



2026 · PAVEMENT MANAGEMENT PLAN

---

# Final Project Report.

Putnam County

---

PREPARED BY

PAVEMENT  
MANAGEMENT  
GROUP

PREPARED FOR

PUTNAM COUNTY

STANDARD

ASTM D6433

DATE

MARCH 2026

---

MARCH 2026

# Letter of Transmittal

## Putnam County

To the Honorable County Executive and Members of the County Legislature,

Pavement Management Group is pleased to submit the attached **Final Project Report** for the 2026 pavement condition assessment of your roadway network. The study was conducted in strict accordance with **ASTM D6433**, the federally recognised standard for measuring the Pavement Condition Index (PCI) of asphalt and concrete pavements.

Across **117 centerline miles** and **228 lane miles** of pavement, we inspected **112 individual road sections**, captured all 19 ASTM distress types at segment level, and validated every score through our certified pavement engineers. The network produced an **average PCI of 73** — a *Good* rating overall, and a solid foundation on which to build a multi-year preservation program.

The central finding of this report is the opportunity now sitting in your *Fair*-condition network: roughly **31.5% of lane miles** are at the lifecycle tipping point where a small preservation investment today prevents a 400–500% cost increase later. Chapter 5 lays out the deferral math in detail.

All supporting inventory and segment-level condition data are available through the [RoadINsights™ dashboard](#) included with this engagement, so staff and council can drill into any street, any score, at any time.

We are grateful for the opportunity to support the Putnam County and remain available for follow-up analysis, grant documentation, or a formal council presentation at your request.

*James Golden III*

---

Founder & CEO · Pavement Management Group

# Contents

<b>1</b>	<b>Executive Summary</b>	<b>02</b>
1.1	Current Risk and Exposure <i>(Table A)</i>	02
<b>2</b>	<b>Methodology and Condition Framework</b>	<b>03</b>
2.1	The ASTM D6433 Standard	03
2.2	Pavement Condition Index <i>(Table B)</i>	03
2.3	Quality Assurance <i>(Table C)</i>	04
2.4	Pavement Distress Definition	05
<b>3</b>	<b>Roadway Condition Results</b>	<b>06</b>
3.1	Network Condition Summary <i>(Table D)</i>	06
3.2	Condition by Surface Type <i>(Table F)</i>	07
<b>4</b>	<b>RoadINsights™ Dashboard</b> <i>(online deliverable)</i>	<b>10</b>
<b>5</b>	<b>Closing Statement and Next Steps</b>	<b>13</b>

## ABOUT THIS REPORT

This document is structured for both executive review and engineering use. Chapter 1 provides a one-page picture for elected officials; Chapters 2–3 document the methodology and raw condition results; Chapter 4 is your online RoadINsights™ dashboard where all condition data lives; Chapter 5 outlines recommended next steps.

# 1 Executive Summary

The Putnam County maintains approximately **117 centerline miles** and **228 lane miles** of roadway pavement — the jurisdiction's largest physical asset, with an estimated replacement value of **\$188.1 million**.

The Pavement Management Program (PMP) provides a transparent, data-driven framework to govern this significant investment, manage long-term risk, and make informed funding decisions. Based on the 2026 pavement condition assessment, conducted in accordance with **ASTM D6433**, the network has an overall **average PCI of 73** on a scale from 0 (Failed) to 100 (Excellent), placing it in **Good** condition.



## 1.1

### Current Risk and Exposure

TABLE A Network Condition Executive Summary

CONDITION CATEGORY	% OF NETWORK	LANE MILES	STRATEGIC MEANING
● EXCELLENT / GOOD	62.6%	143	Assets to protect — maintain with low-cost treatments
● FAIR	31.5%	72	At preservation decision point — act now before costs escalate
● POOR / FAILED	5.9%	13	High-cost backlog — structural intervention required

#### THE CORE FINDING

While the overall score is positive, it masks a critical strategic risk: approximately **31.5% of the network** currently sits in *Fair* condition. These roads are at a lifecycle tipping point where immediate, low-cost preservation can prevent a **400–500% increase** in future repair costs.

