



## Florida Department of Transportation Research Roundabouts and Access Management BDK77-977-22

Roundabouts, once rare in the U.S., are being installed more often to address access management and safety concerns. Access management is how planners look at means of entering and exiting a roadway, for example, how to place features such as intersections, driveways, and medians, in order to ensure safe and efficient operation of the roadway. Roundabouts offer planners new options, but existing research provides little guidance on evaluating the use of roundabouts as a form of access management.

In the project, University of Florida researchers studied roundabouts in relation to access management. The project had three primary components: review and assessment of federal and state guidance related to roundabouts and access management; safety analysis of all 283 roundabouts in Florida; and an operational analysis of selected roundabouts.

The researchers reviewed the literature related to safety, access management, and multimodal transportation, especially for bicyclists and pedestrians, and roadway capacity associated with the use of roundabouts. A review of federal and state guidance and policies regarding roundabouts and access management identified major studies, including NCHRP 672 and guidance in Kansas, Wisconsin, and Virginia that recommended intersection and driveway spacing similar to spacing for unsignalized intersections.

In the safety analysis, researchers analyzed statistics of crashes in and near roundabouts by area type, crash type, crash severity, and number of vehicles involved. The researchers studied the impact of driveway locations and median openings on these crashes, crashes near roundabouts that provide access to an activity center, and those involving pedestrians and bicyclists.

Operational analysis was conducted for 13 selected Florida roundabouts, focusing on conflicts between vehicles, bicycles, and pedestrians,



*A sign warns drivers of the upcoming roundabout. Signs in the background provide additional guidance.*

access to driveways, and violation of traffic rules. Video footage taken at each roundabout was analyzed for types of access issues. Software tools available for operational analysis of roundabouts were evaluated for applicability to roundabouts, including an example analysis using the Highway Capacity Software (HCS; McTrans, 2010).

The safety and operational analyses identified four areas of concern: corner clearance, including stopping site distance and intersection sight distance; the need for guidance on the functional area near roundabouts including driveway and intersection spacing and the use of median; access to major activity centers; and safety of vulnerable road users, especially cyclists and pedestrians. Operational analysis confirmed the similarity between roundabouts and unsignalized intersections; however, differences between them may influence operations and safety within the functional area of the roundabout.

Researchers recommended changes to FDOT's Access Management Tools, Median Handbook, and Driveway Information Guide. These changes will lead to safer, more effective, and ultimately, better performing roundabouts for all users of the transportation system in Florida and throughout the U.S.