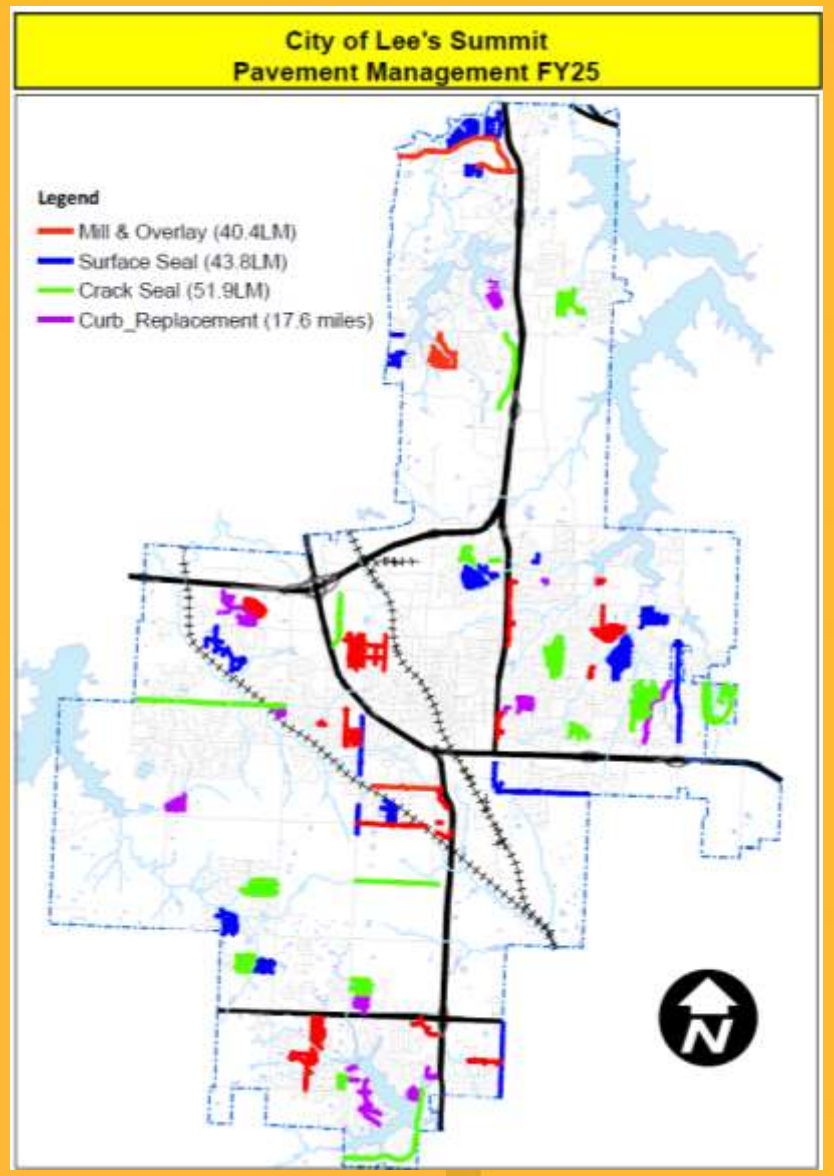
Pavement Management Program

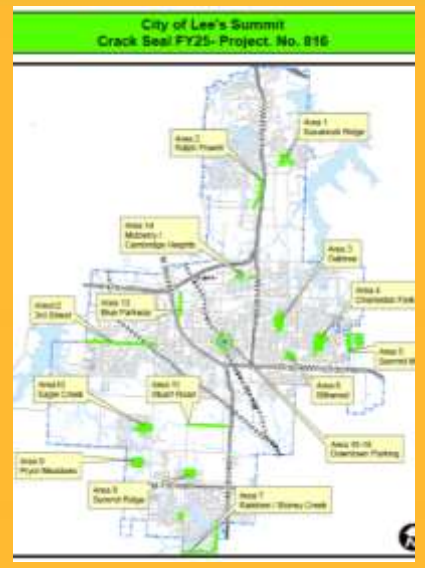
Public Works Committee

March 10, 2025

Vince Schmoeger, Public Works Project Manager

"Keeping Good Streets Good"





