

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT):

_____KansasDOT_____

INSTRUCTIONS:

Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.

Transportation Pooled Fund Program Project # TPF-5(220)	Transportation Pooled Fund Program - Report Period: <input type="checkbox"/> Quarter 1 (January 1 – March 31) Quarter 2 (April 1 – June 30) <input checked="" type="checkbox"/> Quarter 3 (July 1 – September 30) <input type="checkbox"/> Quarter 4 (October 4 – December 31)	
Project Title: Accommodating oversize/ overweight vehicles at roundabouts		
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Lead Agency Project ID: RE-0541-01	Other Project ID (i.e., contract #):	Project Start Date: January 2010
Original Project End Date: Dec 2011	Current Project End Date: Dec 2011	Number of Extensions: 0

Project schedule status:

On schedule
 On revised schedule
 Ahead of schedule
 Behind schedule

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Total Percentage of Work Completed
\$195,000	\$156, 837.64	80

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$54,284	\$54,284	15%

Project Description:

The research project will compile current practice and research by various states and countries related to the effects that oversize overweight vehicles have on roundabout location, design, and accommodation. The research will fill in information gaps with respect to roundabout design and operations for oversize overweight vehicles. Currently there is little information available for accommodating oversize overweight vehicles in roundabout design and this project will provide information.

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):

During this quarter concentration was on completing the analysis of the second survey, so that the results could be included in the interim report, which was due in task five and writing an interim report to satisfy the requirement of task five. In addition, some work was done on task six, which involved, interviewing designers and trucking companies.. There was also another Internet meeting with the advisory committee, which went over the progress to date and the draft interim report.

Anticipated work next quarter:

During the next quarter more designers will be contacted to get their views and ideas on accommodating all OSOW at roundabouts and some trucking associations, will be contacted to get their views on their concerns with moving large vehicles through roundabouts. We have also acquired the necessary software and have decided on seven OSOW hauling configurations that we will use to test a variety of existing roundabouts plus develop and test some new designs with a number of features that should help accommodate all OSOW through roundabouts or turning paths in roundabouts. The draft interim report will be finalized after a period to allow comments from the project monitor and the advisory committee. Another interim internet advisory committee meeting will be held around mid-November.

Significant Results:

In the second survey we received responses from all 50 states. An analysis of responses of the second survey indicated that some of the problems are clearance problems with low boy vehicles, issues with oversize loads riding up on the curve on the exterior of the roundabout, roundabouts with tight radii, presence of fixed objects within the center island and problems with farm equipment and emergency vehicles. More detailed findings are from the section of the preliminary report that follows:

Preliminary OSOW Turning Movements (Swept paths) and Potential Mitigation Strategies

Task four requires categorizing the characteristics of OSOW allowed on states' highways, including the turning path and clearance requirements and determine the effect on current, common roundabout geometrics. Task six requires interviews and surveys, of knowledgeable professionals to obtain relevant data and/or information on possible changes and/or innovations to mitigate constraints by roundabouts. It turns out that these two are more interrelated than previously thought, i.e. task six is turning out to be a better source of characterizing the specific characteristics of OSOW and their effects on current roundabout geometrics than task four. Task six is underway and some of the material that follows is a preliminary overview of material from files of collected material and interviews as suggested in task six. This will be expanded on during the next few weeks.

It is obvious from the surveys, particularly survey two, that categorizing the characteristics of OSOW that are affected

by current, common roundabout geometrics, is relatively straight forward. Quite simply, the impedances to allow free flow of OSOW to be able to make all desired movements through a typical roundabout, i.e. to enter on any given leg and exit on any other given leg, can be generalized in just two categories. The two categories are: 1. Unobstructed, horizontal clearance in the OSOW's turning path and 2. Limited vertical clearance throughout the turning path of 3" or less. An ideal theoretical solution would be a large, say 150 feet to 200 feet, mini roundabout with an elevation no more than 3 inches above the roadway. . It should be possible to accommodate OSOW at roundabouts with widened entries and exits, unobstructed central islands with large truck aprons, outer truck aprons, bypass lanes and paths through lanes with mountable curbs and no vertical obstructions on the splitter islands, curbs and throughout the roundabout 3" inches or less with signs, light poles etc. outside of the turning paths and/or designed to be easily removed. The greater challenge is to design them in such a way to allow the outer and splitter island curbs and central island to be retained to preserve the ability of the roundabout to control speeds are all vehicles and thus maintain the safety benefits of roundabouts.

In their response to survey two Washington responded with suggestions:

- Mountable Curbing,
- Removable signage,
- Addressing stationary landscape features,
- Larger radius design to accommodate longer vehicles

In a recent presentation at a tech conference in Canada the following treatments were used in a case study roundabout design to accommodate OSOW: a wide central island, truck apron, splitter island, truck aprons, outer truck aprons and a median pass through. Here again the concept is to provide a clear path free from: mountable obstacles for the movement of the OSOW vehicle. The illustration below shows some of these principles.