## 2 Methodology and Condition Framework

### 2.1

#### The ASTM D6433 Standard

PMG conducts all pavement condition assessments in strict accordance with **ASTM D6433**, the nationally recognised standard for rating the surface condition of asphalt pavements. ASTM D6433 is adopted by municipal, county, state, and federal agencies across the United States as the authoritative methodology for pavement condition rating.

### 2.2

#### Pavement Condition Index

The Pavement Condition Index (PCI) is a numerical rating from 0 to 100, where 100 represents a pavement in perfect condition and 0 represents complete failure. PCI is calculated by identifying and measuring all visible surface distresses in each road section, converting them to Deduct Values, and applying the Corrected Deduct Value (CDV) procedure to arrive at a final score.

$$PCI = 100 - \text{Maximum Corrected Deduct Value (CDV)}$$

*The network average PCI is the simple average of the individual road-section scores, consistent with the figure shown on the RoadINsights dashboard and the project deliverable.*



### 2.3

#### Quality Assurance

PMG combines AI-assisted distress detection with expert human review. All condition scores undergo validation by certified pavement engineers before final delivery. This human-in-the-loop QA process ensures the accuracy and defensibility required for government capital planning, grant applications, and public reporting.




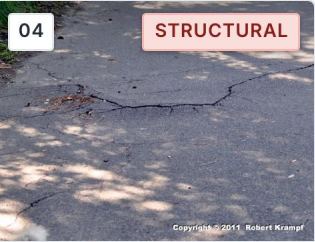


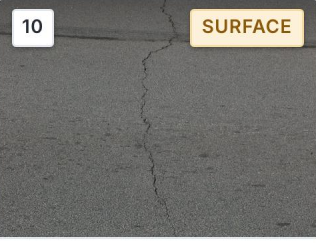
2.4

### Distress Types Assessed

ASTM D6433 defines **20 distress types** that may be present on asphalt-surfaced roads. Each distress is recorded by *type*, *severity* (Low / Medium / High), and *quantity* (square feet or linear feet), and contributes to the final PCI through the Deduct Value curves published in the standard. The catalog below highlights the most common distress types observed on this network; all 20 ASTM D6433 distress types are assessed for every section — field photography captured during this project is available in the RoadINSights™ dashboard.

■ Structural 
 ■ Surface / climate 
 ■ Other

ASTM D6433 · 20 DISTRESSES

<p>01 <span style="color: #f08080;">STRUCTURAL</span></p>  <p><b>Alligator Cracking</b> Fatigue · SF</p>	<p>02 <span style="color: #f0e68c;">SURFACE</span></p>  <p><b>Bleeding</b> Asphalt binder · SF</p>	<p>03 <span style="color: #f0e68c;">SURFACE</span></p>  <p><b>Block Cracking</b> Climate · SF</p>	<p>04 <span style="color: #f08080;">STRUCTURAL</span></p>  <p><b>Bumps &amp; Sags</b> Base · LF</p>
<p>07 <span style="color: #f08080;">STRUCTURAL</span></p>  <p><b>Edge Cracking</b> Edge failure · LF</p>	<p>09 <span style="color: #add8e6;">OTHER</span></p>  <p><b>Lane / Shoulder Drop-off</b> Grade · LF</p>	<p>10 <span style="color: #f0e68c;">SURFACE</span></p>  <p><b>Longitudinal &amp; Transverse Cracking</b> Thermal · LF</p>	

*Each distress is deducted against the 100-point PCI scale using the Deduct Value curves defined in ASTM D6433, with severity level and density (% of sample area) driving the magnitude of the deduct. Structural distresses (alligator cracking, rutting, potholes) carry the steepest deduct curves; surface distresses (raveling, bleeding) are more readily addressed through preservation treatments.*



**Patching & Utility Cuts**  
Repair · SF



**Potholes**  
Failure · count



**Rutting**  
Wheel path · SF



**Slippage Cracking**  
Bond failure · SF



**Raveling**  
Aggregate loss · SF



**Weathering**  
Oxidation · SF

2.5

### Pavement Deterioration and Lifecycle Behaviour

Pavement condition does not decline at a constant rate. Roads typically maintain good condition for many years before entering a phase of accelerated deterioration once structural distress develops.

The lifecycle curve below illustrates why **timing of investment matters**. Early, low-cost treatments applied while pavement is still in Good or Fair condition can extend service life significantly. Once a road deteriorates into Poor or Failed condition, the only remaining option is full-depth reconstruction at many times the cost.

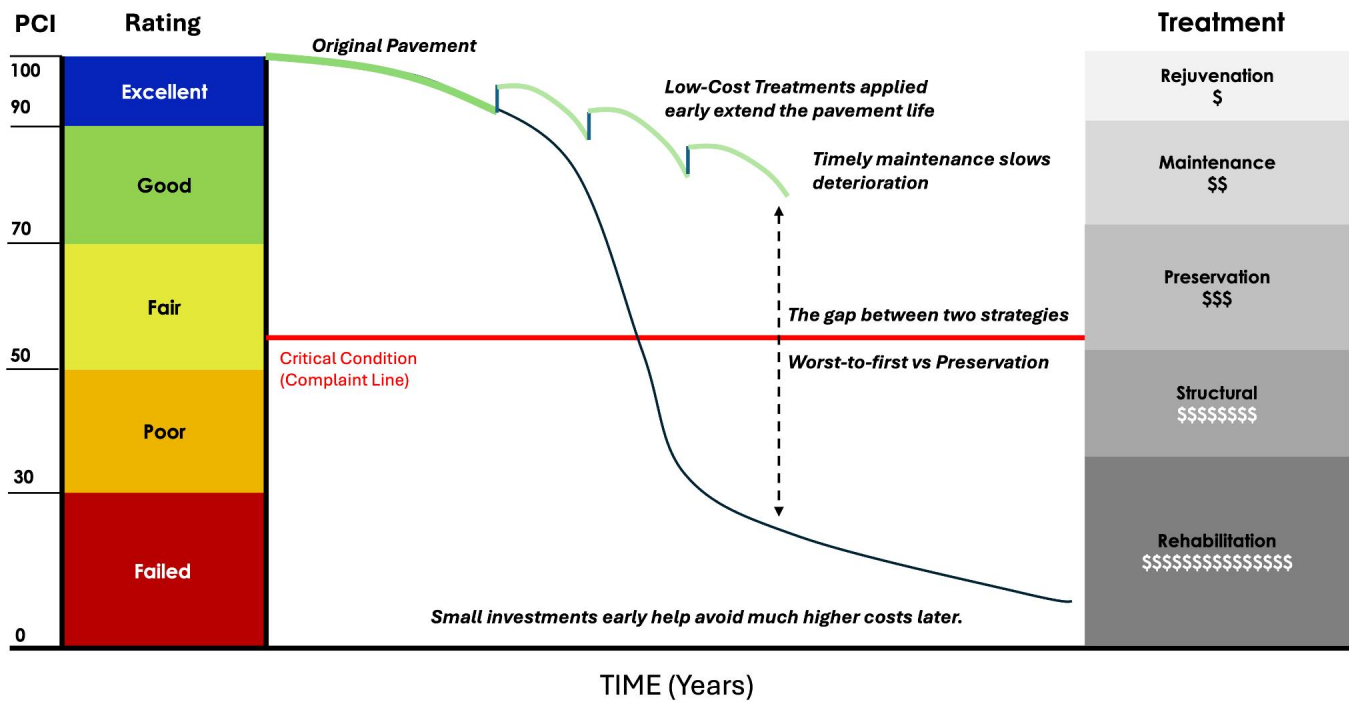


Figure 1 — Pavement Life Cycle: Timing of Investment Matters

2.6

### Strategic Treatment Philosophy

As condition declines, the range of available treatments narrows and unit costs rise sharply. The table below summarises the relationship between PCI range, treatment type, and relative cost level.

