Why Roundabouts?

**Less Traffic Conflicts**
- Fewer crashes and less severe crashes

**Safety**
- Geometry allows reduction in crash patterns typically associated with four-legged intersections.

**Efficient Traffic Flow**
- Eliminates stop-and-go traffic associated with stop signs or traffic signals.

**Money Savings**
- Lower cost to maintain compared to traffic signal.

Limestone County (Athens, AL)

**Existing Conditions**
- SR-251 (55mph) at Lindsay Lane (45mph)
- Each approach to the intersection is a single lane, no turn lanes

**Initial Design**
- Single-Lane Roundabout (Capacity Analysis)
  - Single-lane entries at all legs
  - One circulating lane
  - Truck Apron (WB-67)
- Size, Position and Alignment
  - Proposed RAB: Radial Design (not preferred)
  - Minimize RDW impacts on existing property
  - Minimize impacts to the existing stream/drainage
**Initial Design**

- Inscribed Circle Diameter: 180'
- Circulatory Roadway Width: 18'

**Initial Design Issues**

- The Projection of the approach alignment is offset to the right of the Roundabout center.

**The Redesign**

- Offset Right of Center:
  - Allows for faster entry speeds
  - Radial Approach:
  - More suitable for lower speeds (30mph)

**Current Design**

- Inscribed Circle Diameter: 150'
- Circulatory Roadway Width: 18'

**Roundabout Design Issues**

- Gregory K. Wells, P.E.
- LaShana R. Merchant, P.E.
Temporary Traffic Control for Roundabouts

References
- ATSSA “Temporary Traffic Control… for Roundabouts”
- MUTCD part 6
- AASHTO Roadside Design Guide
- FHWA-RD-00-067 Chapter 7
- NCHRP Report 672

Fundamentals
- Integral and high priority element
- Minimal road user movement
- Ensure maximum possible sight distance to critical control elements
- Accommodate turning radius of tractor trailer vehicles
- Avoid reversing traffic in circle

With All Traffic Diverted

Benefits
- Shorter construction duration
- Lowered construction costs
- Increase in worker and motorist safety

Concerns
- Increased congestion on detour
- Non-local driver navigation
- Inadequate geometry and load capacity on detour
- Impacts to local business and homes
- Emergency response access along closed route

With Some Traffic Diverted

- The need for accessibility of nearby roadway networks
- The presence of emergency services near the vicinity of the roundabout which require immediate access to the intersection
- The existence of limited alternate routes for diverting traffic
- The diversion of traffic would result in significant increase in travel time

Under Full Traffic

- Install lighting
- Install and cover permanent signs
- Construct outside widening as needed
- Reconstruct or resurface approaches as needed
- Construct splitter islands and delineate central island
- Uncover signs and operate as roundabout
- Complete central island
- Final paving and striping

Temporary Traffic Control Considerations

Roundabouts can be constructed under three types of traffic conditions.

1. With all traffic diverted
2. With some traffic diverted
3. Under full traffic

Staging Considerations

- Portable changeable message signs provided on all approaches of the roundabout
- Maintain existing traffic pattern
Staging Considerations

- Build temporary diversion for next phase
- Consider temporary or ultimate permanent lighting

- Traffic flow in partial roundabout is initiated in ultimate directions (do not reverse flow unless under flagging operation)
- On-site temporary diversion
- Off-site detour
- Consider temporary traffic signals

- On multi-lane streets, detour signs with an advance turn arrow should be used in advance of a turn
- Use supplemental detour signing along the route for driver confirmation

- Pavement markings must clearly show the intended travel path
- Additional temporary pavement markings and signs may be necessary

Poor implementation of a good design
Thank You