

## **MINUTES**

### **2012 Task Force Annual Meeting**

#### **TRB Roundabouts Task Force, ANB75T**

Wednesday, January 25, 2012 – 8:00 AM - 12:00 PM

Event Location: Marriott Wardman Park (Virginia B), Washington, DC

Presiding Officer: Gene Russell, Sr. – Kansas State University

Secretary: Marcus Brewer – Texas Transportation Institute

**TASK FORCE SCOPE:** The TRB Roundabouts Task Force is concerned with all factors encompassing modern roundabouts. The Task Force provides focus within TRB on current issues and future research needs pertaining to modern roundabouts. It serves as a forum for discussions about roundabout research, projects, and policy for all interested stakeholders; identifies research needs and develops research problem statements to meet the needs; and facilitates the exchange of knowledge by various media, meetings, and conferences.

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## **AGENDA:**

1. Call to Order (Gene Russell, Chair)
2. Self-Introductions (All present)
3. Comments from the Chair (Gene Russell)
4. Approval of Mid-Year and/or Previous Minutes (Marcus Brewer, Secretary)
5. TRB Report/Comments (Rick Pain, if/when Rick arrives)
6. 2011 International Conference Summary (Gene Russell)
  - a. What to do with closing session comments (Hillary Isebrands)
  - b. Webinars based on Carmel conference (Gene Russell)
7. 2014 International; Conference Plans with Q&A (Brian Walsh)
8. Requested/Timely Discussions
  - a. Freight Aspects of Roundabouts (Jeffrey Shaw)
  - b. Access Board Update; (Scott Windley)
9. Subcommittee Reports:
  - a. Future Ideas: Human Factors workshop(s) (Janet Barlow or Fred Hanscom)
  - b. TF-sponsored sessions (Brian Walsh/Hillary Isebrands)
  - c. Video Theatre (Brian Walsh)
  - d. Roundabout Resource Room (Mark Lenters)
  - e. TRB Research Needs Statements; Fostering Research Agendas within TRB Committees (Back to Basics”) (Phil Demosthenes)
  - f. Two Research Ideas for Discussion (Mark Lenters)
    - i. Lane Striping
    - ii. Pedestrian Training
  - g. Working Sessions on Research- Go2Meeting? Wiki? Other? (Gene/Phil)
  - h. Communications Coordinator & Web Site (Marcus Brewer)
  - i. Others (needed?) Subcommittee on Liaison (??)
10. Awards

- a. Frank Blackmore Award
  - i. Background
  - ii. Instructions for nominations
- b. ANB75T Best Paper Award/ Waller paper
- 11. Agency Liaison Reports:
  - a. NCUTCD (Lee Rodegerdts or others)
  - b. ITE (Hillary Isebrands)
  - c. AASHTO (Jim Brewer)
  - d. FHWA (Jeffrey Shaw, Mark Doctor, Ed Rice, Joe Bared or others)
  - e. NCHRP (Ray Derr or others)
  - f. ASCE/TD&I (Gene) and ASCE Sustainability Rating System ISI (Hillary?)
  - g. TAC (Mustapha Zayoun for Leanna Belluz)
- 12. International Issues of Interest
  - a. Germany, Dr. Werner Brilon
  - b. Australia, Andy O'Brien
  - c. NZ Written by Bruce Robinson
  - d. Others (?)
- 13. Other Committee Liaisons as Available and Time Permits (or give report to secretary) **(Need subcommittee chair to sort these out and update- volunteers?)**
  - a. ANB20 Safety Data, Analysis and Evaluation, former parent committee (? need one )
  - b. ANF10 Pedestrian (Lois Thibault – Retired- or others)
  - c. AHB70 Access Management (Phil Demosthenes)
  - d. AHB60 Hwy-Rail Grade Crossings (Gene Russell)
  - e. AHB50 Traffic Control Devices (Gene Russell)
  - f. AHB25 Traffic Signal Systems (? Need one)
  - g. AHB65 Operational Effects of Geometrics (? need one)
  - h. ANF20 Bicycle Committee (? Need one )
  - i. AHB40 Highway Capacity (Lee Rodegerdts)
  - j. ABE60 Accessible Transportation and Mobility (? Need one )
  - k. ANB30 Operator, Education and Regulation (? Need one )
  - l. Intersection Subcommittee (? Jeff Shaw)
  - m. Others (as available)
- 14. Ongoing Research:
  - a. NCHRP 3-78A follow up (Howard McCulloch – New Chair)
  - b. FHWA (New studies: Roundabout Capacity, RRFB & Safety (Jeff /Hillary)
  - c. Kansas State Business, OSOW, State Routing (Gene)
  - d. NCHRP 3-100 Evaluating the Performance of Roundabout Corridors (Lee Rodegerdts)
  - e. Others?
- 15. Old Business
  - a. Inventory of Roundabout Locations (Lee Rodegerdts)
  - b. Other?
- 16. New Business
  - a. Mega poster session for 2013? 2013 Call for papers?
  - b. Ideas and volunteers for added activities, new committees
  - c. Other?
- 17. Next Meeting: Mid-Year Meeting likely at ITE Annual Meeting (August, Atlanta)
- 18. Open for Attendee Comments or Questions
- 19. Adjourn