Pavement Management

- Systematic philosophy to keep good pavements in good condition.
- Pavements should be managed, not simply maintained.
- Re-construction costs 10 (plus) times the cost to perform annual maintenance
- FY2025 Pavement Management Program budget $9M for the 4 main programs
  - Mill & Overlay 40.4 lane miles; ($4.5M; $111.4K/LM)
  - Surface Seal 43.8 lane miles; ($1.4M; $32K/LM)
  - Crack Seal 51.9 Lane Miles; ($297K; $5,700/LM)
  - Curb Replacement 17.6 miles ($2.8M; $159K/mile)

Statistics

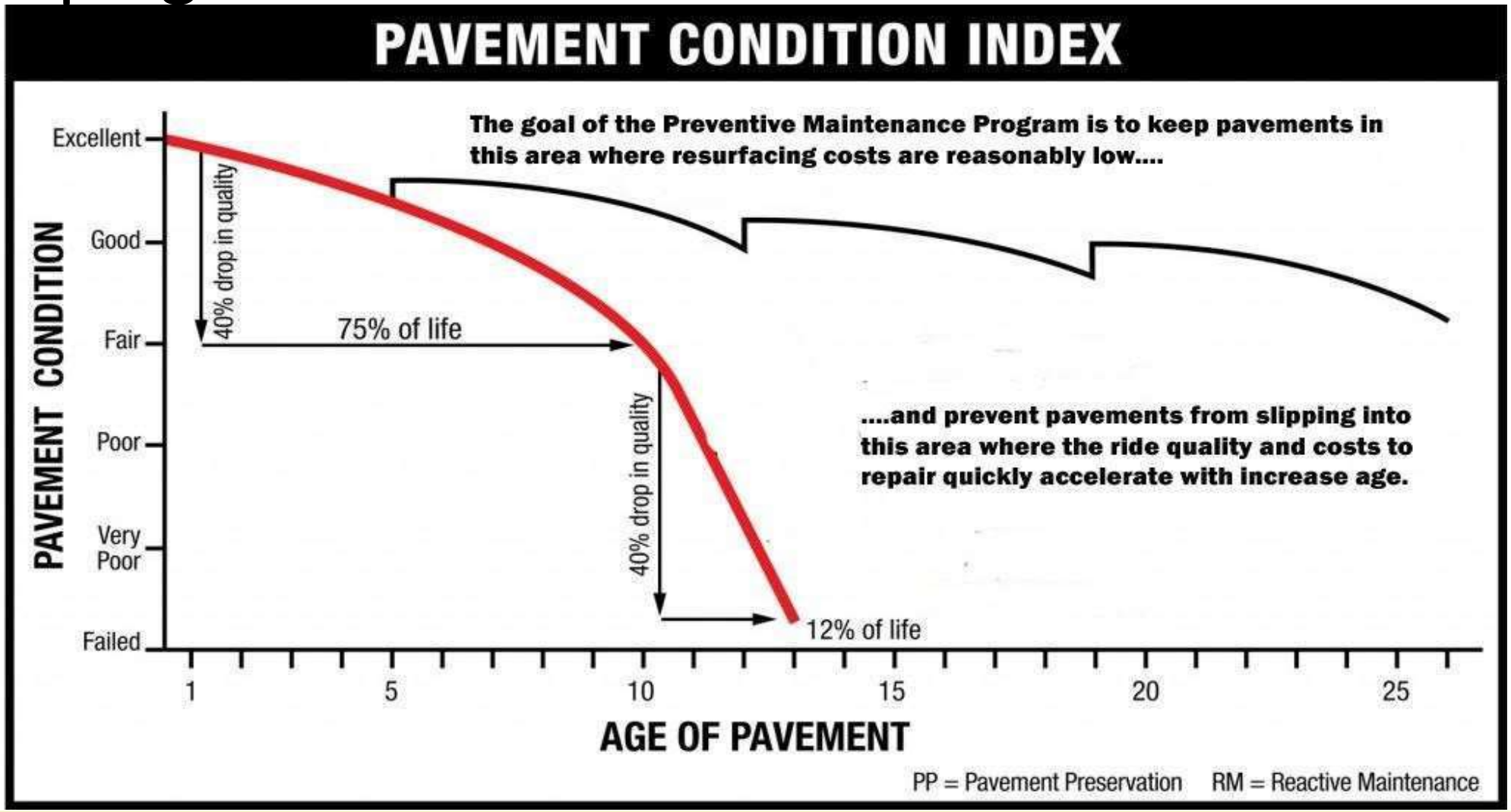
		Lane Miles	Sections
Asphalt	Streets	1,046	5302
	Alleys	1	14
Concrete	Streets	66.5	192
	Alleys	0.13	4
Gravel	Street	.5	1
	Alley	1.6	18
		1,115.73	5,531

