CPR For City Streets

Smooth Pavements Last Longer!

TODAY'S URBAN STREETS HAVE, in many cases, encountered 20, 30, even 40 years of wear and tear. Over the decades, the nature and amount of traffic passing on these streets has changed dramatically, making the need for a smoother, safer ride even more crucial. Replacing or overlaying deteriorated pavement can be time- and cost-prohibitive, but there is another option: Concrete Pavement Restoration (CPR).

CPR is a series of engineered techniques developed over the past 40 years to rehabilitate concrete pavement. A viable alternative to costly asphalt overlays, CPR targets and repairs areas of distress within otherwise structurally sound concrete pavement. A minimally disruptive procedure, CPR is designed to be performed within small work areas and at off-peak hours. CPR procedures offer a repair solution that is proven to last for years or even decades.

CPR is already a proven solution for highways—which see much more traffic and therefore much more deterioration—throughout the U.S. But city streets are just as integral to our nation's infrastructure, and CPR allows for a long-term solution to bypass the logistical difficulties and high cost that an overlay or complete replacement would involve.

» Diamond Grinding

>>> BENEFITS INCLUDE:

- **LONG LASTING:** CALTRANS research has shown that the average life of a diamond ground surface in their state is 17 years.
- **SIMPLE:** CPR can be completed during off-peak hours with short lane closures and without encroaching into adjacent lanes.
- **SAFE:** CPR with diamond grinding enhances surface friction for greater traction and safety.
- **SMOOTH:** The smooth, level surface reduces road noise and transitions imperceptibly to adjacent pavements.
- **COST-EFFECTIVE:** CPR not only offers a lower initial cost than asphalt resurfacing, but often provides lower per-mile annual maintenance costs than other pavement rehabilitation techniques.
- **LONG-LASTING:** CPR repairs can last for decades when constructed with the proper materials and durable aggregates.
- **QUICK:** CPR projects can be designed and packaged for bid within a matter of days.
- **FLEXIBLE:** Portland cement pavement can be rehabbed up to three times using CPR without a loss of structural or load-carrying capacity. Further, applying CPR in one lane doesn't require application in adjacent lanes.
- **MAINTAINS EXISTING ELEMENTS:** Since CPR doesn't change the existing pavement elevation, it won't reduce curb reveals or the reservoir capacity of gutters. Most manhole covers, drainage inlets, guide-rails, and overhead fixtures will not require adjustment.
- **NO NEED FOR TIE-INS:** Adjacent cross streets and driveways are unaffected by CPR, eliminating costly and time-consuming tie-in issues associated with asphalt overlays.
- **ENVIRONMENTALLY FRIENDLY:** Because concrete, unlike asphalt, is a light-reflecting surface, it will result in lower energy costs—the same amount of illumination can be achieved with a third fewer streetlights.
- **FUEL-EFFICIENT:** Studies have shown that rigid concrete surfaces exert less rolling resistance than flexible surfaces, thereby saving fuel.

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Full-Depth Repair

How It Works

CPR IS A SERIES OF ENGINEERED TECHNIQUES developed during the last 40 years to manage the rate of pavement deterioration in concrete streets, highways and airports. It is a non-overlay option used to repair areas of distress in concrete pavement without changing its grade. This preventive procedure restores the pavement to a condition close to or better than original and reduces the need for major and more costly repairs later. Further, CPR addresses the causes of pavement distress, minimizing further deterioration. In contrast, covering the distress with an asphalt overlay does not correct the cause of the distress and it will eventually manifest itself again, usually as a larger, more expensive problem.

ABOUT THE IGGA

The International Grooving and 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 represent its newly formed Concrete Pavement Restoration Division. The IGGA / ACPA CPR Division now serves as the technical resource and industry representative in the marketing of optimized pavement surfaces, concrete pavement restoration and pavement preservation around the world. The mission of the IGGA is to serve as the leading promotional and technical resource for acceptance and proper use of diamond grinding and grooving as well as PCC preservation and restoration. For more information, visit www.igga.net.

>>> BASIC CPR TECHNIQUES INCLUDE:

- **SLAB STABILIZATION:** This technique restores support to concrete slabs by filling small voids that develop underneath the concrete slab at joints, cracks or the pavement edge.
- **FULL-DEPTH REPAIRS:** This procedure is a way to fix cracked slabs and joint deterioration by removing at least a portion of the existing slab and replacing it with new concrete.
- **PARTIAL-DEPTH REPAIRS:** This method corrects surface distress and joint-crack deterioration in the upper third of the concrete slab. Placing a partial-depth repair involves removing the deteriorated concrete, cleaning the patch area, placing new concrete and reforming the joint system.
- **DOWEL BAR RETROFITS:** This method consists of cutting slots in the pavement across the joint or crack, cleaning the slots, placing the dowel bars, and backfilling the slots with new concrete. Dowel-bar retrofits link slabs together at transverse cracks and joints so that the load is evenly distributed across the crack or joint.
- **CROSS-STITCHING LONGITUDINAL CRACKS OR JOINTS:** Cross-stitching repairs low-severity cracks. This method adds reinforcing steel to hold the crack together tightly.
- **DIAMOND GRINDING:** By removing faulting, slab warping, studded tire wear and unevenness resulting from patches, diamond grinding creates a smooth, uniform pavement profile. Diamond grinding reduces road noise by providing a longitudinal texture, which is quieter than transverse textures. The longitudinal texture also enhances macro texture and skid resistance in polished pavements.
- **JOINT AND CRACK RESEALING:** This technique minimizes the infiltration of surface water and incompressible material into the joint system. Minimizing water entering the joint reduces subgrade softening, slows pumping and erosion of the sub-base fines, and may limit dowel-bar corrosion caused by deicing chemicals.

Diamond Grinding

CPR treatments can be used stand-alone or as a coordinated system as conditions warrant.