

# CONCRETE PAVEMENT

## PROJECT REPORT



### Project: Coolidge Road between 13 Mile Rd. and 14 Mile Rd.

Site: City of Royal Oak

#### Project

Description: 1.0 miles of grading and draining structures, milling bituminous surface, concrete pavement widening and concrete pavement overlay, curb and gutter, street lighting and water main construction on Coolidge Highway from 13 Mile to 14 Mile Road in the city of Royal Oak, Oakland County, Michigan.

Owner: City of Royal Oak

Contractor: Florence Cement Co., Inc.  
Troy, Michigan  
Michigan Concrete Paving  
Association Member

#### Special

Feature: Unbonded Concrete Overlay



## Concrete Overlays

### Coolidge Road City of Royal Oak

In 1982, due to increased traffic in the City of Royal Oak and the surrounding area, the City decided to improve and widen a one mile section of Coolidge Highway that was originally constructed back in the years 1928-29. The north and southbound two lane boulevard was originally constructed as a 20 ft. wide road section, consisting of 8 inches of nonreinforced concrete with 7"X18" straight curb and gutter. Over the years, several bituminous overlays had been applied varying from 3 to 5 inches in thickness.

The engineering department for the city of Royal Oak came up with a plan to widen the existing road to 25 ft and to construct a 5-in. concrete overlay on top of the existing 34-year-old concrete pavement. This innovative technique was chosen not only because of its engineering benefits, but also because of the economic benefits. By leaving the existing concrete pavement in place, the city would not have to bear the typical costs of removal and replacement, thus saving the city money. In addition, they were able to save time, which meant less inconvenience for the local businesses.

In the fall of 1983, a contract was awarded and construction of the concrete overlay began. First the contractor completed the necessary utility work, then the existing bituminous pavement was milled so that the 5 inch. overlay could be achieved. A 1-in. bituminous separator layer was left in place between the existing pavement and the new concrete overlay to prevent reflective cracks from developing. A total of 4590 linear feet of concrete was placed over the existing concrete pavement and asphalt separator layer. Where designated, a modified curb and gutter section was constructed and in other areas an integral curb detail was used. Pavement joints played a very important and integral role in the pavement design. Transverse construction joints were placed at 10-ft. intervals to accommodate the 5-inch. overlay.

Today, after 16 years, Coolidge Highway is still in prime working condition. Roger Jacob, civil engineer for the city of Royal Oak states. "When we updated Coolidge Road in 1983, the concrete overlay design was quite different than anything we had used previously. Although there are many industrial machine plants that require heavy truck loads to travel on Coolidge, the concrete overlay is performing very well."

