Roundabouts

*Designing for Today, Planning for Tomorrow*

Todd Kempker, PE
Case Study
Case Study
Case Study
Case Study
Case Study
Case Study
Capacity

• **Signal**
  - Adequate for existing and future condition
  - Controlled by lanes

• **Single lane roundabout**
  - Best option for existing conditions
  - Inadequate if Nifong becomes four lanes

• **Dual lane roundabout**
  - Overkill today
  - Necessary for the future
## Conflict Points

<table>
<thead>
<tr>
<th>2-LANE SIGNAL</th>
<th>SINGLE LANE ROUNDABOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- **24 VEHICLE CONFLICTS**
- **24 PEDESTRIAN CONFLICTS**
- **8 VEHICLE CONFLICTS**
- **8 PEDESTRIAN CONFLICTS**
Preferred Option

- **Roundabout**
  - Safety benefits
  - Better traffic operations
  - Lower costs
  - Able to miss utilities
  - Avoids costly Right-of-Way locations

- Single lane now
- Dual lane in the future
Single vs. Partial Dual Lane Roundabout
Removable Splitter Islands

Asphalt or concrete overlay after temporary extension is removed.
Removable Splitter Islands
Removable Splitter Islands
Single vs. Partial Dual Lane Roundabout
Right Turn Lanes
Right Turn Lanes
Deter Traffic
Deter Traffic
Deter Traffic
Offset Sidewalks and Inlets
Offset Sidewalks and Inlets
Offset Sidewalks and Inlets
Expansion Costs

• Single lane construction
  • Removeable Aprons: $1,161,000
  • Offset Sidewalks and Inlets: $987,000
  • Cost Difference: $174,000

• Future expansion
  • Truck apron removal: minimal
  • Additional lanes: $193,000
Takeaways

• Design for today, plan for the future
• Expand toward the outside
• Choose the method that works best for your site
Questions?