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**MINUTES:**

1. **Call to Order.** Meeting called to order by Gene Russell at approximately 8:02 AM.
2. **Self-Introductions.** Self-introductions were made by all in attendance. An attendance sign-up sheet / e-mail verification sheet was distributed (see Attachment 1); 62 people were in attendance.
3. **Comments from the Chair.** The primary piece of information is that the Task Force has received official notice that the application to become a committee has been approved. The final details of the name and the group location of the new committee have yet to be finalized, but they will be announced as they are confirmed.
4. **Approval of Mid-Year and/or Previous Minutes.** Marcus Brewer noted that the minutes of the meetings in 2011 are posted on the Task Force website, after being distributed through the listserv. Comments and revisions were received at that time, and the revised minutes have been approved by proxy.
5. **TRB Report/Comments (Rick Pain).**
  - a. Rick confirmed that the process to convert the Task Force to a Committee is beginning. As such, the membership roster and other items will begin from scratch. Those who are interested in becoming members should make sure that Gene is aware of their interest. Rick will formally nominate Gene as Chair of the new committee. One of the duties of the Committee will be to participate in the Triennial Review, which is this year for the Operations Group. (The new Committee will likely be housed in the Operations Group, though which group the new committee will be in is not yet confirmed.) Therefore, the Committee will need to develop a three- and six-year plan and create a record of previous work to establish the necessary documentation to be in compliance with the review cycle of the Group.
  - b. Rick presented certificates of appreciation to Michael McBride, John Habermann, and Gene Russell for their efforts in coordinating the 2011 International Roundabout Conference.
6. **2011 International Conference Summary**
  - a. **Plans to Use Closing Session Comments (Hillary Isebrands).** Primary effort is to use the comments to identify gaps in existing literature and research, to develop future Research Needs Statements and Synthesis Statements. The plan is to work with Phil Demosthenes and the Research Subcommittee to coordinate and expand our efforts to develop new research. Key issues include:
    - i. Trucks and superloads
    - ii. Pedestrians, particularly those who are physically impaired
    - iii. Education of drivers and public officials
    - iv. Peer exchanges of informationHillary collected names of those who are interested in developing new statements, and she encouraged others to volunteer as well.
  - b. **Webinars based on Carmel Conference (Gene Russell).** Early thoughts are that the Committee should put on a series of two to three webinars to convey existing results and promote future efforts to a wider audience. Each webinar would likely last 90 minutes and have two or three speakers, plus time for Q&A.

7. **2014 International Conference Plans with Q&A (Brian Walsh).** Brian and his local arrangements team are looking forward to hosting the conference in Seattle. They are working with the Carmel team to build on lessons learned and use their experience to develop a good program and a good conference atmosphere. The anticipated date will still be in May. Hillary noted that there are a number of potential guided or self-guided technical tour subjects in and around Seattle.

**8. Requested/Timely Discussions**

- a. **Freight Aspects of Roundabouts (Jeffrey Shaw).** Jeff noted the recent increased interest in the movement of freight through roundabouts, largely in terms of “legal loads”, but also issues related to “superloads” (oversize/overweight vehicles). Ongoing studies include the Pooled Fund study on routing superloads in Kansas and an 8-state pooled fund study for accommodating oversize/overweight (OSOW) loads at roundabouts, both by KSU, and a synthesis-style study by Marty Lipinski at the University of Memphis. Jeff also discussed proposed laws and other restrictions on installing roundabouts on truck and freight corridors; while the laws are not generally conducive to the promotion of roundabouts, they have provided an opportunity for FHWA and others to open discussions with the freight industry on roundabouts’ compatibility with truck traffic. Jeff is looking to develop an issue paper to describe what is known about truck delay, crashes, and maneuverability (among other topics) that can be shared with truck industry representatives and others. Those with an interest in participating in the creation of this issue paper, and those with relevant information that could be included, are encouraged to contact Jeff. Ensuing discussion highlighted the need for specific research needs statements on truck-involved crashes at roundabouts and other related topics, along with an emphasis that it is important that completed research include recommendations for further action that the industry can take, instead of just a list of findings and conclusions.
- b. **Access Board Update (Melissa Anderson for Scott Windley).** Melissa gave a brief history of the Access Board and some highlights of current requirements and items within the Proposed Rights of Way Accessibility Guidelines (PROWAG), such as specifications for accessible pedestrian signals and requirements for pedestrian-activated signals at multilane roundabouts. The PROWAG comment period has been extended until February 2, and everyone is encouraged to review the guidelines and provide comments.

