Reston Network Analysis

Dulles Area Transportation Association
February 18, 2015
County of Fairfax, Virginia

Study Area

Transit Station Areas
Need for Study

Follow-on Study to the Reston Phase I Plan Amendment
1. Excellence in planning, urban design and architecture will be community hallmarks
2. Planning will provide for environmental sustainability and green technology
3. Development will be phased with infrastructure
4. Reston will continue to offer a mix of urban and suburban lifestyles
5. The Rail Corridor will be transformed
6. Reston will become a more vibrant employment center
7. Housing will be provided for all ages and incomes
8. Connectivity and mobility will be strengthened
9. High quality public open spaces will be required
10. Public participation in planning and zoning will continue to be the community’s foundation
Reston Phase I Plan Amendment
Planned Development Potential

Reston TSA Comprehensive Plan Development Potential

<table>
<thead>
<tr>
<th>Land Use</th>
<th>2010 Existing Land Use (sq. ft.)</th>
<th>Development Potential (sq. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>5,860,000 (5,860 Units)</td>
<td>33,480,000 (27,900 Units)</td>
</tr>
<tr>
<td>Office</td>
<td>20,982,169</td>
<td>29,457,000</td>
</tr>
<tr>
<td>Retail</td>
<td>1,094,476</td>
<td>1,722,000</td>
</tr>
<tr>
<td>Industrial</td>
<td>841,957</td>
<td>513,000</td>
</tr>
<tr>
<td>Institutional</td>
<td>2,096,840</td>
<td>2,174,000</td>
</tr>
<tr>
<td>Hotel</td>
<td>936,782</td>
<td>3,399,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31,812,224</strong></td>
<td><strong>70,745,000</strong></td>
</tr>
</tbody>
</table>
Transportation study was done to determine what transportation improvements are needed to support the planned development in the TSAs

Specific recommendations were made to enhance the transportation network

Recommended, but did not analyze and optimize the conceptual grid of streets
County of Fairfax, Virginia

Reston Phase I Plan Amendment
Intersection Analysis Results

• 2013 Existing:
  - AM – 6 intersections fail, 3 LOS E
  - PM – 7 intersections fail, 2 LOS E

• 2030 COG Round 8 (with Transportation Plan):
  - AM – 11 intersections fail, 4 LOS E
  - PM – 10 intersections fail, 5 LOS E

• 2030 Scenario G (with mitigation):
  - AM – 6 intersections fail, 4 LOS E
  - PM – 6 intersections fail, 3 LOS E
Reston Phase I Plan Amendment
Major Road Transportation Recommendations

- Town Center Parkway Underpass
- Soapstone Drive Overpass
- South Lakes Drive Overpass
- Grade Separate Fairfax County Parkway/Sunrise Valley Drive
- An enhanced street network to increase connectivity
Reston Phase I Plan Amendment

Major Transportation Recommendations

- Maintain a Balance between land use and transportation
- Ensure pedestrian mobility throughout the TSAs
- Bike master plan for County, including the TSAs has been adopted
- An enhanced RIBS service to support rail
- Strong Transportation Demand Management (TDM) program in the TSAs
County of Fairfax, Virginia

Reston Phase I Plan Amendment

Grid of Streets
Reston Phase I Plan Amendment
Grid of Streets

- Conceptual grid of streets was a result of the Reston Task Force
- The three TSAs were examined and had conceptual grids developed by task force members
- These grids were refined by FCDOT staff
- The conceptual grid was then included in the comprehensive plan
County of Fairfax, Virginia

Reston Town Center Transit Station Area
Herndon Transit Station Area
Purpose of Study

• Analyze the grid of streets and determine
  – Number of lanes between and at intersections
  – How to best accommodate transit, bikes, and pedestrians
  – Right-of-way needs

• Assign Department of Rail and Public Transportation corridor type and multimodal emphasis

• Examine four specific problem locations
Why a Grid

A grid of streets allows for more options when going from point A to point B, reducing the demand streets.
What is a Grid

- Maximizes continuity within the grid of streets
- Avoids intersections with an acute angle, off set intersections, and intersections with more than four legs
- Provides good pedestrian access to Metro stations
- Block sizes should generally be within a 400 foot to 600 foot range with a maximum perimeter length of 2,000 feet
- Any block longer than 600 feet should contain a mid-block pedestrian connection
- Where possible, even spacing between intersections should be maintained
Network Analysis

1. Data Collection
2. Existing Conditions
3. Future Conditions
   – Determine Grid of Streets
4. Phasing Analysis
5. DRPT Classifications
6. Specific location improvements
   – Reston Parkway
   – Sunrise Valley Drive @ Fairfax County Parkway
   – Spring Street @ Fairfax County Parkway
Methodology

**Macroscopic Models** – Regional Transportation Model
Public policy, regionally significant projects

**Mesoscopic Models** – Sub Area (VISUM)
Link regional trip purpose to details of microsimulation models

**Microscopic Models** – Street Traffic analysis (VISSIM)
“Visualization” of solutions, detailed intersection operations analysis
Measures of Effectiveness

- Vehicles Mile Traveled
- Hours of Delay
- Average Speed
- Travel Time
- Level of Service and Delay at Intersections
- Queue Length
Analysis Process – Tiered Approach

1. No right of way impact (signal modification, lane restriping)
2. Some right of way impact (turn lanes, additional through lane, additional grid link)
3. Large scale mitigations
Process with Stakeholders

- Regular meetings
- Inclusive, collaborative process
- Full access to information
- Analyze suggestions
- Many iterations of testing alternative mitigation measures
- Focus is cost-effectiveness
Next Steps

• Select a consultant
• Meet with property owners to review conceptual grid layouts
• Refine the Grid by incorporating stakeholder feedback
Time Line

• Anticipated to take approximately 12 months
  – Finalized map of the grid of streets will be integrated into the comprehensive plan (2016)

• Selection of consultant underway
  – Will have a refined timeline at next meeting
Questions & Comments

For questions and comments about the study please contact:

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