Route 3
Arterial Management Plan

July 21, 2015
Study Work Group Members

- Spotsylvania County
- Virginia Department of Transportation
- National Park Service
- Michael Baker International
- YOU!
Meeting Agenda

• Purpose of Study
• Existing Conditions and Issues
• Estimate of Future Conditions
• Providing Your Input
• Next Steps
Study Corridor

Route 3 between Route 20 (at Orange County Line) and Gordon Road
Arterial Management Plans

ROUTE 17 – STAFFORD COUNTY – JUST WEST OF I-95 IN 1994
Arterial Management Plans

ROUTE 17 – STAFFORD COUNTY – JUST WEST OF I-95 IN 2002
Arterial Management Plans

ROUTE 17 – STAFFORD COUNTY – JUST WEST OF I-95 IN 2006
Arterial Management Plans

ROUTE 17 – STAFFORD COUNTY – JUST WEST OF I-95 IN 2011
Arterial Management Plans

ROUTE 17 – STAFFORD COUNTY – JUST WEST OF I-95 IN 2013
Arterial Management Plans

ROUTE 3/SALEM CHURCH ROAD AREA

Route 3 Arterial Management Plan
Arterial Management Plans

ROUTE 3/HARRISON ROAD AREA
Purpose:

To ensure the safety and preserve the capacity of the Commonwealth’s arterial highway network without wide scale road widenings while accommodating economic development.

Project Vision

Develop a joint state and local strategy to guide development and transportation decisions along Route 3 between Gordon Road and the Orange County line.

Project Goals

– Develop a streamlined and repeatable Arterial Management Plan (AMP) process
– Develop an AMP methodology
Arterial Management Plan Benefits

**Local Governments (Towns, Cities, and Counties):**

- Safer arterial street system
- Allow localities to maximize densities allowed in Comprehensive/Master Plans
- Maintain corridors’ economic development potential by having a cohesive plan
- Aid in the land development process by providing local government/VDOT expectations before a developer’s plans are created
- Assist with projects being programmed since they are identified in an approved plan
- Save dollars by reducing the need to retrofit improvements in the future

**VDOT**

- Result in a safer arterial street system
- Preserve corridor capacity and efficiency
- Maintain Commonwealth’s mobility and thus economic competitiveness
- Lower long-term infrastructure capital and maintenance costs
Arterial Management Plan Benefits

**Land Owners**
- Blueprint for developers, adherence to plan = quicker approval from VDOT/Local Government
- Maintain size of market area (based on travel time to businesses)
- Better allow land owners to maximize densities allowed in Comprehensive/Master Plans
- Maintain a corridors’ economic development potential by having a cohesive plan

**Regional and Local Travelers**
- Safer trips
- Quicker trips
- Easy access to destinations
Arterial Management Examples

Superstreet Concept
North Carolina

Interparcel Connections
US 360 in Chesterfield, VA

Staggered Entrances
US 301 in Maryland
Summary of Existing Conditions

• Field Observations
• Traffic Data (Collected April 2014)
  – Turning Movement Counts
  – Average Daily Traffic (ADT)
  – Speed Data
• Crash and Data Analysis
• Inventory of Existing Access Points
• Operational Analysis
• Planned Area Improvements
Existing Conditions – Site Review

- Sight Distance
- Rolling Terrain
- Wide-Medians at Signals
- Grade Differential at Crossovers
Existing Conditions – Site Review

Historic Resources
Existing Conditions – Traffic Data

• Adjacent land uses generate approx. 100,000 trips per day

• Average Daily Traffic – 23,000 to 41,000 vehicles per day

• Truck % varies from 2% to 8%

• AM peak hour = 7:00-8:00 AM
• PM peak hour = 4:45-5:45 PM

• Average speeds generally exceed speed limit slightly throughout the corridor except between Harrison Road and Gordon Road
Traffic Data Collection

