

Partnerships Bring New Dixie Highway Project to Life

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Examples of new BRT stops,
enhanced traffic signals, pedestrian
improvements and access
management

Carrying more than 60,000 drivers and 4,000 transit riders daily, US 31W (Dixie Highway) has historically been one of the busiest corridors in Louisville, KY. It has provided critical access to jobs, schools and medical facilities for thousands of residents in Kentucky's largest city. But by the early 2000s, decades of wear and tear, compounded by a roadway design insufficient for modern traffic needs, had resulted in the corridor being known as one of the most dangerous in the state.

Community members, Louisville Metro and the Kentucky Transportation Cabinet sought a project that would reimagine the corridor and improve safety and mobility. The result was the New Dixie Highway Project, a \$35 million investment that increased safety, decreased travel times, provided essential access, reduced emissions and expanded economic development over 14 miles of highway.

The new corridor included the region's first Bus Rapid Transit (BRT) system and integrated Intelligent Transportation System (ITS) technology, transit signal priority and bus queue jump technology. With eight state-of-the-art buses and 37 stops between downtown Louisville and Valley Station, the new Transit Authority of River City (TARC) BRT line decreased travel time within the corridor. In addition, upgrades to pedestrian areas and intersections, along with raised medians, new turn lanes and better

signage, improved safety along the corridor, which previously had a fatal crash rate of more than three times that of similar roadways.

Accelerated Schedule for Complex Improvements

This project included numerous challenges during both the design and construction phases. These ranged from completing the design in an accelerated schedule and implementing new traffic strategies and transit technologies within the existing right of way, to navigating extensive utilities within the corridor.

The first challenge was the schedule that was shorter than many comparable projects. This was due to constraints associated with the project's \$16.9 million Transportation Investment Generating Economic Recovery grant from the United States Department of Transportation. The project team worked to complete the National Environmental Protection Act process in seven months, and the speed did not let up after that. The project was let for construction in 2018 after an accelerated design phase of only 10 months, with substantial completion in the fall of 2020. The lack of a right of way and utility phase compounded the project complexity and increased issues that the project team normally would not have experienced during the design and construction phases.

Since improving safety was an important goal of the project, a key strategy was the implementation of an extensive access *(continued on page 34)*



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management policy that reduced possibilities for vehicle crashes. This policy included converting the existing traversable median to a raised unmountable barrier (with left-turn storage lanes at key intersections) and restricting left turns into and out of individual driveways. These changes provided significant safety benefits and required buy-in from all city agencies and key local stakeholders. The policy also acted as a template for Louisville Metro and was incorporated into the Land Development Code for use on other major roadway projects in the future.

One of the major components of the project was the region's first BRT system. The project upgraded TARC's busiest route by consolidating and enhancing existing bus stops, introducing limited stop overlay service and deploying transit signal priority/queue jump technology at traffic signals along the bus route. Because the new roadway design was required to stay within the existing right of way, the Dixie Highway BRT line did not include a dedicated transit lane. Instead, it included state-of-the-art transit signal priority technology. This used connectivity between equipment on the buses and the traffic signals to prioritize transit buses through intersections and reduce signal delay time by slightly adjusting the signal timing, such as holding green lights longer or shortening red lights. Queue jump operations also reduced bus delays by using existing right-turn lanes to allow buses to bypass approach queues and travel through the intersection prior to general traffic via bus-only signal phases. This decreased travel time and improved schedule reliability for transit riders.

Dixie Highway was an extremely congested utility corridor, serving as one of the main routes feeding all utility infrastructure from the central business district to southwest Louisville. Navigating existing utility lines through design and construction was a major effort. But the team developed a relationship with KY Wired (Kentucky's statewide broadband network) to install new fiber-optic connectivity along a major portion of the corridor, enhancing Metro Louisville's internet technology systems network. As Louisville completes new projects, this fiber-optic backbone will be extended. For example, a separate street reconstruction under way on nearby Ninth Street included plans to tie into the Dixie Highway fiber-optic network.

Partnership Built on Collaboration

The New Dixie Highway Project was a testament to the longstanding commitment of community and agency partners to improving this corridor. The team of partners navigated the project on an accelerated schedule from the environmental process through design and construction. They accomplished this by working together throughout the project to achieve consensus on critical project issues.

HDR served as the prime consultant, working with such partner firms as C2 Strategic Communications and Taylor Siefker Williams Design Group. Additional subconsultant partners included Neel-Schaffer, EHI Consultants, Quantum Spatial, Civil Design, Inc. and Corn Island Archaeology. 🇺🇸