Project Overview

- Traffic Study for the Takoma Junction Redevelopment Project
- Six (6) Tasks for Evaluation
  - Task #1 – Level of Cut-Through Traffic Determination (8 Intersections)
  - Task #2 – Intersection Capacity Analyses (4 Intersections)
  - Task #3 – Review Previous Intersection Design Concept Options Prepared by AMT
  - Task #4 – Intersection Reconfiguration Concept Designs
    - MD 195 and Ethan Allen Avenue (MD 410)
    - MD 195 and Grant Avenue
  - Task #5 – Preliminary Design Concepts for Bicycle and Pedestrian Safety Improvements
    - MD 410 between Jackson Avenue and Sycamore Avenue
    - MD 195 between MD 410 (Ethan Allen Avenue) and Columbia Avenue
  - Task #6 – Feasibility Study of Semi-Tractor Trailer Access along Sycamore Avenue and/or Columbia Avenue
Residential Cut-Through Traffic

Defined as “vehicular traffic passing through a residential area without stopping or without at least an origin or destination within the area.”

-Code of Virginia (2012) by The State of Virginia
Task #1

<table>
<thead>
<tr>
<th>TIME (Hourly)</th>
<th>EB</th>
<th>WB</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00AM</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7:00AM</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8:00AM</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>9:00AM</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10:00AM</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11:00AM</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12:00 Noon</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1:00PM</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2:00PM</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3:00PM</td>
<td>1</td>
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<tr>
<td>6:00PM</td>
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<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>4</strong></td>
</tr>
</tbody>
</table>

Task 1: Cut-Through Intersections Studied
1. MD 195 at Columbia Avenue
2. Columbia Avenue at Pine Avenue
3. Columbia Avenue at Hickory Avenue
4. Columbia Avenue at Polar Avenue
5. Columbia Avenue at Sycamore Avenue
6. MD 410 at Sycamore Avenue
7. MD 410 at Woodland Avenue
8. MD 410 at Jackson Avenue

Cut-Through Route (EB & WB)
Task #2

Critical Lane Volume Methodology

- Sketch Level Planning Tool Utilized by MDOT SHA and Planning Agencies
- Dependent Upon the Number of Approach Lanes and Opposing Left Turns
- Used for Level of Service Calculations on Isolated Intersections
- Based Upon a Volume to Capacity Ratio of 1,600 Vehicles/Hour
- Urban Areas: Level of Service D is Acceptable
Task #2

<table>
<thead>
<tr>
<th>Location</th>
<th>Control</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MD 195 at Flower Avenue</td>
<td>Signal</td>
<td>A/825/0.52</td>
<td>B/1071/0.67</td>
</tr>
<tr>
<td>2. Ethen Allen Avenue (MD 410) at MD 195</td>
<td>Signal</td>
<td>A/897/0.52</td>
<td>C/1270/0.79</td>
</tr>
<tr>
<td>3. MD 195 at Philadelphia Avenue</td>
<td>Signal</td>
<td>A/791/0.49</td>
<td>B/1115/0.70</td>
</tr>
<tr>
<td>4. Philadelphia Avenue (MD 410) at Maple Avenue</td>
<td>Signal</td>
<td>A/911/0.57</td>
<td>C/1153/0.72</td>
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</tbody>
</table>
Task #3

Review Previous Intersection Design Concepts

- Eight (8) concepts studied as part of SHA D-3 traffic report submitted August, 2015, two (2) options were recommended:
  - If MD 195 is not re-aligned, close Sycamore Avenue to traffic.
  - If MD 195 is re-aligned, close Sycamore Avenue and Grant Avenue to traffic

- Four (4) concepts studied as part of SHA D-3 traffic report submitted November, 2016, two (2) options were recommended:
  - If MD 195 is not re-aligned, close Sycamore Avenue to traffic.
  - If MD 195 is re-aligned, close Sycamore Avenue to traffic
TASK #4

Task #4 – Intersection Reconfiguration Concept Designs

- MD 195 and Ethan Allen Avenue (MD 410)
- MD 195 and Grant Avenue

Option 1: Grant Avenue closed to traffic
Option 2a: Re-align MD 195 opposite to Sycamore Avenue with Grant Avenue open to traffic
Option 2b: Re-align MD 195 opposite to Sycamore Avenue with Grant Avenue closed to traffic
Option 3: Re-align MD 195 opposite to Sycamore Avenue with no left turns into Grant Avenue and Sycamore Avenue and no exit from Sycamore Avenue
TASK #4

Option 1: Grant Avenue closed to traffic (AM Peak Hour)

LOS (Delay)

C (25.1)  B (12.3)  A (7.6)  B (19.2)  A (0.1)
D (38.7)  A (1.0)  E (75.3)  E (62.6)
Option 1: Grant Avenue closed to traffic (PM Peak Hour)

LOS (Delay)

- C (24.1)
- A (7.6)
- B (17.0)
- C (34.2)
- E (58.3)
- D (45.3)

- A (20.3)
- A (0.5)
- A (0.2)
Option 2a: Realign MD 195 (AM Peak Hour)

<table>
<thead>
<tr>
<th>Location</th>
<th>Delay (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>19.5</td>
</tr>
<tr>
<td>D</td>
<td>44.0</td>
</tr>
<tr>
<td>D</td>
<td>42.8</td>
</tr>
<tr>
<td>B</td>
<td>15.6</td>
</tr>
<tr>
<td>B</td>
<td>14.0</td>
</tr>
<tr>
<td>A</td>
<td>0.01</td>
</tr>
<tr>
<td>C</td>
<td>32.7</td>
</tr>
<tr>
<td>E</td>
<td>77.1</td>
</tr>
</tbody>
</table>
Option 2a: Realign MD 195 (PM Peak Hour)

**LOS (Delay)**

- A (0.6)
- B (11.5)
- C (23.6)
- C (34.0)
- C (28.0)
- E (55.5)
- C (31.1)
- F (93.8)
- E (77.9)
TASK #4

Option 2b: Realign MD 195+Grant Closed (AM Peak Hour)

LOS (Delay)

- C (20.4)
- D (36.0)
- D (39.2)
- A (9.7)
- C (34.9)
- D (48.3)
- E (73.5)
**TASK #4**

**Option 2b: Realign MD 195+Grant Closed (PM Peak Hour)**

**LOS (Delay)**

- C (23.8)
- C (24.7)
- B (15.6)
- E (55.6)
- C (32.5)
- E (77.9)
- F (125.7)
Option 3: AM Peak Hour

Los (Delay)

- C (28.2)
- C (29.2)
- D (50.2)
- E (66.7)
- F (99.2)
- F (108.8)
Option 3: PM Peak Hour

 LOS (Delay)

- C (34.7)
- A (5.3)
- E (65.5)
- E (66.7)
- E (61.9)
Task #5:

Pedestrian and Bicycle Safety:

• Develop design concepts for the incorporation of bicycle and pedestrian safety improvements along Ethan Allen Avenue (MD 410) between Jackson Avenue & Sycamore Avenue and along MD 195 between Ethan Allen Avenue (MD 410) and Columbia Avenue

• Identify options for possible relocation of existing bus stops along MD 410 and MD 195
Task #5:
Task #5:
Task #6:

Evaluate Truck Accessibility:

- Investigate the feasibility of trucks (semi-tractor trailers) to be able to access Sycamore Avenue and/or Columbia Avenue to perform their deliveries for the future Takoma Park Food C-op located along the south side of MD 410 just west of Sycamore Avenue.
Task #6:
Task #6:
Task #6:
Task #6: