# Roundabouts at Interchanges and High Speed Approaches

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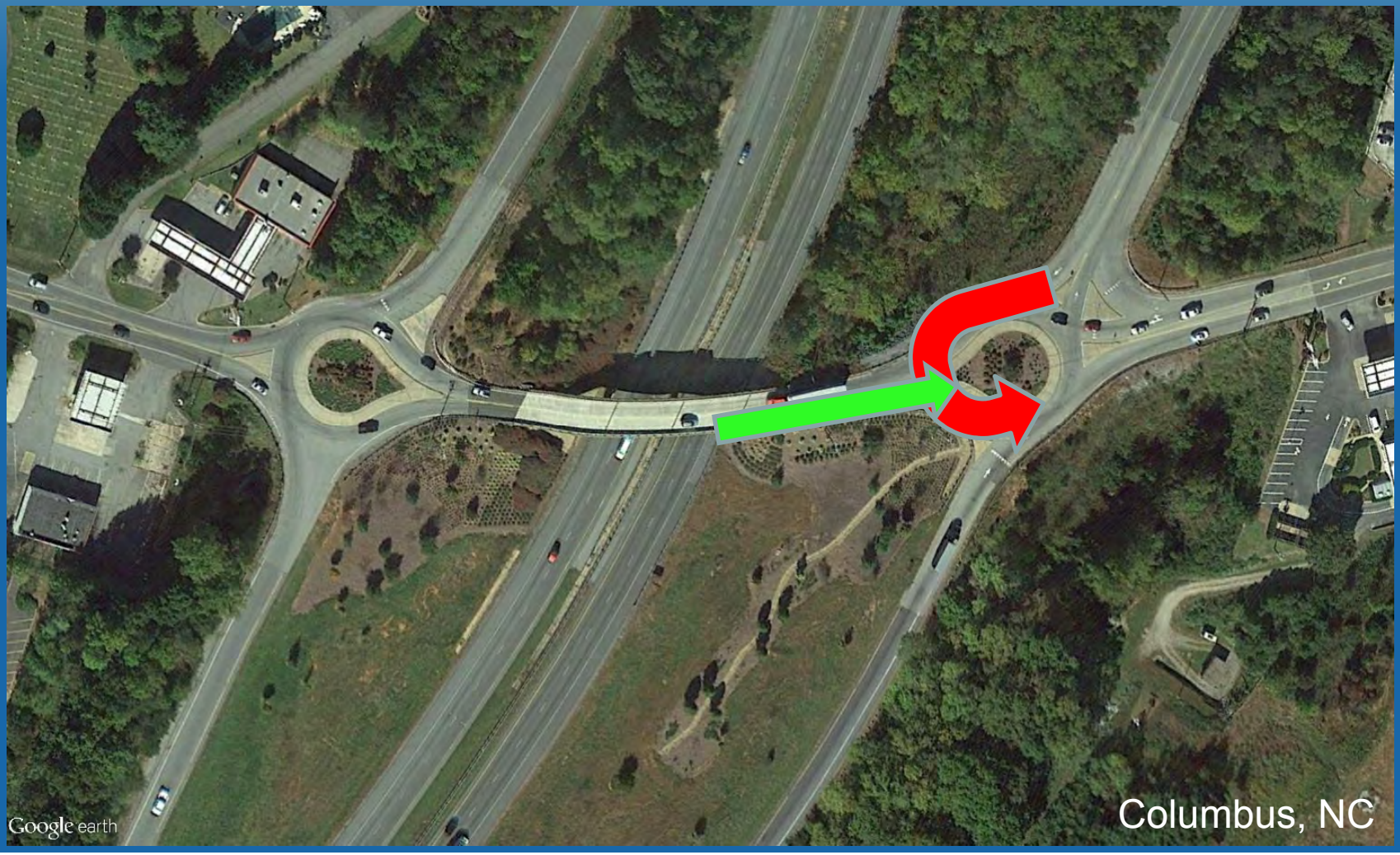
TexITE Meeting
Fort Worth, September 23, 2016