Funding the Pavement Management Programs

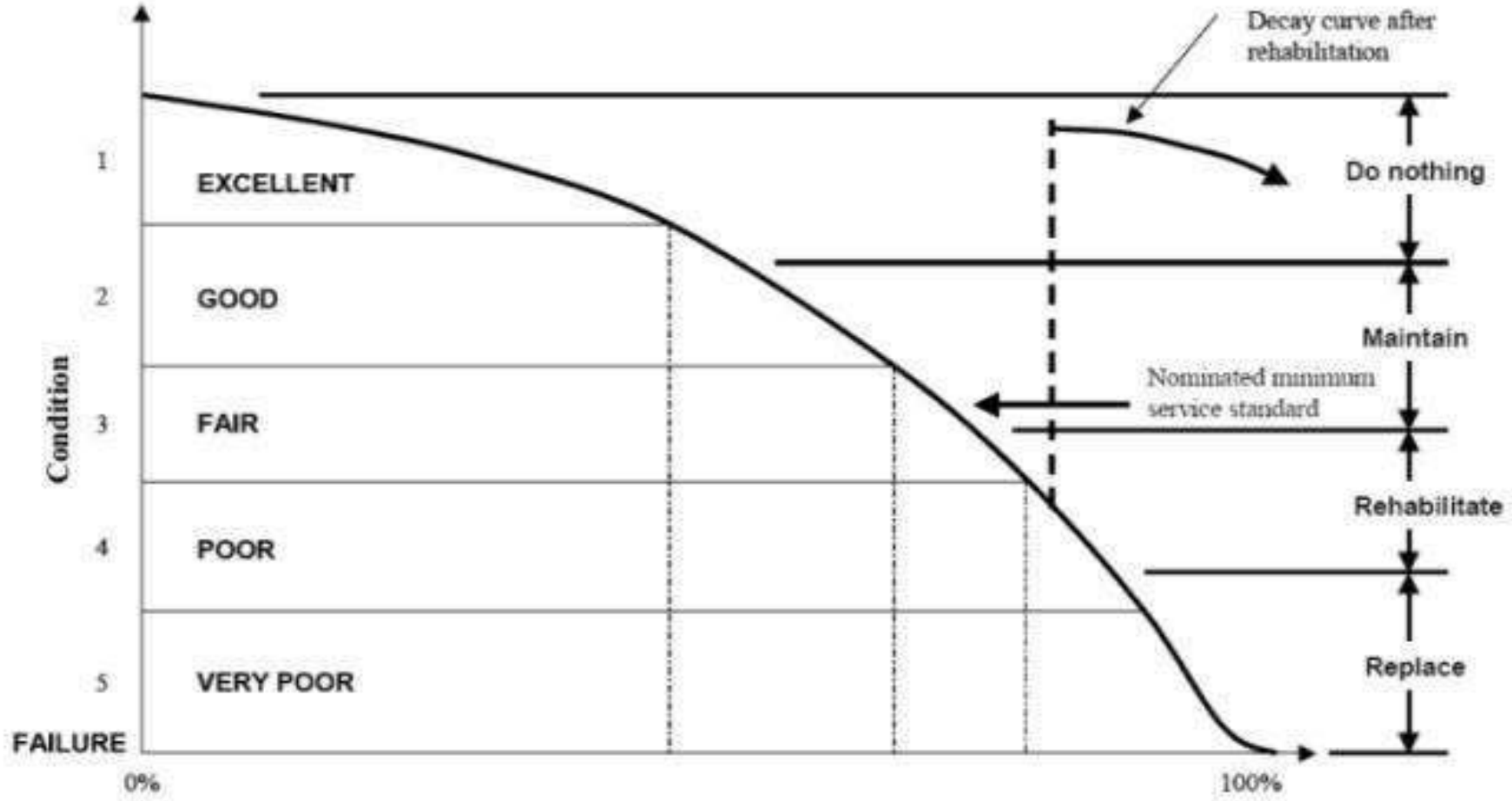
- The permanent ½ cent Transportation Sales Tax: $9M per year
- Current augmentation form 15-year CIP Sales Tax
  - $5M for curb over 15 years
  - Some curb included in various CIP Projects
  - $5M from the April 2023 No Tax Increase Bond Issue

