

# Engaging Freight Stakeholders in the Roundabout Design Process

## Location

### Wisconsin

## Strategies Employed

- ✓ Provided designers access to truck training simulators and “ride-alongs” to gain a driver’s perspective with respect to maneuvering through a roundabout.
- ✓ Developed representative freight vehicles in the WisDOT design library that designers can use to simulate vehicle travel through a proposed roundabout.
- ✓ Established an “OSOW freight network” for WisDOT and the freight industry to identify intersections with particular OSOW needs.
- ✓ Worked with trucking company managers on training to educate their drivers on proper navigation of roundabouts.



Figure 1: Oversize truck entering a roundabout designed to accommodate OSOW vehicles.



Roundabout intersections are purposely designed to improve safety and efficiency through a combination of geometry and traffic control that results in reduced speeds and minimal delay. However, when the geometry does not adequately accommodate the needs of trucks and freight, unexpected complications can result. Working together, road agencies, freight company owners, and truck operators can strategically improve both the design of roundabouts and the ability of drivers to navigate them.

IN WISCONSIN, AS BOTH FREIGHT TRUCK TRAFFIC AND THE NUMBER OF ROUNDABOUTS INCREASED, SO DID THE NEED FOR BETTER PARTNERSHIP AMONG STAKEHOLDERS.

## Background



Figure 2: Roundabout with OSOW features.

Positioned between two major freight generating metropolitan regions—Chicago and Minneapolis/St. Paul—the State of Wisconsin plays an important role in national and regional interstate commerce. Much of the state’s freight traffic is considered “pass-through” (i.e., neither its origin nor destination is in the state). Nearly 76 percent of the goods moving throughout Wisconsin are shipped by trucks. An important and

growing category of truck traffic in the state consists of oversize/overweight (OSOW) loads, which have unique characteristics that set them apart from conventional trucks.

Enhancing freight mobility is a top priority of the Wisconsin Department of Transportation (WisDOT). As Wisconsin businesses and consumers rely on a transportation system that allows freight to move in a safe and efficient manner, it is important that WisDOT respond to the needs of freight carriers. Accordingly, WisDOT’s long-range transportation plan, *Connections 2030*, includes a key policy linked to economic growth: partner with stakeholders to ensure that freight movements are safe and reliable and provide positive environmental and community impacts.

The emphasis on safety is taken seriously by WisDOT, and this is reflected in the *Wisconsin Strategic Highway Safety Plan (2011-2013) (SHSP)*, which presents a “Zero Deaths” vision and stresses the importance of partnerships as the key to success in saving lives and preventing injuries. With intersections representing 26 percent of statewide traffic fatalities and 49 percent of non-fatal traffic injuries, the SHSP identifies “improving the design and operation of intersections” as one of the *Highest Priority Issue Areas*. Among several strategies for addressing this issue is to “increase the number of roundabout installations,” which WisDOT has done faithfully, in the process becoming a national leader.

The combination of freight traffic growth, particularly the OSOW vehicles, and an increasing number of roundabouts along the state trunk highway network has led to a rare opportunity to collaborate with freight stakeholders on the design parameters and implementation process for these intersections.

## Lessons Learned

- Outreach is most effective when it begins early in the process.
- Regular, proactive outreach improves communication between freight stakeholders and the road agency.
- Effective dialogue enables stakeholders to identify the true source of problems, which may sometimes be resolved with a simpler solution than first anticipated.
- It is important to consider anticipated truck demands in new roundabout designs to extend the service life of the intersection and improve operations.
- Developing a relationship between industry and the road agency requires patience from the participants and a commitment to collaborate.
- Stakeholders do not all speak the same “language.” Ensure all parties involved understand the details of concerns, needs, goals, and strategies.

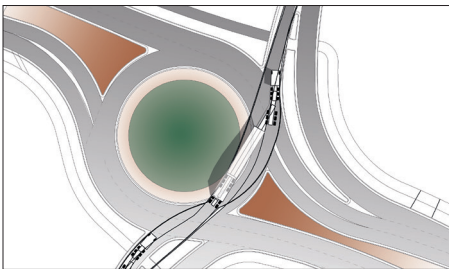


Figure 3: OSOW roundabout design drawing.

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## Approach

To gain a better understanding of the issues, WisDOT’s Freight Operations section used consultants to develop a program of regular outreach to key freight transportation entities in the state. This effort was modeled on past successful outreach experiences and it was structured as a cooperative endeavor between the State DOT and freight community. The WisDOT Freight Operations consultant team obtained and incorporated industry input into design parameters and processes for roundabouts. At the same time, WisDOT was able to provide insight to trucking representatives on how roundabouts factored in to a safer highway system for all users.

While WisDOT initially envisioned a program of outreach from the DOT to the freight community, the effort actually evolved into an effective means of two-way communication. The meetings resulted in a mutual understanding of the issues WisDOT and stakeholders face, some shared and some not. The discussions helped to identify, define, and prioritize the concerns with the understanding that solutions may require compromise by one or more parties. Some of the issues are summarized in the table below.

Shared Goals	WisDOT Objectives	Freight/Trucking Industry Objectives
<ul style="list-style-type: none"> <li>• Roads that are safer, where fewer people are killed or injured in traffic-related crashes</li> <li>• A highway system that is reliable and efficient</li> </ul>	<ul style="list-style-type: none"> <li>• Construct cost-effective, balanced projects that serve all users well</li> <li>• Roundabout designs that achieve the necessary reduction in speed to ensure safety</li> </ul>	<ul style="list-style-type: none"> <li>• A highway system that allows businesses to thrive and add value to the state economy</li> <li>• Intersections that provide adequate geometric space to maneuver efficiently</li> <li>• Drivers who are properly educated on how to maneuver roundabouts and drive defensively</li> </ul>

The public-private partnership has provided ample opportunities for stakeholder groups to address concerns, clarify misconceptions, and educate one another. This improved ability to work together to promote common goals has resulted in roundabouts that serve the freight and trucking industries better while still helping to achieve statewide intersection safety goals.

## Results

The WisDOT Freight Operations consultant team’s outreach program has successfully demonstrated how cooperative efforts between WisDOT and the freight industry can result in better intersection designs, and has expanded discussions beyond roundabouts.

For example, at a meeting with specialized carriers that focused on OSOW issues, the WisDOT Freight Operations consultant team discovered that it would be beneficial to define an “OSOW freight network” to help identify intersections where additional considerations for OSOW vehicles are needed, such as modified truck aprons or removable sign post assemblies.

The outreach program has also identified driver education and instruction needs. A particular roundabout near a distribution center had an unusual incidence of loads shifting as trucks traveled through the roundabout. The Freight Operations consultant team met with stakeholders at the distribution center to discuss this issue and found that the shifting load incidents had some common sources, including incomplete driver training and improper methods of securing cargo. As a result of the meeting, the freight stakeholders identified training needs and implemented solutions accordingly. This eliminated the need to make potentially costly changes to the roundabout.