Agenda

• Arterial Preservation Program
  • Background
  • Goals
  • Access Management Overview
  • Innovative Intersection Overview

• Arterial Preservation Program Methodology
  • Segmentation and Emerging Intersections
  • Deliverable Examples
  • Framework Document
  • Communication Plan
  • Implementation Strategies
Arterial Preservation Program

Background
Background
Background
Slow Erosion of Safety and Capacity

- Main street character
- Direct access at site level
- Difficult to plan and manage access at the site level
- Traffic signal proliferation
- Promote local economy at expense of safety, capacity and mobility
Why This Matters

• “Buy back” capacity
• We simply do not have the funding to continue this cycle
• Better protect our investments
• Extend the life of our investments by treating the system as a finite resource
Pioneering Arterial Preservation Program

• Developed from the Arterial Management Plans
• Arterial Preservation Program
  • Consistent and Repeatable Process
  • Provide a clear and concise corridor vision
  • Identify focus areas and solutions
• Initial Stages of Arterial Preservation Program Methodology
  • Living methodology
• Conducting Pilot Studies
  • US 301/207 (41 miles)
  • Rt. 3 (5 miles)
  • US 220 (43 miles)
  • US 29 (60 miles)
  • US 460 (95 miles)
  • US 58 – Hampton Roads District (71 miles)
  • US 58 – Richmond District (65 miles)
Arterial Preservation Program

Goals
Program Goals

To preserve and enhance the capacity of the Arterial Preservation Network while ensuring that:

• Mainline through traffic is served with priority

• Access points and traffic control do not degrade travel speed and safety

• Safety is improved
Implementation Strategies

• Integrate program priorities with local economic development goals
• Improve access management
• Educate communities on the benefits of improved mobility
• Inspire comprehensive, transportation and zoning planning efforts
• Eliminate unwarranted traffic signals
• Implement innovative intersection configurations
Arterial Preservation Network
Program Initiatives

VDOT has initiated a review of the following policies and procedures to align with the goals of the Arterial Preservation Program:

- Access Management Regulations – subject to Administrative Process Act (APA) procedures
- Current design exception process
- Innovative intersection and interchange design policy and guidance
- Traffic signal warrants
- VDOT’s role in project development on Urban extension projects
Policy and Procedure Revisions

• Office of Land Use (LU)
  • IIM-LU-200: Review of Rezoning Proposals
  • IIM-LU-500: Review of Site Plans and Subdivision Plats
  • IIM-LU-501: Access Management Spacing Exceptions/Waivers

• Traffic Engineering Division (TED)
  • IIM-TE-387: Traffic Signal Justification Reports

• Transportation and Mobility Planning Divisions (TMPD)
  • IIM-TMPD-2.0: Corridor Planning Studies

• Road Design Manual
  • Chapter 2D: Plan Design
  • Appendix A: Design Guidelines
  • Appendix F: Access Management Design Standards
Toolbox of Alternatives

- Mobility Enhancements
- Policy Improvements
- Travel Demand Management
- Other

- Geometric/Capacity/Operational Improvements
- Access Management
- Safety Improvements
- Multi-Modal Improvements
Program Website

- Website Link: http://www.virginiadot.org/programs/vdot_arterial_preservation_program.asp
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.
Roadway Hierarchy

Functional Classification
Balance between Mobility and Access

- Full access control (e.g. Freeway)
- Expressway: At-Grade Intersections
- Other Major Arterials
- Minor Arterials
- Cul-de-sac
Guiding Principles

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

**FULL UNSIGNALIZED MEDIAN OPENING**
- Diverging/Merging
- Crossing
- 32 TOTAL CONFLICT POINTS

**DIRECTIONAL MEDIAN OPENING**
- Diverging/Merging
- Crossing
- 10 TOTAL CONFLICT POINTS

**RIGHT-IN/RIGHT-OUT DRIVEWAY**
- Diverging/Merging
- Crossing
- 4 TOTAL CONFLICT POINTS
Access Management Guidelines

• VDOT Spacing Standards (35-45 MPH Principal Arterial)
Access Management Benefits

