Arterial Preservation Program

Background
Summary of Program Goals

• To preserve and enhance the capacity and safety of Virginia’s critical transportation highways:
  • Reduce congestion on arterial mainline
  • Minimize delays
  • Improve safety
  • Limit the number of conflict points
Implementation Strategies

• Integrate program priorities with local economic development goals
• Improve access management
• Educate communities on the benefits of improved mobility
• Inspire coordinated transportation and land use planning efforts
• Eliminate unwarranted traffic signals
• Implement innovative intersection configurations
Why This Matters

• Preparing for future traffic and economic development reduces the need for expensive, disruptive "retrofit" projects
• Route 58 is anticipated to see additional commercial and residential development
• Route 58 provides access to local destinations, the Port of Virginia, and tourist destinations
Arterial Preservation Program
Access Management Overview
Access Management

What is Access Management?

Access management involves the location, spacing, and design of driveways, medians, median openings, traffic signals, and interchanges.

Guiding Principles

• Limit the number of conflict points
• Separate conflict points
  • Reduce the number of median openings
  • Improve driveway design
  • Consolidate driveways to reduce frequency
• Look at conflict points from a network perspective
Conflict Points

FULL UNSIGNALIZED MEDIAN OPENING

- 32 TOTAL CONFLICT POINTS
  - Diverging/Merging
  - Crossing

DIRECTIONAL MEDIAN OPENING

- 10 TOTAL CONFLICT POINTS
  - Diverging/Merging
  - Crossing

RIGHT-IN/RIGHT-OUT DRIVEWAY

- 4 TOTAL CONFLICT POINTS
  - Diverging/Merging
  - Crossing
Access Management Guidelines

VDOT Spacing Standards (35-45 MPH Principal Arterial)
Arterial Preservation Program

Innovative Intersections Overview
Innovative Intersections

- Intersection designs which:
  - Improve safety
  - Reduce delay
  - Increase efficiency
- Can reduce delays and crashes as much as 50%
- Also known as:
  - Alternative
  - Non-traditional
  - Unconventional
  - Reduced Conflict
Innovative Intersection Videos
Arterial Preservation Plan
US 58 Corridor
Study Corridor

US 58 from Suffolk BYP to Brunswick – Greensville County Line (~71 miles)
Study Corridor

- Limited-access bypass segments were considered to be improved and therefore received limited analysis as part of this study.
Project Stakeholders / Working Group
Key issues identified in study corridor

- Safety concerns
  - Lack of adequate shoulders
  - Poor sight distance at intersections in certain locations
  - Poor geometric curves for high-speeds in certain locations (East of Holland BYP)
  - Higher levels of crashes in dense commercial and developed areas
  - Below standard turn lanes
- Operational challenges
  - High number of crossovers and access points
  - Delay in more developed areas
- Maintaining local access
- Future traffic growth
Example recommendations

• There are 110 crossovers and 50 intersections along the corridor

• Recommendations were prepared for each of the above and are available tonight for your review

• After the presentation, you can talk with staff and look up a specific location in the printed copies on the tables
How to Read the Figures
US 58 Arterial Preservation Plan
Figure 17
Intersections & Median Crossovers
Southampton County

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Crossover</th>
<th>Recommendation</th>
<th>Cost</th>
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<tr>
<td>I#24</td>
<td>C#47</td>
<td>No Recommendation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C#48</td>
<td>Construct westbound right-turn lane on US 58</td>
<td>$0.3M to $0.4M</td>
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<tr>
<td></td>
<td>I#24</td>
<td>Remove crossover</td>
<td>$0.3M to $0.4M</td>
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</tbody>
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Intersection #24: Drewry Rd with US 58
Recommendation: See Figure 18
Cost: $1.7M to $2.3M
US 58 Arterial Preservation Plan
Figure 17
Intersections & Median Crossovers
Southampton County

Crossover #47:
Recommendation: No Recommendation

Crossover #48:
Recommendation: Construct westbound right-turn lane on US 58
Cost: $2.0M

Intersection #24: Drewry Rd with US 58
Recommendation: See Figure 18
Cost: $1.7M to $2.3M

Crossover #49:
Recommendation: Remove crossover
Cost: $0.3M to $0.4M
US 58 Arterial Preservation Plan
Figure 18
Intersection #24: US 58 and Drewry Rd
Southampton County

Recommendation: Reconfigure intersection of US 58 and Drewry Rd to Restricted Crossing U-Turn (RCUT). Construct u-turn areas with loops east and west of intersection at Drewry Rd and US 58. Reconstruct all existing turn lanes to VDOT design standards.

