ROUTE 29 / NEW BALTIMORE
ADVISORY PANEL MEETING #6

January 24, 2019
U.S. 29 New Baltimore Advisory Panel
Agenda, Meeting #6
January 24, 2019
1 p.m. – 3 p.m.

1st Floor Conference Room of the Warren Green Building, 10 Hotel Street, Warrenton

1. Introductions/ Panel Comments 5 minutes

2. Meeting #5 Summary - Review of Minutes
   a. Intereast Delinial
      i. Safety (traveling public, pedestrians)
      ii. Throughput (local, through and commuting traffic)
      iii. Access/convenience (getting to/from business/residence)
      iv. Economic Development/Success
      v. Home & Property Values
      vi. Historical
      vii. Environmental

3. Public Feedback and Follow-ups 10 minutes
   a. Concern at Cerro Gordo in Prince William
   b. Comments from Chesapeake Heaven

4. Update 29/215 Sight Distance Project (Cut the Hills)
   a. Environmental 106 & NEPA Process and Progress Update
   b. Historic Process and Update
   c. SWM Update
   d. Project Schedule Scenarios (Construction 2019 and 2020)

5. Update on Intersection Concepts: Traffic Analysis, LOS
   a. U.S. 29/Route 215 (Vint Hill Road)
   b. U.S. 29/Route 600 (Broad Run Church Road)
   c. Signal Timing and Optimization.

6. Meeting Calendar – monthly, time, location
   • February 28, 2019
   • March 28, 2019
   All meetings 1-3 p.m., Board of Supervisors Meeting Room
   Warren Green Building, 10 Hotel Street, Warrenton

7. New business and wrap-up 5 minutes

8. Adjourn
Purpose and Need

1. Improve safety along the northbound approach to the existing signalized intersection

- The US-15/29 and VA-215 intersection consistently ranks as the #1 highest Targeted Safety Need in the Culpeper District with the highest potential for safety improvement based on statewide statistical data.

- High speed approaches and heavy volumes create conditions where substandard geometrics contribute to frequent crashes due to motorists overdriving conditions.

- There have been 113 crashes in the 5-year period from 2013-2017 within the approximate project limits.
Purpose and Need

2. Address substandard vertical alignment

- There is a need to improve the vertical alignment of US Route 15/29 in the northbound lanes.

- The existing vertical curves approaching the US-15/29 and VA-215 intersection provide sight distance for an equivalent 35 mph design speed, well below the 60 mph design speed of the corridor.
Design Issues / Challenges

❖ Funding Constraints
  ❑ $7.4 million HSIP Funds Total Allocation
  ❑ $4.7 million HSIP Funds Available (based on B/C = 1)
  ❑ Target $3 million CN cost (Cut the Hills)

❖ Maintenance of Traffic
  ❑ Total Road Closure NB US 29
    • 3 week max duration
  ❑ Detours via US 17 / I-66 & Secondary Road
  ❑ Maintain Access to Adjacent Properties

❖ Environmental
  ❑ Categorical Exclusion (CE) assuming Minimal to No RW Acquisition
    • FHWA Concurrence
  ❑ Section 106 Historic Properties (Buckland Battlefield)

❖ Geotechnical / Materials
  ❑ Potential Rock Excavation
Design Issues / Challenges

❖ Stormwater Management Regulations
  ❑ Potential DEQ Exception (Safety Project)
  ❑ Underground Detention (48” – 60” pipes) if no Exception

❖ Private Entrances
  ❑ William F. Springer (Single Family Residence)
  ❑ Battlefield Baptist Church (Single Family Residence)
  ❑ TCE Will Be Needed to Adjust Entrance Profiles
  ❑ Pursue Permanent Access Easement across Springer parcel to Route 215

❖ Utilities
  ❑ Overhead Power Lines
    • Shift Horizontal Alignment as Necessary to Avoid
  ❑ Underground Fiber Optic Lines
Alternative 1

❖ Advantages
  • Lowest CN Cost ($3.0 - $3.2 million)
  • Shortest Construction Time

❖ Disadvantages
  • Does Not Fully Address Purpose & Need or VDOT Commitment (to cut both hills)
  • Significant Grade Change (8-9 ft. cut) at Private Entrance (Springer)
    • Coordinate permanent access easement across adjacent parcel (also owned by Springer)
Alternative 2

❖ Advantages
  ❑ Fully Addresses Purpose & Need and VDOT Commitment (to cut both hills)
  ❑ Minimal Grade Change at Private Entrance (Battlefield Baptist) & Median Crossover

❖ Disadvantages
  ❑ Requires 8 ft. Horizontal Shift
  ❑ Significant Grade Change (8-9 ft. cut) at Private Entrance (Springer)
    • Coordinate permanent access easement across adjacent parcel (also owned by Springer)
  ❑ Highest Excavation Quantity (Rock Excavation)
  ❑ May Require Slope Easement(s) for Fill Slope South of Battlefield Baptist
  ❑ Highest CN Cost ($5.7 - $5.9 million)
**Alternative 3**

