Wheaton Triangle
Reedie Drive Closure
Impacts

February 11, 2020
Montgomery County Department of Transportation
Wheaton Redevelopment
Pedestrian Flows – Inbound and Outbound

Inbound Ped Trips
- AM: 377 trips
- PM: 79 trips

Outbound Ped Trips
- AM: 76 trips
- PM: 253 trips
Vehicle Flows – Inbound and Outbound

The majority of existing Reedie Drive traffic is accessing the Wheaton Mall.
The majority of existing Reedie Drive traffic is accessing the Wheaton Mall.
Reedie Drive at Grandview Avenue Improvements

- Realign Grandview Avenue as the main street at Reedie Drive, removing the existing stop sign on Grandview Avenue
- Restripe the Grandview Avenue approach at MD 586 from the existing three lanes to two lanes (one left turn lane and one shared through/right turn lane)
- Install midblock crosswalk on Grandview Avenue and install Rectangular Rapid Flashing Beacon (RRFB) and associated signing at midblock crosswalk
Grandview Avenue Proposed RRFB Improvement
Montgomery County Department of Transportation
Wheaton Redevelopment

**Triangle Lane Improvements**

- Install signing and pavement markings needed to maintain one-way traffic on Triangle Lane
- Construct a bump out to emphasize one-way traffic on Triangle Lane
Vehicle Access to Triangle Plaza for Reedie Drive Closures

**LEGEND**
- TRAFFIC FLOW
- PED FLOW
- BIKE FLOW

**SIGN SCHEDULE**

<table>
<thead>
<tr>
<th>NO.</th>
<th>SIGN PANEL</th>
<th>QUANTITY</th>
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<tbody>
<tr>
<td>1</td>
<td>WHEATON TRIANGLE PLAZA</td>
<td>GM-1 36&quot;x42&quot; 1 EA</td>
</tr>
<tr>
<td>2</td>
<td>WHEATON TRIANGLE PLAZA</td>
<td>GM-2 36&quot;x42&quot; 2 EA</td>
</tr>
<tr>
<td>3</td>
<td>ROAD CLOSED</td>
<td>R1-2 4 EA TYPE III BARRICADE</td>
</tr>
<tr>
<td>4</td>
<td>PVMS</td>
<td>2 EA</td>
</tr>
<tr>
<td>5</td>
<td>PVMS</td>
<td>2 EA</td>
</tr>
<tr>
<td>6</td>
<td>PVMS</td>
<td>1 EA</td>
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</tbody>
</table>

**PVMS NO.4 MESSAGES**

**DURING CLOSURE**
- REEDIE DRIVE WB CLOSED
- TRAFFIC USE MD 586
Montgomery County Department of Transportation
Wheaton Redevelopment

Grandview Avenue Improvements

Recommended Improvements:

• Install shared lane markings on Grandview Avenue between Ennalls Avenue and MD 586 (Veirs Mill Road)
Montgomery County Department of Transportation
Wheaton Redevelopment

**Ennalls Avenue Improvements**

Recommended Improvements:

- Install shared lane markings on Ennalls Avenue between MD 586 (Veirs Mill Road) and MD 97 (Georgia Avenue)
Montgomery County Department of Transportation
Wheaton Redevelopment

**Ennalls Avenue Improvements**

Recommended Improvements:

- Install shared lane markings on Ennalls Avenue between MD 586 (Veirs Mill Road) and MD 97 (Georgia Avenue)
## Areawide Traffic Impacts of Reedie Drive Closure

### Overall Intersection LOS Comparison: 2018 Build, 2018 Build with Reedie Drive Closure, and 2018 Reedie Drive Closure with Intersection Improvements

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>MD 97 at MD 586</td>
<td>B</td>
<td>C</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>MD 97 at Reedie Drive</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>MD 97 at Ennalls Ave*</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>MD 97 at MD 193</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>MD 97 at Blueridge Ave</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>MD 586 at Metro Bus Loop</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>MD 586 at Reedie Drive (future Grandview Drive)</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>MD 586 at Ennalls Ave*</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td>MD 586 at MD 193</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>MD 596 at Newport Mill Rd</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>B</td>
<td>B</td>
<td>B</td>
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<tr>
<td>Grandview Ave at Reedie Drive*</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Grandview Ave at Blueridge Ave*</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>MD 193 at Grandview Ave</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>MD 193 at East Ave</td>
<td>A</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
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<td>MD 193 at Amherst Ave</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>C</td>
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<tr>
<td>Grandview Ave at Ennalls Ave*</td>
<td>A</td>
<td>B</td>
<td>B</td>
<td>D</td>
<td>E</td>
<td>E</td>
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<tr>
<td>Reedie Drive at Fern St</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Grandview Ave at Site Driveway</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
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</table>
Areawide Traffic Impacts of Reedie Drive Closure
Critical Intersection Movements

