

## Modern roundabouts can serve a city's current and future needs

MODERN roundabout intersections are starting to be considered as solutions to traffic problems at existing intersections. Roundabouts can also be effective in new designs such as the street network at the Airport Business Park. The Airport Business Park roundabout is located at the intersection of S.W. 28th Street, Rittenhouse Street, and Gannett Avenue in Des Moines.

"This was a brand new street system," says Mike Ring, principal traffic engineer for the City of Des Moines. "The area was undeveloped, and a roundabout seemed to fit the street network. It was something new that the city and the developer wanted to try." The roundabout was constructed and put into service south of Des Moines International Airport about a year ago.

### Roundabouts control traffic

A modern roundabout is a circular intersection designed to control traffic by routing it in only one direction—counter-clockwise—around a central island. Traffic entering the roundabout yields to traffic already in the circle. Roundabout traffic keeps moving without experiencing the delays and backups often associated with busy signalized intersections.

Ring says that, so far, the business park roundabout has experienced very low traffic volumes because the park is not yet developed. However, says Ring, "Traffic projections are very high, and the roundabout design was used because it would fit both present and future needs."

Gary Fox, traffic engineer for the City of Des Moines, agrees, saying that the city and the developer chose to design and construct the roundabout rather than install four-way stop signs that would need to be replaced by traffic signals once traffic volumes reached their projected levels.

Ring says that the business park roundabout was built larger than many roundabouts because quite a bit of truck traffic was projected for the intersection. The size of the inscribed circle, or outside diameter, is about 170 feet, and the diameter of the center island is close to 100 feet. The island has been landscaped, and colorful artwork has been placed in the middle of it.

### Cost

Cost wasn't really a significant factor in the decision to build this particular roundabout because it was



The modern roundabout at the Airport Business Park south of Des Moines International Airport features colorful artwork and landscaping in the center island.

brand new construction, says Ring. He adds that retrofitting an existing intersection to a roundabout design would be a much more expensive project. He says the cost of this improvement was borne by the developer.

Ring says that if they had built a four-way stop sign intersection that later had to be upgraded to a signalized intersection, the city would be looking at "a cost of \$100,000 to \$125,000 just for the traffic signals. The pavement modifications would cost more than that."

### Driver benefits of roundabouts

One of the main benefits of a roundabout compared to other methods of traffic control, says Ring, is the low speed (10–15 mph) at which traffic enters it. "There's less chance for injury-type accidents because people aren't driving 30 to 40 mph through green lights. Also, there's no chance of running red lights and causing crashes."

Lower speed is also listed by the Maryland Department of Transportation's State Highway Administration as one of the reasons that roundabouts have fewer accidents than other intersections. The 1992 video "Modern Roundabouts" identifies fewer conflict points and easier decision making as additional factors that make roundabouts safer.

The video explains that a driver entering a roundabout has to yield to only one traffic movement—the traffic already in the circle, to his or her left. At a stop sign, a driver who crosses a road has to deal with two conflicting movements,

*[Driver] decision making is easier because there's only one decision to make—is there a large enough space to enter the roundabout?*

and a driver making a left turn has to deal with three conflicting movements. Decision making is easier because there's only one decision to make—is there a large enough space to enter the roundabout?

#### **Some advice**

Ring says that a consulting firm was hired for the business park roundabout project. He says that using a consulting firm is a good idea for cities planning to build their first roundabout because there are some unique design elements that city engineers might not be aware of.

#### **For more information**

For more information about Des Moines' experience with roundabouts, contact Gary Fox or Mike Ring at 515-283-4973.

Additional information about roundabouts, including the video mentioned in the article, is available for loan from the LTAP library at the Center for Transportation Research and Education. Contact Jim Hogan, library coordinator, 515-294-9481, hoganj@iastate.edu. •



Signing and divider islands encourage appropriate turning movements around a roundabout.

## Web sites

#### **[www.ops.fhwa.dot.gov/wz/workzone.htm](http://www.ops.fhwa.dot.gov/wz/workzone.htm)**

The Federal Highway Administration's *Best Practices Guidebook* can be accessed at this site. The guidebook briefly describes best practices, specifies locations where they will be most effective, and gives contact information for each practice.

#### **[www.pavement.com/UTW/UTWCalc.asp](http://www.pavement.com/UTW/UTWCalc.asp)**

This site provides a calculator that helps users decide whether or not ultra-thin whitetopping (UTW) pavement is an option for their roadway rehabilitation projects.

#### **[www.naco.org/affils/nace/](http://www.naco.org/affils/nace/)**

The National Association of County Engineers offers a new online listserv that makes it possible for users to share information with county engineers across the country. To take advantage of this service, just click the registration button and complete the brief form.

#### **[www.iceasb.org/](http://www.iceasb.org/)**

The Iowa County Engineers Association Service Bureau web site provides a roster of county engineers, news about county road departments, online surveys, and contact information for suppliers and contractors.

#### **[www.roadcommerce.com/](http://www.roadcommerce.com/)**

This American Traffic Safety Services Association web site can help users find a wide variety of roadway safety products and services. Searches by product, service, or supplier name are possible. Links to the vendors' web sites are also provided.

#### **[www.ctre.iastate.edu/](http://www.ctre.iastate.edu/)**

The Center for Transportation Research and Education's web site provides links to the Local Technical Assistance Program (LTAP), the Iowa Traffic Safety Data Service, and the Center for Portland Cement Concrete Pavement Technology. Transportation-related publications and research reports, schedules for safety training workshops, and access to the LTAP lending library are also available.