

Roundabouts gaining ground

Despite the learning curve for drivers, traffic engineers say circles are safer and cost less than traditional intersections

By Mike Chalmers
USA TODAY

For 10 years, Richard Towner braced himself for possible crashes as cars zipped through the intersection of Choptank and Churchtown roads north of Middletown, Del. "Cars were running through the stop signs all the time, and it's just lucky there wasn't something tragic," says Towner, whose backyard is within 100 yards of the intersection.

About two years ago, the Delaware Department of Transportation tore out the four stop signs and redesigned the intersection as a roundabout. It was the first of three roundabouts — one-way, slow-speed circular intersections — built during a three-year, \$11.3 million reconstruction project that ended in May.

Delaware is one of many states embracing roundabouts. Rhode Island, Georgia, Maryland and Nebraska are among others where they have been built and where more are planned.

Engineers say they are safer, quieter, more environmentally friendly and can be cheaper than building intersections with signs or signals.

Converting a traditional intersection to a roundabout led on average to a 35% drop in crashes and a 76% drop in fatal or serious injury crashes, according to a 2007 study of 55 sites by the National Cooperative Highway Research Program of the National Academies.

The cost of a roundabout varies, says Mike Williams, spokesman for the Delaware Department of Transportation. Replacing a simple, four-way stop with one could cost a couple hundred thousand dollars; using one in redesigning a complicated intersection could cost a few million dollars, he says.

Over the long run, roundabouts are often cheaper than traffic signals, which have ongoing operational and maintenance costs, he says.

The key selling point, proponents say, is safety. "They're just much safer than any other kind of intersection," says Robert Rocchio, state traffic engineer for Rhode Island. Rocchio says the state has installed four roundabouts and is designing two dozen more.

Projects considered

States going the roundabout route include:

► **Georgia.** The state has 16 roundabouts, and its Department of Transportation has identified about 100 more intersections where they would work, state traffic engineer Kathy Zahul says.

"People are generally opposed to it until they get one, and then they say, 'Oh, this is great,'" she says.

► **Maryland.** The state has installed 80 roundabouts on state roads and is planning about 15 more, says David Buck, a spokesman for the Maryland State Highway Administration.

► **Missouri.** The state has 119 roundabouts, and the department is building or planning two dozen more, Department of Transportation spokesman Jorma Duran says.

There are six roundabouts in Delaware, and DelDOT is building or planning about 45 more, says Charlie Altevogt, a program manager in the department's planning division.

"When they're designed properly and put in the right location, they're a great traffic tool," he says.

U.S. transportation departments are building about 150 to 250 roundabouts a year and ideally should quadruple that number, says Cathy St. Denis, a spokeswoman for the Federal Highway Administration. "America's drivers are safer because of ... modern roundabouts," she says.

Public acceptance

The biggest obstacle for roundabouts can be public acceptance, at least initially, experts say.

"There's definitely a learning curve for motorists," says Jana Tidwell of AAA Mid-Atlantic. "It's different than the already-trained red-light green-light scenario. Once you experience it a few times, you become more comfortable."

That's also the conclusion of Aemal Khattak, a civil engineering researcher at the University of Nebraska at Lincoln. He and colleagues studied drivers' confusion at roundabouts, which have become more common in Nebraska in the past few years.

Most confusion comes from yield rules in a roundabout, he says. Vehicles entering a roundabout must yield to those already in the circle.

"Drivers are conditioned that drivers on the right have the right of way, but in a roundabout, it's the other way around," Khattak says.

That's one of the big differences between what traffic engineers call the "modern" roundabout and the much-maligned traffic circles in New Jersey, Altevogt says. Traditional traffic circles are large, higher-speed interchanges where vehicles in the circle must yield to those entering the circle, which makes them prone to congestion, he says. Roundabouts are smaller, have slower speeds and make entering vehicles yield to those already in the circle, he says.

Roundabout facts

- Slow-speed, circular intersection.
- No stop signs or signals within the circle.
- Safer than other types of intersections with fewer points where vehicles could collide with each other, pedestrians or bicyclists.
- Crashes are less severe as vehicles have already slowed down to enter and navigate the roundabout.
- In a crash, vehicles tend to sideswipe each other, rather than collide in a T-bone manner.

Splitter island

Separates entering and exiting traffic. Refuge for pedestrians and bicyclists.

Mountable apron

May be necessary for larger vehicles to navigate through the roundabout.

Entering vehicles
Must yield to traffic already in the circle.

Central island
Guides vehicles and forces slower speeds
Could be landscaped

Flow of traffic is counterclockwise

Roundabouts are not ...

Traffic circles

These are usually bigger and designed for higher speeds. They may have signals in the circle. Traffic in the circle yields to traffic entering the circle, often leading to gridlock. Examples include the Marlton Circle in New Jersey, Columbus Circle in New York City and DuPont Circle in Washington, D.C.

Rotaries

Similar to traffic circles, featuring high speeds in the circle and on approaching roads. Examples are throughout New England.

Neighborhood circles

These are small islands designed to calm traffic, rather than control an intersection.

Source: Delaware Department of Transportation
By Julie Snider, USA TODAY

About 22% of fatal crashes nationwide in 2008 happened at intersections, according to data from the National Highway Traffic Safety Administration's Fatality Analysis Reporting System.

That's what makes roundabouts so appealing, Altevogt says.

First, vehicles must slow to 15 to 25 mph to negotiate a roundabout, he says. Also, vehicles can only collide with each other, a bicyclist or pedestrian at a few points in the circle, compared with dozens of points in a typical four-way intersection.

When crashes do happen, they are less severe, he says. "That's a huge, huge benefit," he says.

They're also quieter and less polluting because vehicles aren't constantly stopping and starting, Altevogt said.

Roundabouts do have their limits, though.

They need a little more land than traditional intersections, so they won't fit in tight spaces, Altevogt says, and they're also no good on evacuation routes, where they would unnecessarily slow traffic during an emergency.

Chalmers reports for *The (Wilmington, Del.) News Journal*