Topics of Discussion

- National roundabouts data base
- 3-65 project data base
  - Operations data
  - Safety data
  - Speed data
  - Geometric data
  - Bicycle/pedestrian data
Roundabouts in U.S.
Roundabout setting

- Urban: 16
- Suburban: 103
- Rural: 164
Number of approaches

- 70 approaches
- 4 approaches
- 16 approaches
- 4 approaches
- 6 approaches
- 5 approaches
- 4 approaches
- 3 approaches
- 2 approaches
Number of lanes on circulatory roadway

- 213 lanes
- 72 lanes
- 2 lanes
- 1 lane
Previous facility

- One-way stop control: 46
- Two-way stop control: 30
- All-way stop control: 16
- Signal control: 14
- None: 49
Year created

- 2000 or later: 61
- 1995-1999: 70
- 1994 or earlier: 70
Geographic location (zip code)

- Northeast (0,1)
- Mid-Atlantic (2)
- South, Southeast (3,7)
- Midwest (4,5,6)
- Mountain West (8)
- Pacific Coast (9)
Video data collection sites

WA: 2 Pilot, 9
OR: 2
NV: 4
CO: 4
KS: 1
MI: 1
MD: 7
New England: 4
CA: 2
UT: 1
FL: 1
Video data collection sites - operations

WA: 7
OR: 1
MI: 1
MD: 4
FL: 1
New England: 2
Mast and camera
Mast and camera
Mast and camera
Field of view
Field of view
Example fields of view: MD06

Table 1. MD06. MD 2 at MD 408/MD 422, Lothian, Maryland

| Lanes on circulatory roadway | 1 |
| Lanes on approaches          | 1 |
| Number of approaches         | 4 |

MD06-E1  MD06-N1  MD06-S1
Total video time, operations data set

- **One lane sites**
  - 10 sites
  - 16 unique approaches
  - Video tape time: 15:53:16

- **Two lane sites**
  - 6 sites
  - 10 unique approaches
  - Video tape time: 18:30:18
Queue presence: WA03-S3
Proportion time queued vs. time, WA04-N

Time

Proportion time queued
Events of interest: ME01-E
Events of interest: ME01-E

Events recorded:
- z - upstream point
- 1 - first in queue point
- 2 - entry point
- s - conflict point
- a - exit point
Parameters: ME01-E

Parameters:
(1-minute summaries)
Entry flow
Exit flow
Circulating flow
Service time
Move up time
Percent time queued
Events of interest: ME01-E

Parameters:
(1-minute summaries)
Delay
\[ z \rightarrow 2 \]
[difference between measured and free flow travel times]
Events of interest: UT02

Parameters:
Turning movements
Travel times
Events of interest: UT02

Parameters:
- Accepted gaps
- Rejected gaps
- Follow up times
Operations data set highlights – one lane sites

Percent time queued > .9
Operations data set highlights – one lane sites
Operations data set highlights – one lane sites
Operations data set highlights – one lane sites

- **Gap sequences**
  - Accepted lag
    - 8282
  - Rejected lag followed by accepted gap
    - 1318
  - Rejected lag, followed by one or more rejected gaps, followed by accepted gap
    - 1151
## Operations data set highlights – two lane sites

<table>
<thead>
<tr>
<th>Flow rate (veh/min)</th>
<th>Number of observations</th>
<th>Entry flow</th>
<th>Conflicting flow</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Left lane</td>
<td>Right lane</td>
</tr>
<tr>
<td>5</td>
<td>434</td>
<td>350</td>
<td>148</td>
</tr>
<tr>
<td>10</td>
<td>257</td>
<td>368</td>
<td>324</td>
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<tr>
<td>15</td>
<td>74</td>
<td>174</td>
<td>269</td>
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<tr>
<td>20</td>
<td>7</td>
<td>13</td>
<td>78</td>
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<tr>
<td>25</td>
<td>0</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td>35</td>
<td>0</td>
<td>0</td>
<td>19</td>
</tr>
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<td>40</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>45</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>50</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>55</td>
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<td>0</td>
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<tr>
<td>60</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Operations data set highlights – two lane sites
Safety data collection sites

WA: 20
OR: 6
NV: 11
CA: 6
UT: 1
CO: 18
KS: 10
MO: 1
WI: 1
MI: 3
MD: 26
CT: 2
NJ: 1
ME: 1
VT: 3
SC: 1
FL: 4
MS: 1
### Safety data collection - overview

<table>
<thead>
<tr>
<th>Crash Data</th>
<th>Number of sites</th>
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<tbody>
<tr>
<td>Intersection Crash Data Collected</td>
<td>117</td>
</tr>
<tr>
<td>Approach-Specific Crash Data Collected</td>
<td>55</td>
</tr>
<tr>
<td>Approach Data Collected/Extracted</td>
<td></td>
</tr>
<tr>
<td>• Geometric Data Collected</td>
<td>133</td>
</tr>
<tr>
<td>• Geometric Data Extracted</td>
<td>93</td>
</tr>
<tr>
<td>• Video Data Collected/Received</td>
<td>38</td>
</tr>
<tr>
<td>• Operational Data Extracted</td>
<td>16</td>
</tr>
<tr>
<td>• Speed Data Collected</td>
<td>34</td>
</tr>
</tbody>
</table>
Geometric data collection - overview
Geometric data collection - overview
Speed data collection - overview
Speed data collection - overview

Previous Leg

Approach Leg
of Interest

Next Leg

![Diagram of a roundabout with segments R1, R2, R3, R4, R5 and speed data collection graph showing speed in mi/hr for segments R1, R2, R3, and R4.]

Segment

0 5 10 15 20 25 30 35

Speed, mi/hr

R1 R2 R3 R4

Segmen
Speed data collection - overview
Speed data collection - overview

Previous Leg

Approach Leg of Interest

Next Leg
Video data collection: Bicycles/pedestrians

[Map showing video data collection locations in various states: WA: 2, OR: 1, UT: 1, CA: 2, NV: 1, VT: 1, MD: 1, FL: 1 (1)]
And now for the details...