Literature Search: Pedestrian Features on Roundabouts

April 10, 2019

Prepared by: Karen Neinstadt

Resources searched: Transport Database, TRB RiP, MnDOT Library Catalog

Literature Review Summary: Attached are the results from my literature search on Pedestrian Features on Roundabouts.

Most Relevant Results

Sicamous Roundabout - Taming the Octopus!
Author: Newcombe E; Pellam A
Abstract: Dubbed locally as "the Octopus", the Highway 97A / Main Street intersection forms the entrance to Sicamous, British Columbia, a tourism community with a high percentage of elderly residents, and numerous houseboat rental businesses. The original multi-leg, 45-degree skewed intersection configuration was so confusing and geometrically insufficient that local users avoided the intersection. There were no facilities for cyclists or pedestrians, resulting in significant safety concerns with students from the adjacent school crossing irregularly. The retail businesses immediately adjacent to the intersection suffered as a result. The BC Ministry of Transportation and Infrastructure (MoTI) had identified a 2-lane roundabout as a preferred option for this location but had previously received adverse comment from the trucking industry (BCTA) regarding roundabouts on numbered routes, primarily due to their perceived inability to accommodate oversized loads. The design of this roundabout therefore needed to carefully balance the safety and operational needs of all users, including oversize permit vehicles, houseboat trailers, and vulnerable users, and required acceptance from the trucking industry and public. Extensive stakeholder and community engagement, as well as innovative design elements, produced a solution with custom aprons for specific vehicle use to better separate users; standardization of materials, colour and textures to identify intended use; a roll-over median approach island to allow counterflow operation of permit vehicles with pilot cars; and reduced cross fall on circular roadway to reduce heavy vehicle racking and roll-over potential. The design is phased for a double-lane facility ultimately. However, a single-lane was constructed initially to gain familiarity and acceptance and improve safety. Active transportation needs are accommodated by multi-use pathways, cycle paths and ramps, and tactile mats are provided for the visually impaired, making it safe for all active modes and in particular the local school children.

Author: CHIU M; Clayton C; Millen G; et al
Abstract: The Geometric Design Guide for Canadian Roads contains the current design and human factors research and practices for roadway geometric design. It replaces the 1999 edition of the Guide and subsequent revisions. The Guide provides guidance to planners and designers in developing design solutions that meet the needs of a range of users while addressing the context of local conditions and environments. Design guidelines for freeways, arterials, collectors, and local roads, in both urban and rural locations are included as well as guidance for integrated bicycle and pedestrian design. The Guide is organized into ten chapters to cover the entire design process from design philosophy and roadway classification to design parameters and specific guidelines for the safe accommodation of vehicles, cyclists and pedestrians on linear road elements and at intersections. Integration with other design elements including adjacent roadway lane widths, roundabouts and bridges and other travel modes is addressed.

Safety, Mobility and Roundabouts.
Research Need Statement

Author: Wallwork Michael


Abstract: As communities focus more on non-motorized users, roundabouts are increasingly being included in the discussion. This paper focuses on how roundabouts can increase the safety and mobility of non-motorized users, while also benefiting motor users. A modern roundabout is a traffic control system that controls vehicles, pedestrians, bicycles, on-street transit vehicles, and sometimes even trains. Well-designed roundabouts have proven to be the safest form of intersection control while improving mobility for all users in all types of weather. Even their aesthetics can improve the pedestrian environment. Roundabouts are gaining support and popularity for their ability to significantly improve intersections. They reduce crashes, improve vehicle capacity, moderate vehicle speeds, facilitate pedestrian crossings, and improve bicycling and transit operation. Furthermore, roundabouts can extend the improved area for all users beyond the intersection when used to implement road diets.

Improved multi-lane roundabout designs for urban areas.

