Seven Corners Transportation Study Phase II

Preliminary Findings

Seven Corners Task Force Meeting
March 11, 2014
Presentation Outline

- Transportation Study Objectives
- Overview of Three Transportation Network Concepts
- Measures of Effectives (MOEs)
- Preliminary Traffic Analysis Assessment
- Evaluation of non-vehicular Measures
Objectives

➢ Seven Corners Transportation Study – Phase II

▪ Assess future land use scenario and transportation networks developed by the Seven Corners Task Force.

▪ Identify multimodal transportation solutions for the Seven Corners

▪ Identify and evaluate alternative interchange concepts.

▪ Identify mitigation measures to address current and future traffic problems.
### Evaluation Criteria for Six Concepts

**Six Concepts Presented** ➔ **Three Analyzed Further**

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<tbody>
<tr>
<td><strong>1 Vehicle Mobility</strong></td>
<td>A Includes a new overcrossing of US-50</td>
<td><img src="#" alt="Low" /></td>
<td><img src="#" alt="Medium" /></td>
<td><img src="#" alt="High" /></td>
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<td></td>
<td>B Provides local roadway connectivity</td>
<td><img src="#" alt="Low" /></td>
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<td>C Impacts to high volume origin-destination routes</td>
<td><img src="#" alt="Low" /></td>
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<td>D Improve vehicle mobility</td>
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<td><strong>2 Land Use</strong></td>
<td>A Facilitates implementation of Seven Corners Task Force Land Use plan</td>
<td><img src="#" alt="Low" /></td>
<td><img src="#" alt="Medium" /></td>
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<td>B Impacts to Eden Center (physical and/or access)</td>
<td><img src="#" alt="Low" /></td>
<td><img src="#" alt="Medium" /></td>
<td><img src="#" alt="High" /></td>
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<td>C Ramp locations impede parcel access</td>
<td><img src="#" alt="Low" /></td>
<td><img src="#" alt="Medium" /></td>
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<td><img src="#" alt="Low" /></td>
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<td><strong>3 Constructability</strong></td>
<td>A Ability to phase and maintain traffic during construction</td>
<td><img src="#" alt="Low" /></td>
<td><img src="#" alt="Medium" /></td>
<td><img src="#" alt="High" /></td>
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<td>B Construction costs</td>
<td><img src="#" alt="Low" /></td>
<td><img src="#" alt="Medium" /></td>
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<td><img src="#" alt="Low" /></td>
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<td><strong>4 Right-of-way Impacts</strong></td>
<td>A Right-of-way impacts</td>
<td><img src="#" alt="Low" /></td>
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<td>B Impacts to Oakwood Cemetery</td>
<td><img src="#" alt="Low" /></td>
<td><img src="#" alt="Medium" /></td>
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<td>C Impacts to existing stable residential neighborhoods (physical and/or access)</td>
<td><img src="#" alt="Low" /></td>
<td><img src="#" alt="Medium" /></td>
<td><img src="#" alt="High" /></td>
<td><img src="#" alt="Low" /></td>
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<td><strong>5 Transit, Pedestrian, and Bicycle Mobility</strong></td>
<td>A Ability to accommodate transit services</td>
<td><img src="#" alt="Low" /></td>
<td><img src="#" alt="Medium" /></td>
<td><img src="#" alt="High" /></td>
<td><img src="#" alt="Low" /></td>
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<td>B Pedestrian and bicycle travel on VA 7</td>
<td><img src="#" alt="Low" /></td>
<td><img src="#" alt="Medium" /></td>
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〇 Low (undesirable)  ◯ Medium  〇 High (desirable)
Interchange Concept A- Split Diamond with Couplet (formerly Concept 2A/5B)
Interchange Concept B- Two Half Diamonds (formerly Concept 4)
Interchange Concept C- Jughandles
(formerly Concept 6)
Measures of Effectiveness (MOEs)

- Multimodal Connectivity
  - Vehicular Movement
  - Pedestrian and Bicycle Access
  - Transit Services
  - Regional and Local

- Implementation
  - Cost/Right-of-Way
  - Phasing

- Task Force Land Use Vision
Metrics Used to Assess Traffic Conditions

- Level of Service (LOS)/Delay
- Queue lengths at intersections
- Intersection Configuration (ease of use)
# Intersection Level of Service (LOS)