**9. Subcommittee Reports:**

- a. **Research (TRB Research Needs Statements; Fostering Research Agendas within TRB Committees) (Phil Demosthenes).**
  - i. Within TRB is a new CRC (Committee Research Coordinators) group that will be working to better facilitate discussion between and among committees about research needs and synthesis statements.
  - ii. One topic of research interest is “Life-Cycle Costs of Various Intersection Control Strategies”, to help document the long-term comparative financial benefits of roundabouts.
  - iii. A Synthesis of Best Practices is useful in documenting what is currently in place. Syntheses do not conduct new research, but the findings from Syntheses can help to generate new Research Needs Statements (RNS) by identifying gaps in the literature and current practice. Information on Syntheses can be found at <http://www.trb.org/SynthesisPrograms/NewTopicsNCHRP.aspx>. The deadline for submitting Synthesis statements is February 17.

- iv. Phil and others have suggested that TRB improve the functionality of the search feature of the RNS database, but he cautioned that those who write statements and those who search should be thorough in including the necessary keywords (e.g., “roundabout” and “roundabouts”).
  - v. For more information on Research Needs Statements, including how to develop new ones and where to find existing ones, visit the RNS database at <http://rns.trb.org/>.
- b. Human Factors Workshops (Janet Barlow).** Janet is looking for new ideas and suggestions for speakers and topics for future Human Factors Workshops.
- i. Innovative Ped/Bike Treatments at Roundabouts (Bastian Schroeder)
  - ii. Roundabout Striping (Fred Hanscom)
- Attendees discussed the merits of the two ideas, in conjunction with a presentation by Mark Lenters on the topic of striping. Consensus was that the striping topic may not be well-suited for the format of a Human Factors Workshop. Further consensus was that the Ped/Bike topic would be further explored for a workshop in 2013, and the striping topic could be developed into a different workshop format for 2013 or another meeting. Those who are interested in participating in any of these topics and workshops should let Gene, Janet, Fred, or Mark know of their interest.
- c. Two Research Ideas for Discussion (Mark Lenters)**
- i. Circulatory Marking and Lane Striping for Circulating Roadways at Roundabouts
  - ii. Pedestrian Assertiveness Research
- d. TF-sponsored sessions (Brian Walsh/Hillary Isebrands).**
- i. There are three Task Force-sponsored sessions on the Annual Meeting Program, as follows:
    1. [Session 200](#) (Podium) – Achieving Balance Between Pedestrians and Vehicles at Roundabouts (Monday 8:00-9:45 AM)
    2. [Session 431](#) (Poster) – Research All About Roundabouts (Monday 7:30-9:30 PM)
    3. [Session 751](#) (Podium) – Intersection Safety Findings, Capacity Adjustments, and Accommodation of Trucks and Superloads at Roundabouts (Wednesday 2:30-4:00 PM)
  - ii. Hillary is looking for feedback on what attendees would like to see in future sessions (e.g., poster vs. podium, session format, topics, etc.). Hillary also noted that the topics are at least somewhat influenced by the papers received. A possible call for papers would help to refine the process.
- e. Video Theatre (Brian Walsh).**
- i. Brian thanked Amanda Rouksznis, Andy Paul, and Cornell Robertson for their help throughout the day.
  - ii. The focus or timing of the event may be narrowed in the future or it may allow for periodic discussion of additional topics throughout the day.
  - iii. Bastian and Gene noted that there is some possibility of rebranding the event to show up as one or more shorter sessions on the program, rather than a ¾ day event.
  - iv. There were officially 40 people who signed the attendance sheet (see Attachment 2), though it is typical that 20-30 percent of attendees do not sign in.
- f. Roundabout Resource Room (Mark Lenters).**

- i. There were officially 23 people who signed the attendance sheet (see Attachment 3), though, like the Video Theatre, it is typical that a notable share of attendees do not sign in.
  - ii. Mark echoed Brian's thoughts on the usefulness of the two events. He emphasized that a good purpose of the Resource Room is to facilitate discussions outside of the Video Theatre.
  - iii. Mark and Hillary also discussed the number of events on the program that this has given the Task Force over the years, and there may be a need to prioritize our efforts to optimize our exposure and keep our volunteer workload efforts at a manageable level going forward. (Note by Gene: More volunteers could step forward. "Friends" of the committee are welcome.)
- g. **Working Sessions on Research (Gene).** Gene mentioned that Frank Broen has established a Wiki that monitors topics of interest to the roundabout community, including research needs statements. He encouraged everyone to regularly visit the site.
- h. **Communications Coordinator & Website (Marcus Brewer).**
  - i. TRB has a Committee Communication Coordinators (CCC) Council that meets periodically via phone and webinar. The intent of the CCC Council is to help TRB Committees and Task Forces to share information with members, friends, and other interested parties. Much of their information centers on website development, document sharing, and Web 2.0 applications. Because the Task Force listserv is so active and has so many subscribers, it generally functions as the primary means of communication and fills the role that other committees would accomplish by other means.
  - ii. The website has been recently updated and can be found at: <https://sites.google.com/site/trbtaskforceanb75t/>
  - iii. Marcus noted that, given the promotion of the Task Force to a Committee, the website would need to be revised, as would the address. This will be a task that will be revisited as the transition to a Committee takes place in the next few months.
- i. **Others.**
  - i. Liaison/Outreach Subcommittee: Bastian volunteered to lead this effort to establish relationships or reconnect with other groups and TRB committees that would provide mutual benefits to this Committee's future efforts.