# Roundabout Interchange Ramp Terminal Types



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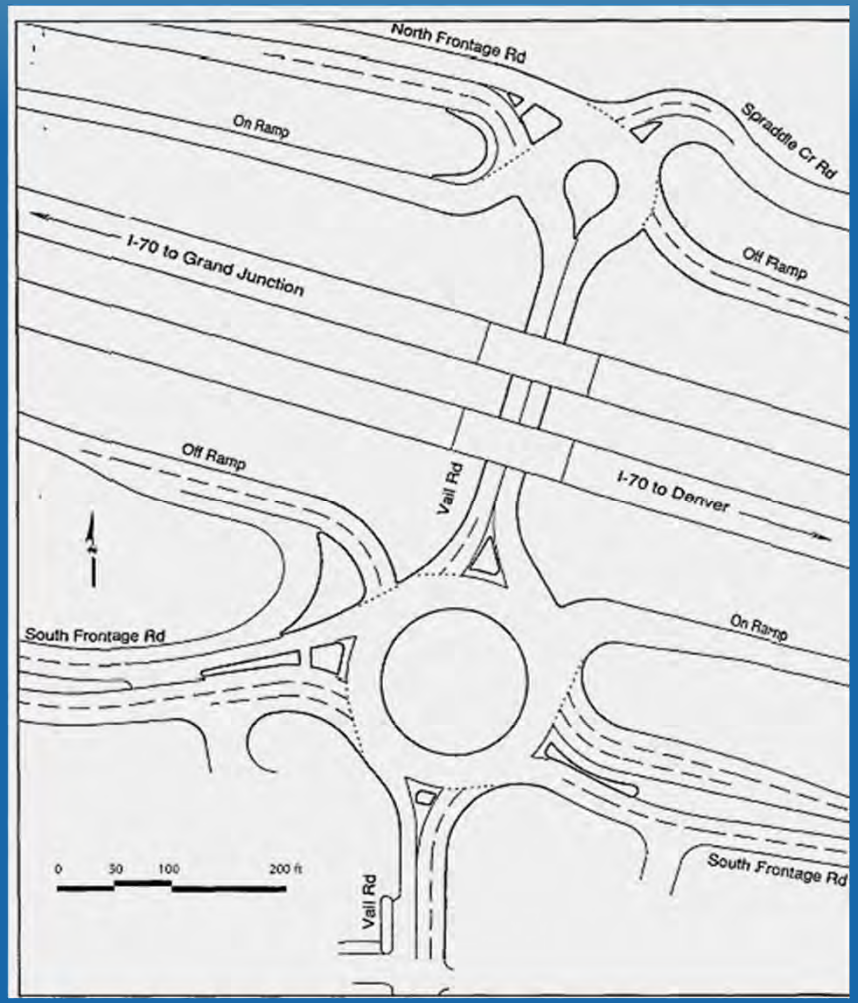
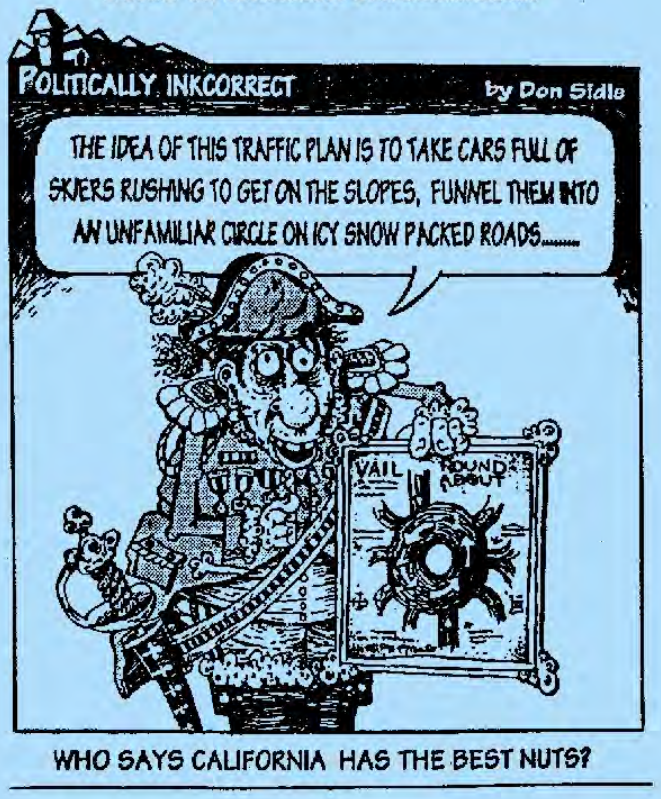



The Vail Trail - November 1994
Prior to Modern Roundabout



# Interchange Ramp Terminals Incorporating Service Roads

# Roundabout Interchange Ramp Terminals

TRB

TRANSPORTATION RESEARCH BOARD

## 5th International Roundabout Conference
## Green Bay, Wisconsin
## May 8-10, 2017

**Sponsored By:**
TRB Committee on Roundabouts (ANB75)
Co-Chairs: Eugene Russell, Professor Emeritus and Brian Walsh, Washington State DOT