**TABLE — TREATMENT OPTIONS BY CONDITION RANGE**

TREATMENT TYPE	CONDITION	COST	PCI RANGE	DESCRIPTION
Rejuvenation / Crack Seal	Excellent / Good	\$	70+	Slows oxidation; seals minor cracks; extends surface life
Preventive Maintenance	Good	\$	70-89	Chip seal, slurry seal; applied before noticeable distress
Preservation (Thin Overlay)	Fair	\$\$	50-69	Micro-surface, 1.5" mill & fill; addresses surface distress
Structural Rehabilitation	Poor	\$\$\$	30-49	Mill & overlay (2-3"); addresses base fatigue and cracking
Full Reconstruction	Failed	\$\$\$\$	0-29	Full depth removal; rebuild subbase and surface from scratch

# 3 Roadway Condition Results

This chapter presents the measured condition of Putnam County's roadway network. The intent is to establish a factual baseline for understanding current conditions before evaluating costs, scenarios, and policy choices.

## 3.1

### Network Condition Summary

The 2026 assessment identified the following network-wide condition profile:

**TABLE — NETWORK CONDITION RESULTS**

CONDITION	SECTIONS	CL MILES	LANE MI	AREA (SF)	% AREA	AVG PCI
Excellent	24	18.51	35.05	2,406,029	15.3%	96
Good	46	53.73	107.91	7,406,858	47.3%	77
Fair	30	37.37	71.97	4,940,184	31.5%	61
Poor	12	7.17	13.38	918,687	5.9%	43
Failed	0	0.00	0.00	0	0.0%	0
<b>TOTALS</b>	<b>112</b>	<b>116.78</b>	<b>228.31</b>	<b>15,671,758</b>	<b>100%</b>	<b>73</b>

\* Network PCI is the average of the 112 individual road-section scores.

While the overall average PCI of **73** indicates a **Good** network, the distribution of conditions reveals important management implications:

- Approximately **62.6%** of the network is in **Excellent or Good** condition — assets to protect through timely maintenance.
- Approximately **31.5%** is in **Fair** condition — approaching the lifecycle tipping point where preservation treatments are still cost-effective.
- Approximately **5.9%** is in **Poor or Failed** condition — requiring structural rehabilitation or full reconstruction.

3.2

### Condition by Surface Type

Average PCI differs between asphalt and concrete surfaces due to material aging characteristics, construction vintage, and different distress modes.

**TABLE — CONDITION BY SURFACE TYPE**

SURFACE TYPE	SECTIONS	CL MILES	LANE MI	AREA (SF)	% AREA	AVG PCI
Asphalt	112	116.79	228.32	15,671,758	100.0%	74
<b>TOTALS</b>	<b>112</b>	<b>116.78</b>	<b>228.31</b>	<b>15,671,758</b>	<b>100%</b>	<b>—</b>

3.3

### Year-over-Year Comparison

Putnam County is a returning client: the network was assessed in 2024 and re-surveyed in 2026 using the identical ASTM D6433 method. Because every section is matched on a unique section ID, the two periods are directly comparable. The network average PCI declined from **74** (2024) to **73** in 2026 (-1 points).



Of the 112 sections measured in both periods, **20** improved (24.6 mi), **4** held (2.1 mi), and **88** declined (90.1 mi) through normal weathering and traffic — the expected pattern for a maturing network.

TABLE — NETWORK CONDITION (2024)

CONDITION	SECTIONS	CL MILES	LANE MI	AREA (SF)	% AREA	AVG PCI
Excellent	23	14.30	29.19	1,906,262	12.2%	97
Good	50	63.09	126.17	8,781,185	56.0%	80
Fair	22	26.86	53.72	3,377,096	21.5%	61
Poor	17	12.54	25.21	1,607,215	10.3%	43
<b>TOTALS</b>	<b>112</b>	<b>116.79</b>	<b>234.29</b>	<b>15,671,758</b>	<b>100%</b>	<b>74</b>

TABLE — NETWORK CONDITION (2026)

CONDITION	SECTIONS	CL MILES	LANE MI	AREA (SF)	% AREA	AVG PCI
Excellent	24	18.51	35.05	2,406,029	15.3%	96
Good	46	53.73	107.91	7,406,858	47.3%	77
Fair	30	37.37	71.97	4,940,184	31.5%	61
Poor	12	7.17	13.38	918,687	5.9%	43
Failed	0	0.00	0.00	0	0.0%	0
<b>TOTALS</b>	<b>112</b>	<b>116.78</b>	<b>228.31</b>	<b>15,671,758</b>	<b>100%</b>	<b>73</b>

3.4

### How the Network Shifted

The table below shows how centerline miles moved between condition bands since the prior survey. Colour reflects what the change means for the network: green where it is good news (more miles in Excellent or Good, or fewer in Poor or Failed) and red where it is not. The middle “Fair” band is shown neutral, since miles can arrive there from above or below.

