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# CONCRETE PAVEMENT PROGRESS



## Concrete Overlay Rejuvenates Road

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# Concrete Overlay Rejuvenates Road

## *Ride Quality and Safety Enhanced at Lower Cost to DOT*

By Sheryl S. Jackson

**WHEN THE PLANS WERE MADE TO RENOVATE** six miles of SR 9 in Grant County, Ind., several options were considered to address the distressed asphalt pavement. In the end, a thin concrete overlay was selected as the best option for the project.

Not only did the project serve as a test of thin concrete overlay for the Indiana Department of Transportation, but it also proved to be a lower cost when design life was considered, says Jason Hoy, P.E., design project manager for Strand Associates, the engineering design firm for the project. “Annual cost per lane mile for the thin concrete overlay with a functional life of 25 years was \$10,860 compared to \$13,750 for an HMA two-lift overlay with a 15-year functional life.”

“The state wanted to try PCC overlay, and several projects were considered,” says Brad Taylor, P.E., area engineer for INDOT. SR 9 in Grant County was a good candidate to test a thin concrete overlay due to the ease of detouring regional traffic. “The southernmost four miles of the project were in a rural area with few homes and farms along it,” he explains. “Another highway that was less than one mile from the section of SR 9 that was used to divert regional traffic, which allowed us to close the section completely.”

The complete closure allowed the contractor, Primco, Inc., an ACPA member, to pave the full 30-ft width at one time. “Our paver could run at a faster pace with no stops, but we were limited to 2,000 ft at 30-ft wide per day because our central batch plant was not big enough to handle more,” says Rick Baumer, vice president of concrete paving operations for Primco. The

size of the plant also required a change in the fiber used, he says.

The fiber-reinforced thin concrete overlay was 4.5 in. placed over the existing asphalt after milling 1.5 in. and patching areas that needed repair to produce a smooth surface for the concrete.

Because the design called for joints every 6 ft, there were a lot of saws needed to keep up with paving progress—especially the four miles that were paved full width. “This was our first thin concrete overlay project, and we needed to buy additional saws for the project,” Baumer says. “We typically run two saw crews, but we had six people sawing at one time, which was necessary for the 30-ft wide sections.”

The northernmost two miles of the project were in a more suburban area with residential traffic, which meant that only one lane could be closed at a time. Communication with local residents as well as the school system’s bus transportation department was needed to make sure residents could access their homes and bus routes were not disrupted.

Although Primco handled traffic control at the start of the job, after the first few days, the sheriff’s department was called in to manage traffic, says Baumer. Barrels and drums were used to keep traffic off the new pavement while saw crews worked, but they had to remain diligent, he says because, “Residents in the rural area would drive alongside the new pavement and would sometimes cross over it.”

Another challenge Primco faced was the road elevation. The existing road elevation for a

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SR 9 OVERLAY

# PROJECT SNAPSHOT

- » **Project:** Thin concrete overlay on SR 9 in Grant County, Indiana
- » **Length:** 6 miles
- » **Description of pavement:** 4.5 in. concrete overlay over asphalt
- » **Quantity of concrete:** 19,000 cubic yards
- » **Contractor:** Primco, Inc.



“Unlike traditional concrete with 16 ft joint spacing, the thin concrete overlay’s transverse joints occurred every 6 ft.”

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sweeping curve in the northern section of the road was not compliant with the current design speed, so INDOT agreed to have Primco adjust the outer edges of the 4.5 in. concrete overlay for proper superelevations. The outer edges of the superelevations in the curves were as thick as 10.5 in. in some areas to bring the road elevation into compliance with INDOT standards, says Baumer.

Lessons learned during the project included the importance of communication with residents and community members who travel in the areas of construction, Hoy says. “INDOT and the contractor did a good job making sure the closures were communicated and that residents had access to their property,” he says, adding there were also other things learned from this project. “We also needed to have plenty of aggregate on hand for temporary driveways and temporary passing lanes.”

Finishing details also presented a challenge that require careful attention to detail, Taylor says. Because the southern section of the project is considered a rural road, corrugations (rumble

strips) were required along the center and edge lines to enhance driver safety.

Unlike traditional concrete with 16 ft joint spacing, the thin concrete overlay’s transverse joints occurred every 6 ft, says Taylor. “Since this was the first thin concrete overlay project in our area, the frequent joint cuts were not considered upfront,” he says. “Instead of a continuous grind, the contractor had to grind in smaller sections to avoid grinding within 1 ft of the joint.”

Pavement was placed between September 9 and October 26, 2017, then prepared for final detailing. The road was fully opened to traffic in late November.

“The road is greatly improved. It rides well and the correction of the cross-slopes and super-elevation improves the safety of the road as well,” says Taylor. “We are looking forward to seeing how it performs over time and what type of maintenance is required. We are hoping that thin concrete overlay will be the way to fix the many rural roads that have been covered with asphalt for years.”