**Hosted By:**
The Wisconsin Department of Transportation
and the University of Wisconsin-Madison

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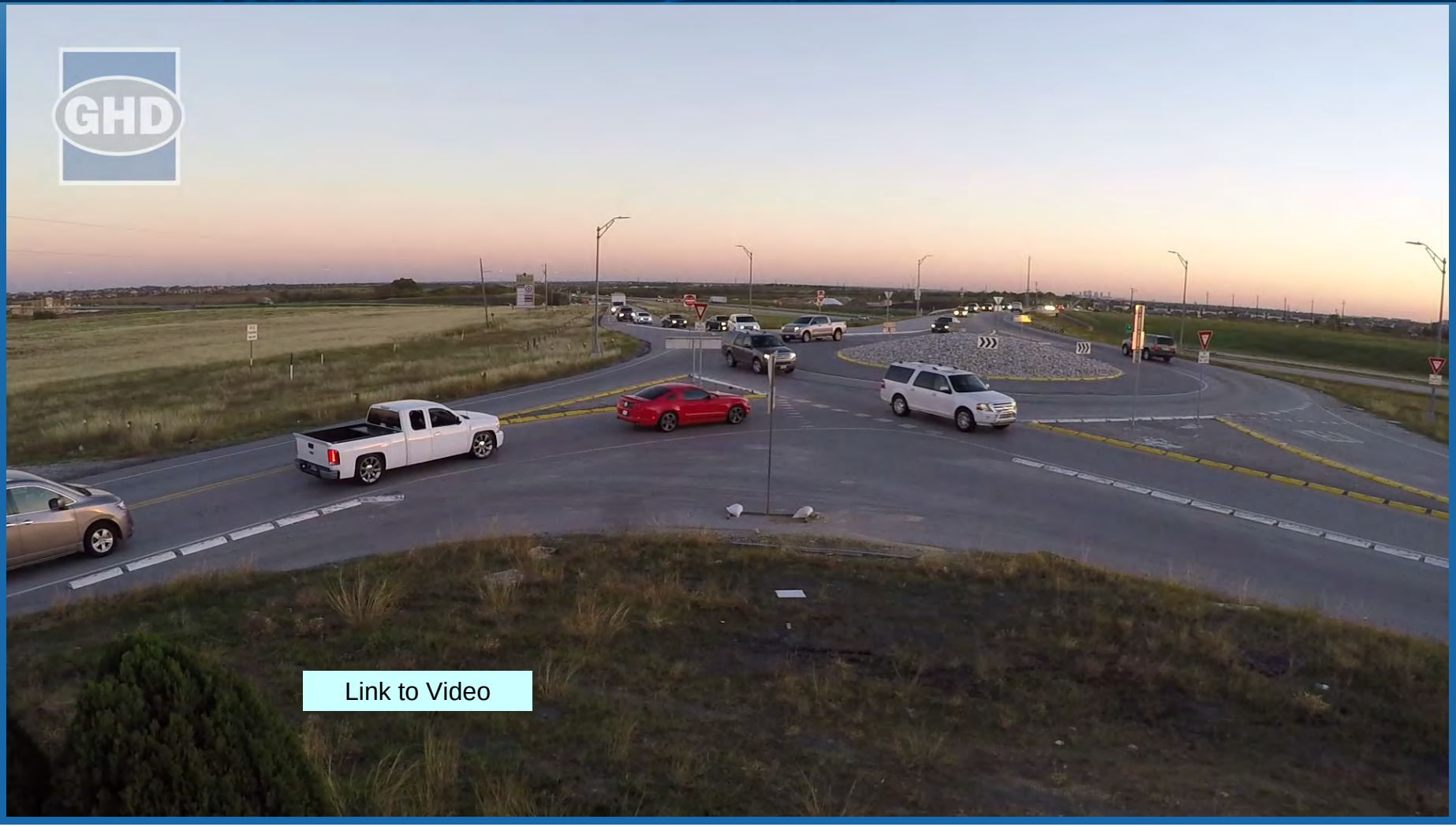