- Increased Signal Spacing Benefits
  - Improves traffic flow
  - Reduces congestion
  - Improves air quality

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Source: Federal Highway Administration (FHWA)
https://ops.fhwa.dot.gov/access_mgmt/docs/benefits_am_trifold.htm
Arterial Preservation Program

Innovative Intersections Overview
Innovative Intersections

• Designs where traffic movements are modified to:
  • 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 Tools

• VDOT’s Junction Screening Tool (VJuST)
  • Conceptually compares traditional vs. innovative intersections
  • Website: http://www.virginiadot.org/info/alternative_intersection_informational_design_guides.asp
Arterial Preservation Program

Methodology
Methodology

• Data Compilation
• Segmentation (two-step process)
  • Step 1: Initial data screening
  • Step 2: Local input refinement
• Traffic Count Data
• Traffic Forecasting
• Alternative Development
• Public Engagement
• Recommendations and Implementation Strategy
Segmentation

• Previous Studies
• Comprehensive Plans
• Traffic Data (i.e., volumes, speed, volume-to-capacity, travel time)
• Crash Data
• Land Use (Existing and Future)
• LandTrack
• Land Use Permitting System (LUPS)
• District input
Segmentation

Source: Duany Plater-Zyberk & Company
**Developed Segments**

**Segment Description**
Developed segments have an existing concentration of residential, commercial, manufacturing, and industrial land development. These segments have a higher density of existing access points and often include a series of signalized intersections.

**Goals**
Improve the efficiency and safety of the segment through a retrofit strategy by eliminating unwarranted traffic signals, improving access management spacing, and exploring innovative intersection configurations.

**Examples**
US 460 (Timberlake Road) from Waterlick Road to Greenview Drive in the City of Lynchburg; US 250 (Broad Street) from Dominion Boulevard to West End Drive in Henrico County.
Emerging Segments

Segment Description
Emerging segments are stretches of roadway that have active development or high potential for increased development within 10 years. These segments are often adjacent to developed segments or are adjacent to segments where limited access designations terminate.

Goals
Develop a corridor management strategy to maintain and protect the efficiency of the segment while promoting and facilitating local economic development goals.

Examples
US 250 (Broad Street) in Goochland/Henrico Counties; US 220 (Virgil H. Goode Highway) from Brick Church Road to the Rocky Mount town limits in Franklin County
Stable Segments

Segment Description
Stable segments may experience sporadic development but the land use is expected to remain consistent over the long term. These segments often traverse between developed and emerging segments.

Goals
Preserve the efficiency of the segment by promoting increased access management spacing and identifying spot intersection improvements.

Examples
US 460 (Richmond Highway) from Kiowa Road to Drinkard Road in Campbell County; US 29 (Wards Road) from Fox Ridge Lane to Phillips Lane in Campbell County
Emerging Intersection Criteria

• Signalized Intersections
• Potential for Safety Improvement (PSI) Intersections
• Junction of two primary routes
• Minor Street ADT ≥ 10% of major street ADT
• Crashes
• Intersections that will experience heavy increased in traffic due to future development
• Park & Ride investment strategy intersection
• District input
Emerging Intersections

Intersection Description
Emerging intersections are existing or future intersections that experience safety, operational or congestion issues, or are expected to see an increase in demand due to planned or active development on the intersecting route.

Goals
Strategically target spot improvements and explore innovative intersection configurations to maintain or improve the safety and operations of the arterial.

Approach
Identify emerging intersections based on:
- Junctions of two primary routes
- Existing congestion
- District input

Example 1:
US 220 (Franklin Road) at Southern Lane; US 220 (Franklin Road) at Southern Hills Drive/Valley Avenue in the City of Roanoke.
Arterial Preservation Plan
Deliverable Examples
Deliverable Examples

Figure 8
Planned and Proposed Improvements
Route 24 - Midpoint, 12.0 to 13.0

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<th>MVP ID</th>
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<td>7. Convert offset T-intersections at Route 705 to single intersection</td>
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Legend
- Traffic Signal
- State Map
- Crash Hoist (alleys) 2015 - 2019
- EB No Pasing, WB Pasing
- EB Pasing, WB No Pasing
- No Passing
- NC No Passing, EB Pasing
- Running Sign

