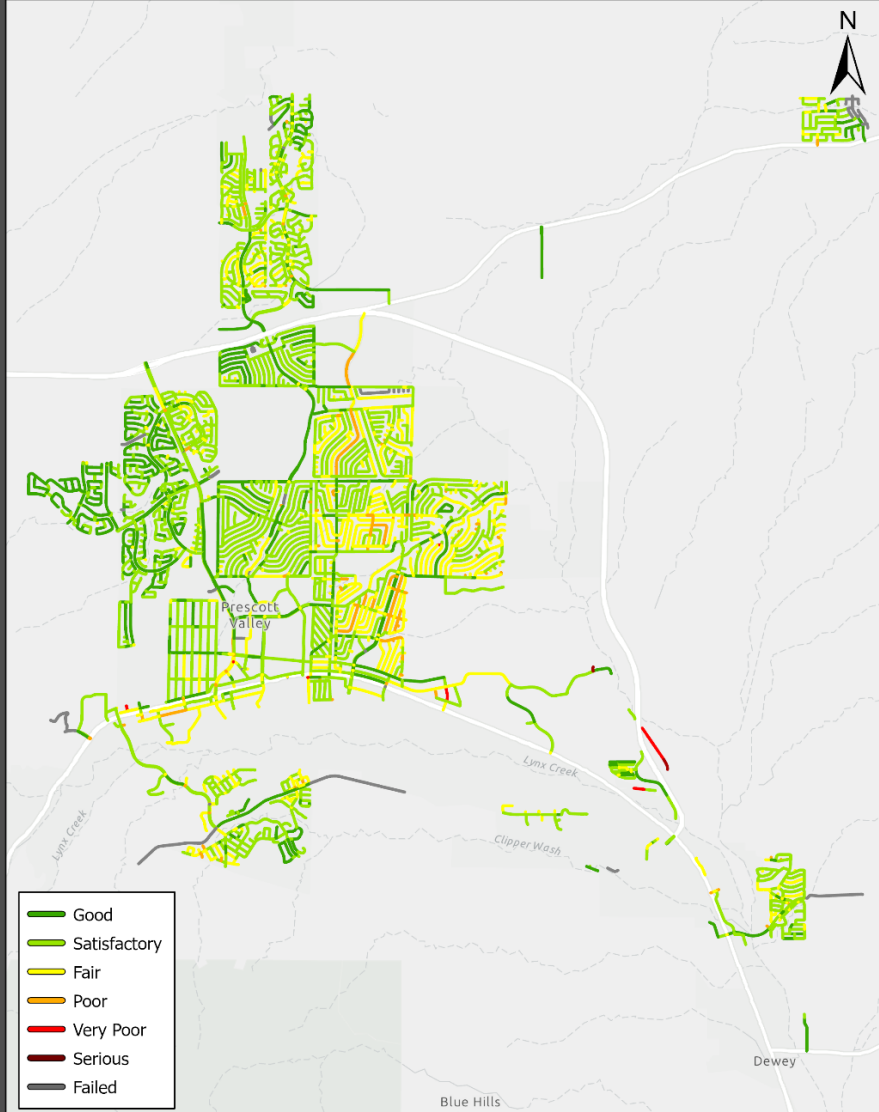
Network Coverage Example | Prescott Valley, AZ



2023 PAVEMENT CONDITION RESULTS



OCI Distribution | Prescott Valley, AZ



Pavement Condition Index (OCI) Range	Condition Description	Total Area Yd2	Total Distance (Centerline Miles)	Percent of Asphalt Miles
86 - 100	Good	1,073,236	62.82	24.05%
71 - 85	Satisfactory	2,441,478	158.56	54.70%
56 - 70	Fair	821,659	54.25	18.41%
41 - 55	Poor	112,966	7.19	2.53%
0- 40	Very Poor	11,602	0.79	0.26%
11-25	Serious	2,505	0.17	0.06%
0-10	Failed	0	0	0.00%
Total of Rated Segments		4,463,446	283.78	100%