**TABLE — CONDITION DISTRIBUTION SHIFT (CENTERLINE MILES)**

CONDITION	PRIOR (CL MI)	CURRENT (CL MI)	CHANGE (CL MI)
Excellent	14.3	18.5	+4.2
Good	63.1	53.7	-9.4
Fair	26.9	37.4	+10.5
Poor	12.5	7.2	-5.4
Failed	0.0	0.0	+0.0

3.5

### Treatment Effectiveness

9 sections received construction or surface treatment at or after the 2024 survey. These roads were reset to top condition when treated and have aged slowly since: their current average PCI is **90**, far above the network average of 73. Because they started near 100, their year-over-year change reads as a small decline — exactly the shallow curve a well-timed treatment is meant to produce.

**TABLE — SECTIONS TREATED SINCE 2024**

ROAD	SEC	TREATMENT	PRIOR PCI	CURR PCI	Δ PCI
PEACEABLE HILL RD	02	COLD MILL AND OVERLAY - 2 INCHES	100	97	-3
TURK HILL RD	02	COLD MILL AND OVERLAY - 2 INCHES	100	97	-3
PEACEABLE HILL RD	01	COLD MILL AND OVERLAY - 2 INCHES	100	96	-4
STONELEIGH AV	01	COLD MILL AND OVERLAY - 2 INCHES	100	96	-4
RAILROAD AV	02	FULL DEPTH RECLAMATION	100	94	-6
DOANSBURG RD	03	COLD MILL AND OVERLAY - 2 INCHES	100	89	-11
DOANSBURG RD	04	COLD MILL AND OVERLAY - 2 INCHES	100	88	-12
SECOR RD	01	COLD MILL AND OVERLAY - 2 INCHES	100	78	-22
RAILROAD AV	01	FULL DEPTH RECLAMATION	100	75	-25

YOUR ONLINE DELIVERABLE

# 4 RoadINsights™ Dashboard

Every street in your network, every score, every distress — in one interactive map. **All inventory and condition data for this project lives in the RoadINsights™ dashboard**, where your team, your council, and your residents can explore the network for themselves.

01 CLICK

**Any street on the map**

See section boundaries, PCI, surface type, and treatment recommendation.

