

CPR – REBUILT TO LAST



First Major Dowel Bar Retrofit Project in Nevada Restores Reno Highway

>>> DIAMOND GRINDING & DOWEL BAR RETROFIT

IN THE STATE OF NEVADA, Interstate 80 runs northeast from the Lake Tahoe region. As one drives eastward, traffic continues to increase on this road, especially near the Reno area. Known as “the biggest little city in the world,” Reno sits along the navigable Truckee River. Sparks, the lesser known but similarly sized city, lies to the east of Reno. In 2004, the existing IRI on this well travelled road was 111 in/mile and the road was showing signs of needing some well deserved repair.

In response to the road conditions, the Nevada Department of Transportation (NDOT) decided to rehabilitate a 6.724 mile stretch of eastbound and westbound I-80 from 0.38 miles east of the Vista Interchange to 1.37 miles west of the Patrick Interchange east of Sparks. NDOT sought to ensure continued good performance of the Portland cement concrete pavement (PCCP) under the heavy truck traffic and to increase the expected service life. In order to improve load transfer efficiency and eliminate joint faulting, they opted to perform dowel bar retrofit (DBR) on the truck lanes, followed by

diamond grinding and a joint/crack sealing operation.

American Civil Constructors began construction on June 20, 2005 on the westbound lane of I-80. Daily operations were limited due to lane closures. Dowel bar placement was performed between the hours of 10 a.m. and 4 p.m., with slot-cutting performed in the evening hours. Approximately 31,500 dowel bars were used and 188,900 square yards of concrete pavement was diamond ground. Further, the project entailed approximately 333,000 linear feet of sawing and resealing of joints. The total cost of the project was \$3,215,959 and it was completed in October 2005.

One year after the project was complete, the IRI measured 53 in/mile. In 2008, the IRI increased slightly to 58 in/mile, still providing a very smooth ride. According to Anita Bush, Assistant Chief Maintenance Engineer for NDOT, they are very satisfied with the final product and dowel bar retrofitting is now being considered for future pavement preservation projects.

TEAM MEMBERS

- Nevada Department of Transportation (Owner)
- American Civil Constructors (Contractor)
- PBS & J (Engineering firm)
- Norton Pro Diamond (Blade supplier for diamond grinding)
- Diamond Products (Blade supplier for diamond grinding)
- Simplex Construction Supplies (Material supplier)
- Diversified Concrete Cutting (Saw and seal subcontractor)