

Modern Roundabouts: A Safer Choice

Spokesperson: *Did you know* that more than 20 people are killed and many more are seriously injured in crashes at intersections every day in the United States? *Did you know* that most of these deaths and injuries are due to right-angle crashes that occur at signalized and stop-controlled intersections? How much time do you spend stopped at a red light waiting for the light to change when there is no traffic on the cross-street? *Did you know* there is an intersection alternative that is *substantially* safer than signalized and stop-controlled intersections and much more efficient?

The USDOT's Federal Highway Administration (FHWA) has identified **modern roundabout intersections** as one of nine proven life-saving roadway safety strategies. **Modern roundabouts** are not only safer than traditional signalized and stop-controlled intersections, where *appropriate* and *properly designed*, roundabouts operate more efficiently, often have lower life cycle costs, and result in increased fuel efficiency.

So what is a roundabout? A roundabout is a circular intersection. Traffic flows counter-clockwise around a center island. Entering traffic yields to circulating traffic in the roundabout. Channelized approaches using splitter islands deflect traffic as it enters the intersection, slowing speeds. While the vast majority of roundabouts are single lane, one-quarter of the roundabouts in the U.S. have two lanes, which also provide safety benefits. Roundabouts with up to three lanes have been successfully built. Mini-roundabouts can be used in low-speed urban environments in lieu of a stop sign or traffic signal.

Roundabouts are different from other types of circular intersections that you might have seen. They are *not* rotaries or the older traffic circles, which are still common in the northeastern United States, which typically have higher speeds on approaches and usually higher speeds within the circle. They may use stop- or signal-control, or they may require circulating traffic to yield to entering traffic. A roundabout is also not the same thing as a neighborhood traffic circle, typically used on local streets for speed control.

Roundabouts have several distinguishing characteristics and benefits, setting them apart from other intersection types. Traffic can move freely through roundabouts. This makes them more efficient than signalized or stop-controlled intersections. Unlike other types of intersections, roundabouts are designed to slow the speed of vehicles entering by deflecting them from a straight-line path into the roundabout. Drivers approaching the roundabout have time to judge for gaps in the circulating traffic and either yield or adjust their speed before entering the intersection. This allows for safer entries into circulating traffic.

In addition to channelized approaches, signs and pavement markings on the roadway guide drivers to make sure they take the proper entry path. Roundabout intersections *can require* additional space compared to a traditional intersection, but they may be constructed within the existing right-of-way.

Roundabouts eliminate dangerous left turns across opposing traffic lanes and virtually eliminate high-speed right-angle and head-on crashes.

While initial construction costs can be higher with roundabouts, they often have lower operating and maintenance costs than signalized intersections. They can have ongoing costs for lighting and maintaining the landscaping, but unlike a signalized intersection, there is no signal equipment to install, power, and maintain. Roundabouts have longer service lives than traditional intersections resulting in better economic value over the long term, especially when you factor in the reduction of fatal and injury crashes.

Roundabouts are also the greenest intersection alternative and not only because of their aesthetic appeal. Reduced vehicle idling means fewer emissions and less wasted fuel. Less acceleration and fewer sudden "hard stops" means quieter, more peaceful transportation through communities. Landscaping in the central island, splitter islands, and along the approaches can further benefit and enhance community livability.

With all of these benefits, why aren't all transportation agencies building modern roundabout intersections? One of the biggest reasons transportation agencies overlook this **proven intersection safety solution** is out of concern that the public just won't accept them. But trying one roundabout is usually all it takes to convince even the biggest skeptic of their benefits.

Brian Walsh: In the 12 years the department has been building roundabouts, we've had our share of skeptics, but what we've found is that after the roundabout is built, the skeptics become supportive of the idea, which is a tribute to the time savings and the safety benefits that a roundabout offers.

Spokesperson: Some States now have roundabout policies that state that roundabouts should be considered as an intersection alternative. Numerous States like Washington and cities across the country like Carmel, Indiana, have embraced roundabouts and support their development. Washington State now has more than 150 roundabouts, and the city of Carmel, Indiana, alone has more than 50 roundabouts with many more planned!

Jim Brainard: We were one of the first communities in the Midwest to build roundabouts and make the determination that they worked better than stop lights in many, many cases.

Spokesperson: A common concern for people that have not experienced driving through a properly designed roundabout is that they won't be able to get used to the new traffic pattern. But studies

consistently show just the opposite – the public overwhelmingly supports roundabouts after they are constructed. Older Americans, in particular, are supportive of roundabouts.

Jana Lynott: By 2025, a quarter of all drivers in the United States will be over the age of 65. Intersections are the single most dangerous traffic environment for drivers of any age with left-hand turns being the single most dangerous traffic maneuver that any of us can make. Forty percent of all crashes that involve drivers over the age of 65 occur at intersections. This is nearly twice the rate of experienced younger drivers. AARP would like to see more roundabouts constructed because of the many safety benefits that they present for drivers of all ages.

Spokesperson: As with all new traffic treatments, thorough public education, effective signing, and pavement markings are key to educating all drivers on new traffic patterns.

So are roundabouts safe for other road users? In general, pedestrians face far less risk at roundabouts than traditional intersections, primarily because of the slower speeds and the elimination of turns across the pedestrian crosswalks. Splitter islands both shorten the crossing distance for pedestrians and allow them to cross one direction of traffic at a time. All of this adds up to increased safety. There is ongoing research to determine the most effective strategies for making roundabouts accessible for visually impaired pedestrians. The U.S. Access Board has been active in the development of design guidelines for roundabouts. The National Cooperative Highway Research Program (NCHRP) is also researching a range of geometric designs, traffic control devices, and other treatments to make roundabouts more accessible to pedestrians with vision impairments. Bicyclists can dismount and use the pedestrian crosswalk, or experienced bicyclists can ride through the roundabout.

What about trucks and other large vehicles? Are they able to navigate through roundabouts? Roundabouts can be built to accommodate the turning radii of large trucks and trailers just like any other intersection. Roundabouts generally have truck aprons – a slightly raised area around the inner circle that provides trucks, buses, and other large vehicles additional room to navigate the roundabout.

So what do emergency service providers think about roundabouts? Emergency service providers are able to navigate through roundabouts with their largest vehicles. In emergency situations, roundabouts can be safer and more efficient for an emergency vehicle than traditional intersections.

Roundabouts can work very well on a wide range of road types, including freeway **interchanges, urban and suburban corridors**, and **high-speed rural roadways**. Some people think they can't be constructed on State roads, but that's just not true. There are numerous examples of successful roundabouts built on State roads, and the number is growing rapidly.

The importance of proper design cannot be overstated. Good design is critical to the success of a roundabout. Other keys to success include public involvement and stakeholder support. FHWA offers numerous resources, including a one-day informational workshop for State and local transportation agencies. To learn more visit the FHWA Safety website.

Joe Toole: Well-designed roundabout intersections have been proven to not only help traffic move more efficiently but also reduce the risk of fatal and serious crashes. This is why the Federal Highway Administration is strongly encouraging State and local leaders to take a hard look at roundabouts as an alternative to conventional intersection designs. If you're looking for ways to reduce congestion, improve safety, and enhance your community's environment; modern roundabouts may be just the solution for you.