Turning Movement Count Locations

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Constitution Hwy / Route 3</td>
</tr>
<tr>
<td>2</td>
<td>Fox Gate Drive / Route 3</td>
</tr>
<tr>
<td>3</td>
<td>Brock Road / Route 3</td>
</tr>
<tr>
<td>4</td>
<td>Black Meadow Rd / Route 3</td>
</tr>
<tr>
<td>5</td>
<td>Orange Plank Rd / Route 3</td>
</tr>
<tr>
<td>6</td>
<td>Wilderness Road / Route 3</td>
</tr>
<tr>
<td>7</td>
<td>Stuart Rd / Bullock Rd / Route 3</td>
</tr>
<tr>
<td>8</td>
<td>Elys Ford Rd / Route 3</td>
</tr>
<tr>
<td>9</td>
<td>River Road / Route 3</td>
</tr>
<tr>
<td>10</td>
<td>Nine Mile Run Dr / Route 3</td>
</tr>
<tr>
<td>11</td>
<td>McLaws Dr / Route 3</td>
</tr>
<tr>
<td>12</td>
<td>Andora / Corter Avenue / Route 3</td>
</tr>
<tr>
<td>13</td>
<td>Big Ben / Spotswood Furnace / Route 3</td>
</tr>
<tr>
<td>14</td>
<td>Harrison Rd / Route 3</td>
</tr>
<tr>
<td>15</td>
<td>Gordon Rd / Route 3</td>
</tr>
</tbody>
</table>
# Existing Conditions - Traffic Operations

## Route 3 Arterial Management Plan

### Existing Peak Hour LOS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Constitution Hwy / Route 3</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>Fox Gate Drive / Route 3</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>3</td>
<td>Brock Road / Route 3</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>4</td>
<td>Black Meadow Rd / Route 3</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>5</td>
<td>Orange Plank Rd / Route 3</td>
<td>F</td>
<td>C</td>
</tr>
<tr>
<td>6</td>
<td>Wilderness Road / Route 3</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>7</td>
<td>Stuart Rd / Bullock Rd / Route 3</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>8</td>
<td>Elys Ford Rd / Route 3</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>9</td>
<td>River Road / Route 3</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>10</td>
<td>Nine Mile Run Dr / Route 3</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>11</td>
<td>McLaws Dr / Route 3</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>12</td>
<td>Andora / Corter Avenue / Route 3</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>13</td>
<td>Big Ben / Spotswood Furnace / Route 3</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>14</td>
<td>Harrison Rd / Route 3</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>15</td>
<td>Gordon Rd / Route 3</td>
<td>A</td>
<td>C</td>
</tr>
</tbody>
</table>

**LOS**

- **A**: Free flow
- **B**: Stable flow
- **C**: Average Flow
- **D**: Restricted Flow
- **E**: Congested
- **F**: Severely Congested
Inventory of Existing Access Points

As number of driveways increase, crashes increase

As number of driveways increase, capacity decreases

Adequately Spaced Full Median Crossovers

Closely Spaced Full Median Crossovers

Closely Spaced Access Points
Inventory of Existing Access Points

Minimum Centerline to Centerline Spacing (Feet)

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Number of Access Points</th>
<th>Access Points Per Mile</th>
<th>Per VDOT Spacing Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Compliant</td>
</tr>
<tr>
<td>Route 3</td>
<td>222</td>
<td>25</td>
<td>111</td>
</tr>
</tbody>
</table>

Minimum Distance Between Signalized and Unsignalized Access Points

665' 750'

Directional Median Crossover

Signalized Intersection

Unsignalized Intersection or Roundabout

Full Access Entrances

Signalized Intersection

Principal Arterial (35-45 mph) - xxx'

Principal Arterial (> 50 mph) – xxx'

Minimum Distance Between Signalized Intersections

2640' 1320'

305' 495'

1050' 1320'

565' 750'

305' 495'

565' 750'

565' 750'
Existing Conditions - Crashes

Crash Analysis

- Crash Severity
  - Identifies the fatalities and injury types
- Crash Location Scatter Plots
  - Identifies hot spots and crash patterns
Corridor Crash Summary