- PW Operations
  - $204K small pieces of curb replacement (contracted)
  - $236K pothole patching
  - $1.04M larger street repairs (patching)

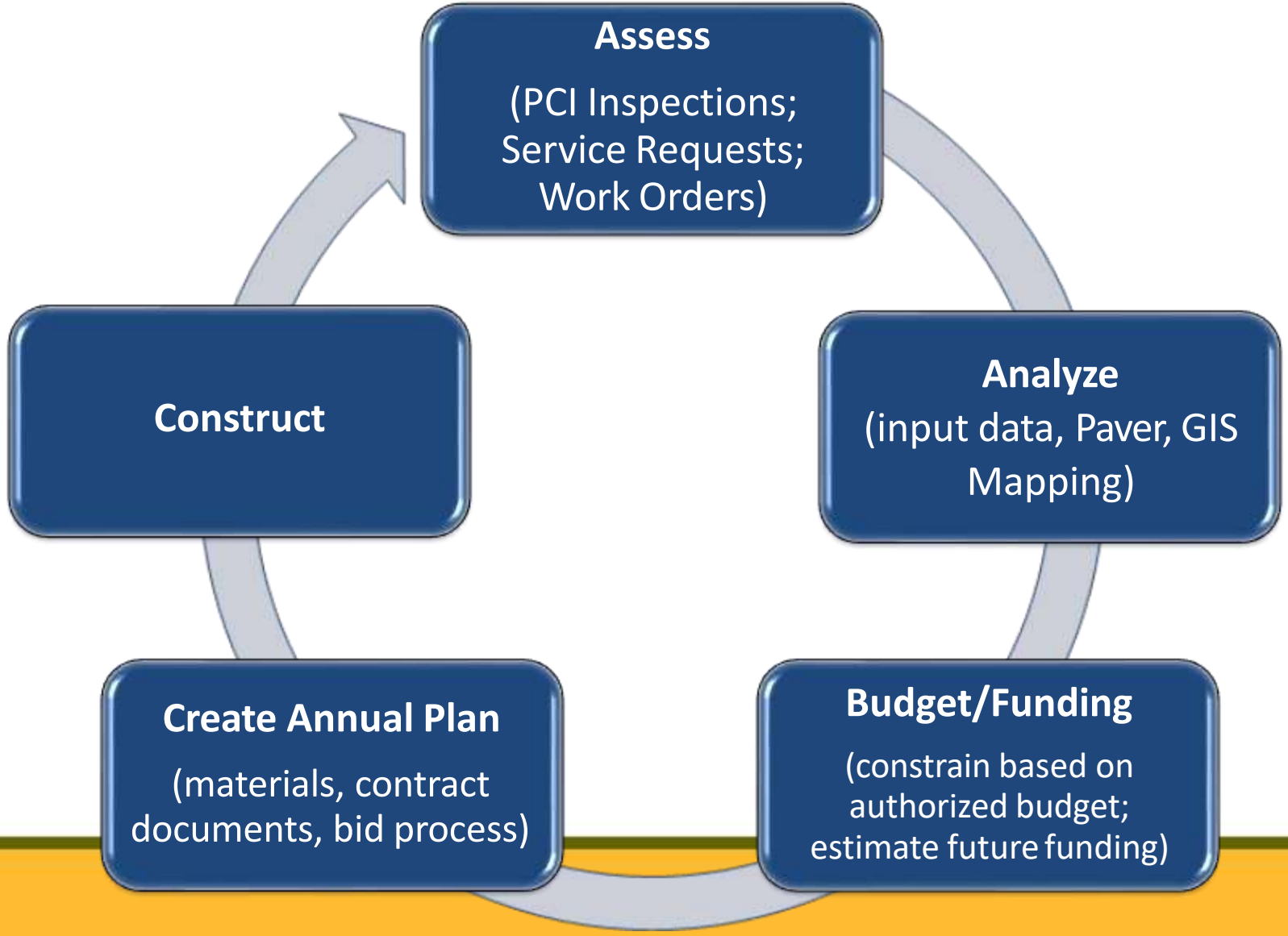
Keeping the Good Pavements in Good Condition



