Novak Drive Connector Study

2017 WVDOH/FHWA/MPO Planning Conference
September 20, 2017
Presentation Overview

Project Background
Data Collection
Goals and Objectives
Alternative Corridors
Existing and Future Traffic Conditions
Preliminary Environmental Screening
Public Involvement
Next Steps
Project Background

Study Purpose
Study Area and History
Process Overview
Purpose of Study

- Identify the project need
- Analyze traffic
- Identify potential alternative corridors
- Identify & Evaluate environmental concerns
- Screen preliminary alternatives
Study Area

- Traffic Analysis Study Area
- Environmental Study Area
Planned / Proposed Development

- Cornerstone Development
- Procter & Gamble
- BTR Capital Business Park Drive
- Station Square
- BPG Martinsburg
- Berkeley Business Park
- Heritage Hills Subdivision
- Stellar Armor, Inc
- Vanville Substation
Planned / Proposed Improvements

- US 11 Connector
- Development Drive
- US 11 Roundabout
- Tabler Station Access Road
Project History

- Combination of Planned/Proposed Developments and Results of WV 45 Corridor Study began thought process of is there a potential for an additional connection between WV 9 & I-81?
- Could WV 45 handle additional traffic
- Will the US 11 @ Business Park Dr /Novak Dr intersection be able to handle all the proposed developments?
- Somewhat natural connection potential between the WV 9 Short Rd interchange and the US 11/Novak Dr intersection
Project Development Process

Weaving Together Integrated Planning and NEPA

Transportation Agencies
Resource Agencies
Public

Long-Range Planning
Statewide
Metropolitan

Planning
Project Planning Corridor Sub-Area Tier I EIS

Project Development/NEPA
Design
Construction Maintenance Operations

We Are Here
Project Steering Committee

Met in December 2016 and July 2017

Includes:

- WVDOH
- HEPMPO
- WVDEP
- Berkeley County
- City of Martinsburg
- Airport Authority
- Development Authority
- Transit Authority
- Winchester Western Railroad
- Major Employers
Data Collection

Traffic
Socioeconomic
Environmental
Data Collection

- Roadway geometry and lane configuration
- Traffic Counts (auto, truck)
- Speeds (observed and posted)
- WVDOH crash records and databases
- Origin-Destination information
- Traffic signal timing and coordination
- Socioeconomic forecasts
Use of Technology Data Sources

**TomTom GPS**
- Typical weekday/weekend peak travel speeds and traffic queuing
- Uses: current congestion / microsimulation calibration

**StreetLight GPS and Cellular**
- Origin – Destination information
- Uses: Identify who is using roadways .. Insights on potential diversions

**CENSUS LEHD employment record and synthesis**
- Commuting characteristics for the study area
- Uses: Where do people work who live in study area? Where do people live who work in study area?
Sample of GPS Travel Time Data

2014-2016 TomTom Weekday Travel Time Ratio

- Yellow = Travel Time Ratio > 1.2
- Red = Travel Time Ratio > 1.5
StreetLight Data

O-D of Vehicles on WV 9

Potential Diversion to Novak Extension

Legend
- Pass Through Filter
- STLIndex
  - < 2
  - 2 - 100
  - 101 - 1,000
  - 1,001 - 3,000
  - > 3,000

At Short Road

Area with Origin-Destination that may consider diversion

Includes all travel from I81 in VA

15% of AADT

28,000 x .15 = 4,200
Traffic Analysis & Microsimulation

- **Identify focus areas**
- Collect additional data (e.g., signal timings)
- Calibrate model to existing conditions
- Integrate forecasts
- Analyze future traffic conditions
- Identify potential improvements
Environmental Constraints
Goals and Objectives

Mobility
Safety
Economic Development
Environmental
Goals and Objectives

**Mobility Goal:**

Improve access between WV 9 and the airport area / I-81 while alleviating congestion on area roadways.

