Roundabouts in Corridors: Guide Meridian Case Study
A (MBA) Region Traffic Engineer Perspective: Developing and Delivering Roundabout Intersections

- Dina Swires, P.E.
- Past 10 years > 20 roundabouts constructed
- Half rural, high speed, ADT 8,000 – 20,000, 10+ % trucks
- Many Grant or Local Agency Funded
- More on the Books
WSDOT Design Policy – ICA should contain Truck Design assumptions

Chapter 1300

Intersection Control Type

1300.01 General

It is WSDOT practice to analyze potential intersection solutions at all intersection improvement locations in accordance with Business Practices for Moving Washington, and strive to provide the optimum solution within available limited resources. The analysis may be done for individual intersections, or on a corridor basis. This chapter provides guidance on preliminary intersection analysis and selection of control type. Intersection design is completed using Chapter 1310 for the geometrics of intersections, Chapter 1320 for roundabouts, and Chapter 1330 for traffic signals.

Intersections are an important part of highway design. They comprise only a small percentage of the overall highway system miles, yet they account for a high percentage of reported collisions.

Traffic and driver characteristics, bicycle and pedestrian needs, physical features, and economics are considered in selecting traffic control that facilitates efficient multimodal traffic flow through intersections. Signs, signals, channelization, and physical geometric layout are the major tools used to establish intersection control.

 Typically, potential project locations will have been identified through the safety improvement priority programming process, necessity for a mobility project for congestion improvement, commercial development, or other improvement project.

An Intersection Control Analysis (ICA) should be completed as early in the design development process as feasible. The level of effort of the ICA should be scalable to the project; for example, evaluation of adding a turn lane to an existing intersection control may take less effort than
Conceptual Design

• Roundabouts first on high speed roadways

• Corridor Approach

• Holistic View

• Analyze Alternatives
Developing Roundabouts

- Realistic (growth rates, R Values, EF = 1.1, V/C = 0.92)
Developing Roundabouts

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Developing Roundabouts

• Appropriate Design Vehicle at Each Leg

• U-Turn Needed?

• Single Lane/Slip Lane(s) vs. Double Lane

• Non-Circular is OK
Delivering Roundabouts

• Trust & Relationships

• Build Consensus

• Communication Plan

• Good Design/Construction Team
Buy In Is KEY!

• Internal Support
• Local Jurisdictions
• Elected Officials
• Media
• Community Outreach
Despite having nearly 100 roundabouts across the state, it’s still surprisingly difficult to get community approval to build a roundabout. Typically, communities are 60 percent opposed to roundabouts, but once they’re built, the rating flips to 60 percent approval. The tough part is getting enough approval to start construction. Opponents can be a roadblock, but they don’t have to be. If you stick to the safety statistics, memorize your key messages and follow a few easy steps, you can get your roundabout built.

Five Guide Meridian roundabouts

Starting January 2005, the Bellingham project office in Northwest Region embarked upon a bold new plan for widening and improving safety on Guide Meridian (SR 539) in Whatcom County. The team decided to build five roundabouts within a six-mile corridor; a true 180-degree turn from their original plans. The team recognized that roundabouts would be a drastic change and they needed help.

Expand the team

As soon as they started exploring the idea of roundabouts, the project office expanded their team to include:
- Assistant regional administrator
- Engineering manager
- Traffic engineer
- Roundabout expert from headquarters – Brian Walsh
- Roundabout consultant
- Communicator (public information officer)

Develop plan of attack

We developed a new communication plan for notifying the community about roundabouts. We knew we couldn’t call an open house and douse people with roundabouts. We had to work up to it, nice and easy. We compiled the following items before setting out to tell the community:
- Communication plan
- Key messages
- PowerPoint presentation
Communication Campaign

We armed ourselves to the teeth with roundabout details and statistics. We believed in the safety and life-saving statistics of roundabouts, and felt confident that policy and decision makers would too, if presented with the data before being confronted by the media and constituents. We wanted them to have the facts, so they could decide for themselves whether to support our efforts.

**Week 1**
Meet with **internal audiences** first. That includes upper management, traffic and maintenance.

**Weeks 2, 3, 4**
Meet with your **elected officials and local jurisdictions**. We met with Whatcom County Public Works, legislative district 42 and other necessary local elected officials, and attended city and county council meetings.

**Week 5**
Meet with the **media**. We scheduled individual meetings will all local media in our area, including radio, newspaper and TV. Five roundabouts on the Guide Meridian was a compelling story and every one wanted to cover it.

**Week 6**
Identify your **opponents** and most outspoken groups (i.e., trucking groups, neighborhoods, farmers, or business owners). **Meet with them in small groups.** Don’t give them the opportunity to grand stand in front of large crowds or the media. That will only fuel the fire. The old adage applies here, “keep your friends close, but keep your enemies closer.”

**Week 7**
**Host a community open house.** By the time you get to the open house you’ll have your key messages memorized and you’ll be ready to answer community concerns with good data.
Roundabout education and outreach plan

Roundabouts are relatively new to Washington State. We are designing and building them more often. Our goal is to reach and educate a diverse audience on roundabouts.