02 WATCH

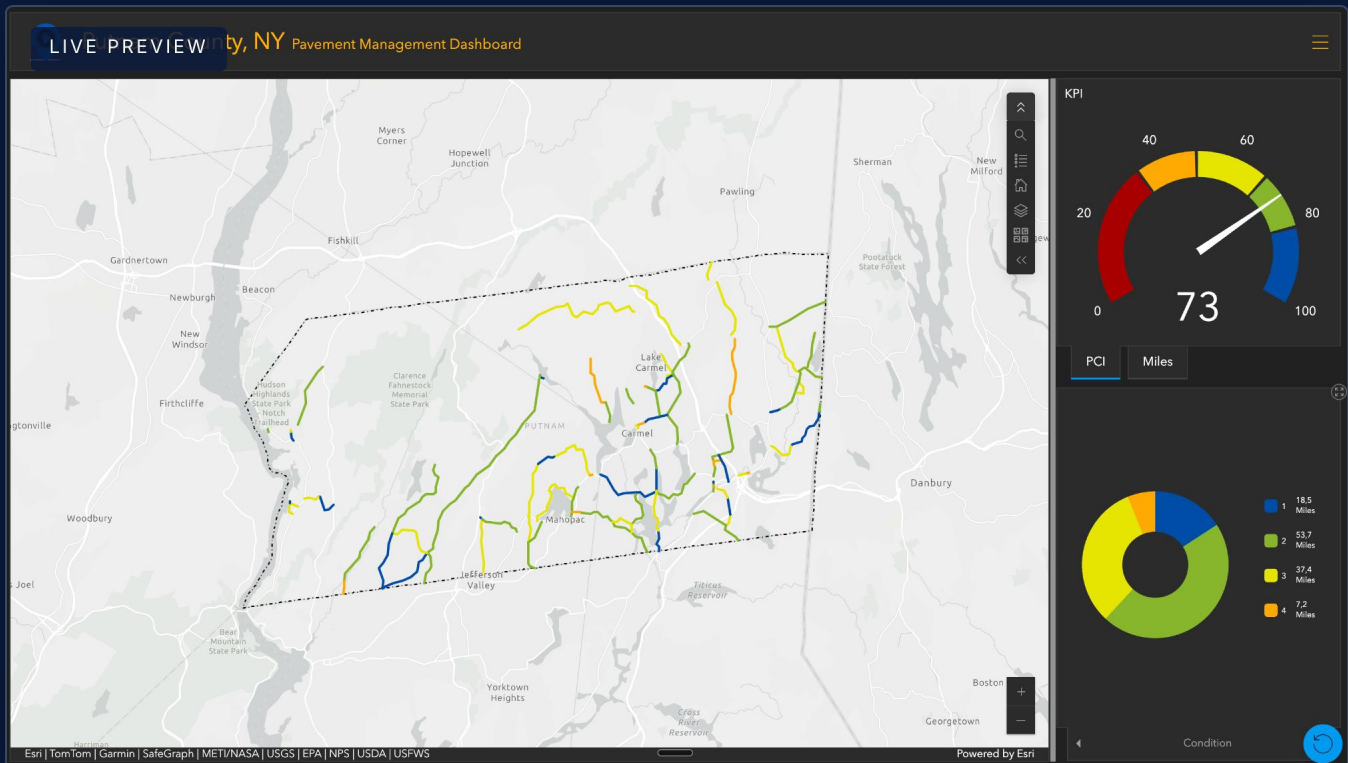
**Field video of the segment**

Every section is backed by the drive-by video our engineers reviewed.

03 FILTER

**By condition, class, surface**

Isolate all Failed roads, all arterials, or any combination in seconds.



## 5 Closing Statement and Recommended Actions

This pavement condition assessment provides Putnam County with a comprehensive, data-driven baseline of its roadway network — the foundation for proactive asset management. With an average PCI of 73 (Good condition), the network is at a stage where strategic decisions made today will have an outsized impact on long-term costs and service levels.

---

### 5.1

#### Key Takeaways

**62.6%** of the network is in Good or Excellent condition. These are assets worth protecting — proactive, low-cost treatments applied now will keep them serviceable for years to come.

**31.5%** sits in Fair condition. This is the critical window: these roads are still candidates for cost-effective preservation. Deferring action pushes them into Poor, where treatment costs increase 4–6 times.

**5.9%** is in Poor or Failed condition. These segments require structural rehabilitation or full reconstruction and represent the highest per-unit cost in the network.

---

### 5.2

#### Proactive Risk Management

Pavement management is fundamentally a risk management exercise. A well-maintained road network reduces liability exposure, supports emergency response, and preserves service continuity for residents and businesses.

The most effective strategy is not to chase the worst roads first — it is to **keep good roads good** while systematically addressing deteriorated segments. A balanced approach allocates budget across preservation, maintenance, and rehabilitation to achieve the best possible network condition with available public funds.

By applying the right treatment at the right time, public works departments can extend the useful life of their pavement assets while making the best use of limited public funding. The data in this report supports that approach by providing the condition baseline needed for informed decision-making.

## 5.3

## Recommended Next Steps

1

**Review the priority segments.**

Identify the highest-priority streets for the upcoming budget cycle using the RoadINsights dashboard.

2

**Reserve budget for preservation, not just repair.**

Allocate a share of annual funding to keeping Good and Fair roads in condition — the highest-ROI spend in the network.

3

**Discuss a multi-year strategy with your PMG project manager.**

PMG can help build a multi-year investment plan, modelling funding levels against average network PCI over the horizon that fits your budget cycle, to identify the most effective strategy.

4

**Use this data for grant applications.**

This assessment follows the standard methodology recognised for infrastructure funding programs. Reference this report and dashboard when applying.

We are grateful for the opportunity to support Putnam County and remain available for follow-up analysis, presentations to your County Legislature, or long-term planning at your request.