## 10. Awards

- a. **Frank Blackmore Award**
  - i. Gene provided a brief background of the award and the criteria for award nominees.
  - ii. Instructions for nominations are also available on the website and will be sent out through the listserv. The deadline for nominations is March 1.
- b. **ANB75T Best Paper Award**
  - i. The papers received by the Task Force for the 2012 Annual Meeting were reviewed not only for presentation and publication, but also for awards. The Task Force's 2012 selection for Best Paper was awarded to "A Statistical Analysis and Development of a Crash Prediction Model for Roundabouts on High-Speed Rural Roadways" by Hillary Isebrands and Shauna Hallmark. Gene presented Hillary with certificates for both authors.

- ii. Gene will meet with the Best Paper Award committee to discuss nominations for the Waller, Young Member, and other paper awards.

## 11. Agency Liaison Reports

### a. NCUTCD (Lee Rodegerdts)

- i. PROWAG was a topic of much interest and discussion. The NCUTCD Signals Technical Committee voted to make recommendations in the PROWAG comment period for revised language related to signals.
- ii. Next meeting is third week of June in Orlando.

### b. ITE (Hillary Isebrands)

- i. The ITE Roundabouts Task Force has been promoted to a Committee under the Traffic Engineering Council. The committee members are looking at this as an opportunity to reach out to more people and have a wider audience. Gary Schatz (City of Austin) is the committee chair; Hillary is vice-chair.
- ii. ITE established a Roundabouts Policy; it is scheduled to be voted for approval at the Technical Conference in March. Text of the policy is as follows:

#### *PROPOSED ROUNDABOUT POLICY*

*The Institute of Transportation Engineers recognizes the safety, operational, and sustainability benefits of well-designed roundabouts and recommends the use of roundabouts when intersections are being planned, designed or modified.*

- iii. ITE held a PROWAG Forum on January 20 with invited cross-cutting group of participants. Aliyah Horton (ITE Headquarters Staff) will form a Task Force with participants from the Forum to further explore these comments and their ramifications.
- iv. Technical Conference is in Pasadena, March 2-4.
- v. Annual Meeting will take place in Atlanta, August 12-15.

### c. AASHTO (Jim Brewer)

- i. The 2011 Green Book was released in November; roundabouts are featured more prominently in Chapter 9 (Intersections) of the new edition.
- ii. The Manual on Roadside Safety was also released in the middle of 2011.
- iii. The new AASHTO Bike Guide is projected for release in early 2012.

### d. FHWA (Jeffrey Shaw, Joe Bared)

- i. The Roundabouts Peer-to-Peer (P2P) program is being merged into an overall Office of Safety P2P to unify the interface for practitioners and users.
- ii. The Nine Proven Safety Countermeasures memo has been revised and "version 2.0" is available; three countermeasures have been carried over into the new document, including roundabouts. More information on these can be found at <http://safety.fhwa.dot.gov/provencountermeasures/>.
- iii. A project to promote the installation of mini-roundabouts is underway. At least five sites have already been identified and more are being sought. These sites will be evaluated for capacity and operations to develop models others can use for future installations.

### e. ASCE

- i. **Transportation and Development Institute (Gene).** Gene attended Monday's meeting of the T&DI Safety Committee, and they said that since they are for transportation safety they should support ASCE having a statement similar to the ITE statement that a roundabout should be considered whenever a highway intersection is built, rebuilt, or upgraded. The chair agreed that if Gene submitted a statement, the committee would consider it and consider passing it

up to the T&DI leadership. Gene is still considering the wording of the statement (e.g., Should it be the same as ITE except substitute ASCE? Should it be something stronger to start?), but he will submit something to the committee chair very soon. (Updated note -- The following statement is out for a vote in the ASCE/TD&I Safety Committee: *The Transportation & Development Institute (TD&I) of the American Society of Civil Engineers (ASCE) recognizes the safety, operational, and sustainability benefits of well-designed roundabouts and recommends transportation professionals and road and street-owning jurisdictions consider the use of roundabouts when intersections are being planned, designed or modified.*)

- ii. **Sustainability Rating System (Hillary).** Ken Sides is working with personnel at ASCE to try to get roundabouts “on the radar” and included in their sustainability rating system.