2023 Pavement Condition Results



Network Average PCI

The national average we see is a 65-75. Less than 1 in 10 score above a 75 and less than 1 in 20 above an 80



Percent of Good Roads

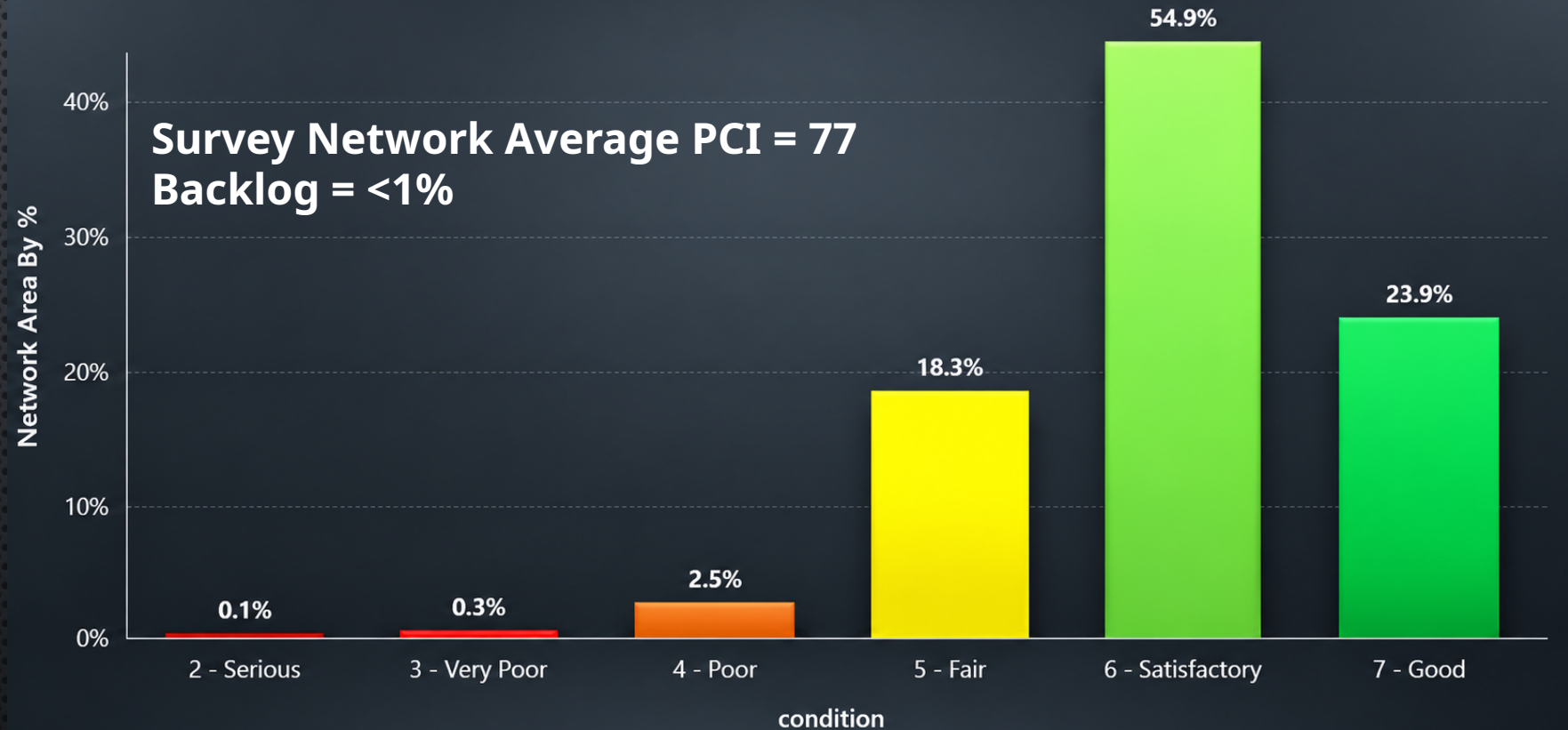
15 - 20% is about the average we see across the nation