**Advantages**
- Fully Addresses Purpose & Need and VDOT Commitment (to cut both hills)
- Less Excavation than Alternative 2
- Lower CN Cost than Alternative 2 ($4.8 - $5.0 million)

**Disadvantages**
- Requires 12 ft. Horizontal Shift
- Higher Fill Slope than Alternative 2
- Significant Grade Change (7 ft. cut) at Private Entrance (Springer)
- Significant Grade Change (3 ft. fill) at Median Crossover & Private Entrance (Battlefield Baptist)
- May Require Slope Easement(s) for Fill Slope South of Battlefield Baptist
Scope of Work - Alternative 4

❖ **Advantages**

- Fully Addresses Purpose & Need and VDOT Commitment (to cut both hills)
- Less Excavation than Alternatives 2 & 3
- Lower CN Cost than Alternative 3 (approx. $3.0 million)
- Stays close to existing horizontal alignment
- Insignificant Grade Change at Median Crossover & Private Entrance (Battlefield Baptist)

❖ **Disadvantages**

- Lower Design Speed achieved
- Slight Grade Change (approx. 3 ft. cut) at Private Entrance (Springer)
- May Require Slope Easement(s) for Cut Slope near Private Entrance (Springer)
Section 106 Process

- **Process set out in the National Environmental Policy Act**
  - Define the federal action, identify participants
    - The action is to improve the existing deficient vertical sight distances on Route 29
    - Participants include FHWA, Va. Dept. of Historic Resources, other consulting parties
  - Section 106 Coordination: By letter to DHR & consulting parties
  - Identify historic properties within Area of Potential Effects
  - Assess effects of project on identified property: Buckland Mills Battlefield
  - Determination of effects: “Not adverse,” by letter to DHR & consulting parties

- **In the case of this project:**
  - The scope is solely to improve the vertical sight distance on Route 29
  - The project has independent utility separate from intersection improvements at Route 215 (Vint Hill Road) and Route 600 (Broad Run Church Road)
  - The intersection improvements will be addressed as separate projects as funding is available
Work in Progress

Environmental

- Federal Highway Administration concurred with Categorical Exclusion level of NEPA document
- No adverse impacts to water, air, noise or hazardous materials anticipated
- Section 106 Coordination: Determination of no adverse effects by Jan. 14 letter to Va. Department of Historic Resources and Consulting Parties that started 30-day review period
- No Section 4(f) or 6(f) properties impacted by project
- No Virginia Outdoors Foundation existing or proposed open-space easements in vicinity
- Threatened and Endangered Species permit clearance being coordinated with U.S. Fish and Wildlife Service
- John Marshall Soil and Water Conservation District had no concerns
- Piedmont Environmental Council: “Expectation that an archeologist will be on site during land-moving operations … to document any remnants of the Fauquier and Alexandria Turnpike…”
‘Cut the Hills’ Project Schedule

2019 Construction

- Request for Proposals release: Feb. 4, 2019
- CTB contract award: April 10, 2019
- Route 29 Northbound full closure: July 8 to Aug. 2, 2019
- Final project completion: Sept. 30, 2019

2020 Construction

- Request for Proposals release: Aug. 13, 2019
- CTB contract award: Feb. 19, 2020
- Route 29 Northbound full closure: July 7 to July 31, 2020
- Final project completion: Sept. 30, 2020
TRAFFIC ANALYSIS & SIGNAL OPTIMIZATION
ROUTE 29-215 & 29-600 INTERSECTIONS
## Route 29 - 215 Existing Conditions Analysis

### Existing Conditions

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<th>Approach</th>
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<th>PM Peak Hour</th>
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**Note:**
- **AM Peak Hour:** Queue 95th (ft) and Delay (s)
- **PM Peak Hour:** Queue 95th (ft) and Delay (s)
- **Delay/LOS:** Queue 95th (ft) and Delay (s) correspond to F (Free Flow) and C (Congested) levels of service.
## Route 29 - 215 Preferred Scenario Analysis

### Preferred Scenario: Dual SB Lefts, Single WB Left, Signalized WB Dual-Rights, Unsignalized WB Right-in / Right-out

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## Route 29 - 600 Existing Conditions Analysis

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## Route 29 – 600 Preferred Scenario Analysis

### Preferred Scenario: Dual WB Left, thru-left and right turn lane, Channelized EB Right-Turn Lane

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**Signal Timing & Optimization**

- **Traffic Engineering**
  - Intersections on Route 29 corridor in New Baltimore currently use In Sync adaptive traffic signal technology
    - Signals connected with high-speed communication
    - Phases are variable within fixed cycle length
    - Signals prioritize flow of traffic on mainline (Route 29) based on traffic detection
    - System uses proprietary algorithms to manage signal performance, very little data is available to VDOT
  
  - Route 29 corridor in Albemarle County uses Advanced Traffic Signal Performance Metrics (ATSPM) system
    - Performance data is available to traffic engineers in near real time to monitor performance
    - Cycles can be adjusted remotely to respond to changes in traffic patterns as well as unforeseen circumstances (emergency incidents, heavy traffic from events, etc.)
    - Since installation of ATSPM system and associated roadway improvements, travel times have decreased