CPR – REBUILT TO LAST

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Concrete Patching and Maintenance for I-84 Box Elder County, UT

>>> DIAMOND GRINDING & DOWEL BAR RETROFIT

BOX ELDER COUNTY, located at the northwestern point in Utah, is home to 45,000 residents. The land is comprised of forested mountains and barren deserts and is 6,729 square miles. Totalling 19 miles, this Concrete Pavement Restoration (CPR) project took place on I-84 from SR-83 to SR-103 and involved four lanes and shoulders in each direction. The Utah Department of Transportation (UDOT) carefully considered a variety of options to repair the 20-year-old concrete pavement, but selected CPR based on its proven longevity. Although CPR is an accepted method in many areas of the U.S., this was one of the first times that the method was used in Utah. Further, it was the largest DBR project ever constructed in Utah to date.

The methods selected included dowel bar retrofit (DBR), diamond grinding, full- and partial-depth repair, slab jacking, and joint resealing. In total, the project included 4,753 square yards of full-depth repair; 686,086 lineal feet of joint and crack resealing; 447,138 square yards of diamond grinding; and 102,774 dowel bar retrofits. The average smoothness before CPR was 14-inches per mile, but after CPR, the index was 1.4-inches per mile, nearly a 90 percent improvement.

Safety was of major importance as the four-lane highway became two lanes during construction. The work zone traffic volume was 10,300 vehicles per day with 33 percent of those being heavy trucks. Multiple Concrete Enterprises, Inc. assigned a full time, 24-hour public information representative to ensure effective communication with the driving public by providing flyers and frequent website updates related to construction activities, lane closures and overall project progress.

The project began in September 2006 and was completed a year later, two weeks ahead of schedule. Despite many challenges, including the aggressive schedule, traffic control and availability of subcontractors, the repairs will result in significantly more years of extra pavement life for the owner. The I-84 project is a solid example of what can be done to an old, undoweled concrete pavement that is rehabilitated before the deterioration becomes too severe. This newly rehabilitated highway will provide a safe, smooth, and durable surface for many years to come.

TEAM MEMBERS

- Utah Department of Transportation (Owner)
- Multiple Concrete Enterprises (Prime contractor)
- Concrete Stabilization Technologies (Slab jacking and stabilization)
- A-Core Concrete Cutting Inc. (Joint resealing)