**f. TAC (Mustapha Zayoun for Leanna Belluz)**

- i. Transport Canada multilane roundabout brochure is now available online (web, Facebook, and Twitter newsfeeds). It is a follow-up to the single-lane document from about about a year ago.
- ii. Transport Canada is developing an educational video (combination of animation and live-action) to complement the brochure.
- iii. TAC multilane roundabout signing and marking guidelines have been developed; they are currently in the editing and publishing stage and are scheduled to be included in the next MUTCD for Canada.
- iv. Mustapha and Leanna are currently working with the Technical Liaison Committee of Canada ITE to develop a document for decision makers which will include many hot topics in regards to roundabouts (e.g., pedestrian and bicyclist safety, large trucks, visually impaired users, etc.) as well as a summary of research, policies, and educational programs in place in Canada.
- v. A hands-on roundabout design workshop took place at the TAC conference in Edmonton in September 2011, which included a case study design exercise. The next conference in Fredericton, scheduled for October 2012 will include a technical tour and a roundtable discussion on roundabouts.

**12. International Issues of Interest**

- a. **Germany and Central Europe** (submitted via e-mail by Dr. Werner Brilon). See Attachment 4.
- b. **New Zealand** (submitted via e-mail by Bruce Robinson).
  - i. A few years back in 2000, a safety auditors perspective on roundabouts being designed at the time was published called the Ins and Outs of Roundabouts, available at <http://nzta.govt.nz/resources/ins-and-outs-of-roundabouts/index.html>. The purpose of this booklet is to draw attention to those elements of the design and construction of roundabouts which safety auditors have frequently found to be deficient, and to present some solutions commonly applied to address these reported deficiencies. The NZTA have also commissioned some research on cyclist-friendly multi-lane roundabout designs (<http://www.nzta.govt.nz/resources/research/reports/287/>).
  - ii. New Zealand is part of Austroads and thus generally follows their guidance. In this regard, Austroads has recently released their latest “Guide to Road Design Part 4B: Roundabouts”. Similar to the FHWA/NCHRP guides, it has an explicit focus on entry speed calculation evolving from the more general previous

concept of "deflection". It is obtainable from:

<https://www.onlinepublications.austroroads.com.au/items/AGRD04B-11>.

- iii. Transoft Solutions of Canada has been promoting their Torus software (<http://www.transoftsolutions.com/torus>). According to their website, it uses the Vehicle Envelope Method of design to generate roundabout geometry with vehicle swept paths. This innovative approach allows for real-time, interactive designing and dynamically updates any changes made to the entire roundabout layout.
- iv. The widely used Australian Sidra capacity analysis software is now on version 5 and incorporates the latest HCM2010 methods. Previous versions contained a speed/safety module which has now been integrated to work in conjunction with the Torus design software.
- v. In New Zealand, roundabouts continue to be a favored intersection type on both rural roads and urban arterials. Both new and retrofit designs are common. However, some older and larger roundabouts have reached capacity and there have been a few conversions to fully signalized operation. The evaluation method generally followed is one developed in the UK by Barbara Chard and taught locally: <http://www.jctconsultancy.co.uk/Training/tutors.php> <http://www.jctconsultancy.co.uk/Training/descriptions.php?chosenCourse=18>.
- c. Australia (Andy O'Brien). Brief presentation on current roundabout practices in Australia. He emphasized that there are multiple "cookie cutters" for roundabout design in Australia and he showed examples of this variety of roundabout configurations, approaches, and departures. These examples included sites with at-grade rail crossings, sites with more than four approaches, sites that accommodate freeway interchanges, various terrain characteristics, and sites with substantial truck volumes.

### 13. Other Committee Liaisons

- a. **AHB40 Highway Capacity (Lee Rodegerdts)**. International Symposium in Stockholm last year that included a session on roundabouts and included country reports. Committee is still very interested in coordination with this committee.
- b. **Intersection Joint Subcommittee (Jeff Shaw)**. Looking at the possibility of an Alternative Intersections Conference in 2014.
- c. **Freight Systems and Marine Younger Member Council (Robert Rescot)**. The newly formed council, which goes by the acronym of YMC-FM, is tasked with involving younger TRB members and participants who are interested in issues related to freight systems and marine transport. The freight systems side of the council may be of interest to those involved in roundabout design and operations.

### 14. Ongoing Research

- a. **NCHRP 3-78A Follow-Up Project (Howard McCulloch – New Chair)**. RFP has been released and they are looking for additional panel members.
- b. **New FHWA Study: Roundabout Capacity, RRFB & Safety (Jeff Shaw)**  
Title: Accelerating Roundabout Implementation in the U.S. – Evaluations to Address Key Issues  
Scope: Project consists of four separate tasks, (1) Effectiveness of Rectangular Rapid Flashing Beacon (RRFB) Treatments at Multilane Pedestrian Crossings at Roundabouts; (2) Reassessment of and Guidance on Roundabout Capacity Analysis Procedures; (3) Assessment of the Environmental Characteristics of Roundabouts (Emissions, Fuel Consumption and Noise); and (4) Forensic

Analysis and Investigation of Severe Crashes at Roundabouts (Fatal and Significant Injury)

