Fact-Finding Trip Overview

- **Folsom**, CA
  - **Denver**, CO
    - Central Park
    - Golden
    - Loveland
  - **Indianapolis**, IN
    - Carmel
    - Whitestown
Carmel
- 16.5 Miles
- 48 Controlled Intersections
- 2 Signalized Intersections

Folsom
- 17 Miles
- 58 Controlled Intersection
- 53 Signalized Intersections
- 5 AWSC Intersections
Roundabout Acceptance

Known roundabouts in the United States

Note: Data is current through Nov. 23 and includes true modern roundabouts, not pretenders such as rotaries or traffic-calming circles; the apparent slowing growth rate in recent years probably just reflects the lag between when roundabouts are built and when they’re added to the database.

Source: Lee Rodegerds & Kittelson & Associates

Roundabouts by year

Source: Lee Rodegerds of Kittelson & Associates

DEPARTMENT OF DATA / THE WASHINGTON POST
The Basics

Traffic Control
- Yield at Entry

Traffic Deflection
- Pavement markings and raised islands direct traffic into a one-way counterclockwise flow

Geometrics
- The radius of the circular road and the angles of entry are designed to slow the speed of vehicles
The Basics

**Typical 4-leg intersection**
- Angle
- Left turn

**Roundabout**
- Sideswipe

*Source: FHWA*
Emission Reduction: Effect of Speed on GHG

Source: AASHTO Transportation and Climate Change Resource Center
Figure 5.9. Driver focus at different speeds (Source: TGM 1999)
Pedestrian Safety

If hit by a person driving at:

- **20 MPH**
  - Person Survives the Collision: 90%
  - Results in a Fatality: 10%

- **30 MPH**
  - Person Survives the Collision: 60%
  - Results in a Fatality: 40%

- **40 MPH**
  - Person Survives the Collision: 20%
  - Results in a Fatality: 80%
## Benefits

<table>
<thead>
<tr>
<th></th>
<th>Roundabout</th>
<th>Traffic Signals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicle and Driver Safety</strong></td>
<td>Eliminates high-speed crashes and reduces fatalities and injuries by 70+%</td>
<td>Numerous vehicle and pedestrian conflict points on standard intersection (32 vehicle/24 pedestrian)</td>
</tr>
<tr>
<td><strong>Pedestrian and Bicyclist Safety</strong></td>
<td>Shorter one-directional crossings provide greater pedestrian focus and awareness</td>
<td>Vehicles are more focused on signal changes than on pedestrian movements</td>
</tr>
<tr>
<td><strong>Space/Development Footprint</strong></td>
<td>Reduces additional right-of-way between links of intersections</td>
<td>May require additional turn lanes in future if traffic volumes or traffic patterns change</td>
</tr>
<tr>
<td><strong>Cost and Sustainability</strong></td>
<td>Less expensive than a signal for greenfield construction (new location)</td>
<td>Increase in fuel consumption and emissions due to stopped and delayed vehicles during red lights</td>
</tr>
<tr>
<td><strong>Traffic Capacity</strong></td>
<td>Creates equal priority for all approaches</td>
<td>Typically prioritizes mainline traffic allowing progression of high volumes approaches</td>
</tr>
<tr>
<td><strong>Access Management</strong></td>
<td>Provides equal priority of driveway/business access</td>
<td>Requires drivers to make additional left turns or right turns to access certain properties/businesses</td>
</tr>
<tr>
<td><strong>Aesthetics</strong></td>
<td>Provides attractive entries and gateways to communities</td>
<td>Various lighting and signing distractions can impact the overall aesthetic appeal for the user</td>
</tr>
<tr>
<td><strong>Maintenance</strong></td>
<td>Pavement markings, lighting, and some landscape maintenance may be more intensive than signals</td>
<td>Requires staff time required to maintain signals, provide retiming, and conduct repair</td>
</tr>
</tbody>
</table>
What Performance Measures are Considered?

1. Safety
2. Delay (travel time reduction savings)
3. Emission reductions (not used in some states)
4. Operations and maintenance
5. Initial capital cost

**Benefit Performance Measures**
calculate the benefits of an alternative compared to the existing condition

**Cost Performance Measures**
calculate the added costs of an alternative compared to the existing condition
Lifecycle Costs
Benefits

2.4 TIMES LESS likely to have an injury accident

57% REDUCTION in traffic delays

53% REDUCTION in O&M cost compared to a traffic signal
## Potential Funding Sources

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Potential Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost (greenfield only)</td>
<td>Folsom Plan Area developer fees</td>
</tr>
<tr>
<td>Safety</td>
<td>HSIP, SS4A</td>
</tr>
<tr>
<td>Sustainability/Air Quality</td>
<td>CMAQ, Sustainable Communities grants</td>
</tr>
<tr>
<td>Bike/Ped</td>
<td>ATP (State or Regional)</td>
</tr>
<tr>
<td>Place-making</td>
<td>Community Design/CDBG</td>
</tr>
</tbody>
</table>
Existing Traffic Signals

LEGEND:
- Existing Signal (15)
- Existing Signal with Proposed Modifications
- Video Detection (16)
- Controller Upgrade/ATSPM (70)
- CCTV (47)
- Advanced TSP (8)
- Future Signal (15) [not part of this project]
Potential Roundabout Candidates
Potential Roundabout Candidates
Do you need any more information about roundabouts (RABs)?

Shall staff develop a formal policy to prioritize RABs over other traffic control methods?

Thank you!