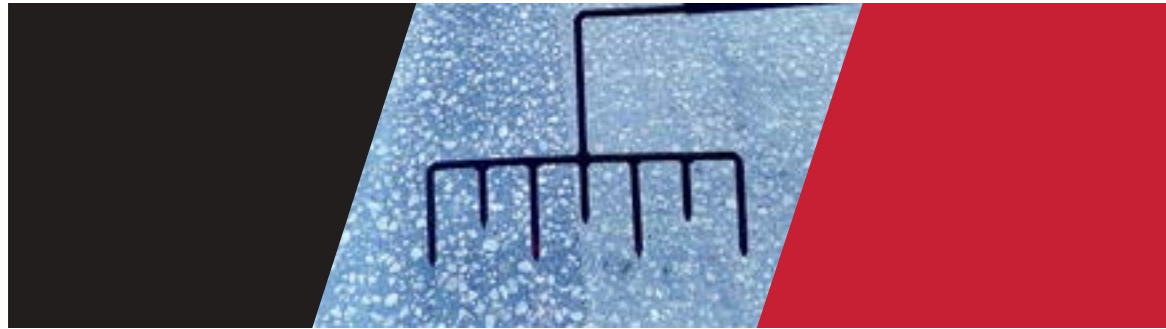


# The Next Generation Concrete Surface

*NGCS Helps Indiana Cross “The Finish Line”*

42 Bridges Paved  
with Concrete  
Contribute to Smooth,  
Safe Interstate  
Highways



The expected 2024 completion of a section of Interstate 69 that runs between Martinsville, Indiana and I-465 will be the culmination of 75 years of discussion about connecting southwest Indiana to Indianapolis, the state’s capital and its most-populous city. The Indiana Department of Transportation (INDOT) dubbed the project “[The Finish Line.](#)” as it is the sixth and final section of work to be performed developing the 142-mile interstate corridor between Evansville and Indianapolis. Once completed, I-69 will run continuously from Evansville to the Canadian border at Port Huron, Michigan.

Construction for The Finish Line, also known as Section 6, includes 27 miles of new interstate highway, as well as work on the heavily traveled I-465 between I-70 and I-65 on Indianapolis’s southwest side. It entails either replacement, rehabilitation or new construction for 42 bridges. Concrete paving will be used on all of them, and many will be surfaced using next generation concrete surface (NGCS).

“In the past, Indiana specified transverse tining on bridges for new construction, but for the Section 6 work, they specified next-generation concrete surface, or NGCS, which incorporates longitudinal grooving,” said Kevin Sorrell, owner of [Americut® Diamond Grinding & Grooving](#), who completed work on seven bridges during the 2022 construction season and will undertake others in upcoming projects.

Developed by Purdue University in conjunction with the American Concrete Pavement Association (ACPA), International Grooving & Grinding Association (IGGA) and the Portland Cement Association (PCA), NGCS represents the quietest non-porous concrete surface to date. It was created to achieve a concrete pavement surface that has good frictional characteristics and decreases pavement noise. It not only has the benefit of decreasing tire/pavement noise, but is shown to provide a smooth, uniform ride and increase driver safety, especially in wet weather conditions. Longitudinal grooving improves lateral stability for vehicles on the roadway and reduces hydroplaning potential.





INDOT first tested NGCS in 2014 while participating in a demonstration project funded by the Federal Highway Administration's (FHWA) Highways for LIFE (HfL) initiative, which has the objective of advancing longer-lasting highways and bridges using innovative technologies and practices. An FHWA grant was awarded to INDOT for research into a variety of concrete surfaces, including NGCS. According to an [INDOT technical brief](#), the department looked to NGCS to "provide a significant reduction in tire-pavement noise and the ability to maintain friction for increased skid and hydroplaning resistance." NGCS was used to rehabilitate the I-65/I-465 interchange in southeast Indianapolis.

In the years since NGCS was first tested in Indiana, more longitudinal surfaces have been installed, but the use of NGCS on bridge surfaces as part of the Section 6 work represents major strides in its adoption.

Nine bridges on I-69 between Fairview Road in Johnson County and I-465 in Indianapolis (three mainline bridges and six low-speed bridges) were tested for smoothness after construction was complete. Results showed that the pavements were very rideable. The three mainline bridges occupy asphalt-paved sections of roadway, but their smoothness is comparable to the asphalt sections and the transitions between paving types were also determined to be very good.

"The Next Generation Concrete Surface—also called NGCS--used by INDOT on this project was developed to meet the demands of today's driving public, as well as those living in the vicinity of dense roadway traffic," said John Roberts, Executive Director, IGGA. "It is a cost-effective, super smooth concrete surface with low noise characteristics, which makes it an ideal surface for urban interstates, arterials and residential areas where tire/pavement traffic noise is a concern. It is fortunate that the taxpayers of Indiana have transportation officials that are willing to look at best practices abroad and develop pavement systems that are economical, sustainable and safe. These challenging times require innovative thinking and INDOT has shown they are up to the challenge."

#### Team Members

- Americut® Diamond Grinding & Grooving
- Diamond Coring Concrete Cutting Contractors



#### ABOUT IGGA

The International Grooving & Grinding Association (IGGA) is a non-profit trade association founded in 1972 by a group of dedicated industry professionals committed to the development of the diamond grinding and grooving process for surfaces constructed with Portland cement concrete and asphalt. In 1995, the IGGA joined in affiliation with the American Concrete Pavement Association (ACPA) to form what is now referred to as the Concrete Pavement Preservation Partnership (IGGA/ACPA CP3). The IGGA/ACPA CP3 now serves as the lead industry representative and technical resource in the development and marketing of optimized pavement surfaces, concrete pavement restoration and pavement preservation around the world.