Contractor Team: VTTI with Kittelson and NC State/ITRI

Timeframe: Scheduled for completion in 2014

- c. Kansas State (Gene)**
    - i. Impact of Roundabouts on Business
    - ii. Pooled Fund Study on Oversize/Overweight (OSOW)
    - iii. A Study of OSOW routing in Kansas
  - d. NCHRP 3-100 (Lee Rodegerdts)**
    - i. Objective is to compare a corridor of roundabouts in series with a signalized corridor, based on traditional measures of effectiveness (e.g., delay) and can be applied to tools such as the MMLOS in the HCM.
    - ii. The team has completed pilot studies in Maryland and California, and they are now preparing the second Interim Report.
    - iii. With guidance from the panel's comments from the Interim Report, the team will move into Phase II later in 2012.
15. **Old Business: Inventory of Roundabout Locations (Lee Rodegerdts).** Send locations and info to Lee, who will add the details to the database.
16. **New Business: Ideas and volunteers for added activities, new committees.** If anyone has ideas for new activities that the new Roundabout Committee should undertake, let Gene know and send him a "proposal" for the activity and how it would be carried out. Gene added that proposals would probably be accepted through a subcommittee, although he needs to give more thought to what subcommittee structure the new committee should have. Ideas on this would also be welcome.
17. **Next Meeting.** Mid-Year Meeting likely at ITE Annual Meeting (August 12-15, Atlanta). There will be other opportunities for web meetings in the spring and at other times throughout the year.
18. **Open for Attendee Comments or Questions.** (none)
19. **Adjourn.** The meeting was adjourned at approximately 11:59 AM.

Minutes taken and typed by Marcus A. Brewer.

## Attachment 1 – Meeting Attendance List

<u>Name</u>	<u>Affiliation</u>
Gene Russell	Kansas State University
Marcus Brewer	Texas Transportation Institute
Lee Rodegerdts	Kittelson & Associates
Robert Rescot	Purdue University – Calumet
Janet Barlow	Accessible Design for the Blind
Bastian Schroeder	ITRE, NC State University
Jeffrey Shaw	FHWA
Hillary Isebrands	FHWA
Mustapha Zayoun	Transport Canada
Howard McCulloch	New York State DOT
Mike McBride	City of Carmel, IN
Brian Walsh	Washington State DOT
James Foster	Mobile County, AL
Randy Johnson	PTV
Andrew Bratlien	PTV
Brian Wotring	Virginia Tech Transportation Institute
Ed Rice	FHWA
Michael Mastaglio	RK&K Engineering
Cornell Robertson	Franklin County, OH Engineer’s Office
Craig Parks	American Structurepoint
Amanda Ruksznis	Reid Middleton
Katy Salamati	ITRE, NC State University
Majed Al-Ghandour	North Carolina DOT
Vince Venturella	Evonik Degussa Corp.
Mark Besley	Akcelik & Associates
Michael MacDonald	Hatch Mott MacDonald
Ting Wei	American Structurepoint
Wen Hu	Insurance Institute for Highway Safety
Pat Carroll	Alaska DOT
Alek Pochowski	Kittelson & Associates
Pete Jenior	Kittelson & Associates
Peter Lynch	UW Tops Lab – Wisconsin DOT
Joseph Glowitz	PS&E
Kristie Gladhill	IBI Group
Andrew Paul	Massachusetts DOT
Melissa Anderson	US Access Board
Lukas Franck	The Seeing Eye
Robert Wall Emerson	Western Michigan University
Daniel Spann	RPM Transportation Consultants
Gene Hawkins	Texas A&M University
Dave Stanek	Fehr & Peers
Chris Tiesler	Kittelson & Associates
Aaron Elias	Kittelson & Associates
Kelvin Cheu	University of Texas at El Paso
Steven Chan	Transoft Solutions

<u>Name</u>	<u>Affiliation</u>
Milton Carrasco	Transoft Solutions
Gil Chlewicki	Wallace Montgomery
Mark Lenters	Ourston Roundabout Engineering
Paul Denard	Georgia DOT
Hardik Shah	American Structurepoint
Ahmed Aburahmah	City of San Diego, CA
Philip Demosthenes	Consultant
Andrew O'Brien	O'Brien Traffic
Ray Derr	TRB
Mohammad Amin	CH2M Hill
John Hourdos	University of Minnesota
Mark Johnson	MTJ Engineering
James O. Brewer	Kansas DOT
Mark O'Brien	O'Brien Traffic
Tom Blust	Road Commission for Oakland County, MI
Keith Knapp	Iowa LTAP
Joe Bared	FHWA
Ed Stollof	ITE

