Montgomery County Department of Transportation
MD 191 (Bradley Boulevard) at MD 188 (Wilson Lane)
Intersection Improvements

June 22, 2021
Montgomery County Department of Transportation
MD 191 (Bradley Boulevard) at MD 188 (Wilson Lane)
Intersection Improvements

**Bradley Boulevard Bikeway facility planning study**
1. Bradley Boulevard Bikeway project between Wilson Lane and Glenbrook Drive
2. Mandatory Referral, went to MNCPPC for review
3. Alternative 4A approved with comments
4. Based on MNCPPC comments, left-turn lanes on all 4 approaches at intersection of Bradley Boulevard and Wilson Lane were later recommended
5. Project is advancing from preliminary to final design.
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Traffic Intersection Study
1. Compared Existing Condition to Proposed Future Conditions
   i. Traffic Operational Analysis
   ii. Crash Analysis
2. Determined required length of proposed left turn lanes
3. Determined appropriate traffic signal phasing
4. Study approved by MDOT SHA on 01/08/2020

Table 1: Capacity Analysis Results – Existing Conditions

<table>
<thead>
<tr>
<th>Approach</th>
<th>AM Peak</th>
<th>PM Peak</th>
<th>AM Peak</th>
<th>PM Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB (MD 191)</td>
<td>8.9</td>
<td>A</td>
<td>29.2</td>
<td>C</td>
</tr>
<tr>
<td>SB (MD 188)</td>
<td>14.8</td>
<td>B</td>
<td>22.2</td>
<td>C</td>
</tr>
<tr>
<td>EB (MD 188)</td>
<td>27.8</td>
<td>C</td>
<td>25.6</td>
<td>C</td>
</tr>
<tr>
<td>WB (MD 188)</td>
<td>26.3</td>
<td>C</td>
<td>42.8</td>
<td>D</td>
</tr>
<tr>
<td>Intersection</td>
<td>17.3</td>
<td>B</td>
<td>30.0</td>
<td>C</td>
</tr>
</tbody>
</table>

Table 2: V/C (v/c, v/c) Capacity Analysis Results

<table>
<thead>
<tr>
<th>Approach</th>
<th>v/c (0.81)</th>
<th>LOS = C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intersection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Traffic Operations Results – Proposed Condition

<table>
<thead>
<tr>
<th>Approach</th>
<th>Delay (sec/veh)</th>
<th>LOS</th>
<th>Delay (sec/veh)</th>
<th>LOS</th>
<th>v/c (LOS)</th>
<th>v/c (LOS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NBL (MD 191)</td>
<td>22.4</td>
<td>C</td>
<td>22.8</td>
<td>C</td>
<td>v/c (0.72)</td>
<td>v/c (0.80)</td>
</tr>
<tr>
<td>NBTR (MD 191)</td>
<td>9.6</td>
<td>A</td>
<td>18.9</td>
<td>B</td>
<td></td>
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</tr>
<tr>
<td>NB Approach</td>
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<td>B</td>
<td>19.2</td>
<td>B</td>
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<td></td>
</tr>
<tr>
<td>SBL (MD 191)</td>
<td>13.2</td>
<td>B</td>
<td>29.5</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBTR (MD 191)</td>
<td>14.5</td>
<td>B</td>
<td>15.1</td>
<td>B</td>
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<td></td>
</tr>
<tr>
<td>SB Approach</td>
<td>14.4</td>
<td>B</td>
<td>16.3</td>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBL (MD 188)</td>
<td>23.6</td>
<td>C</td>
<td>35.6</td>
<td>D</td>
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<td></td>
</tr>
<tr>
<td>EBTR (MD 188)</td>
<td>24.5</td>
<td>C</td>
<td>22.0</td>
<td>C</td>
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<td></td>
</tr>
<tr>
<td>EB Approach</td>
<td>24.5</td>
<td>C</td>
<td>22.8</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WBL (MD 188)</td>
<td>29.6</td>
<td>C</td>
<td>26.9</td>
<td>C</td>
<td></td>
<td></td>
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<tr>
<td>WBTR (MD 188)</td>
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<td>C</td>
<td>32.4</td>
<td>C</td>
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</tr>
<tr>
<td>WB Approach</td>
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<td>C</td>
<td>31.9</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intersection</td>
<td>16.5</td>
<td>B</td>
<td>21.9</td>
<td>C</td>
<td></td>
<td></td>
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</tbody>
</table>

Table 4: Left Turn Lane Storage Lengths

<table>
<thead>
<tr>
<th>Approach</th>
<th>Deceleration Length (ft)</th>
<th>Taper Length (ft)</th>
<th>Total Turn Lane Length (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NBL (MD 191)</td>
<td>65</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>SBL (MD 191)</td>
<td>140</td>
<td>125</td>
<td>290</td>
</tr>
<tr>
<td>EBL (MD 188)</td>
<td>35</td>
<td>40</td>
<td>190</td>
</tr>
<tr>
<td>WBL (MD 188)</td>
<td>85</td>
<td>160</td>
<td>310</td>
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</tbody>
</table>

95th Percentile Queue Length used for storage length calculation
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Intersection Improvements

**Geometric Improvements**

1. Widening both MD 191 and MD 188
   i. Add dedicated left turn lanes for all approaches
   ii. Add 5’ bike lanes along MD 191 (Bradley Blvd)
2. Rebuild existing pedestrian sidewalks to be 5’ wide concrete sidewalks
3. Add new 5’ sidewalk to extend existing pedestrian sidewalk along west side of MD 191 to the intersection
Montgomery County Department of Transportation

MD 191 (Bradley Boulevard) at MD 188 (Wilson Lane)

Intersection Improvements

Pavement Markings along MD 188 (Wilson Lane)
Montgomery County Department of Transportation
MD 191 (Bradley Boulevard) at MD 188 (Wilson Lane)
Intersection Improvements

Pavement Markings along MD 191 (Bradley Boulevard)
Montgomery County Department of Transportation
MD 191 (Bradley Boulevard) at MD 188 (Wilson Lane)

Intersection Improvements

Drainage Improvements

1. Rebuild drainage system for new geometrics
2. Add standard stormwater management facilities
   i. One bioswale along northbound Bradley Blvd on south side
   ii. Two convenience ditches along Bradley & Wilson
   iii. Two micro-bioretention facilities in northeast corner of intersection and northeast corner of McLean Dr.

Stormwater management facilities are being constructed to help control runoff from the developed areas and minimize the discharge of pollutants into the environment.
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Utilities
1. Relocate 5 PEPCO utility poles
2. Washington Suburban Sanitary Commission (WSSC)
   i. Relocate 3 fire hydrants
   ii. Relocate water main air vent box

Right-of-Way
1. Proposed ROW in SW corner of intersection for drainage
2. Temporary Construction Easements for driveway reconstruction and grading along south side of Bradley Blvd.
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Bradley Boulevard looking north – Existing
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MD 191 (Bradley Boulevard) at MD 188 (Wilson Lane)
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Bradley Boulevard looking north – Proposed
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MD 191 (Bradley Boulevard) at MD 188 (Wilson Lane)
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Bradley Boulevard looking south – Existing
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Intersection Improvements

Bradley Boulevard looking south – Proposed
Montgomery County Department of Transportation
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Intersection Improvements

Wilson Lane looking east – Existing
Montgomery County Department of Transportation
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Wilson Lane looking east – Proposed
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Intersection Improvements

Wilson Lane looking west – Existing
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Intersection Improvements

Wilson Lane looking west – Proposed