Percent of Backlog

These are the Very Poor, Serious, & Failed roads. Less than 10% is ideal and 15% is a maximum recommended mark. 20% and greater is difficult to catch up from

Condition Summary By Category



Forecasted 2026 Pavement Condition Results



Network Average PCI

The national average we see is a 65-75. Less than 1 in 10 score above a 75 and less than 1 in 20 above an 80



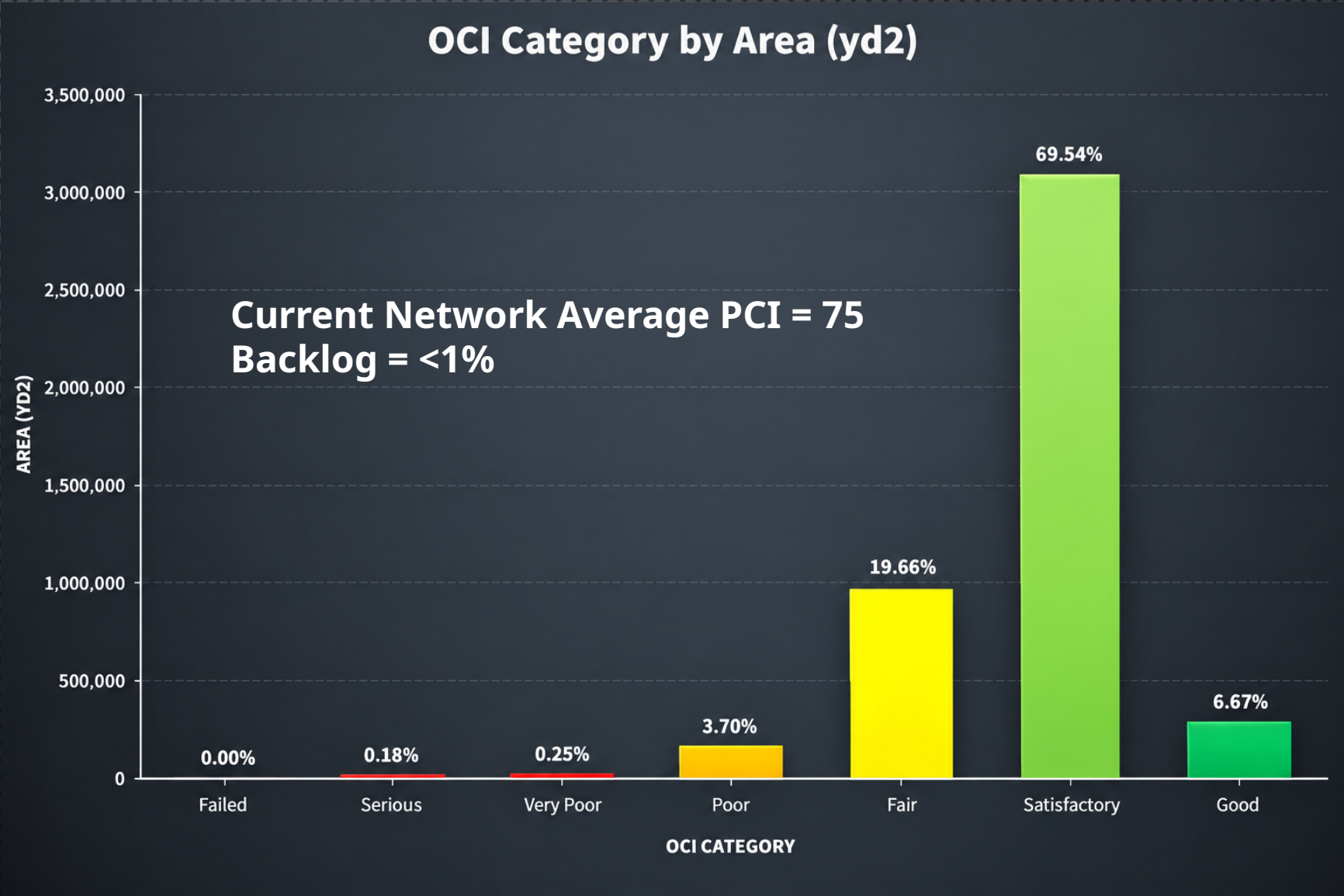
Percent of Good Roads

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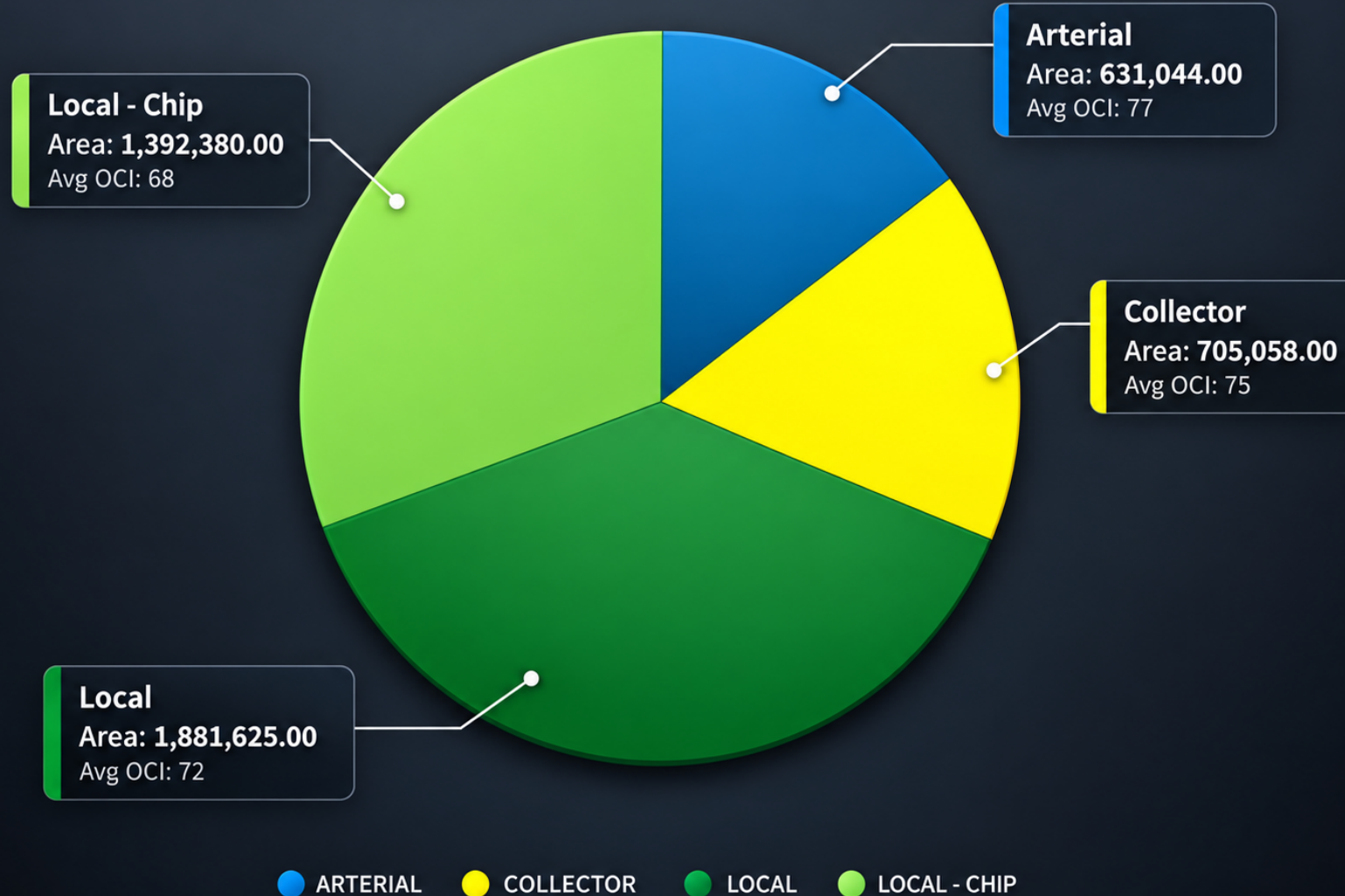
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Types of Roadways in Prescott Valley