Proposed Projects
- Road Relief
- Planned Projects
- Blue Hull
- Existing Guardrail
- Proposed Guardrail

Location Map

VDOT
Virginia Department of Transportation
Sample Conceptual Design
Sample Conceptual Design

ALTERNATIVE 7A – REALIGNMENT OF 2ND STREET APPROACH AT FRONT STREET
2ND STREET/KENTS RIDGE ROAD AT FRONT STREET

Project Description
This project improves safety and reduces driver confusion at the intersection of 2nd Street and Front Street by realigning the southbound 2nd Street approach. The realignment improves the sight triangle looking west for the 2nd Street to Kents Ridge Road movement.
- Realign southbound 2nd Street inner lane to be perpendicular with Front Street

Planning Level Cost Estimate

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<td>Construction</td>
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<td><strong>Total Cost</strong></td>
<td><strong>$418,000</strong></td>
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Note: Cost estimates prepared in 2017 dollars
*Preliminary engineering assumes "no-plan" project

Project Schedule

Legend:
- Existing Pavement
- Existing Property Lines
- Proposed Pavement
- Curb and Gutter
- Raised Median
- Mountable Truck Apron
- Entrance Gutter

Southbound Approach on 2nd Street

US 460 CORRIDOR IMPROVEMENT STUDY
Arterial Preservation Plan
Framework Document
Framework Document

- Study Parameters
  - Working Group Members
  - Study Area
  - Level of Analysis
  - Public Meetings
  - Deliverables
  - Schedule

- Roles and responsibilities of study team members
  - Participation in working group meetings
  - Previous studies/plans/data
  - Timely review and comments on draft documents
  - Public meeting participation
  - Comprehensive Plan adoption

- Working group members “sign on the dotted line”
Arterial Preservation Plan

Communication Plan
Communication Plan

- Public and Key Stakeholder Meetings
- Study Team Participation
- Potential Public Workshops
- Communication and Visualization Tools
- Study Identifier
- Contact List/Database Development
- Project Website
- Target Special Outreach
- Communication Tools

1. Introduction
The purpose of the Arterial Preservation Program is to preserve and enhance the capacity and safety along the arterial preservation network. Under the Arterial Preservation Program, an arterial Preservation Plan will be developed for each study corridor in the network. The Communication Plan will ensure that the evaluation of each study corridor will be conducted under the same procedures and include diverse audiences within the study area.

1.1. Public Information Strategy
The public information strategy intends to educate, inform, and involve the public, businesses, localities, and agencies in the Arterial Preservation Program. The public information strategy will incorporate the following:

- General citizen input from residents in the area and other interested persons.
- Input from Virginia Department of Transportation (VDOT) Central Office, VDOT District Offices, VDOT Regional Traffic, Metropolitan Planning Organizations (MPOs), Planning District Commissions (PDCs), and localities.
- Input from other stakeholders such as property owners in the area, business associations, and advocacy groups.

An effective and streamlined communication plan for each arterial Preservation Plan is presented below. The program aims to meet the following goals:

- To inform and educate community groups, businesses, and the general public about the plan, its objectives, and outcomes.
- To encourage and gather input from community groups, businesses, and the general public regarding the issues to be studied within the study corridor, the alternatives, and the results.
- To create awareness and understanding of the Arterial Preservation Program and the benefits and impacts that would result from the planning efforts.

1.2. Outreach Team
The Outreach Team for each study corridor will be made up of representatives from the Consultant Team and the Study Team. A list of the contact information of each representative, including names, phone number, and email, will be distributed to all members of the outreach team at the start of each project.

1.2.1. Consultant Team
The Consultant Team for each study corridor will be made up of representatives from the prime contractor on the project and all sub-consultants.
Arterial Preservation Plan
Implementation Strategies
Implementation Strategies

- SMART SCALE Funding
- HSIP Funding
- Revenue Sharing
- STARS Program
- Land Use Scenario Planning
Questions ?