## Attachment 2 – Roundabouts Video Theatre Attendance List

<u>Name</u>	<u>Affiliation</u>
Amanda Ruksznis	Reid Middleton
Howard McCulloch	New York State DOT
Gene Russell	Kansas State University
Mark Besley	Akcelik & Associates
Anne Ellis	Arizona DOT
Wen Hu	Insurance Institute for Highway Safety
Ting Wei	American Structurepoint
Craig Yannes	Fuss & O'Neill
Hillary Isebrands	FHWA
Wonho Suh	Georgia Tech
Jeff Shaw	FHWA Safety
Daniel Spann	RPM Transportation
Brian Walsh	Washington State DOT
Azuma Takemoto	CERI Japan
Masahiro Kawamura	Hokkaido Regional Development
Riva Deal	City of Monterrey, CA
Jason Walters	Delaware DOT
Theresa Holder	Georgia DOT
Cornell Robertson	Franklin Co. Engineer's Office – Columbus, OH
Dalia Said	Morrison Hershfield
Tim Barnett	Alabama DOT
Phil TenHulzen	Nebraska DOR
David Jacobson	Kansas Turnpike
Kazunori Munehiro	CERI Japan
Katy Salamati	ITRE, NC State University
James Dunlop	North Carolina DOT
Mark Ayton	Ontario Ministry of Transportation
Jason Dahl	University of Windsor
Bastian Schroeder	ITRE, NC State University
Masa Watanabe	CERI Japan
Chris Lee	University of Windsor
Dennis Eyler	SRF Consulting
Tesfu Medhin	Maryland SHA
Solomon Bekele	Baltimore, MD DOT
Andrew Paul	Massachusetts DOT
Michael MacDonald	Hatch Mott MacDonald
Dan Grasser	Wisconsin DOT
Mark O'Brien	O'Brien Traffic
Johanna Quinn	Charlotte, NC DOT
Pat Carroll	Alaska DOT

### Attachment 3 – Roundabouts Resource Room Attendance List

<u>Name</u>	<u>Affiliation</u>
Mark Lenters	Ourston Roundabout Engineering
Ken Chambers	Nevada DOT
Jeff Shaw	FHWA Safety
Gene Russell	Kansas State University
Eric Christiansen	Manitoba
Ting Wei	American Structurepoint
Hillary Isebrands	FHWA
Wonho Suh	Georgia Tech
Robert Skinner	TRB
Carlos Duran	Walter P. Moore
Cornell Robertson	Franklin Co. Engineers Office – Columbus, OH
Melissa Anderson	US Access Board
Aaron Elias	Kittelson & Associates
Daniel Spann	RPM Transportation
James Dunlop	North Carolina DOT
Vern Swing	RLK Incorporated
Dave Henkel	RW Armstrong
Masa Watanabe	CERI Japan
Russell B. Holt	Rhode Island DOT / Traffic Engineering
Michael MacDonald	Hatch Mott MacDonald
Bastian Schroeder	ITRE, NC State University
Katy Salamati	ITRE, NC State University
Dennis Eyler	SRF Consulting

**Attachment 4 – Report from Germany and Central Europe** (submitted via e-mail by Dr. Werner Brilon).



## TRB-Task-Group Roundabouts

### Short report on roundabouts in Central Europe 2011/2012

In Germany the situation regarding roundabouts has not changed too much in recent years. The number of roundabouts is still growing. However, no precise count is available. The estimations are around 4000 to 5000 including all sizes.



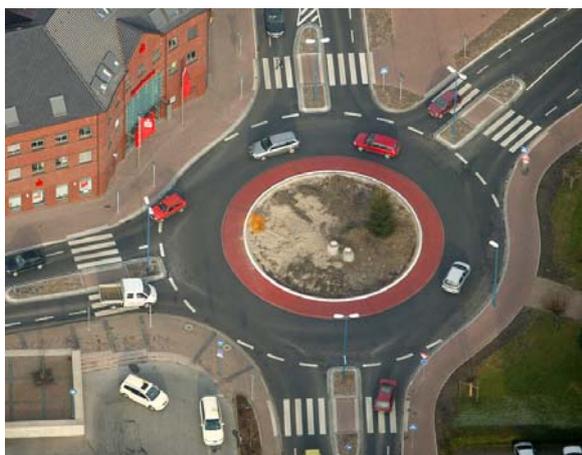
Mini-roundabout in Germany

A big success are the mini roundabouts with a diameter between 13 and 22 m which are only allowed in urban areas. The decisive point is that the paved central island is elevated by 4 to 5 cm above the circular roadway. A recently finished report has been submitted by the University of Dresden to the Federal Research Agency BAST. This report includes aspects of safety and operational performance. Some results from this report have already been reported in the Carmel conference. One result is a new capacity formula for entries at this type of roundabouts. This formula has good chances to be included into the next German HCM.

Single-lane roundabouts are also still very attractive as a facility for urban and rural intersections. There is still the tendency to design them in a speed reducing shape where the preferred diameters are 30 m (urban) to 40 m (rural).

Larger semi-two-lane roundabouts with a size of 45 to 60 m diameter may be used for higher traffic demand. They have a width of the circle of 8 to 10 m without any road marking in the circle. Also here a speed reducing design is preferred. Full-size two-lane roundabouts are not favoured by guidelines. Thus,

they are not built as new installations. Especially old-style two-lane exits<sup>1</sup> are completely banned due to bad accident experience.