Area by Classification and Avg OCI



Programmed Maintenance & Rehabilitation Activities

PAVEMENT TYPE		CLASSIFICATION			STRENGTH		ACTIVE					
Asphalt		ARTERIAL			Asphalt - Strong		All					
Pavement Type	Classification	Strength	Active	Code	Treatment	Min PCI	Critical PCI	Max PCI	\$/yd2	Priority	Reset Type	Reset Value
Asphalt	ARTERIAL	Asphalt - Strong	N	0	Do Nothing	85	88	100	0.00	500	absolute	0
Asphalt	ARTERIAL	Asphalt - Strong	Y	100	Microsurfacing	70	73	85	10.27	300	relative	10
Asphalt	ARTERIAL	Asphalt - Strong	Y	110	Cape Seal + Patching	60	63	70	10.76	200	relative	15
Asphalt	ARTERIAL	Asphalt - Strong	Y	200	Mill & Overlay	40	43	60	42.00	100	absolute	95
Asphalt	ARTERIAL	Asphalt - Strong	Y	300	Full Depth Reconstruction	0	25	40	135.45	400	absolute	99

A few enhancements:

Treat each classification separately

Arterials – Collectors – Locals – Locals w/chip

Preservation activities included (i.e. slurry, Micro, Cape, etc.)

Mill & Overlay and Full Depth Reconstruction included

PAVEMENT TYPE		CLASSIFICATION			STRENGTH		ACTIVE					
Asphalt		LOCAL			Asphalt - Strong		All					
Pavement Type	Classification	Strength	Active	Code	Treatment	Min PCI	Critical PCI	Max PCI	\$/yd2	Priority	Reset Type	Reset Value
Asphalt	LOCAL	Asphalt - Strong	N	0	Do Nothing	85	88	100	0.00	500	relative	0
Asphalt	LOCAL	Asphalt - Strong	Y	101	Microsurfacing + Patching	60	63	70	10.76	200	relative	15
Asphalt	LOCAL	Asphalt - Strong	Y	140	Slurry Seal	70	73	85	10.27	300	relative	10
Asphalt	LOCAL	Asphalt - Strong	Y	200	Mill & Overlay	40	43	60	42.00	100	absolute	95
Asphalt	LOCAL	Asphalt - Strong	Y	300	Full Depth Reconstruction	0	25	40	135.45	400	absolute	99

Why This Road and Not That One???

WHAAAAA?!?!?



Let's define selection criteria commonly used:

Prioritization = Order of Priority
Arrange from highest to lowest

Financial Optimization = Maximum Financial
Benefit
Arrange from maximum to minimum



Prioritization = Order of Priority
Arrange from highest to lowest



CRITICAL – Roads that will drop into a more costly rehabilitation category next year

