ARE MULTILANE ROUNDABOUTS A SAFE AND EFFECTIVE INTERSECTION TREATMENT?

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El Paso District Innovative Intersection Evaluation Study

- Performance and safety evaluation of 5 roundabouts, a diverging diamond interchange, and a direct connector interchange
- Presentation focus preliminary roundabout evaluation
- 5 multilane roundabouts in El Paso District

University of Texas El Paso

Alameda/Paisano
TxDOT El Paso District Roundabout Background

- University of Texas El Paso (UTEP) Roundabouts (2010-2014)
  - First roundabouts for TxDOT El Paso District
  - Designed and constructed by TxDOT, maintained by City of El Paso
- Alameda/Paisano Roundabouts (2016)
  - Designed, constructed and maintained by TxDOT
- We have learned a lot as an industry over the last 5-10 years!
- How well do these roundabouts perform now?
• University of Texas – El Paso (UTEP)
• No through-vehicle connections on campus
• Sun Bowl Drive and Schuster Avenue provide parking access
• I-10 provides regional connection
Safety and Performance: UTEP – Sun Bowl Dr & Glory Road

Before:
- AM – Worst Case LOS C
- PM – Worst Case LOS D

After:
- AM – Worst Case LOS A
- PM – Worst Case LOS B
Before:
- AM – Worst Case LOS F
- PM – Worst Case LOS F

After:
- AM – Worst Case LOS F
- PM – Worst Case LOS A
Safety and Performance: UTEP – Spur 1966 & Schuster Ave

Before: Did not exist

After:
- AM – Worst Case LOS C
- PM – Worst Case LOS A
Safety and Performance: Alameda Ave & Paisano Dr

Before: Signal
- AM – LOS B
- PM – LOS B

After: West Roundabout
- AM – Worst Case LOS A
- PM – Worst Case LOS B

After: East Roundabout
- AM – Worst Case LOS B
- PM – Worst Case LOS C
Roundabout Capacity

- Existing volumes below HCM 6 capacity curves
- Confirmed with field observations
- How does 10-year forecast look?
- Did we over build?
- Can we reduce lanes?
Glory Road / Sun Bowl Drive Assessment

**Issues**
- Extra Circulating Lanes
- 26-30mph median entry speed

**Solutions**
- Add Crosswalks
- Extend Splitter Island with spiral
- Increase truck apron for deflection
- Add Crosswalks

**Capacity**

**Safety**

**Speed**

**Lane Compliance**
University Avenue/ Sun Bowl Drive Assessment

Issues

- Poor Lane Compliance
- Extra Lane
- Poor Deflection Angle

Solutions

- 15%
- 20%
- 30%

Factors:

- Capacity
- Safety
- Speed
- Lane Compliance
Schuster Avenue/ Spur 1966 Assessment

**Issues**
- Poor Deflection Angle: 55%
- Poor Lane Compliance: 50%

**Solutions**
- Improved traffic flow and reduced congestion
- Enhanced pedestrian safety with clear signage
- Increased visibility for drivers

**Categories**
- Capacity
- Safety
- Speed
- Lane Compliance
Alameda / Paisano Assessment

Capacity Safety Speed Lane Compliance
Signing and Striping
Accommodating Trucks

Sign locations

Curb Detail
Key Findings

- Capacity benefits realized
- Safety results not consistent with national statistics
- Considering retrofits based on latest guidance
  - Geometric design to control speed and lane usage
  - Clear messaging
  - Right size roundabout