

CENTENNIAL WAY ROUNDABOUT, CALDWELL	
MEETING SUBJECT:	Intersection Alternative Selection Overview Meeting
MEETING DATE:	November 14, 2016
MEETING TIME:	12:00 PM
MEETING LOCATION:	Caldwell

## Meeting Purpose

The purpose of this meeting is to provide an overview of the intersection type selection and alternative evaluation process and present the preferred option for input from ITD prior to Concept Report submittal.

## Intersection Alternatives

The study initially developed 20 intersection types, consisting of conventional and innovative at-grade intersection configurations. The initial intersection alternatives were screened for fatal flaws related to intersection capacity (using CAPX), safety (evaluating potential conflict points) and impacts to major traffic flow patterns, the railroad and private properties. Based on the fatal flaw screening, two final intersection alternatives were advanced for further analysis:

- Conventional signalized intersection: This alternative (see attached) consists of installing traffic signals at the two existing intersections of Centennial Way/Cleveland Boulevard and Centennial Way/Blaine Street on Simplot Boulevard. With this alternative, the two intersections will be reconstructed to allow a free southbound right-turn movement, create longer storage length for the eastbound left turns, and remove one existing rail crossing.
- Roundabout: With this alternative (see attached), the intersections would be reconstructed as one multi-lane roundabout with a southbound bypass right-turn lane, one-way exit on the east leg and close off one existing rail crossing. Other roundabout lane configurations were also evaluated but were discarded by the project team due to operation, safety or access issues.

## Oversize Vehicles

To identify the oversize vehicles that travel through this intersection, we contacted Reggie Phipps, the ITD District 3 vehicle size and weight specialist, to identify oversize vehicles that travel SH-19 and I-84B. The typical route for permitted traffic is US-95 to SH-19 to I-84. She noted that the oversize vehicles that request permits can vary greatly and provided dimensions for three typical oversize vehicles: 10-axle 129K truck, manufactured home transport and wind blade transport.

We also contacted four companies located on Simplot Boulevard (SH-19) that have a high number of trucks or oversize vehicles that travel the intersection (called trucking companies hereafter) for input on their truck sizes and their opinion of operating challenges at the intersection: Holman Transport, Forterra Structural, R&M Steel and JR Simplot. The trucking companies provided both physical dimensions of their typical large vehicles as well as insights as to how they currently navigate the intersection and how they felt about a roundabout both from a maneuverability and safety standpoint.

We also contacted Julie Pipal from the Idaho Trucking Association (ITA) to get their input on the intersection improvements. She referred us to a roundabout in Sandpoint that is currently a problem for one of their trucking members.

Information gathered from ITD and the trucking companies was used to develop AutoTurn oversized vehicle turning templates that we used to model critical turning movements at the intersection. The EB left-turn movement is the critical turning movement at the intersection:

- Forterra beam truck with rear-steering dolly
- Manufactured home transport truck
- WB-67
- Wind blade transport truck
- 10-Axle 129K truck
- Forterra beam truck with fixed rear dolly

See attached exhibits of turning movements. As currently designed, the conventional intersection alternative does not accommodate all of the oversized vehicles; however, modifications to the design could be made to accommodate the vehicles. The roundabout as currently designed accommodates all of the design vehicles except the Forterra beam truck with fixed rear dolly. For the larger vehicles traveling the roundabout, the rear axle tires would travel on the truck apron. The WB-67 can travel the roundabout without driving on the truck apron if the truck takes both travel lanes.

**Public Information Meeting**

The two intersection alternatives, along with vehicle turning movement exhibits, were presented at the public information meeting (PIM) held on August 2 at the Community Room in the Caldwell police station. Tables 1 through 3 present the alternative evaluation, PIM attendance and preferred alternative selection.