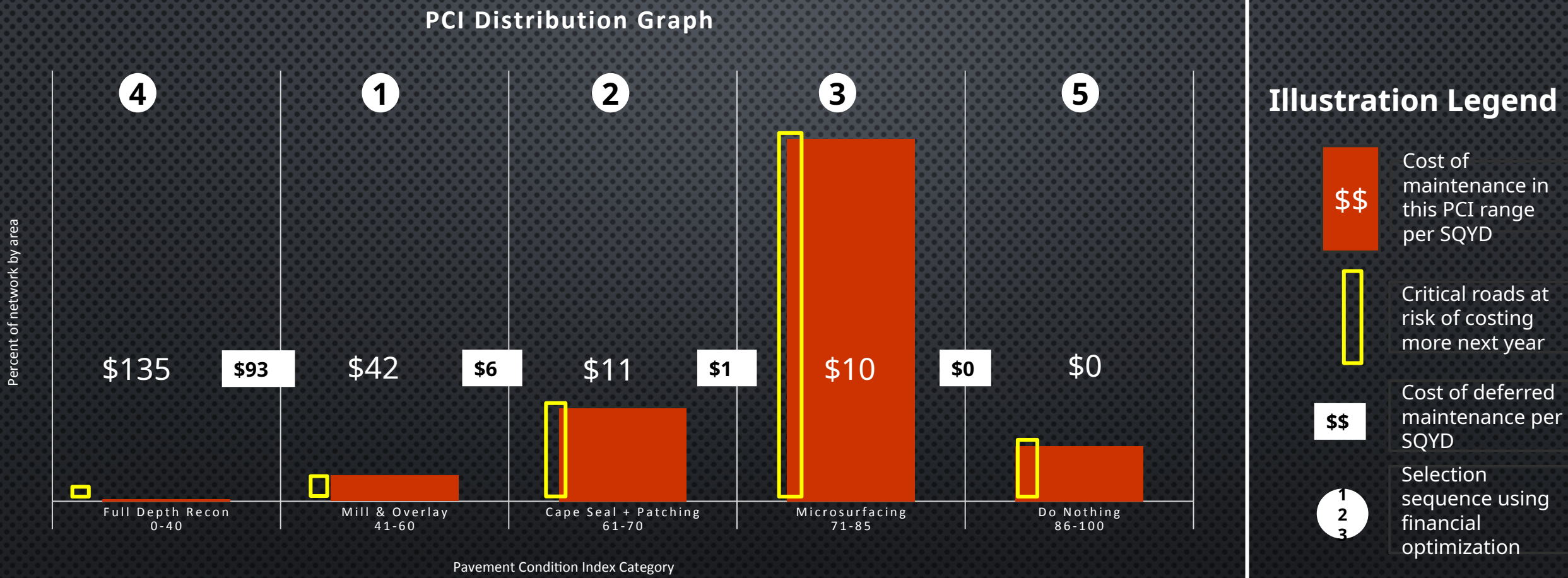
Pavement Type – Asphalt typically a higher priority as it deteriorates more rapidly

Traffic/Classification – Higher volume roadways have higher priority

Strength – Weak roads have a higher priority than strong roads