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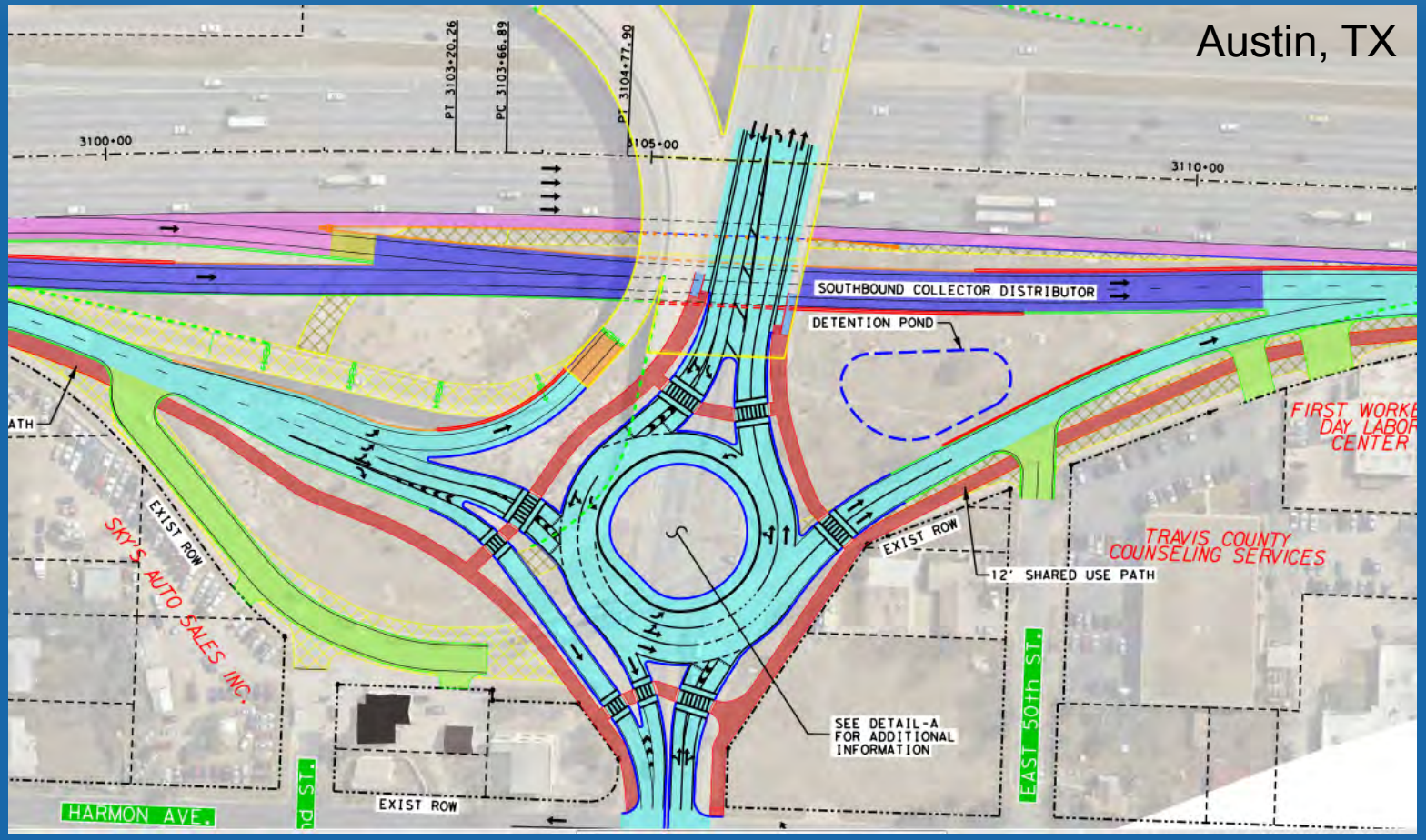


Image Source: http://ftp.dot.state.tx.us/pub/txdot/my35/capital/projects/51st-street/schematic.pdf

# Why Roundabout Interchange Ramp Terminals?

1. Reduce the TxDOT traffic signal maintenance burden
    - Rural communities under 50k population
2. Performance
    - Reduce peak & off-peak delay (air quality ☺)
    - Researched safety improvement (FHWA)
    - U-turns possible along divided corridors
    - Can eliminate sight distance issues
    - Lessen ramp queue length
    - Meter traffic to on-ramp merging to freeway
3. Constr cost savings
    - Bridge width/length reduced

LOCALS FLOCK TO MILTON KEYNES' NEW ROUNDABOUT

Image Source: http://media-cache-ec0.pinimg.com/736x/0f/35/77/0f357715d25af368ecf07c06ac48108a.jpg

# High Speed Approaches

*Elongated splitter islands, curbing, lighting, and advanced signing can greatly improve safety at high speed approaches by alerting drivers to a changed traffic condition ahead.*

# Approach Design

The primary safety concern in high-speed context is clarity of the driving situation (i.e. comfortable deceleration)

- ✓ Provide the desirable stopping sight distance of the entry point based on approach operating speed.
- ✓ Align approach roadways and set vertical profiles to make the central island visible.
- ✓ Extend splitter islands upstream of the yield line to start of deceleration - a minimum length of 200 feet is recommended.

# Speed Transition

# Offset Left Design – Preferred for Rural Conditions

# Offset Left Design for Multilane Approaches

# Carefully Applied Curvature

# Use of Successive Curves on High Speed Approaches

# Inflected Approach Curves

# Superelevation = wrong message + no forward sight distance

# Which entry design serves the driver best?

# Approach Perspective


Note: Preserve forward sight - too much chicane can lead to SMV crashes

# Questions?

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