



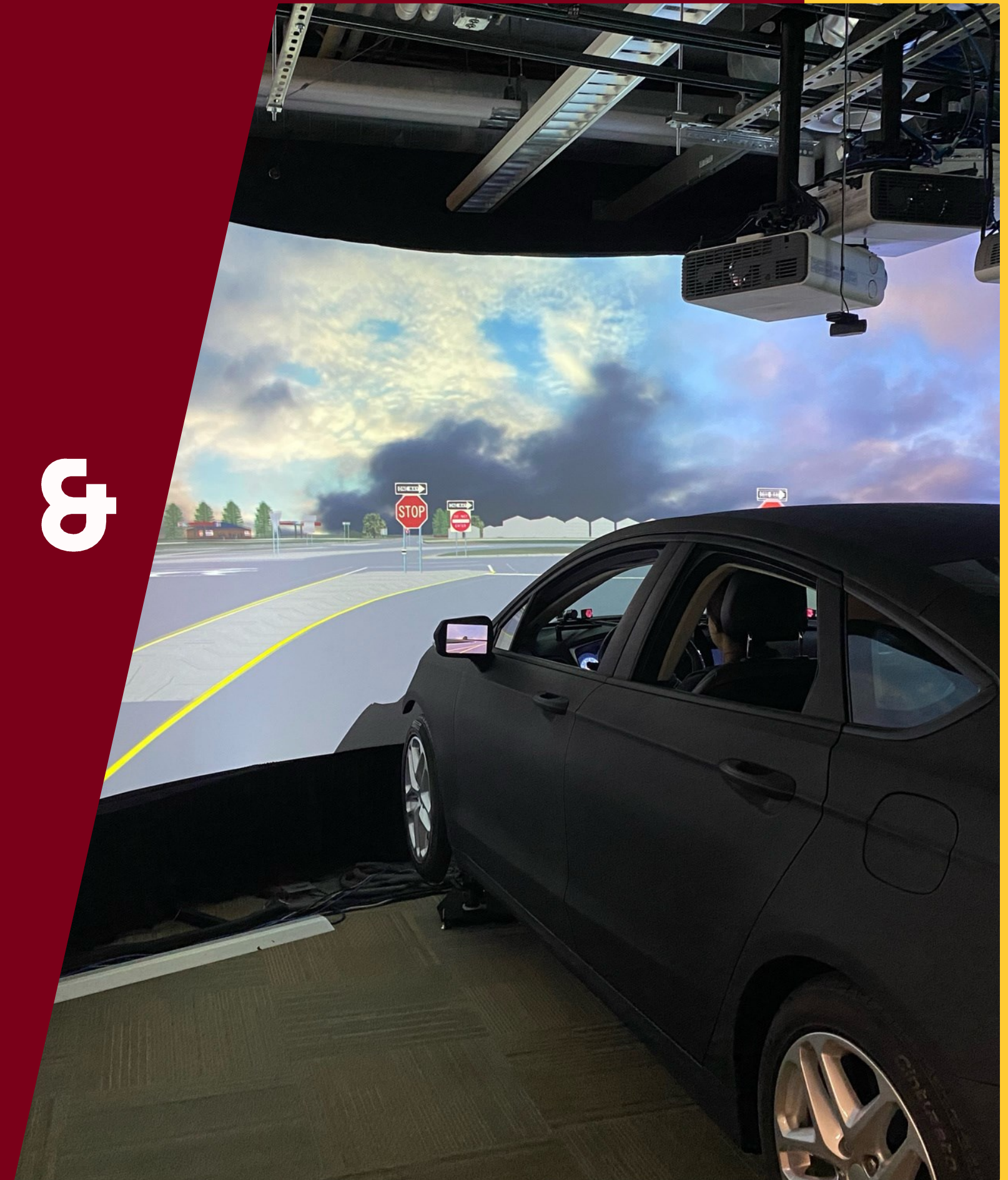
**HUMAN FACTORS
SAFETY LABORATORY**

RURAL TRAFFIC SAFETY SOLUTIONS & COMMUNITY ENGAGEMENT

Nichole Morris, Ph.D.