ROW Impacts: Minimal land acquisition and disturbance required. No additional right-of-way acquisitions required.

Improvement Type: Safety, Travel Time Preservation

Traffic Operations & Safety:

- Reduced conflict points where vehicles cross paths. Reduced risk of head-on collisions.

Cost: $1.7M to $2.3M
Emporia/Greensville Concepts
US 58 Arterial Preservation Plan
US 58 Arterial Preservation Plan
Figure 7
Intersection #9: US 58 and Purdy Rd
City of Emporia

Recommendation: Reconfigure intersection to remove left-turns on US 58 and Purdy Rd southbound. Construct Jug-handle west of main intersection. Construct New Rd around development in southwest corner. Widen Wiggins Road to accommodate trucks (pictured left).

ROW Impacts: Jug-handle and New Rd will require land acquisition. ROW may be required to widen Wiggins Road to accommodate trucks. The main intersection will require little to no land acquisition, as most of this will be new lane markings.

Improvement Type: Congestion, Safety, Travel Time
Preservation

Traffic Operations:

<table>
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<tr>
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<th>AM</th>
<th>PM</th>
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<tr>
<td>Existing Conditions</td>
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<td>67.4 - E</td>
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<tr>
<td>2040 Build Conditions</td>
<td>19.2 - B</td>
<td>17.4 - B</td>
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Cost: $2.0M to $3.0M
US 58 Arterial Preservation Plan
Figure 8
Intersection #10: US 58 and I-95
City of Emporia

Recommendation: Option one will be to reconfigure interchange to Diverging Diamond Interchange (DDI) (pictured left). Option two will be to reconfigure interchange to Single Point Urban Interchange (SPUI) (inset).

Impacts: Requires minimal configuration to existing I-95 ramps and bridge. In addition, two signals at both ends of the US 58 bridge will require signalization to permit crossover.

Improvement Type: Safety, Travel Time Preservation

Traffic Operations & Safety:

Traffic Operations

Minimal Improvements

Traffic entering and exiting freeway does not cross opposing lanes of traffic. Reduced number of conflict points where vehicles cross.

Cost: $7.7M to $9.6M (DDI)
Cost: $9.0M to $12.3M (SPUI)
US 58 Arterial Preservation Plan
Figure 9
Intersection #11: US 58 and Market Dr
City of Emporia

Recommendation: Reconfigure intersections to coordinated signalized intersections. The westbound direction at Market Dr and the eastbound direction at New Rd will be free-flow. Construct new intersection east of Market Dr and US 58 to include Continuous Green-T for southbound left-turns and u-turn area for US 58 Business left-turns onto US 58 (pictured left).

ROW Impacts: Land acquisition will be required for new intersection and connection to Market Rd. Market Rd between New Rd and Market Dr will require improvements.

Improvement Type: Congestion, Safety, Travel Time Preservation

<table>
<thead>
<tr>
<th>Traffic Operations</th>
<th>AM</th>
<th>PM</th>
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<tbody>
<tr>
<td>Total Intersection Delay (s)</td>
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<td>32.3 - C</td>
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<tr>
<td>Existing Conditions</td>
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<td>87.9 - F</td>
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<tr>
<td>2040 No Build Conditions (Conventional Intersection)</td>
<td>19.9 - B</td>
<td>31.0 - C</td>
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Cost: $3.1M to $4.9M

Legend:
- Standard Movements
- Southbound Market Dr to Eastbound US 58
- Southbound Market Dr to US 58 Business
- Northbound US 58 Business to Westbound US 58
- Northbound US 58 Business & Eastbound US 58 To Market Dr
Next Steps

• Review meeting input and finalize study report
  • Report will be available on study website once complete

• Work with City & County officials to implement solutions
  • Identify priorities & seek funding
  • Concepts do not advance without local support
  • No date has been established for construction
  • Recommendations will be implemented as opportunity and funding permits
How to find more information

• Arterial Preservation Program Website
  http://www.virginiadot.org/programs/vdot_arterial_preservation_program.asp

• Innovative Intersections Website
  http://www.virginiadot.org/innovativeintersections/

• US 58 Project Web Page