IGGA
International Grooving & Grinding Association
Your Pavement Preservation Resource® since 1972

enhancing safety and pavement life on US Highway 12

A Cost-Effective Strategy for Asset Preservation

A combination of diamond grinding and concrete pavement rehabilitation (CPR) can significantly extend a pavement's service life.

THE CHALLENGE OF MAINTAINING AGING INFRASTRUCTURE on high-traffic corridors is a critical issue for transportation departments, particularly on routes vital for regional commerce. A comprehensive rehabilitation strategy was chosen for US Highway 12, a critical east-west corridor across Minnesota, to address aging concrete pavement, drainage issues and outdated pedestrian accessibility features. Executed by the Minnesota Department of Transportation (MnDOT) in collaboration with prime contractor Duininck Inc., this multi-year project aimed to restore structural integrity, smoothness and enhance safety along the corridor from Litchfield to Cokato.

The project, encompassing the communities of Darwin, Dassel and Cokato, was necessitated by the highway's status as a major regional route with significant average daily traffic (ADT). MnDOT prioritized this initiative to extend the pavement lifecycle and ensure compliance with modern safety standards for both motorists and pedestrians.

Challenge

The primary challenge was managing a complex, multi-year construction schedule on a busy two-lane highway while minimizing disruption to local communities and schools. The project faced significant hurdles, including managing high traffic volumes that required constant adjustment of control measures. Unofficial detours on township roads saw increased traffic, necessitating additional maintenance. During Phase 2 (2025), the scope expanded due to additional concrete repairs needed beyond what the plan anticipated, requiring additional funding and a three-week schedule extension.

Solution

MnDOT implemented a robust phased approach spanning two construction seasons (2024–2025). Phase 1 focused on the western segment from Litchfield to Dassel, addressing resurfacing and ADA upgrades. Phase 2 targeted the eastern segment from Dassel to Cokato with concrete pavement rehabilitation (CPR), diamond grinding, asphalt shoulder replacement and accessibility improvements.

To handle traffic, the team utilized a combination of full closures, three distinct detour phases, and staged lane restrictions to maintain local access. Construction schedules were specifically phased to avoid overlapping with the Dassel-Cokato school year. Enhanced safety measures included speed feedback signs, revised intersection controls and the planned use of an additional law enforcement presence within the work zone.

Implementation

The 30-year-old pavement had experienced slight deterioration over the years due to the low water-to-cement ratio specification. Minimal use of specialized construction techniques including CPR and diamond grinding brought the pavement back to a like-new condition.

Full-depth and partial-depth repairs were conducted to address structural deficiencies, and more than 205,000 square yards of pavement underwent diamond grinding to improve smoothness and friction, while more than 2,100 dowel bar retrofits were installed to restore load transfer efficiency across joints.

Results

The US Highway 12 project, completed on September 4, 2025, delivered substantial improvements. The combination of CPR and diamond grinding significantly extended the service life of the existing concrete pavement. ADA compliance was achieved across Litchfield, Darwin and Dassel through upgraded pedestrian ramps and sidewalks. Additionally, a new pedestrian push-button station and resurfaced rest stop in Darwin improved non-motorized user safety, while successful culvert replacements addressed drainage concerns.

The project required detailed coordination and a collaborative approach to public engagement between MnDOT District 8 and the various contractors. Weekly updates and open houses were employed to manage stakeholder expectations. This proactive communication resulted in a smoother, safer corridor that supports regional commerce and local commuting.

By effectively employing CPR and diamond grinding rather than full reconstruction, the project demonstrated a cost-effective strategy for asset preservation and was recently recognized by the Concrete Paving Association of Minnesota (CPAM) and MnDOT with a Merit award for outstanding performance in concrete pavement rehabilitation.

The ability to adapt to scope changes without jeopardizing delivery underscores the value of flexibility and strong contractor-owner relationships in modern infrastructure projects.

» PROJECT AT A GLANCE

- **Project Type:** Highway rehabilitation and safety improvement
- **Location:** Litchfield to Cokato, MN (US Highway 12)
- **Timeline:** 2024–2025 (Completed Sept. 4, 2025)
- **Owner:** Minnesota Department of Transportation (MnDOT)
- **Prime Contractor:** Duininck
- **Design Consultant:** TKDA
- **CPR Contractor:** PCI Roads
- **Diamond-Grinding Contractor:** Diamond Surface Inc.
- **Ready-Mix Supplier:** Knife River
- **Key Techniques:** Concrete pavement rehabilitation (CPR), diamond grinding, full- and partial-depth repairs, dowel bar retrofit
- **Scope:** CPR, ADA upgrades, drainage improvements, shoulder replacement

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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.