Research Associate Professor

Department of Mechanical Engineering



Traffic Deaths Tend to Occur in Rural Areas

- US crash fatality rates from 2010-2019 were 3-fold higher in rural counties compared to metropolitan-urban counties (Adeyemi et al., 2022)
- The rate of crash deaths per 100 million miles travels was 1.72 in rural areas and 1.19 in urban areas (IIHS, 2023)
- In Minnesota, 56% of our 2022 fatal crashes occur in rural areas (MN DPS, 2023)

The reason for high rural death rates is complex

- **Behavioral Differences**

- Lower seat belt use and proper child restraints (Shaw et al., 2022)
- Higher rates of drunk driving (Friesen et al., 2022)
- Greater incidence of driver fatigue (Al-Bdairi & Hernandez, 2020)

- **Emergency Services Differences**

- Slower police response times (Liu, 2022)
- Significantly longer EMS crash response times (Adeyemi et al., 2022).
- Greater risk of undertriage (Deeb et al., 2020)
- Limited or no access to pediatric trauma centers (Byrne et al., 2021)
- Lower availability and skill of EMS providers (Morgan & Calleja, 2020).

- **Infrastructural Differences**

- Horizontal curves (FHWA, 2023)
- Roadside obstructions (Cheng et al., 2021)
- Thru-STOP intersections (Preston, 2004)

J-turns reduce serious and fatal crash risks



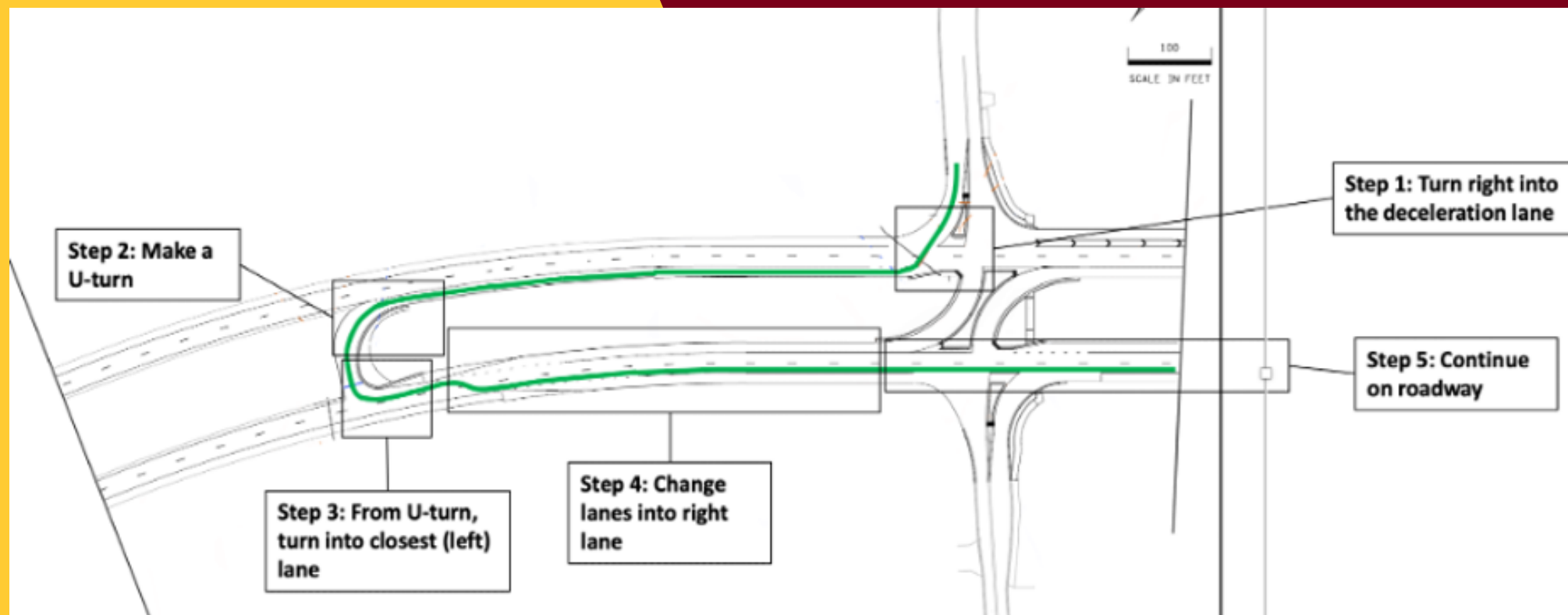
The J-turn intersection decreases the points of conflict at an intersection

