SHRP2 SOLUTIONS
TOOLS FOR THE ROAD AHEAD

# Tools to Improve PCC Pavement Smoothness During Construction (R06E)

***Proven technologies to identify surface irregularities that can impact concrete pavement smoothness, and provide opportunity for corrections in real time***

## Challenge

Smooth concrete pavements are more durable and lead to lower maintenance and vehicle operating costs. In addition, transportation agencies recognize the importance of smooth-riding pavements to the traveling public. Most States have implemented smoothness specifications for concrete pavements that require measurement of the surface profile on the finished pavement for acceptance testing. However, there is often no indication of smoothness prior to testing on the finished, hardened concrete. Problems not corrected in real time can lead to significant expenditures correcting surface irregularities.

## Solution

SHRP2 evaluated and tested several innovative technologies that improve process control and allow for on-the-fly equipment and operations adjustments to correct surface irregularities on concrete pavements during construction, while the concrete is in a plastic state. Ideally, deviations are detected and corrections made in real time, eliminating the need to grind the final hardened surface to achieve smoothness requirements. The report, lessons learned, and model specifications developed under this project provide improved guidance on the use of real-time smoothness technologies and a better understanding of which construction artifacts affect smoothness.

The final project report recommends:

- Tools to evaluate pavement smoothness in real time.
- Tools to complement existing quality control.
- Tools to reduce must-grinds and thus reduce project delays and claims.

## Benefits

Access to real-time information on pavement smoothness will help paving contractors with their process control and meet the ride quality requirements of transportation agencies. Use of these technologies results in higher quality pavements delivered in less time and for less money, thereby minimizing the impact on the traveling public.

## The Implementation Assistance Program

Implementation assistance is available to help State departments of transportation (DOTs), metropolitan planning organizations (MPOs), and other interested organizations deploy SHRP2 Solutions. A range of opportunities is available to raise awareness of SHRP2 Solutions and to encourage early adoption of these products. Application periods are offered approximately twice per year. Each product selected for implementation assistance has the potential to deliver more efficient, cost-effective programs to meet the complex challenges facing transportation today.

### *Save Lives*

***Evaluating and improving pavement smoothness in real time before the pavement hardens means that roads can be traffic-ready sooner, thus reducing the exposure of workers and drivers to work zone hazards.***

### *Save Money*

***Evaluating and improving pavement smoothness in real-time, can eliminate the need to grind hardened concrete at the end of construction to achieve desired smoothness, resulting in lower project costs.***

### *Save Time*

***Evaluating and improving pavement smoothness while the pavement is still fresh results in a finished surface that meets smoothness specifications, eliminates post-construction grinding, and allows roads to be opened faster.***

RENEWAL

**One of four SHRP2 focus areas, Renewal products help transportation organizations rapidly build and restore highway infrastructure that lasts longer while minimizing user disruption and delay.**

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**Visit: www.fhwa.dot.gov/GoSHRP2**
**Learn more about products, case studies, and implementation assistance.**

## How can you learn more?

Visit: www.fhwa.dot.gov/GoSHRP2

- Additional product information
- Information about how this product is being used in the field
- Contact information for peers who are familiar with this product
- Links to research reports

## Contacts


**Steve Cooper (FHWA)**
stephen.j.cooper@dot.gov

**Kate Kurgan (AASHTO)**
kkurgan@aashto.org

**Neil Pedersen (TRB)**
npedersen@nas.edu


### About SHRP2 Implementation

The second Strategic Highway Research Program (SHRP2) is a partnership of the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), and the Transportation Research Board (TRB). TRB completed the research, and now FHWA and AASHTO are jointly implementing the resulting SHRP2 Solutions that will help the transportation community enhance productivity, boost efficiency, increase safety, and improve the reliability of the Nation's highway system.