Standard types of urban single-lane roundabouts in Germany



All these types are described in the FGSV-guideline from 2006 ([http://www.fgsv-verlag.de/catalog/product\\_info.php?products\\_id=2214](http://www.fgsv-verlag.de/catalog/product_info.php?products_id=2214)). This guideline is rather strictly applied in practice. It gives advice about warrants for types of roundabouts, details of design, treatment of pedestrians and cyclists, and also aspects of public transit (trams and busses) using roundabouts. Problems of people with disabilities do not play such a predominant role like in the US. This may also be due to the fact, that the compact types of roundabouts in the central European style do not provide such severe problems to these people.



Turbo-roundabout in Baden-Baden / Germany



Much interest is attended to the Turbo-roundabouts. Turbo means: There are differing numbers of lanes on the circle (i.e. 1 or 2). By the arrangement of two-lane entries and two-lane exits<sup>2</sup> larger traffic volumes may be accommodated. Here drivers should not change lanes on the circle. They should always access that lane (already at the entry point) which guides them to their exit. In Germany Turbos are not equipped with vertical lane dividers like in the Netherlands. Experiments show that also a separation of

<sup>1</sup> Old-style two-lane exit means: drivers can exit from both lanes. Drivers on the outer circulating lane may also continue driving in the circle.

<sup>2</sup> On a Turbo-roundabout two-lane exits are channelized by road markings forcing vehicles from the outer circulating lane into the exit which enables also drivers from the inner circulating lane to leave the circle and proceed via the left exit-lane.

lanes just by road markings is effective enough. However, they are still built on an experimental basis; i.e. they still are not treated as standardized “state of the art” solutions. Those which are in operation since several years give us now enough experience that a specific guideline for Turbos is being worked out presently for Germany. At the end of 2011 a research report by Brilon and Geppert has been finished on the experiences with this innovative type of roundabouts. This report has been submitted to BASt (Federal Highway Research Agency) but it is not yet available for the public. This report confirms: Turbo roundabouts have the potential to combine larger capacities with low accident cost rates like the compact single-lane roundabouts. Also rather Turbo-specific capacity calculation procedures have been worked out for application in Germany. Some of these results have already been presented in the Carmel conference.

In the Netherlands now 166 turbos have been built. They all use vertical lane dividers. Design and construction is rather strictly regulated by a guideline from CROW.

(<http://www.crow.nl/nl/Publicaties/publicatiedetail?code=257>). Overall the turbos seem to be a story of great success in the Netherlands.



Turbo-Roundabouts in Netherlands



Presently, in Germany some discussion has come up in the press about artefacts on central islands of roundabouts. This started due to one severe accident where a side-slipping car hit a kind of monument in the middle of a roundabout which caused several fatalities. Meanwhile, as a consequence, one state is starting action to remove dangerous equipments from roundabouts. On the other hand the public loves such kinds of monuments. This leads to rather controversial discussions in the public.

On request by Gene Russel let me give some short remarks to the treatment of oversized trucks at roundabouts. Usually no special precautions are taken at normal roundabouts. The design rules allow that each big truck as it is admitted to normal traffic in Europe<sup>3</sup> can get through each roundabout into each direction. Only in cases that oversized trucks can be expected on a regular basis, specific solutions can be designed.



One solution which is mentioned by the picture (on the left) in the guideline from 2006 is a lane crossing the centre island from left to right. Here the big truck approaches the roundabout not on the entry lane but via the exit to leave the roundabout via the ordinary exit of his direction. The advantage is that normal traffic is approaching the roundabout looking on the green part of the island and thus keeping the drivers alert of the roundabout.



One other solution could also be a lane built in a direct line across the central island. The picture shows an example next to the factory Herrenknecht which transports their extremely large tunnel boring machines to the next harbour via this road.



In Germany (like in other EU countries), this year, experiments are started to admit larger trucks (up to 25 m long but still with a maximum mass of 40 tons; called "GigaLiner") on specified roads. These trucks must, however, be equipped with steering equipment on several of the axles which allow them to turn within the standard ring (see footnote). Thus they are fit to use also the standard roundabouts.

On this picture the roundabout has a paved inner apron to accommodate the swept paths of trucks – a feature which is rather popular for urban roundabouts. The apron is not to be used by vehicles which can make their way on the ordinary asphalted circular lane (due to highway code). This enables a narrower circular lane for the passenger cars to keep them on lower speeds. It is, however, a tough challenge to construct this paved truck apron in a way that it resists the deterioration by heavy traffic.

<sup>3</sup> Maximum length: 18.75 m; maximum width: 2.55 m; each vehicle must be able to turn within a ring of 25 m diameter where the covered width of the ring may extend up to 7.2 m. These measures are related to the most outward parts of the wheels or the body (except the outer mirrors).