Artificial Intelligence Advances Roadway Performance Evaluation

AI is transforming road evaluation with faster, more accurate pavement assessments, enabling smarter, data-driven maintenance and material performance decisions

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AI ARCA

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Surface Tech, a pioneer in advanced asphalt technologies, has partnered with Tiger Eye Analytics, a machine learning PCI platform developed at the University of Missouri–Columbia, to revolutionize how pavement condition is evaluated. This powerful integration enables automated, AI-driven Pavement Condition Index (PCI) scoring—bringing unmatched speed, accuracy, and consistency to field validation of asphalt performance.

> "Accurate PCI scoring isn't just a nice-to-have—it's the foundation for strategic pavement management."
>
> *Jason Martin*

"We're no longer waiting years to understand how a material performs on the road," said Jason Martin of Surface Tech. "With AI-enabled PCI scoring, we can verify the performance of new additives based on hard data, not subjective visual inspections."

Automating What Used to Be Manual and Slow
Traditionally, PCI evaluations involved labor-intensive, human-led visual surveys prone to inconsistency and delays. Tiger Eye replaces this approach with a machine learning platform that uses high-resolution imagery, pattern recognition, and predictive analytics to scan entire road networks and assign PCI scores aligned with ASTM D6433 standards.

This AI-driven process allows for rapid and repeatable performance validation—a critical tool as cities, DOTs, and private sector owners adopt innovative materials designed to extend pavement life, reduce maintenance, and lower carbon impact.

Proving It in the Field: South Beckley Station Road
One of the earliest case studies validating this technology and material synergy is the South Beckley Station Road project in Louisville, KY, resurfaced in 2015 using Surface Tech's ACE XP Aramid Fiber.

Now, almost 10 years later, PCI scores from Tiger Eye show:

ACE XP section: PCI Average 70
Control asphalt section: PCI 30
"This is what performance looks like—and now we can quantify it with confidence," said Martin. "We're giving engineers and owners data they can act on,.

Materials: PG 64-22 + ACE XP Aramid Fiber
Results: AI PCI scores show significantly higher condition ratings and reduced long-term distress
Accelerating Adoption Through Measurable Results
For infrastructure owners and engineers evaluating new materials, timely, accurate performance data is essential. AI-based PCI evaluation provides real-world feedback loops that help:

Accelerate field validation of emerging asphalt technologies
Support funding and approval for performance-based specs
Guide smarter maintenance planning and lifecycle cost analysis
"AI is shortening the time between innovation and proof," said Martin. "This means faster adoption of high-performing additive solutions.

Complete Automation: From Mix to Maintenance
Surface Tech's commitment to automation spans the full pavement lifecycle:

Precision Dosing: Automated fiber dosing systems at the plant with daily reporting
AI Evaluation: PCI performance scoring using Tiger Eye Analytics for data-backed decision-making
Together, these tools eliminate human error, speed up workflows, and ensure every road Surface Tech touches is built for measurable success.

About Surface Tech
Surface Tech delivers advanced pavement technologies for public and private infrastructure. Its ARCA solutions leverage EPD-certified aramid fiber additives and precision dosing systems to create longer-lasting, lower-carbon pavements.

About Tiger Eye Analytics
Tiger Eye Analytics is an AI-powered PCI scoring platform developed at the University of Missouri–Columbia. Using computer vision and machine learning, it automates pavement assessments to meet ASTM standards with exceptional speed and accuracy.

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