NCITE Geometric Design Committee
12/20/2018 Meeting Minutes
8:30 AM – 10:30 AM

Location: HR Green, Inc.
2550 University Avenue W., Suite 400N
St. Paul, MN 55114

Committee Chair:
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Committee Co-Chair:
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Meeting Agenda:

I. Introductions

II. Brief items:
   a. Welcome Co-Chair Ben Hobert!
   b. Future meeting topics (subject to change)
      i. Early Feb.: MnDOT Land Use Context Updates by: Greg Pates, MnDOT
      ii. April: Signalized Roundabouts by: Denny Ehler
      iii. Late May: Continuous Green T Intersections by: Will Stein, FHWA, and Vic Lund, St. Louis Co., MN

III. Presentation and Follow-up Discussion. See meeting notes on next page(s).

   Safe Systems
   By: Will Stein, FHWA

IV. Next Meeting: TBD (likely early February)
- Minnesota is a leader in achieving low fatality rates, but per capita crash fatalities are still relatively high compared to other countries. MN ranks 3rd in 2016 fatality rates @ 0.66 deaths/MVM. The national average is 1.18.
- Some countries, such as Sweden and Australia, that have lower fatality rates, take a “Safe Systems” approach to roadway safety. The USA is among the highest death/capita among the high-income countries. MN would rank near the top as well, but on a death/MVM traveled, MN ranks more in line with the rest of the pack.
- This may be something MnDOT should consider now that the fatality rate has plateaued in recent years.
- “Safe Systems” is management and design of a road system taking speed, energy, and other factors into account for better overall performance that focuses especially on eliminating fatalities and severe crashes.
- “Safe Systems” is based on guidance principles that acknowledge that human beings make mistakes and have a tolerance for crash forces, and put most of the safety responsibility on designers/engineers and planners. Another way to think of it is strengthening all parts of a system so that when one part fails, the others can still support the system well. An interesting part of the approach is the focus on kinetic energy, which increases exponentially with a linear increase in velocity.
- Will presented some examples from Minnesota where the engineering applications applied were along the lines of the “Safe Systems” approach.
  - TH 47 in St. Francis Case Study
    - The 2-lane rural road expands to a 4-lane divided rural section through town.
    - The highway bisects the local schools and residential land uses.
    - There was a recent high-speed pedestrian collision at CR 81. The intersection has a RRFB system.
      - While the road user erred in no complying with the traffic device, a safe systems approach would say the “wide-open” nature of this road section leads to higher speeds.
  - St. James Mini RABs Case Study
    - Safe Systems characteristics are present in this “main street” stretch of TH 4. Back-in angle parking and parallel parking on opposite sides of the roads, and the mini RABs lead to lower speeds.
- Specifically related to design, many “Safe Systems” applications focus on minimizing speeds and entry angles, as well as conflict points.
- For MnDOT, which has an update to the Strategic Highway Safety Plan due in 2019, this is an opportunity to implement some of this approach, particularly with the increase in land use & non-motorized vehicles, and urban/suburban expressways have the most potential to benefit from “Safe Systems” applications, especially with lots of peds.
- It was pointed out that the “Safe Systems” approach is along the same lines of the Performance-based Practical Design approach being implemented now, and can go hand-in-hand with that.