- Restricts straight crossing and left-turning movements from the minor road across the major highway

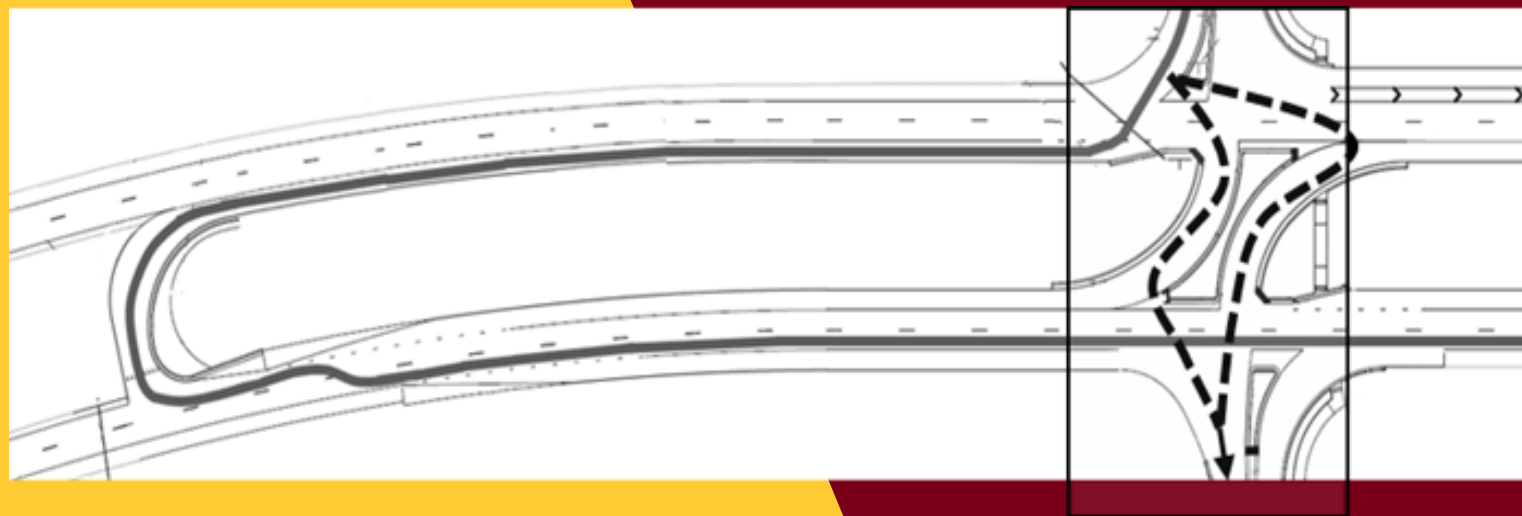
Some communities are resistant to J-turns

The non-conventional movements can lead to

- Frustration
- Slightly longer travel times
- Concerns about accessibility and access



Some communities are resistant to J-turns



- First time road users can make errors ranging from minor to severe including
- Late lane changes
 - Missing the U-turn
 - Cutting through the left-turn lanes
 - Becoming disoriented

Community Pushback Can Slow Construction

- Community members who are resistant to J-turns may resist proposed construction
 - Raise concerns at community meetings
 - Contact their State Representative
 - Tell other Minnesotans how bad they are!
- Reaching community members with positive J-turn experiences before they are proposed and before their first encounter can be crucial to positive community reception

Leveraging the Power of Testimonials



Testimonials can persuade if they contain:

- Immerse the listener in a story
- Evoke a cognitive and affective response
- Are credible
- Have a strong message

James Erwin
Alumacraft Boats
St.Peter, MN

Willmar, MN
Art Benson

Immersive Low-Cost Experiences



Acceptance tends to shift following any engagement

Presentation Method



Informational Video



Narrative Storytelling



Simulation



Attitude Change

Urban

($M = 4.77$, $SD = 3.46$)



