

CPR – REBUILT TO LAST



South Eleventh Street Profiling, Oskaloosa, IA

>>> DIAMOND GRINDING –THE LONG-TERM PRESERVATION SOLUTION

IN 1993, THE CITY OF OSKALOOSA, IOWA, set out to conduct its first extensive surface profiling/diamond grinding project on South Eleventh Street, from A Avenue to 15th Avenue. With minor maintenance patching and contraction joint sealing performed in 1986 and in 1990, this one-mile-long stretch of city street required no repairs. The pavement smoothness prior to diamond grinding was 70.4 inches/mile in the southbound lane and 71.65 inches/mile in the northbound lane, when measured by a California Profilometer. The project called for a minimum reduction in profile by 65 percent, to 24.5 inches/mile.

Originally paved in 1930 as an 18-foot-wide roadway with a standard PCC thickness design of 10 inches (edge of slab) to 7 inches (centerline) to 10 inches (edge of slab), the highway was later widened by 7 feet. The project involved 11,150 square yards of diamond grinding that was limited to the center 20 feet, leaving

the widening units and curb undisturbed. Due to the previous maintenance on this highway, no patching or joint sealing was needed. The contractor used a single Target diamond grinding machine with a 36-inch head, proceeding in subsequent passes from the centerline out to specified edge limits.

During the diamond grinding process, one-way traffic was maintained by flaggers positioned through the work zone. Because of the hard aggregates used in the concrete mix design, the team was challenged by the limited forward speed of diamond grinding at approximately 7 feet per minute.

Having considered an asphalt overlay, City Engineer Larry Stevens chose diamond grinding because of the longevity the method offers.

“In my experience, the alternative of AC overlays on PCC is not practical or feasible because

TEAM MEMBERS

- City of Oskaloosa (Owner/Engineer)
- Concrete Textures, Inc. (Prime contractor)

they tend to debond and quickly show reflective cracking or shoving and rutting,” said Stevens. “Drainage on the pavement is also negatively affected. For surface restoration, such as our South Eleventh Street project, the best buy was diamond grinding.”

With a total project value of \$64,113, or approximately \$5.75 per square-yard, this project proved to be a cost-effective solution for the City of Oskaloosa. The project was completed in 1993 and still provides taxpayers with cost-effective, long-term performance to this day.

“This project shows the longevity that can be achieved from a diamond-ground concrete pavement in an urban setting,” said Stevens.