

Tools to Detect Pavement Surface Irregularities During Construction

New tools measure concrete pavement smoothness

Ride smoothness is an important performance measurement of user satisfaction, as well as a good measure of concrete pavement durability. Specifications used by state and local departments of transportation (DOTs) include this quality requirement for their concrete pavements. Measuring pavement smoothness during construction, rather than after the concrete sets, allows immediate remediation, resulting in a better quality product and reduced need for expensive grinding.

Real-Time Smoothness Measurements on Portland Cement Concrete Pavements During Construction

The Solution

A project of the second Strategic Highway Research Program (SHRP2) evaluated tools to measure concrete pavement smoothness in real time during construction and developed model specifications and construction guidance to expedite the implementation of these technologies. The report, lessons learned, and model specifications developed under *Tools to Improve PCC Pavement Smoothness During Construction (R06E)* provide improved guidance on the use of real-time smoothness technologies and a better understanding of which construction artifacts affect smoothness.

These tools have the potential to improve process control. In addition, they allow adjustments of equipment and operations to correct surface irregularities while the concrete is still workable. The results are **higher quality, lower cost, and faster construction, with less impact on the traveling public.**

The Benefits

State and local DOTs, contractors, and the traveling public will benefit from these tools. Smooth concrete pavements have been shown to be more durable, with reduced maintenance and rehabilitation costs. In addition, DOTs recognize that smooth-riding pavements minimize collisions from vehicles losing control on rough pavements. **When contractors do not have to grind rough areas or replace sections of concrete pavement, costs, time, and driver delays are minimized.**

Real-time measurements help build smoother concrete pavements

**FOCUS AREA:
Renewal (R06E)**

Tools to measure concrete pavement smoothness during construction were evaluated. Model specifications and guidelines were developed.

Save Lives

- Eliminating pavement grinding and remediation means less exposure to work zone hazards for drivers and workers.

Save Money

- Measuring smoothness during construction avoids costly correction solutions such as grinding.

Save Time

- Correcting smoothness during construction prevents time-consuming rework in the future.

Who is using these tools?

Alabama, Idaho, Indiana, Ohio, and Pennsylvania are currently using these tools through the FHWA/AASHTO Implementation Assistance Program.

How can you learn more?

For more information, contact Steve Cooper at FHWA, Stephen.J.Cooper@dot.gov or Kate Kurgan at AASHTO, kkurgan@aaashto.org. Updates on current implementation efforts can be found at www.fhwa.dot.gov/GoSHRP2 or <http://SHRP2.transportation.org>.

About SHRP2 Implementation



The second Strategic Highway Research Program is a national partnership of key transportation organizations: the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the Transportation Research Board. Together, these partners conduct research and deploy products that will help the transportation community enhance the productivity, boost the efficiency, increase the safety, and improve the reliability of the Nation's highway system.

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