Suburban

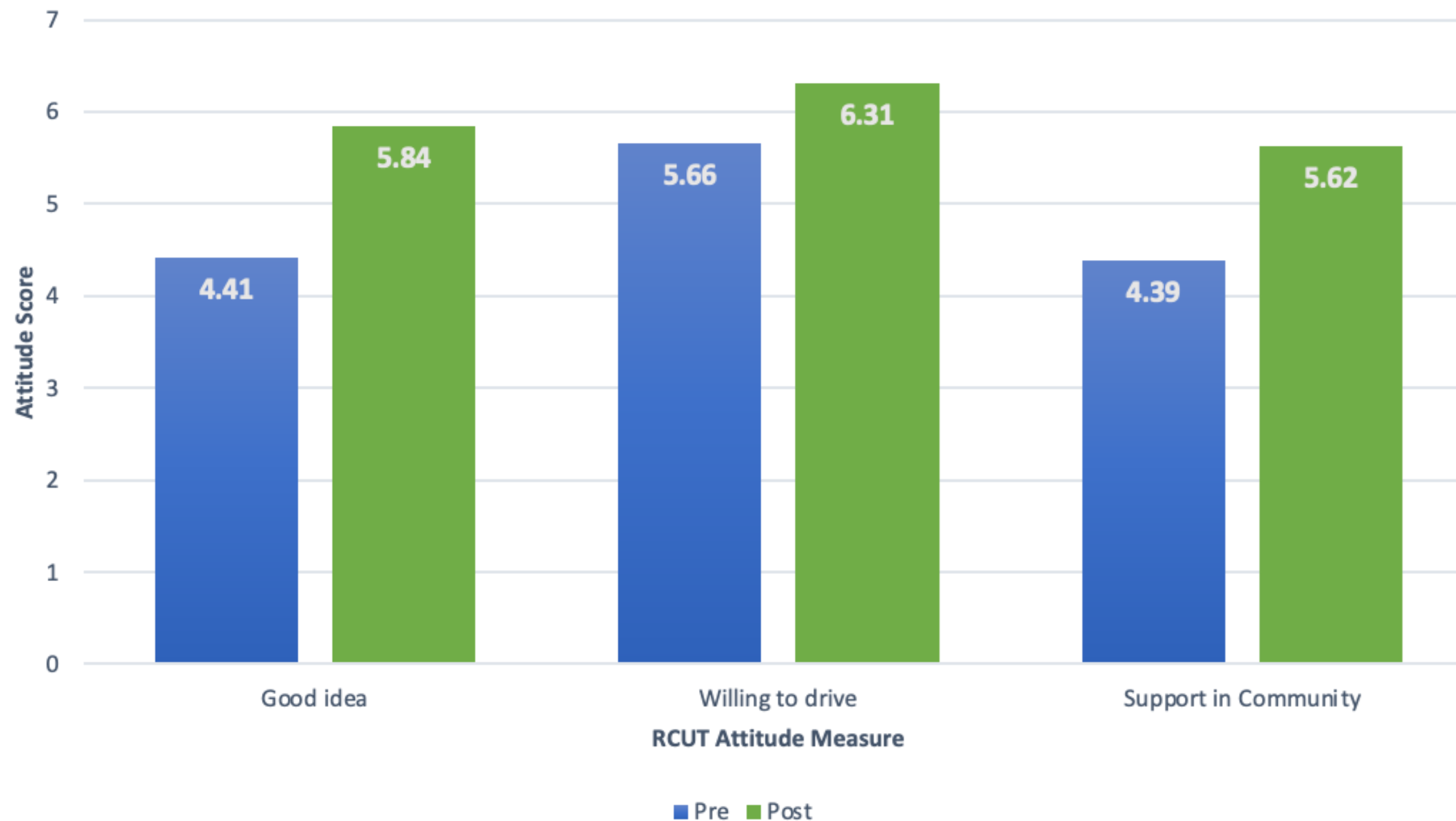
($M = 3.90$, $SD = 3.58$)



Rural

($M = 3.75$, $SD = 3.01$)

Acceptance tends to shift following any engagement



Tips on Using Persuasive Messaging

- Use a mixed-method communication strategies for upcoming roadway changes
 - Informational and educational materials
 - Audiences can differ and have different dispositions towards J-turns
- Find ways to get people to be personally involved prior to presenting educational information
 - For less-invested individuals, shorter persuasive messages are better
- Lead with information about J-turn benefits
- Testimonials are effective, but require credible messengers for the audience
- Testimonials should not be removed to meet time constraints

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Thank you

nlmorris@umn.edu

