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A roundabout solution to traffic woes

Circular intersections befuddle drivers but lead to fewer wrecks, less congestion

By Tony Gonzalez / The Tennessean

FRANKLIN — When traffic roundabouts first came to the McKay's Mill neighborhood, so did confusion for many drivers.

Homeowner newsletters, over and over again, explained how to navigate the unfamiliar intersections where you ease your car into a circular drive and exit on another side.

But puzzled or not, drivers are having far fewer accidents at roundabouts scattered throughout the region than at traditional intersections. And many more roundabouts are in the works in both residential and commercial districts.

Middle Tennessee State University is leading the way, working on the second of three roundabouts on campus. Belmont University is planning one. Another will route traffic near the future Music City Center in Nashville. Two more are planned in Franklin. And many more are cropping up in subdivisions.

One of the more visible roundabouts in Nashville is the Music Row roundabout. When that opened in 2001, replacing a complex set of traffic signals, it was a pioneer in Tennessee.

According to measurements of four-year blocks before and after it was installed, the Music Row roundabout cut crashes by almost half and injuries and delay times by more.

"Roundabouts are uncomfortable. They're different. But when you look at the facts, roundabouts are very effective at reducing crashes, reducing congestion," said Bob Murphy, president of RPM Traffic Consultants, the firm that designed the Music Row roundabout.

Forced to think

Discomfort is an intentional part of roundabout design. Unsure drivers slow down, reducing collisions and injuries when they do occur, said Murphy, one of three local members on a national Roundabout Task Force aimed at teaching the benefits to traffic engineers, landscape architects and college students.

"It doesn't require that much thought to drive through a traffic signal, whereas with a roundabout you actually have to think," he said.

Geometry matters, too.

Roundabouts reduce the number of places where cars can collide, and the shape eliminates dangerous head-on and T-bone collisions. The circles also allow drivers to look primarily to the left, instead of both ways.

Federal Highway Administration data point to a 90 percent reduction in fatal collisions and a 76

percent reduction in injury collisions at intersections converted from traditional signals.

At MTSU, a police officer used to direct traffic at one of the main campus entrances on MTSU Boulevard.

Cars would back up 10 to 15 deep in every direction, said Ron Malone, assistant vice president for events and transportation services. The crossing averaged a few crashes each year.

With the roundabout, there's no need for an officer and there's been just one fender bender in three years, he said.

"Prior to putting in that roundabout, evacuating through that intersection would have been a total nightmare," Malone added.

Also important for MTSU were the design possibilities for roundabouts, which include areas for landscaping. The first campus roundabout features historic limestone columns from the state Capitol.

Elaborate designs can increase the initial cost of a roundabout, engineers and officials said, but operations costs are low over time without signal and equipment maintenance.

Hurdles to building

Belmont University is planning a pair of roundabouts on Acklen Avenue near the future home of its law school building.

Jason Rogers, vice president of administration, said safety and traffic flow are the primary reasons.

"At first there were concerns," he said of neighborhood meetings over about seven months as the future of the area was discussed.

Ultimately, the addition of parking and new construction pointed to more traffic.

"We didn't feel this four-way stop was going to operate very well," said Murphy, who worked with the university on the project.

Roundabouts have limitations when it comes to traffic volume, said Joe Carpenter, assistant commissioner of environment and planning with Tennessee Department of Transportation.

He said single-lane roundabouts can handle a maximum of 25,000 daily trips. Dual-lane circles can handle about 45,000 trips.

"You can't have traffic to queue or back up in it," he said. "It all works on a yield or a free flow."

That said, Carpenter pointed to federal funding preferences for roundabouts, including some that can be reimbursed at 100 percent. He said TDOT is considering the traffic alternative more often.

Roundabouts also can require more space than a traditional intersection, said Scott Niesen, vice president of Ragan Smith engineering firm in Nashville, which has designed about 30 roundabouts for Middle Tennessee, including in residential neighborhoods and those in Franklin.

Niesen, who gives presentations for the task force, said local champions in governments will fuel the rise of roundabouts.

He and Carpenter said Tennessee and the Southeast are behind other regions in installing roundabouts. But both agreed with Murphy that more will come, as long as developers and cities continue to educate drivers.

“People have acclimated very quick to these types of features,” Carpenter said. “It’s common sense.”

In Franklin, years after the roundabouts first appeared in McKay’s Mill, some drivers still don’t understand when to yield, said resident Cari Safford. But most do, and she and neighbors see the benefits of roundabouts.

“It keeps things moving,” Safford said. “Even if you don’t know how to use it, at least you’re moving slow.”

Additional Facts

Safety effects of roundabouts

- » Head-on and T-bone collisions are eliminated.
- » Geometry lowers speeds.
- » There are fewer collision points.
- » Unfamiliarity encourages cautious, defensive driving.
- » No left turns across oncoming traffic.
- » Drivers can focus primarily on looking one direction: left.

Source: Federal Highway Administration, local traffic engineers