PCI / Condition – Absolute PCI values are then used as a tie breaker

What Does Cost of Deferral Prioritization Look Like?



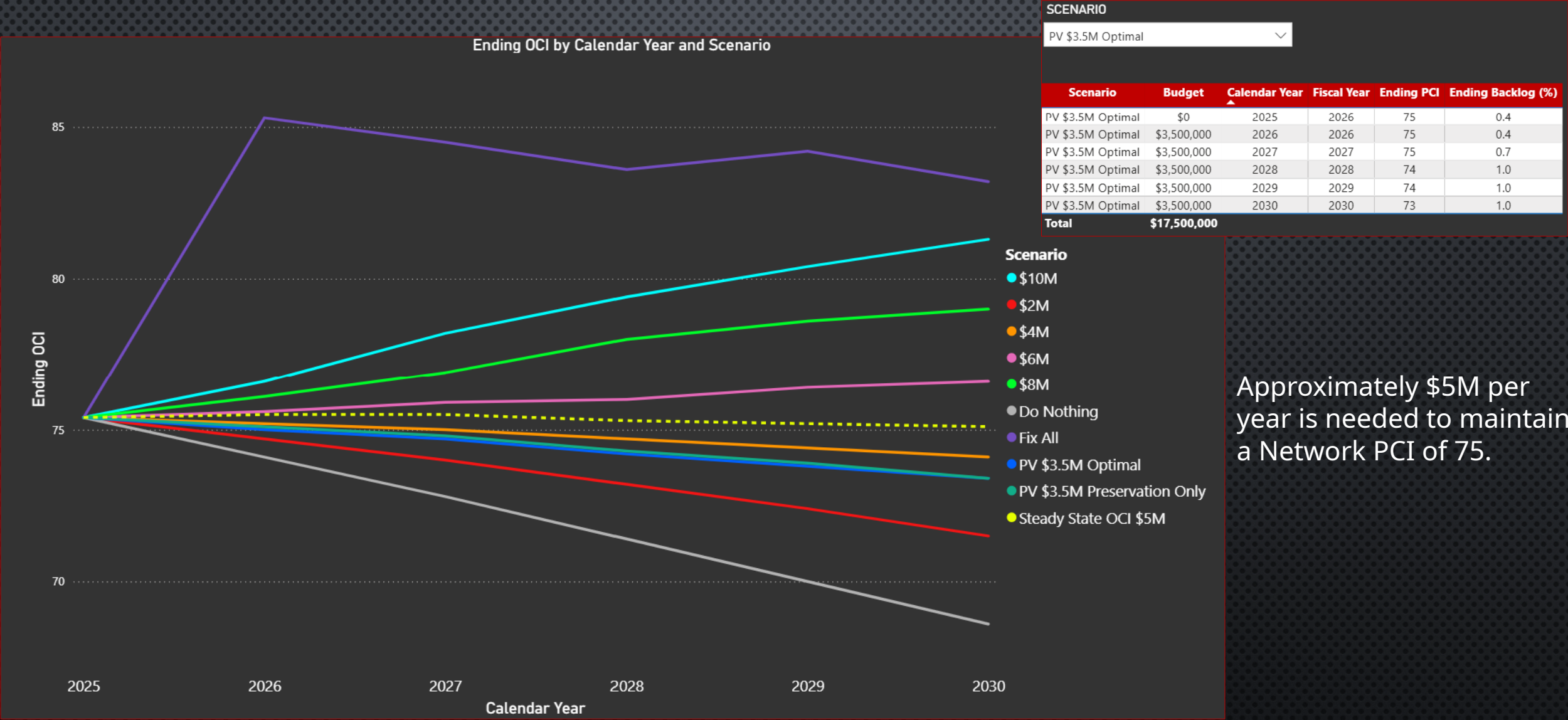
*Sample Illustration Using Rounded Prescott Valley Unit Rates for the Arterial Roadway Network