Goal: Right Treatment at the Right Time

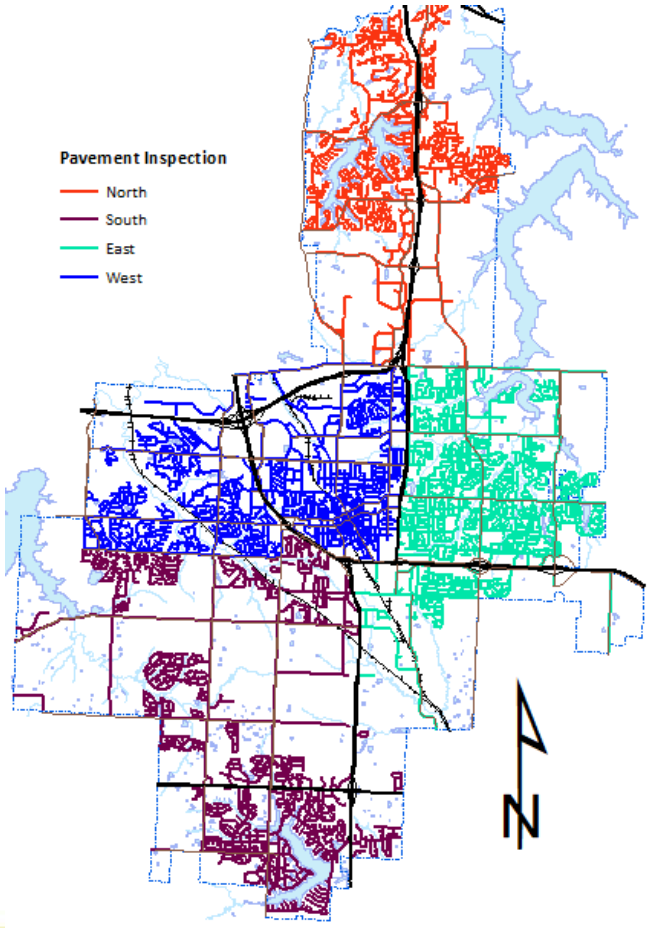


Pavement Management Cycle



PCI Based on Pavement Inspections

Pavements are on a 4-year rotating inspection schedule



Defects
Block Cracking
Fatigue Cracking
Joint Cracking
Patching
Potholes
Raveling
Rutting
Bumps/Sags

What happens after a street inspection?

- The inspection information is downloaded to the PAVER pavement management system to quantify pavement inspections

- PAVER then generates a condition number known as the Pavement Condition Index (PCI) on scale of zero to 100
    - Zero (very bad)
    - 100 (excellent/new)