<table>
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<tr>
<th>L.O.S.</th>
<th>Roadway Segments or Controlled Access Highways</th>
<th>Intersections</th>
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<tbody>
<tr>
<td>≤ 10 Sec</td>
<td>A  Free flow, low traffic density.</td>
<td>No vehicle waits longer than one signal indication.</td>
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<tr>
<td>&gt; 10-20 Sec</td>
<td>B  Delay is not unreasonable, stable traffic flow.</td>
<td>On a rare occasion motorists wait through more than one signal indication.</td>
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<td>&gt; 20-35 Sec</td>
<td>C  Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists.</td>
<td>Intermittently drivers wait through more than one signal indication, and occasionally backups may develop behind left turning vehicles, traffic flow still stable and acceptable.</td>
</tr>
<tr>
<td>&gt; 35-55 Sec</td>
<td>D  Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive backups.</td>
<td>Delays at intersections may become extensive with some, especially left-turning vehicles waiting two or more signal indications, but enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive back-ups.</td>
</tr>
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<td>&gt; 55-80 Sec</td>
<td>E  Actual capacity of the roadway involves delay to all motorists due to congestion.</td>
<td>Very long queues may create lengthy delays, especially for left-turning vehicles.</td>
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<td>10 &gt; 80 Sec</td>
<td>F  Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.</td>
<td>Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a storage area during part or all of an hour.</td>
</tr>
</tbody>
</table>
Existing Conditions – PM LOS Results

LEGEND
Level of Service
(sec of delay)
- A (< 10)
- B (10 - 20)
- C (20 - 35)
- D (35 - 55)
- E (55 - 80)
- F (> 80)
Existing Conditions – PM Queuing Results
Measures of Effectiveness – Multimodal Connectivity

- Vehicular Movement
  - Simplified Interchange area
  - Connections across Route 50
  - More direct path connections
  - Improved connection of the Sleepy Hollow Community with the Business area

- Pedestrian and Bicycle Access
  - Ability to implement goals of the Bicycle Master Plan
  - Multiuse trail along Route 50
  - Ability to walk/bike from Falls Church to Fairfax County along Route 7
  - Better/Safer Access to regional amenities (parks and trails in area)

- Transit services
  - Accommodates transit center (today and in the future)
  - More direct connection to East Falls Church Metro
  - Ability to accommodate high quality on Route 7
  - Allows for circulator system to operate efficiently
Measures of Effectiveness - Implementation

(Draft and Preliminary)

- Ability to Phase
- Cost
- Feasibility (Right of Way impacts)
MOE - Implementation

New Roadways/Structures
Concept A: Split Diamond with Couplet

Legend
- New Roadway
- New Structure

Route 7
Hillwood
Route 50
Sleepy Hollow
Roosevelt
Wilson
Route 50
Route 7

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County of Fairfax, Virginia

MOE - Implementation

New Roadways/Structures
Concept B: Two Half Diamonds

Legend
- Yellow: New Roadway
- Blue: New Structure

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County of Fairfax, Virginia

MOE - Implementation

New Roadways/Structures
Concept C: Jughandles

Legend
- New Roadway
- New Structure

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March 11, 2014

Department of Transportation
MOE – Implementation (Bridge Impacts)
MOE – Implementation (Bridge Impacts)

Task Force Bridge Option 1

Option 1: Bridge vehicular clearance is only for Route 50 and the on/off ramps.
County of Fairfax, Virginia

Conceptual Development adjacent to Task Force Bridge

Courtesy: Office of Community Revitalization
Measures of Effectiveness – Land Use

- New land uses and proposed street grid are integral: without the grid, intensification is may be limited
- More urban and less auto-dependent
- Efficient at moving people, both with and without vehicles
- Adds to the character of place - provides opportunities for community interaction
- Protect existing single family neighborhoods
- Allows for increased density where appropriate
Transportation Schedule

- Meet with other jurisdictions and VDOT
- Finalize conceptual design results (March)
- Further analysis on selected concept (March-April)
- Present Additional Findings at next Task Force meeting (April)
- Complete Phase II Final report (End of April)
- VDOT Submittal (May)
Task Force Discussion and Ranking of the Three Concept Networks