**Objectives include:**

- Reduce traffic on WV 45 by providing an alternate access to I-81
- Provide additional access to the Tabler Station area
- Improve multimodal connectivity by facilitating improved transit service, bicycle/pedestrian accommodations and access to the Eastern West Virginia Regional Airport
Goals and Objectives

**Safety Goal:**
Improve the level of safety for motorists in the study area.

**Objectives include:**
- Reduce truck traffic along WV 45 and other major arterials by providing an alternate route
- Divert traffic away from or make improvements to high crash locations
- Improve bicycle / pedestrian safety by providing appropriate accommodations
Goals and Objectives

**Economic Development Goal:**
Support planned development and promote future growth in the area.

**Objectives include:**
- Provide additional access to the Tabler Station area
- Promote growth in downtown Martinsburg through congestion relief on WV 45 and highway signage for downtown Martinsburg
- Promote freight growth by providing improved access to I-81
Goals and Objectives

**Environmental Goal:**
Protect and preserve the environment in the study area.

**Objectives include:**
- Minimize impacts to the Opequon Creek and other environmental and cultural resources
- Preserve the rural character of the area by appropriately controlling access
- Minimize noise impacts by avoiding sensitive locations
- Improve air quality by reducing traffic congestion
Alternative Corridors

Preliminary Alternative Corridors
Preliminary Alternative Corridors

- **Termini**
  - Novak Drive at Airport Road
  - Existing WV 9 interchanges
- **500-ft wide corridors**
Preliminary Alternative Corridors

- Alternative 1
  - Novak Drive to the existing WV 9 Opequon Lane / Baker Heights interchange
Preliminary Alternative Corridors

- Alternative 2
  - Novak Drive to the existing WV 9 Short Road interchange
Preliminary Alternative Corridors

- **Alternative 3**
  - Novak Drive to the WV 9 existing Kearneysville/Leetown interchange
  - Upgrades to existing Bower Road
Preliminary Alternative Corridors

- **No-Build Alternative**
  - Connection between Novak Drive and WV 9 **would not** be constructed
  - Serves as a **baseline** against which the other alternatives can be compared
Existing and Future Traffic Conditions

Existing Traffic Analysis
Future Traffic Analysis
Existing Traffic Analysis

- 21 locations with acceptable LOS (A, B, or C)
- 3 locations with moderate LOS (D)
- 6 locations with unacceptable LOS (E or F)
  - WV 45 @ Foxcroft Ave
  - WV 45 @ New York Ave
  - US 11 @ Paynes Ford Road
  - US 11 @ Technology Drive
  - US 11 @ Nadenbousch Lane
  - US 11 @ WV 51
Crash Analysis

- Highest Concentration of Crashes
  - WV 45 between I-81 and US 11
  - WV 9 east of Queen Street
  - US 11 at Novak Drive
  - US 11 in Inwood
  - WV 51 east of Inwood
Travel Demand Modeling

- Enhanced model roadway detail including Route 9 alignment
- Refined model zone structure in study area (split several traffic zones)
- Developed land use forecasts based on development plans
- Adjusted base year model to better reflect WV 45 congestion
- Applied model growth to existing traffic counts data
Projected Traffic Volume Growth in Area 2017-2040 Assuming Existing Network

Assumptions:
- Regional growth in MPO Long range Plan
- Procter Gamble full-build out (see traffic impact studies)
- Other development plans in vicinity of Business Park Drive

Highlights:
- Local roads forecast to have significant increases in traffic volumes
- Kelly Island Rd, Portions of Paynes Ford, Airport Rd and Leetown Rd are examples
- Many trips to Business Park Drive divert onto Kelly Island to avoid WV 45

Projected Daily Traffic Volume Growth:  
- 500-1,500
- 1,501-6,000
- 6,001-13,000
Future No-Build Traffic Analysis

- 10 locations with acceptable LOS (A, B, or C)
- 3 locations with moderate LOS (D)
- 16 locations with unacceptable LOS (E or F)
Projected Daily Traffic Volumes on the Novak Drive Extension Alternatives