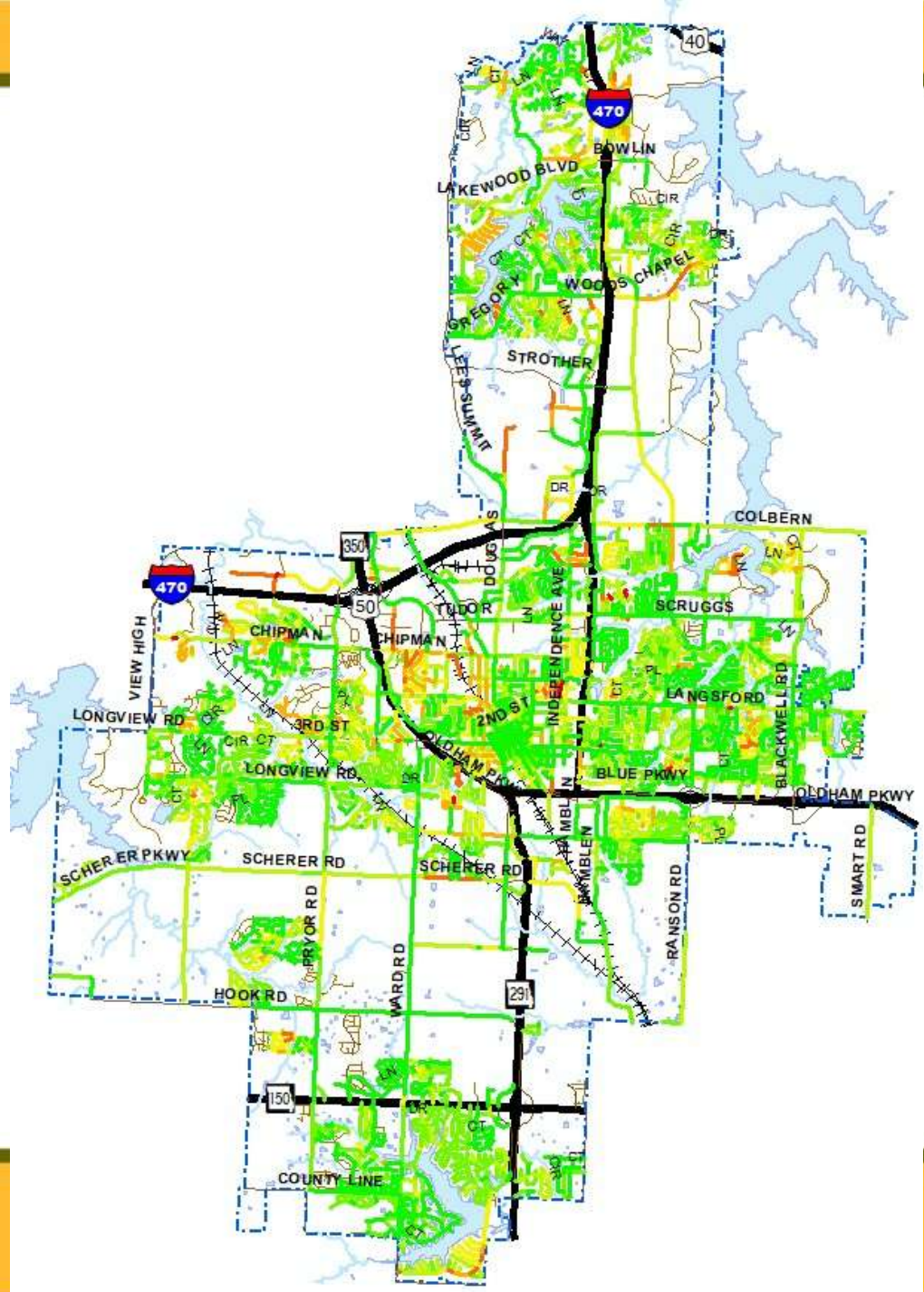
PCI Rating Scale

Red = Poor/Very Poor condition

Yellow = Fair condition

Green = Good/Excellent condition

PAVER (PCI)	Pavement Condition	Corrective Action
24 and Below	Very Poor	Overlay – Consider Rebuild
25 - 59	Poor	Overlay
60 - 74	Fair	Surface Seal/Overlay
75 - 89	Good	Surface Seal/Crack Seal
90 and Above	Excellent	Very Unlikely/Crack Seal



PCI

- 0 - 10
- 11 - 25
- 26 - 40
- 41 - 55
- 56 - 70
- 71 - 85
- 86 - 100

LS Paving History

1992 Approval of first Design and Construction Manual

- Previous construction on approval basis
- Heavy involvement/influence form the Development Community
- Road design based on 20-year design life (actual life closer to 10 years)
- Asphalt pavement placed on clay soil subgrade