**Table 1. PIM attendance and comment summary**

<b>Alternative</b>	<b>Safety</b> Based on expected crash rate and crash severity	<b>Traffic Operations</b> Based on vehicle delay	<b>Pedestrians and Bicyclists</b> Based on sidewalk connections and crossing enhancements	<b>Potential Environmental Impacts</b> Based on preliminary environmental scan results	<b>Cost*</b> (millions)	<b>Benefit*</b> (millions)	<b>Benefit/Cost*</b>
<b>Do Nothing</b> <i>Keep existing stop sign control</i>	<b>Poor</b>	<b>Poor</b>	<b>Poor</b>	<b>None</b>	<b>\$0</b>	<b>\$0</b>	<b>0</b>
<b>Signalized Intersections</b> <i>Traffic signals at both intersections</i>	<b>Better</b>	<b>Better</b>	<b>Better</b>	<b>Minimal</b>	<b>\$1.4 - \$1.7</b>	<b>\$11.7</b>	<b>6.9</b>
<b>Roundabout</b> <i>Consolidate both intersections into one</i>	<b>Best</b>	<b>Best</b>	<b>Better</b>	<b>Minimal</b>	<b>\$2.5 - \$2.9</b>	<b>\$24.7</b>	<b>8.5</b>

\* The Benefit/Cost ratio is a measure of an alternative’s benefits over a 20-year life relative to its initial cost. The Benefit is the estimated fuel savings and reduction in travel time and delay for an alternative compared to the delay and fuels costs of the Do Nothing alternative. The Cost is the estimated construction and right-of-way acquisition costs of an alternative.

**Table 2. PIM attendance and comment summary**

Attendees Signed-In at PIM	Comment Forms Received from People who Attended PIM	Comment Forms Received from People who Did Not Attend PIM	Comment Forms Received from People Affiliated with Trucking Companies	Total Comments Received
13	7	13	14	20

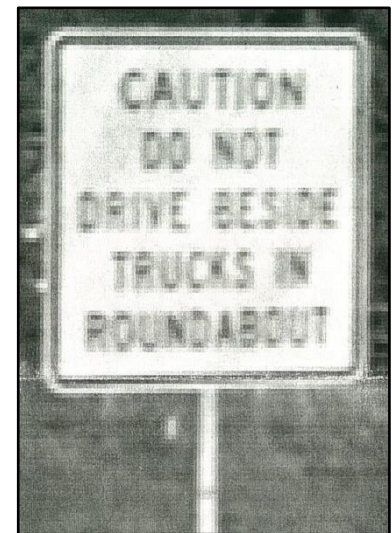
**Table 3. Question No. 1 response summary**

What intersection alternative do you prefer?	Comment Forms Received from People Who Attended PIM		Comment Forms Received from People Who Did Not Attend PIM		Comment Forms Received from People Affiliated with Trucking Companies	
	Total Votes	Percent	Total Votes	Percent	Total Votes	Percent
Do Nothing	0	0%	5	38%	5	36%
Signalized Intersections	1	14%	8	62%	9	64%
Roundabout	4	57%	0	0%	0	0%
No Answer/Other (one person proposed an alternative they developed)	2	29%	0	0%	0	0%

**Trucking Company Coordination**

The ITA and trucking companies that we contacted were invited to a meeting held an hour before the August 2<sup>nd</sup> PIM, where we presented graphics of the oversize vehicle turning paths and discussed their comments and concerns further. Representatives from three trucking companies attended the pre-PIM: one from Forterra Structural, one from Simplot, and two from Holman Transport. Representatives from Holman Transport and Simplot did not express concerns with oversize vehicles at the PIM. Their primary concern was the safety issue of passenger cars driving beside trucks in roundabouts. The Holman representative provided a photo of a sign from Washington that they recommended we add to our design.

The only trucking company representative who attended the PIM and submitted a comment form was from Forterra; however, there were 13 comments forms received from representatives of Forterra who did not attend the PIM. Their concerns were the roundabout’s ability to accommodate their oversize vehicles as discussed below.



Warning sign in Washington state.

**Cars Driving Beside Trucks in Roundabout**

To address the concerns expressed by Holman Transport and Simplot representatives, we looked to Washington State DOT. Their “Driving Roundabouts” web page (<https://www.wsdot.wa.gov/safety/roundabouts/>) includes the following instructions:

**How to drive a roundabout**

There are a few key things to remember about driving roundabouts:

- Yield to drivers in the roundabout
- Stay in your lane; do not change lanes
- Do not stop in the roundabout
- **Avoid driving next to oversize vehicles**

**Trucks/oversize vehicles and roundabouts**

Roundabouts are designed to accommodate vehicles of all sizes, including emergency vehicles, buses, farm equipment and semitrucks with trailers. Oversize vehicles and vehicles with trailers may straddle both lanes while driving through a roundabout.

Many roundabouts are also designed with a truck apron, a raised section of pavement around the central island that acts as an extra lane for large vehicles. The back wheels of the oversize vehicle can ride up on the truck apron so the truck can easily complete the turn, while the raised portion of concrete discourages use by smaller vehicles.

