Field study for pedestrian signals
June 20th, 2019
BRTB Traffic Signal Subcommittee Meeting

- Three sites with different pedestrian activated signals
  - Site 1- Flashing yellow hazard indication beacon (HIB): MD 500 @ Jamestown Rd
  - Site 2- Pedestrian hybrid beacon (PHB): MD 410 WB @ Bethesda-Chevy Chase High School
  - Site 3- Always-On fire house type Maryland pedestrian signal: US 1 @ Hartwick Rd

- Site 2 field study conducted 6 months after the deployment of PHB
- Preliminary field observations on the response of pedestrians/bikes and drivers to the pedestrian signals

Site 3 — Maryland pedestrian signal
- US 1 @ Hartwick Rd
- Close to the Univ. of MD, College Park
- High Pedestrian volume (students)
- 5 hours data collection
Site 3—US 1 (Maryland pedestrian signal)

- Time between button pushed and rapid flashing yellow varies among cycles since the signal has fixed cycle length. The cycle length is 108 (before 3pm) or 135 (after 3pm) sec.
- Walk signal starts 3.5 seconds after the onset of solid red.

### Pedestrian

<table>
<thead>
<tr>
<th></th>
<th>Push + wait or wait</th>
<th>Push and go /Avg waiting time in sec</th>
<th>Arrival and Go during Walk Time</th>
<th>Arrival and Go during FDW</th>
<th>Not pushed or jaywalk</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Crossing</td>
<td>124 (40%)</td>
<td>39 (14%) / 23s</td>
<td>28 (9%)</td>
<td>32 (10%)</td>
<td>84 (27%)</td>
</tr>
<tr>
<td>South Crossing</td>
<td>114 (80%)</td>
<td>4 (3%) / 24s</td>
<td>5 (3%)</td>
<td>1 (1%)</td>
<td>19 (13%)</td>
</tr>
<tr>
<td>Total</td>
<td>238 (53%)</td>
<td>44 (10%) / 23s</td>
<td>33 (7%)</td>
<td>33 (7%)</td>
<td>103 (23%)</td>
</tr>
</tbody>
</table>

### Driver

<table>
<thead>
<tr>
<th></th>
<th>Stopped properly</th>
<th>Ran on red</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB</td>
<td>229</td>
<td>19 (8%)</td>
</tr>
<tr>
<td>NB</td>
<td>158</td>
<td>16 (9%)</td>
</tr>
<tr>
<td>Total</td>
<td>387</td>
<td>35 (8%)</td>
</tr>
</tbody>
</table>

- More than a half of the pedestrians pushed the button and waited.
- About 10% of pedestrians pushed the button but did not wait until the ped signal shows "WALK".
- Less than 10% of vehicles ran red.
Summary for all three sites

- Most vehicles (more than 75% for all sites) stop properly for pedestrians; about 10% of vehicles do not stop properly for pedestrians.
- About a half of the pedestrians (44% to 59% for all sites) push the button.
- Relatively, HIB causes the most safety concerns; PHB and Maryland pedestrian signal seem to be safer because pedestrians are guided with a signal to follow.
- MD ped signal yields the lowest violation rate.

<table>
<thead>
<tr>
<th>Site (Ped Signal)</th>
<th>Not pushed or jaywalk</th>
<th>Pushed but not waited for walk signal</th>
<th>Vehicles not stopping properly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site 1 (HIB)</td>
<td>56%</td>
<td>--</td>
<td>12%</td>
</tr>
<tr>
<td>Site 2 (PHB)</td>
<td>51%</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>Site 3 (MD ped signal)</td>
<td>41%</td>
<td>17%</td>
<td>8%</td>
</tr>
</tbody>
</table>

1. HIB: Hazard Indication Beacon; PHB: Pedestrian Hybrid Beacon
2. Excluding those who arrive during activations or after the button has already been pushed

Next Steps

For Site 1, conduct an after-period observation after an upgrade from 12" HIB to 12-12-8 inch MD Ped Signal

For Site 2,
- Consider shortening the 10-sec flashing yellow phase
- Consider making the 35-sec solid red phase variable time-of-day or allowing vehicles to proceed during the alternating flashing red phase
- Change the “STOP HERE FOR PED” sign to “STOP HERE ON RED”
- Check changes in drivers/pedestrians compliance over time in spring/summer 2019

For Site 3,
- Conduct an after-period observation after a change from MD Ped Signal to Full Color Signal