2006 Curb material update

- Changed limestone aggregate to durable aggregate

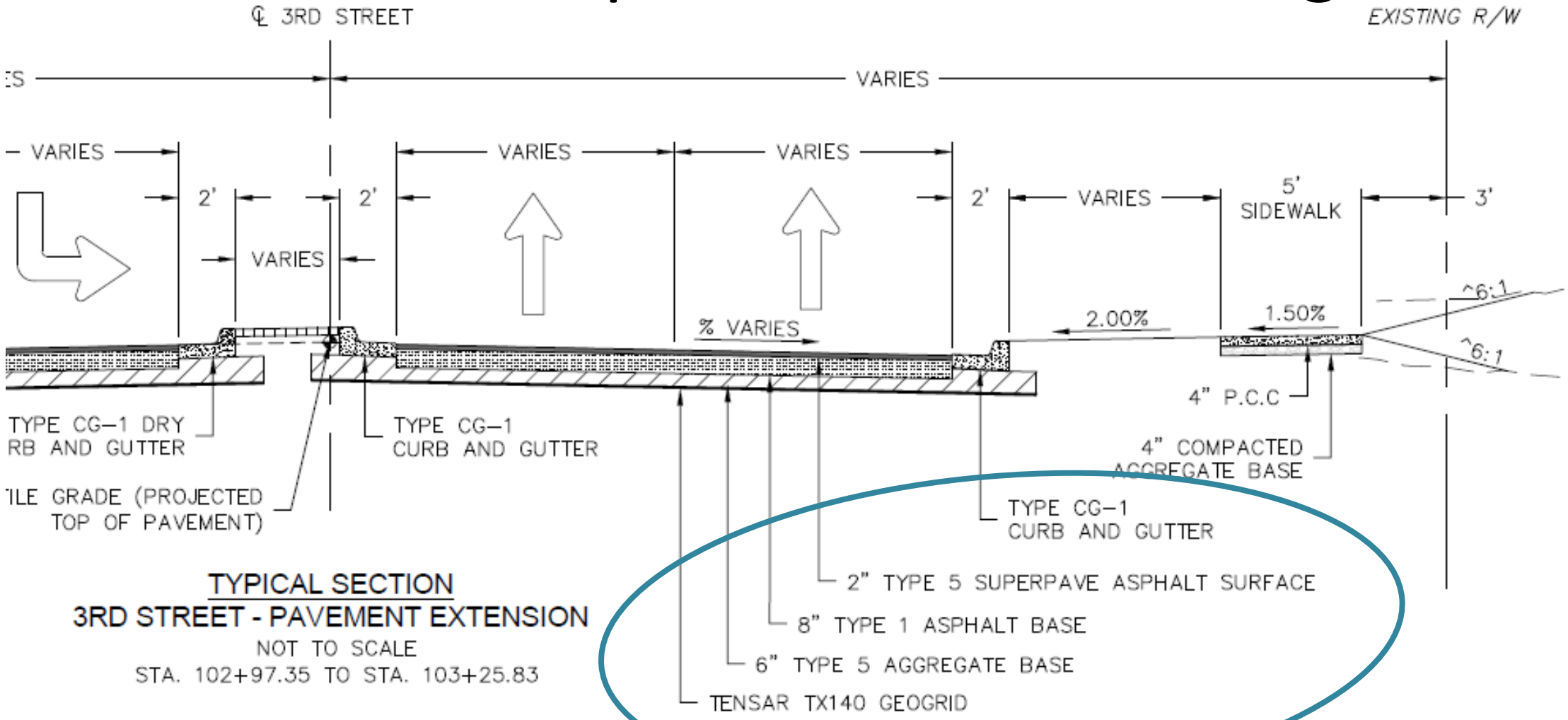
2011 Update road design criteria to 35-year lifespan

- 35-year design life
- Required stabilized subgrade (mechanical or chemical)
- Higher quality asphalt oil, aggregate, and mix design criteria

2023 Updated asphalt to a Superpave mix designs

- Upgraded asphalt requirements to better aggregate and quality of oil

3rd Street Asphalt Pavement Design



TYPICAL SECTION
3RD STREET - PAVEMENT EXTENSION
NOT TO SCALE
STA. 102+97.35 TO STA. 103+25.83

the Plan

- Improved initial construction materials and pavement sections
  - Updated Material is KCMMB A2 (better aggregate and oil)
  - Mill & fill construction on main roads: requires confined edges for better compaction
- To take advantage of economics of scale
  - Residential projects streets are usually grouped by areas
  - Arterial roads usually planned as standalone areas
  - Goal is consistent surface and maintenance cycles.
- Typically, the curb and overlay projects are stacked
  - Curb replacement in the fall
  - Overlay follows curb replacement next summer
- Crack Seal: Usually installed 7-9 years after new construction; 4-6 years after an overlay
- Surface Seal 3-5 years following crack seal

PMP Program Descriptions

- Curb Replacement
- Mill & Overlay
- Crack Seal
- Surface Seal

Curb Replacement

- Average $159,000/mile of curb
- Replaces damaged & deteriorated curb ahead of Overlay
- Sidewalk ramps are reconstructed to current ADA specifications

Construction

Mill & Overlay

- Average $111,400/ lane mile
- Remove top 2” of street surface
  - – make repairs to base (patching)
  - – replace asphalt
- Restore road close to initial construction
- Improved ride quality

Mill and Overlay Construction

Crack Seal

- Average $5,700/ lane mile
- Cracks blown out & refilled with rubberized asphalt
- Seals water from subgrade: Slows pothole formation
- Not Pretty
- 3 to 4 years following overlay
- 6 to 9 years following new construction

Construction

Surface Seal

- Average $32,000/LM
- Add 1/4”- 3/8” asphalt/polymer/aggregate slurry material to the road surface
- Does not add structural strength to pavement
- Protects Asphalt from UV degradation
- Does not improve ride quality
- Cracks sealed, but visible
- Streets closed for ~4 hours