Author: Campbell D; Jurisich I; Dunn R


Abstract: This research, undertaken 2008-2010, investigated the comparative safety of multi-lane roundabouts versus signalised intersections, pedestrian facilities, vertical deflection devices and visibility to the right. Guidance for practical application of the relevant measures to enhance roundabout safety has been developed and is included in this document. The Dutch turbo-roundabout was reviewed and considered to be feasible for application in New Zealand. For intersections with four arms or more, a well-designed multi-lane roundabout should be significantly safer for vehicle users than traffic signals. Several means of adequately catering for pedestrians and cyclists at multi-lane roundabouts are feasible to implement in many cases. In the interest of road safety, a 'Roundabouts First' policy is recommended for adoption by the NZTA. The legal use of flashing signal displays and part-time signal operation are also recommended for consideration, which would potentially allow for 'Pelican' type pedestrian crossing installations, and also for signalised roundabouts to operate with less vehicle delay during off-peak periods.

Safety Investigation of Elder Drivers and Pedestrians at Roundabouts

Sponsor Organizations:
Research and Innovative Technology Administration
University Transportation Centers Program
Washington, DC 20590 United States

Performing Organizations:
Florida State University Tallahassee, FL United States

Principal Investigators:
Spainhour, Lisa

Actual Completion Date: 2014-12-23

Source Data: RiP Project 36871
Accession Number: 01530633
Funding Amount: 111800.00
Research Need Statement

**Abstract:** Modern roundabouts are being installed on state and local roads in the United States at an increasing rate. Roundabouts can be less expensive to construct and operate than signalized intersections, and their use reduces vehicle delay, while enhancing the aesthetic appeal of the surrounding community. However, while most guides suggest that roundabouts should improve older driver safety, the ability of older drivers and pedestrians to successfully navigate roundabouts has not been thoroughly investigated. A brief literature review has shown that, while researchers are beginning to explore the effects of roundabouts on crash rates and severity in the U.S., little research has looked at the effect of age on those measures. The proposed research aims to examine the following: (1) the growth in modern roundabouts in the state of Florida, including the proximity of roundabouts to communities with high numbers of older adults; and (2) crash rates and severity of roundabout crashes involving older drivers and pedestrians. The study will generate important baseline knowledge on potential problem areas and from the basis for additional interdisciplinary research within the Center, including simulator studies to examine older drivers' and pedestrians' comfort with and level of success navigating roundabouts.

**Access Online:** [http://www.utc.fsu.edu/Spainhour](http://www.utc.fsu.edu/Spainhour)

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**Selection of Pedestrian Crossing Treatments (Mid-Block and Roundabouts, ADA)**

**Sponsor Organizations:**
- Purdue University/Indiana Department of Transportation
- JHRP
- Purdue University
  - 1284 Civil Engineering Building, Room 4154
  - West Lafayette, IN 47907-1284 United States

**Principal Investigators:**
- Alhassan, Mohammad
  - (260) 481-6389
  - alhassan@engr.ipfw.edu
- Ashur, Suleiman
  - (260) 481-6080
  - Ashur@ipfw.edu

**Start Date:** 2013-01-01
**Actual Completion Date:** 2015-06-30
**Source Data:** RiP Project 33403
**Source Agency:** Indiana Department of Transportation
  - 1101 State Office Building
  - Indianapolis, IN 46204 United States

**Contract Numbers:** SPR-3723
**Status:** Completed
**Funding Amount:** 45086.00

**Abstract:** The study will develop a synthesis report of studies and guidelines/manuals on pedestrian crossing treatments. The main goal is to help designers and traffic engineers use existing resources for the selection of pedestrian crossing treatments with focus on unsignalized intersections, midblock, roundabouts, and trails and bikeway crossings. The project deliverables include reports on the state-of-art selection practice, a synthesis report with guidelines on selecting pedestrian crossing treatments, and a professional development workshop for INDOT engineers to disseminate the findings of the project.

**Resource:** MnDOT Library HE305 .N32 2013