Unlimited Funding - TODAY'S Needs Of The Network

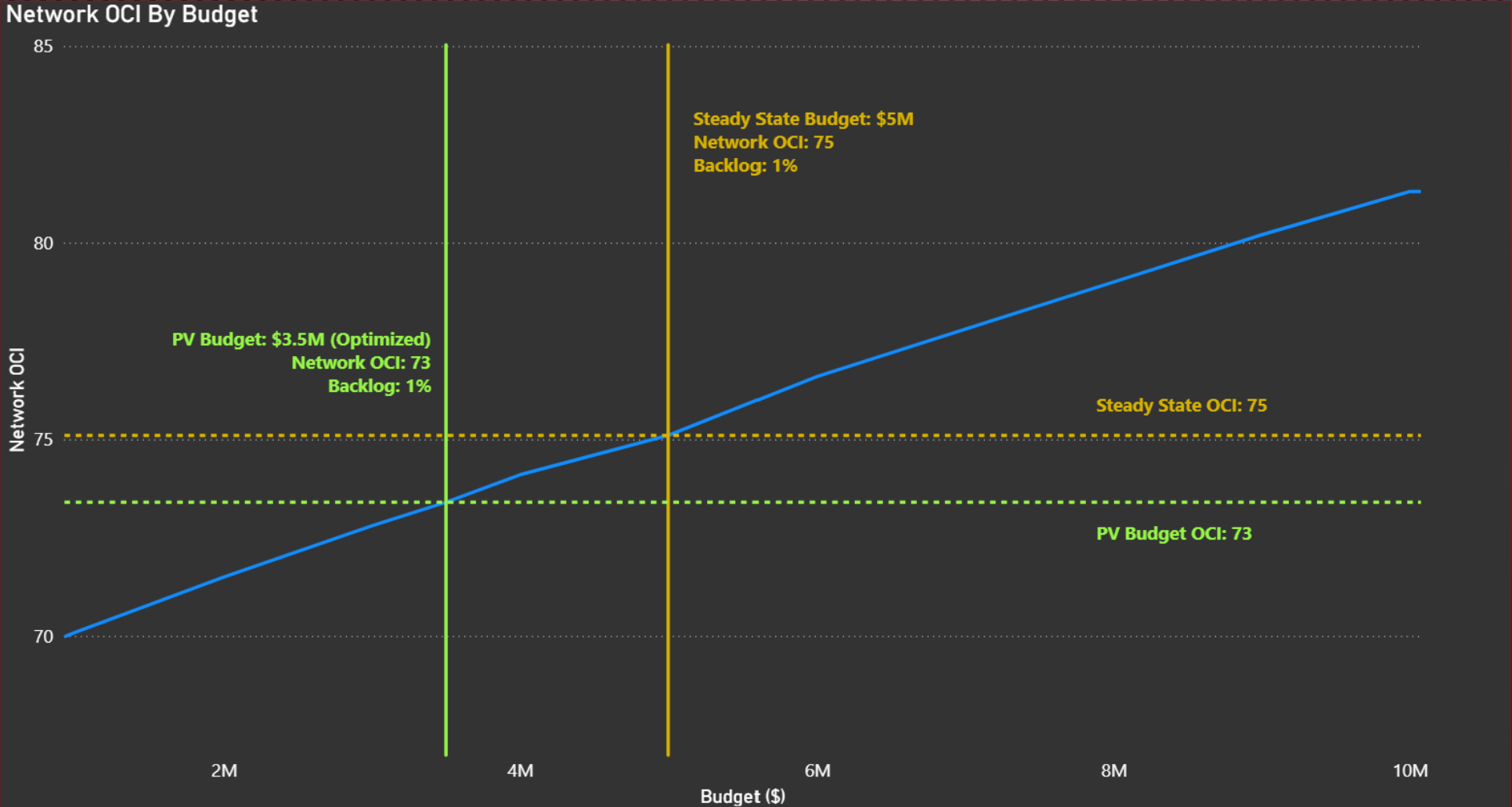
Treatment	Mgt Section Area (yd2)	% of Area	Unit Rate	Treatment Total Cost	% of Total Cost ▼
Slurry Seal	1,255,899	28.14%	10.27	\$12,898,524.30	26.26%
Chip Seal + FOG	818,343	18.33%	9.91	\$8,109,676.01	16.51%
Microsurfacing	677,143	15.17%	10.27	\$6,954,551.94	14.16%
Full Depth Reconstruction	42,127	0.94%	135.45	\$4,556,364.69	9.28%
Chip Seal + FOG + Patching x2	311,917	6.99%	11.27	\$3,515,400.92	7.16%
Microsurfacing + Patching	274,391	6.15%	10.76	\$2,952,428.40	6.01%
Mill & Overlay + Patching x1	54,402	1.22%	43.00	\$2,339,329.50	4.76%
Chip Seal + FOG + Patching x1	188,548	4.22%	10.91	\$2,013,139.62	4.10%
Microsurfacing + Patching x1	151,504	3.39%	11.76	\$1,734,933.87	3.53%
Mill & Overlay + Patching x2	28,335	0.63%	44.00	\$1,246,698.20	2.54%
Cape Seal + Patching x1	99,127	2.22%	11.76	\$1,165,757.14	2.37%
Mill & Overlay	13,583	0.30%	42.00	\$570,526.96	1.16%
Slurry Seal + Patching x1	36,763	0.82%	11.27	\$414,379.98	0.84%
Chip Seal + FOG + Patching x3	31,350	0.70%	12.27	\$384,690.65	0.78%
Cape Seal + Patching	23,189	0.52%	10.76	\$249,488.43	0.51%
Microsurfacing + Patching x2	1,025	0.02%	12.27	\$12,588.89	0.03%
Do Nothing	455,800	10.21%	0.00	\$0.00	0.00%
Total	4,463,446	100.00%		\$49,118,479.48	100.00%

Budget Requirements & Needs

Town Budget = \$3.5M (pavements only)



Budget Requirements & Needs...



Pavements Only

\$5M is for pavements only and does not include:

- Utility paving
- Future bonds
- Growth
- Drainage concerns
- Additional width
- Signage, striping, etc.

QUESTIONS