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MD 97 at Reedie Drive: WB Left</td>
<td>E (75)</td>
<td>F (&gt;150) or F (89)</td>
<td>E (68)</td>
<td>D (53)</td>
<td>F (83)</td>
<td>E (69)</td>
</tr>
<tr>
<td>MD 97 at MD 193: SB Left</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>F (84)</td>
<td>F (100)</td>
<td>F (85)</td>
</tr>
<tr>
<td>MD 586 at Reedie Drive: EB Left</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>D (54)</td>
<td>F (&gt;150) or E (57)</td>
<td>E (59)</td>
</tr>
<tr>
<td>Grandview Ave at Ennalls Ave: NB Thru/Left/Right</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>E (36)</td>
<td>F (64)</td>
<td>F (64)</td>
</tr>
</tbody>
</table>

*Note: Cells with two LOS and delay values reflect what the operations would be with and without optimized signal splits.*
### Areawide Traffic Impacts of Reedie Drive Closure

#### Critical Intersection Movements

95th Percentile Queue Comparison – Critical Movements: 2018 Build, 2018 Build with Reedie Closure, and 2018 Reedie Closure with Intersection Improvements

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MD 97 at Reedie Drive: WB Left</td>
<td>225/175</td>
<td>225+/175</td>
<td>250/300</td>
<td>225/175</td>
<td>225+/175</td>
<td>250/300</td>
</tr>
<tr>
<td>MD 97 at Reedie Drive: EB Thru/Right</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>325/320</td>
<td>N/A (Improvement from 2018 Build)</td>
<td>N/A (Improvement from 2018 Build)</td>
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<tr>
<td>MD 586 at Metro Access/Mall Entrance: WB Thru</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>300/264</td>
<td>350+/264</td>
<td>325/264</td>
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<tr>
<td>MD 586 at Reedie Drive: WB Reedie Drive Left</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>150+/55</td>
<td>125/600</td>
<td>100/600</td>
</tr>
<tr>
<td>MD 193 at Grandview Avenue: NB Thru/Right</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>350/250</td>
<td>350+/250</td>
<td>250/250</td>
</tr>
<tr>
<td>Grandview Avenue at Blueridge Avenue: NB Right</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>375/600</td>
<td>750+/600</td>
<td>525/600</td>
</tr>
<tr>
<td>MD 97 at Blueridge Avenue: EB Left</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>275+/250</td>
<td>275+/250</td>
<td>275+/250</td>
</tr>
</tbody>
</table>
Anticipated Vehicle Queue Lengths

Existing - Queue Length
Reedie Drive Closed - Queue Length
With Improvements - Queue Length

Normal
Significant Issues

Improvement on next page
### Planned Operational Improvements

<table>
<thead>
<tr>
<th>Critical Intersection</th>
<th>Improvement</th>
<th>Extent of Traffic Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD 97 at Reedie Drive</td>
<td>Split Phase signal on Reedie Drive approaches; convert westbound thru/right lane to westbound thru/right/left lane</td>
<td>Full Mitigation</td>
</tr>
<tr>
<td>MD 586 at Metro Access/Mall Entrance</td>
<td>Install raised curb along westbound MD 586 approach to Mall entrance to prevent weaving</td>
<td>Partial Mitigation</td>
</tr>
<tr>
<td>MD 586 at Reedie Drive (future Grandview Drive)</td>
<td>Provide protected-permissive left turn phasing for Reedie Drive/Grandview Avenue and Mall entrance approaches</td>
<td>Full Mitigation</td>
</tr>
<tr>
<td>MD 193 at Grandview Avenue</td>
<td>Install additional northbound thru lane on Grandview Avenue at MD 193, with additional receiving lane on the north leg</td>
<td>Full Mitigation</td>
</tr>
<tr>
<td>Grandview Avenue at Blueridge Avenue</td>
<td>Install additional eastbound left turn lane on Blueridge at MD 97</td>
<td>Partial Mitigation</td>
</tr>
<tr>
<td>MD 97 at Blueridge Avenue</td>
<td>Install additional eastbound left turn lane on Blueridge at MD 97</td>
<td>Partial Mitigation</td>
</tr>
<tr>
<td>Grandview Ave at Ennalls Ave</td>
<td>Install additional northbound thru lane on Grandview Avenue at MD 193, with additional receiving lane on the north leg</td>
<td>Full Mitigation</td>
</tr>
</tbody>
</table>