Not everyone reads the newspaper or subscribes to our e-mail updates*. We need to reach people where they live, work and play. To do that, we plan to provide information at popular community events (like fairs), gathering places (like the mall or library), and schools.

* We send out weekly e-mail updates about construction projects, lane closures and other items of interest. We have several e-mail lists each targeted to different regions of the state or different state routes. You can look at sample e-mail updates by visiting www.wsdot.wa.gov/NorthWest/EmailUpdates.

Locations where we can take information to the people

- Malls
- Community, technical or four-year colleges
- Libraries
- School district transportation offices
- Transit authorities (bus, light rail, etc.)
- Driver education programs at local high schools
- AARP senior driving program
- Grange or meeting halls
- Police department
- Fire and EMS responders
- Golf courses/planned housing developments
- Senior centers
- Fairgrounds/event centers
- Trucking companies
- YouTube
- Roundabout or project-specific blog page

Education tools

People each learn in different ways. With that in mind, we should work to create educational materials that allow people to learn in a way that is comfortable. Some people prefer to read, others prefer to watch DVDs and still others prefer a more interactive approach. The following are different methods for providing education to a diverse audience:
• People are utilizing **podcasting** more frequently.

• Create a **blog**

• Create an instructional roundabout **DVD**.

• Post instructional video clips to **You Tube**

• Create a **folio**

• **Pamphlet** of frequently asked questions

• Add link to the Project website to various Roundabout **Web site** links

• For community meetings/informational sessions, have a **PowerPoint** presentation

• Use **community TV** (channel 10, local cable access) to show a roundabout video or computer simulations of how to drive roundabouts.
• Local radio stations

• Work with the Department of Licensing

• Distribute new roundabout instructional DVDs and informational pamphlets

• Contact law enforcement agencies to offer briefings on roundabouts

• Create a large roundabout graphic floor mat (walkabout)

• Distribute information to local traffic agencies/law enforcement

• Participate in local community events/fairs

• Work with local emergency responders to begin incorporating roundabouts into their annual emergency vehicle operations course.
Management Support

Prepare Management for negative reaction

Prepare Community officials for a potential negative reaction

Prepare local Politicians for the potential negative reaction

Managements support of going above and beyond typical is critical!
Guide Meridian
What is a roundabout?

A modern roundabout is a circular intersection where drivers travel counterclockwise around a center island. There are no traffic signals or stop signs in a modern roundabout. Drivers yield at entry to traffic in the roundabout, then enter the intersection and exit at their desired street.

Studies by the Federal Highway Administration have found that roundabouts can increase traffic capacity by 30 percent to 50 percent compared to traditional intersections.

Want to learn more? Roundabout videos are available on YouTube.

Traffic circles, traffic calming circles and roundabouts

There are many differences between modern roundabouts, traffic circles (also known as rotaries) often found on the East Coast and in Europe, and neighborhood traffic calming circles.

Traffic circles, or rotaries, are much larger than modern roundabouts. The graphic at right shows the size of a traffic circle (in green) compared to the smaller modern roundabout (in grey). Traffic circles often have stop signs or traffic signals within the circular intersection. The Arc de Triomphe in Paris and Dupont Circle in Washington, D.C., are two examples of older-style traffic circles.

Drivers enter a traffic circle in a straight line and do not have to yield to traffic already in the circle. Traffic circles typically become congested if many vehicles enter at the same time.
Rules of the Roundabout

Roundabouts

As traffic volumes increase on local roadways, engineers are recommending favoring roundabouts as an efficient, cost-effective way to improve safety and traffic flow. Roundabouts substantially reduce severe injury and fatality collisions and allow drivers to get through intersections more quickly. Roundabouts also provide a safer way for pedestrians and bikers to navigate traffic.

Safety benefits

In a recent study by the National Highway Traffic Safety Administration, roundabouts were found to reduce the severity of collisions by 75% compared to traditional intersections. Many states, including Washington, are installing roundabouts in place of traditional intersections to reduce the likelihood of collisions. Roundabouts promote a continuous, one-way flow of traffic and have fewer points of conflict than a traditional intersection.

Studies by the FHWA and the Insurance Institute for Highway Safety (IIHS) have shown that roundabouts typically achieve:

- A 75 percent reduction in overall collisions
- A 75 percent reduction in injury collisions
- A 90 percent reduction in fatality collisions
- A 40 percent reduction in pedestrian collisions
- A 75 percent fewer conflict points than a traditional intersection

Fliers for the Public
Engage your Design Visualization/Art Department

Proposed Roundabout at Pole Road & SR 539
sorry I couldn't make it that day but son Lance brought a truck out and after driving though the set up told me that if the roundabouts were built to the size demo'd that they could be navigated with ease as long as the motoring public in cars were advised by good signage that trucks would have to have both lanes

Keep on Truckin'
DO NOT DRIVE BESIDE TRUCKS IN ROUNDABOUT
Be willing to listen to your customers.
SR 539, Pole Rd
SR 539, River Rd
SR 539, Wiser Rd
WSDOT specific Roundabout Curb Detail
“We like our roundabouts, thank you very much. Sure, there were a lot of questions when the Washington State Department of Transportation announced the traffic devices for the Guide Meridian Road (SR539) widening a few years back, but now that the four in question have been in place, they prove to work quite well.”

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Thank You!