**Crash Type**
- Rear End: 39%
- Angle: 22%
- Head On: 7%
- Sideswipe - Same Direction: 6%
- Sideswipe – Opposite Direction: 2%
- Fixed Object - In Road: 1%
- Non-Collision: 1%
- Fixed Object - Off Road: 1%
- Deer: 1%
- Pedestrian: 1%
- Backed Into: <1%
- Miscellaneous or Other: <1%

**Crash Severity**
- Pedestrian Fatality: 35%
- Vehicle Occupant Fatality: 64%
- Pedestrian Injury: <1%
- Vehicle Occupant Injury: <1%
- No Injury/Fatality: <1%

**Crash Rate for RURAL Route 3 (west of Andora Dr.)**
- 85 per 100 million vehicle miles traveled

**Crash Rate for URBAN Route 3 (east of Andora Dr.)**
- 183 per 100 million vehicle miles traveled

**National Average**
- 77 per 100 million vehicle miles traveled

Crash Rates are per 100 million vehicle miles traveled.
Corridor Crash Summary

The number of crashes is higher at signalized intersections in the corridor:

- Intersections: 4 crashes per year per unsignalized intersection
- Signalized intersections: 6 crashes per year per intersection
Stakeholder Input Summary

5 Stakeholder Interviews – 2 Private Citizens, 3 County Representatives

Highlighted Input

• Pro-development
• National Park Service influence concerns
• Want a regional approach
  – Route 3 by-pass
  – I-95 capacity and access improvements
• Concerned about congestion
  – at intersections leading to schools
  – from new development
  – from Orange County thru traffic
  – Portions of eastern Route 3 that are densely developed impacting eastern end of this study area (east of Harrison Crossing)

Additional Input

• Varying thoughts on preferred type of development
• Varying thoughts on where roadway improvements are needed
• Concerns about the effectiveness of the proposed road from Central Park to Gordon Road to relieve congestion on Route 3
• Varying thoughts on importance of need for:
  – Operational Improvements
  – Geometric Improvements
  – Access Improvements
  – Safety Improvements
  – Capacity Improvements
  – Multimodal Improvements
  – Policy Changes
Future Conditions – Land Use

Future Land Use
- Coordination with County Staff
- Spotsylvania County Comprehensive Plan
- Planned and Approved Developments
- Zoning Maps
- Ordinances
Future Conditions – Land Use
Total Assumed New Development for the Route 3 Corridor:

- Commercial: 376,000 sq. ft. = **29,664 Trips**
- Industrial: 20,000 sq. ft. = **139 Trips**
- Office: 709,000 sq. ft. = **8,067 Trips**
- New Dwelling Units: 2,078 = **19,790 Trips**
- Other: 265,000 sq. ft. = **2,474 Trips**

**Total Additional Trips = 60,134**
How Can YOU Help?

Ask US questions and provide YOUR input.

- **2014 Existing Conditions (Board 1)**
  - Confirm existing conditions data.
  - What traffic and safety related issues concern you?

- **2040 Future Development Assumptions (Board 2)**
  - Provide input on assumed future development?
  - What types of developments do you envision and where?

- **Priority of Improvement Types**
  - Indicate which type of improvements are a priority for you?
Study Update & Next Steps

Next Steps

– Finish Future Conditions (Unmanaged Condition)
– Develop Recommendations (Managed Condition)
– Another Public Meeting
– Seek Adoption of Plan by Board of Supervisors
### Schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Work Group &amp; Public Meetings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Collection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014 Existing Conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2040 Future Land Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toolbox of Alternatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2040 Traffic Volume Forecasting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2040 Traffic Volume Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation Plan Recommendations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report &amp; Methodology</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Indicators
- ▲ Indicates Public Meeting
- ○ Indicates Working Meeting

---

Route 3 Arterial Management Plan
Questions?

Contacts for additional questions or to provide comments:

Zach Harris
Michael Baker International
804-287-3169
zharris@mbakerintl.com

or

Rob Williams
VDOT Central Office
804-371-4868
robertj.williams@vdot.virginia.gov