

Concrete Construction Improves Roundabouts



LOCATION
Newport, Kentucky

CONTRACTOR
Prus Construction

ENGINEER
Gresham Smith

OWNER
The Kentucky Transportation
Cabinet (KYTC) District 6

Concrete Improves Roadway Safety and Durability

KY 9 Reconstruction Uses Concrete on Elements of State Highway

The Kentucky Department of Tourism has called Newport “the entertainment capital of Northern Kentucky,” and the city has been investing in infrastructure to support its increased commercial and residential development. One corridor improvement was the reconstruction of Kentucky Route 9, which connects the city to I-275 and other cities along the Ohio and Licking Rivers. The project included the installation of two multi-lane roundabouts, with 10-foot lane widths to enhance motorist and pedestrian safety.

The KY 9 project involved complex geometry, especially considering that many of Newport’s tourist attractions are located along its Ohio River front. Prior to the KY 9 reconstruction, the route had delivered travelers to residential streets, and the new roadway is still closely tied to these historic neighborhoods.

Concrete is not typically used on non-interstate projects in Kentucky, but engineer Gresham Smith opted to use concrete because it would eliminate the seam that would otherwise have been required between asphalt lanes and concrete in the gutter pan and bike lanes. In the concrete-paved roundabout lanes, joint lines follow the travel lanes, improving safety. Another safety enhancement associated with concrete is its reflectivity, which improves visibility at night.

Concrete offered a durable option, since asphalt would have required resurfacing every 5–10 years, while concrete pavement can be treated with minor preservation techniques much less frequently. Given the complex elevation transitions of the roundabouts, reducing the need for repair was vital. Less maintenance also means fewer disruptions to traffic, lowering the emissions associated with traffic delays. Another sustainability advantage associated with concrete is carbonation; the chemical reaction between CO₂ in the air and calcium compounds in the concrete forms carbonates and sequesters the carbon.

The KY 9 project was completed in 2018, won a 2019 American Concrete Paving Association Excellence in Concrete Paving Award, and won the 2021 ACEC Kentucky Grand Conceptor Award.

ISSUE

Improvements made by the Kentucky Transportation Cabinet to KY 9 involved installing two highly trafficked roundabouts on a geographically complex riverfront site.

SOLUTION

The joint structure of concrete paving, along with the material’s natural durability and light reflectivity, improved safety and sustainability on the roundabouts.

Kentucky Route 9 Reconstruction