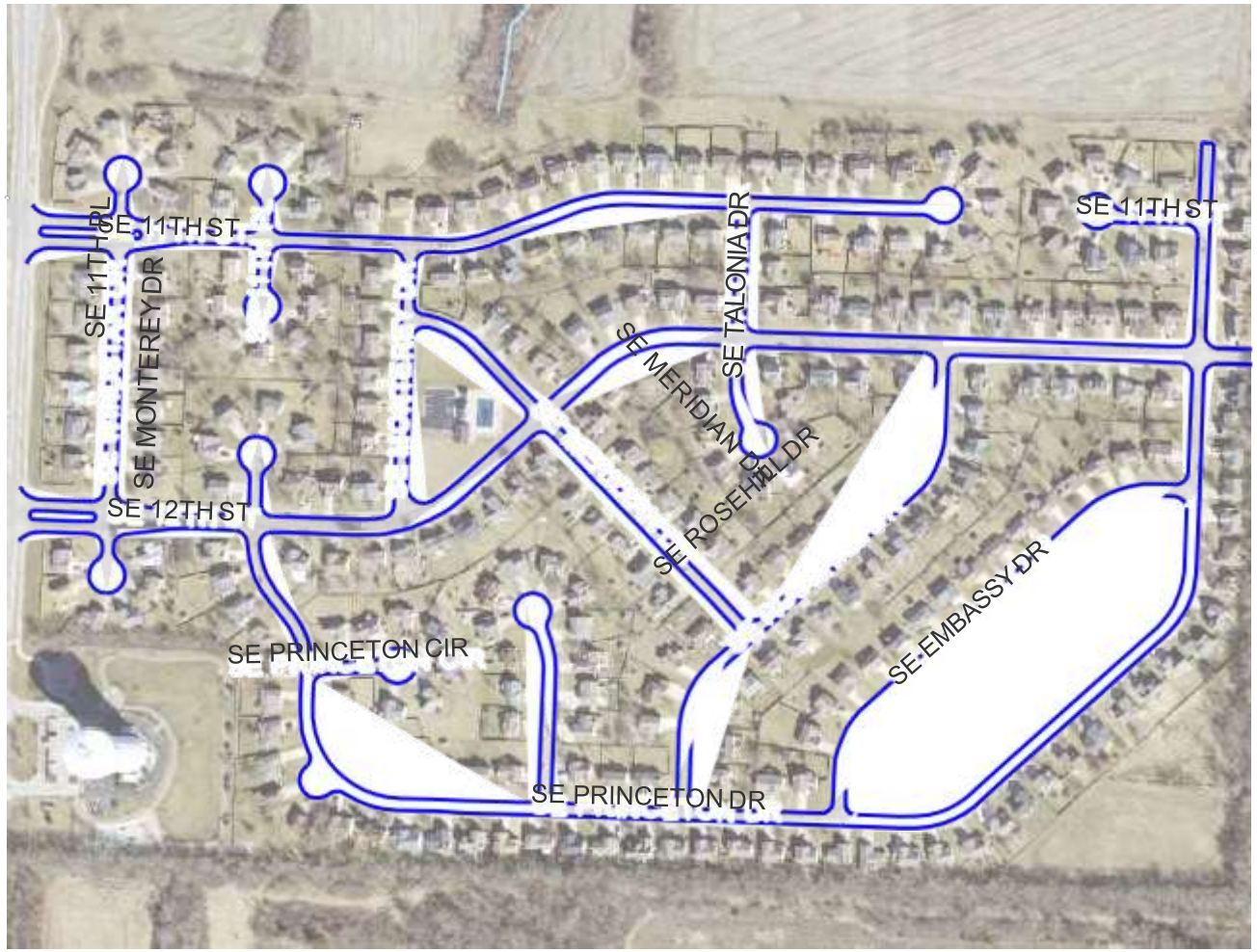
Micro Surfacing Construction

Project:
Princeton Heights

- SE 50Hwy & Ranson Road
- 308 Homes
- 5.43 Road Lane Miles
- 5.44 Curb Miles

- Curb - $ 864,960
- <u>Overlay - $ 604,902</u>
- Total… $1,424,250

- Surface Seal - $173,760
- Crack Seal - $30,951



Vince Schmoeger,

Public Works Project Manager

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Yours Truly