Because large vehicles may need extra room to complete their turn in a roundabout, **drivers should remember never to drive next to large vehicles in a roundabout.**

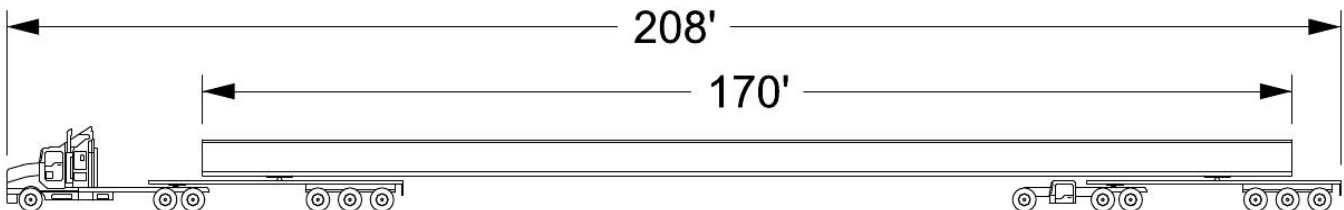


Proposed warning sign for Centennial Way roundabout

We developed the warning sign to the right to address the trucking companies concerns. It is being installed at the Ustick and Lake roundabout in Caldwell and is proposed for the Centennial Way Roundabout.

**Forterra Oversize Vehicles**

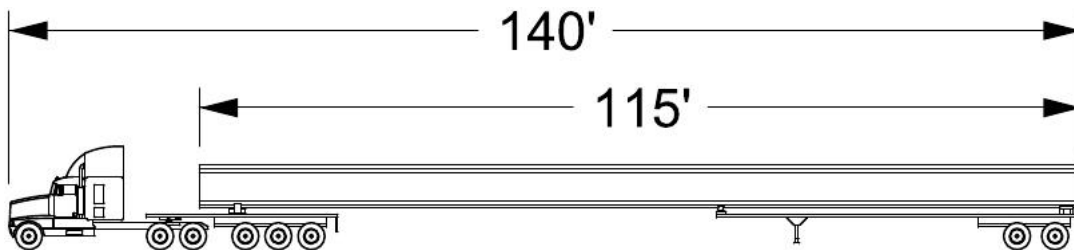
Forterra initially provided their oversize vehicle dimensions for a 170-foot beam truck with a rear-steering dolly, and we designed the roundabout alternative to accommodate it.



Forterra 170' beam truck with rear-steering dolly

When we invited the trucking companies to the pre-PIM meeting noting that we would present two intersection alternatives, Forterra replied as follows:

*Hi, I think we may have given you the wrong idea about what we can haul out of our plant from time to time. I have included a rudimentary setup of load configurations that is different then what we sent you before. Some of the loads can be as wide as 20' on 53' trailer, and bolstered long loads anywhere between 60' to 115' maybe longer if the weights work. I have doubts about a roundabout. Can you give me any more info before the meeting so I can have my engineer look at your proposal to know what to expect?*



Forterra 115' beam truck with fixed rear dolly

We evaluated the different design vehicle – a 115-foot beam with fixed rear dolly – and prepared a turning movement exhibit for discussion at the PIM.

Evaluating the fixed rear dolly truck with AutoTurn shows that neither roundabout nor conventional intersection alternatives can accommodate the vehicle. However, Forterra indicated that they have driven this through the existing intersection. One of the key comments that we gleaned from our discussion with Forterra’s representative at the PIM is their concern with any roundabout design that requires the rear axles to drive on a truck apron. The rear tires driving up on the 3-inch high apron may twist the concrete beams that they transport, causing severe damage or even destroying the beam.

Options to address Forterra’s design vehicle with the roundabout design include:

- Design a path for the rear axles to over-track through the center island of the roundabout, without traveling on a truck apron. The design would only be able to accommodate a limited range of beam lengths, which may not be practical.
- Utilize an alternative travel route; for example, south on Farmway to Karcher (new intersection is currently in design) and then to I-84 (assuming Karcher/Midland IC can accommodate the oversize vehicle) or east to US-95 then north to I-84 (assuming the US-95 IC can accommodate the oversize vehicle).
- Require equipment improvement by Forterra to rear steering dolly.

**Information Needed for ITD Approval of Roundabout Alternative**

- ITD Trucking Council Input
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