NCITE Joint Intersection Traffic Control Committee / Geometric Design Committee

4/11/2019 Meeting Minutes
8:30 AM – 10:30 AM

Location: SRF Consulting Group, Inc.
1 Carlson Parkway North
Minneapolis, MN 55447
(also via Skype meeting)

Intersection Traffic Control Committee Chair:
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Meeting Agenda:
I. Introductions
II. Brief items:
III. Presentation and Follow-up Discussion. See meeting notes on next page(s).
Signalized Roundabouts
By: Denny Eyler, SRF

IV. Next Meeting:

Intersection Traffic Control Committee:
- TBD

Geometric Design Committee:
- (Late May): Continuous Green T Intersections by: Will Stein, FHWA, and Vic Lund, St. Louis Co., MN

Meeting notes:

- This presentation is based on a paper Denny prepared for TRB, the purpose of which was to identify issues related to geometry and signal control in roundabouts.
- Overall:
  - There is too often tension between roundabout designers and signal designers
- General roundabout features / geometry considerations:
  - They have good safety history, but don’t have as much capacity as a signal
  - They’re basically a compact junction of one-way roadways
  - Fastest path issues should be controlled with approach geometry, not within the circulatory roadway
  - For through route alignment, connect reversing curves with tangents, and avoid more than 4 entering legs if possible
  - Pavement crowns: some use them on circulating roadway, some don’t. If used, they could be run out on the exit legs
- Examples of other junctions with circular features:
  - Rotaries, but in these, the splitter island is too narrow and vehicles spend too much time in the conflict area
- When would signals be needed?
  - Signals can add capacity without sacrificing safety
  - The flow rate through a conflict area can be higher with signal control
  - Signal control can help pedestrians
- Ways to Add Signals:
  - Can add RRFB’s, pedestrian signals, HAWKS, Metering Signals, Full signal control with part-time operation, and partial signal control (only at key conflict points)
  - Roundabout entry is still controlled by YIELD signs.
  - Note that flow at interchange ramp roundabouts is different than standard and results in fewer usable gaps, therefore they may need signal assistance sooner
  - Blank-out yield signs can help
- Can the signals operate part time? Yes, in the appropriate circumstances
- Simulation results – VISSIM was used
Conclusions and Recommendations:
  - Generally, large rotaries and “turbo” roundabouts aren’t worth the extra effort and cost, but condensed “turbo” roundabouts may have potential
  - Typical signalized intersections vs. roundabouts-with-signals would have to be analyzed on a case-by-case basis for geometry, space available, etc., but main benefit for roundabouts-with-signals is the safety improvement

Issues, Questions, and Needed Research
  - Where to place signals? Options: Upstream on the approaches at the crosswalks, or downstream on the exit at the crosswalks, but each have questions needing to be answered