<table>
<thead>
<tr>
<th>Land Use</th>
<th>2040 Land Use</th>
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</thead>
<tbody>
<tr>
<td>No Other Projects Completed</td>
<td>9,900</td>
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<tr>
<td>Other Improvements Completed**</td>
<td>9,300</td>
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<tr>
<td>Current Land use</td>
<td>5,500</td>
</tr>
<tr>
<td>No Other Projects Completed</td>
<td>12,900</td>
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<tr>
<td>Other Improvements Completed**</td>
<td>11,000</td>
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<tr>
<td>Current Land use</td>
<td>8,400</td>
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<tr>
<td>No Other Projects Completed</td>
<td>11,600</td>
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<tr>
<td>Other Improvements Completed**</td>
<td>10,100</td>
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<tr>
<td>Current Land use</td>
<td>7,200</td>
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* 2040 Land use includes regional growth and full buildout of Business Park Drive development

** Includes funding and unfunded capacity improvements on WV 45, WV51 and US 11

Legend
- Alternative 1
- Alternative 2
- Alternative 3
2040 Daily Volume Diversion (Alternative 2)
(Assuming Other Improvements Completed and 2040 Land Use)

Key Project Benefits:
- Relieve local roadway traffic accessing Business Park Drive developments
- Relieve Route 9 North of Short Road through Kelly Island Road intersection
- Relieve Kelly Island Road traffic and intersection with Route 11

Notes:
- Project not anticipated to have significant impacts on volumes at WV 45/I-81 (Martinsburg) or WV 51/I-81 (Inwood)
Future Build Traffic Analysis

- 8 locations with acceptable LOS (A, B, or C)
- 5 locations with moderate LOS (D)
- 16 locations with unacceptable LOS (E or F)
Preliminary Environmental Screening

Environmental Inventory
Preliminary Environmental Screening
Environmental Inventory

- Streams
- Historic Resources
- Protected Farmlands
- 100-year Floodplain and Floodway
- NWI Wetlands
- Landuse
Preliminary Environmental Screening
# Preliminary Environmental Screening

<table>
<thead>
<tr>
<th>Key Issues</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (miles)</td>
<td>5.0 miles</td>
<td>3.4 miles</td>
<td>5.4 miles</td>
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<tr>
<td>Bridge over Opequon Creek (feet)</td>
<td>597 feet</td>
<td>501 feet</td>
<td>549 feet</td>
</tr>
<tr>
<td>NWI Wetlands</td>
<td>1 (0.72 acres)</td>
<td>2 (0.47 acres)</td>
<td>2 (1.15 acres)</td>
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<tr>
<td>Historic Resources</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>100-year Floodplain / Floodway</td>
<td>6.2 acres / 11.2 acres</td>
<td>13.9 acres / 9.4 acres</td>
<td>3.1 acres / 5.8 acres</td>
</tr>
<tr>
<td>Stream Crossings</td>
<td>6</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Residential (acres) vs. Farmland (acres)</td>
<td>221 acres / 143 acres</td>
<td>15 acres / 327 acres</td>
<td>93 acres / 214 acres</td>
</tr>
<tr>
<td>Number of Negative Issues</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
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**Smallest Impact**

**Largest Impact**
Public Involvement

Web-Based Survey
Public Workshop
Held on June 28, 2017
Open House Format
Approximately 60 attendees
WVDOH Public Comment Period ended 7/28/2017
Comment Forms – 40 to date
Web-Based Survey

- Site active from June 12 – July 12
- Over 370 visitors (about 260 providing significant content)
Responses on Preferred Alternative

Please rate this scenario:

- **Connect at Kearneysville / Leetown Interchange**
  - Alternative 3
    - Times rated: 221
    - Average rating: 2.543
    - Ratings: 95 (43%), 28 (13%), 27 (12%), 25 (11%), 46 (21%)

- **Connect at Opequon Lane / Baker Heights Interchange**
  - Alternative 1
    - Times rated: 241
    - Average rating: 2.739
    - Ratings: 68 (28%), 32 (13%), 74 (31%), 29 (12%), 38 (16%)

- **Connect at Short Road Interchange**
  - Alternative 2
    - Times rated: 233
    - Average rating: 3.146
    - Ratings: 66 (28%), 22 (9%), 27 (12%), 48 (21%), 70 (30%)

- **No Build**
  - Times rated: 257
  - Average rating: 3.346
  - Ratings: 87 (34%), 11 (4%), 16 (6%), 12 (5%), 131 (51%)
Next Steps

Complete Evaluation Matrix
Connector Study Document
Decision on whether to advance project
Thank you

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