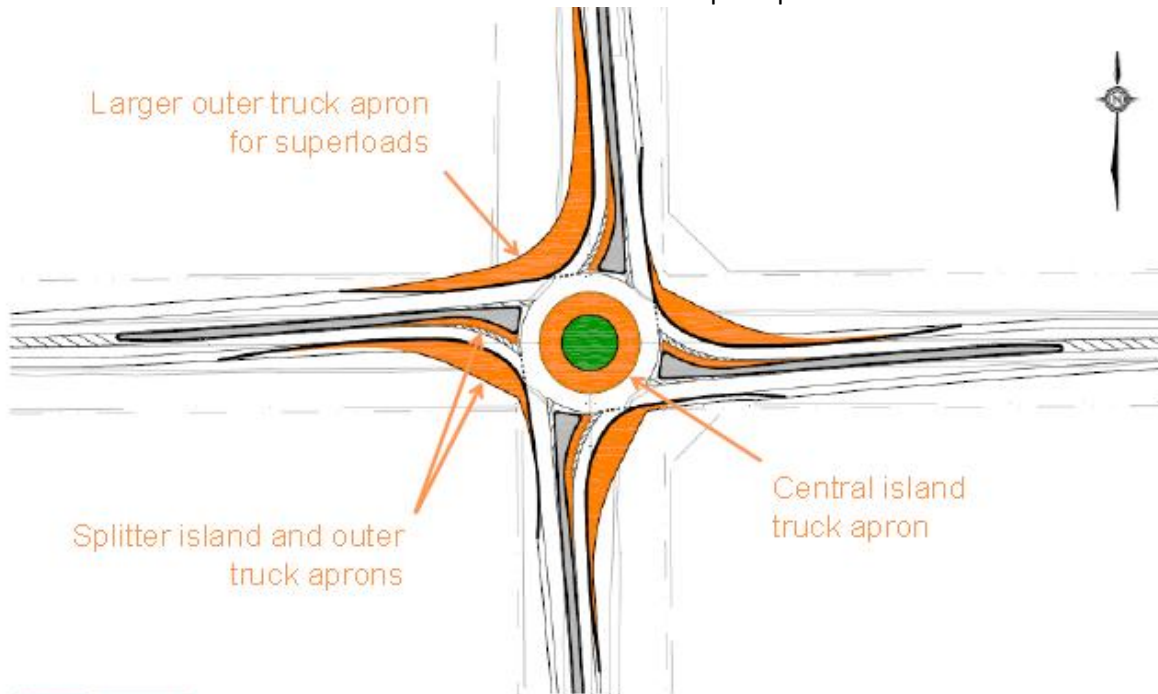


Figure 1: Illustrating truck aprons for OSOW (From presentation by Phil Weber, Ourston Roundabout Engineering, Canada, at TAC Edmonton, September 2011)

In this section below a summary of OSOW efforts in Wisconsin and a list of some mitigation strategies deployed to date are listed.

Summary of OSOW Efforts in Wisconsin Related to Roundabout Designs: The Wisconsin Department of Transportation (WisDOT) has established an OSOW Freight Network within the state and is a subset for the larger broader truck routes in the state. The network includes limited access facilities such as interstates and expressways. The network has some

impediments such as low bridges, weight restrictions as well as interchange and intersection limitations (skewed intersections or left turns at diamond interchanges).

WisDOT is currently in the process of incorporating the OSOW freight network into planning and design manuals. The goal is to find a balance between the safety benefits without impeding freight movements. In short if loads could get through before, the design needs to make sure it still can get through post construction without making huge intersections and exceeding acceptable budget limits. Most mitigation happens within the project limits right of way.

A remaining challenge is the left turn at interchanges for OSOW getting on or departing from the limited access facility (typically diamond interchanges). We are interested in reviewing and discussing this challenge with other states in the Pool Fund Study.

Some mitigation examples deployed to date include:

- 1.) Wide Truck Aprons (12 feet or more) with minimum slope and mountable curb
- 2.) Custom Center island to address known left turns
- 3.) Tapered center-island to support through movements.
- 4.) Paved area behind curb (right side for off tracking)
- 5.) Installing removable signs and set-backs for permanent fixtures (light poles).
- 6.) Allow trucks to cross over median (stamped, depressed, or corrugated) in counter flow direction before roundabout to make a left turn in the opposing lane and then cross back over after the turn.
- 7.) Right turn lanes(sometimes gated)

Other strategies will be detailed in the final report.

Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope and fiscal constraints set forth in the agreement, along with recommended solutions to those problems).

None at this time; however the remaining schedule will be tight and there is some chance that a short extension may be necessary to complete, edit and finalize the final report.