### Additional Intersection

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Extent of Traffic Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prohibit eastbound Ennalls Avenue left turns onto northbound MD 97</td>
<td>Full Mitigation (addresses safety concern)</td>
</tr>
</tbody>
</table>
Montgomery County Department of Transportation
Wheaton Redevelopment

2015 Traffic Study - Project Scope

• Traffic Impact Study conducted in April 2015
• Proposed site includes office building and ground floor retail
  • 265,000 SF of Office
  • 12,000 SF of Retail
• Existing traffic counts conducted in January 2015

Figure 1
Site Location and Study Area
2015 Study Results

- Results at signalized intersections similar for the future condition scenario
- Follow-Up study conducted in November 2015
  - Pedestrian Initiative Timings implemented
  - Adjustments made to improve future LOS at:
    - MD 97 at MD 193
    - Grandview Ave at MD 193

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Peak Hour</th>
<th>Existing 2015</th>
<th>Future</th>
<th>Updated Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD 586 at MD 193</td>
<td>AM</td>
<td>E</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>E</td>
<td>F</td>
<td>E</td>
</tr>
<tr>
<td>Grandview Ave at MD</td>
<td>AM</td>
<td>B</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>193</td>
<td>PM</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>MD 97 at MD 193</td>
<td>AM</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>D</td>
<td>E</td>
<td>D</td>
</tr>
<tr>
<td>MD 586 at Reedie Dr</td>
<td>AM</td>
<td>D</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>D</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>MD 97 at Reedie Dr</td>
<td>AM</td>
<td>B</td>
<td>A</td>
<td>B</td>
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<tr>
<td></td>
<td>PM</td>
<td>C</td>
<td>C</td>
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</tbody>
</table>
Montgomery County Department of Transportation
Wheaton Redevelopment

2017 Study Capacity Results

- New Traffic Impact Study conducted due to change in proposed development
  - 308,200 SF of Office
  - 11,800 SF of Retail
- Updated counts conducted in 2017 at all intersections except:
  - MD 97 at MD 193
  - MD 586 at Reedie Drive
- Future analysis assumed realignment of Grandview Avenue at Reedie Drive intersection

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Peak Hour</th>
<th>Existing 2017</th>
<th>Future 2018</th>
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<tbody>
<tr>
<td>MD 586 at MD 193</td>
<td>AM</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
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<td>PM</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>Grandview Ave at MD 193</td>
<td>AM</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>MD 97 at MD 193</td>
<td>AM</td>
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<td></td>
<td>PM</td>
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<td>MD 586 at Reedie Dr</td>
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<td>PM</td>
<td>C</td>
<td>C</td>
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<tr>
<td>MD 97 at Reedie Dr</td>
<td>AM</td>
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<tr>
<td></td>
<td>PM</td>
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</tbody>
</table>
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2017 Study Recommendations

- Exclusive/permissive left turn phasing for:
  - Reedie Drive/Grandview Avenue at MD 586; **Requires Reconstruction of Traffic Signal**
  - Grandview Avenue at MD 193; **Implemented 2018**

- Restripe the southbound approach of Grandview Avenue at MD 193 to a left and a shared through-right; **Implemented 2018**
Montgomery County Department of Transportation
Wheaton Redevelopment

**Existing Ped/Bike Connectivity**

- Sidewalk is available on both sides of each roadway within the study area
- Each study intersection has sidewalk ramps at each corner
- No bike facilities are provided within the study area
Reedie Drive Closure Outcomes

The closure of Reedie Drive will likely:
• Impact operations at some nearby intersections, as additional volumes will reduce operational efficiency; and
• Impact motor vehicle access to Triangle Lane.
Reedie Drive Recommendations

- Move forward with HHS Building opening, as designed;
- Allow Reedie Drive to remain open;
- Study and monitor the “Triangle’s” operational and access impacts for 90 days;
- Close Reedie Drive eastbound between Grandview Avenue and Triangle Lane and reverse one-way travel direction on Triangle Lane to proceed southbound and study and monitor operational and access impacts for adjusted conditions;
- If operations permit, consider a full closure of Reedie Drive between Grandview Avenue and Triangle Lane.