PLEASANT VALLEY ROAD
CORRIDOR IMPROVEMENT STUDY

Kick-Off Meeting
July 22, 2019

AGENDA

- STARS Program
- Innovative Intersections
- Pleasant Valley Road Corridor Improvement Study
  - Study Work Group
  - Project Background
  - Project Scope of Work Overview
  - Communication Protocols
  - Project Information Sharing
  - Overall Schedule and Major Milestones
- Next Steps
STARS Program Goals

- Develop comprehensive, innovative transportation alternatives to relieve congestion bottlenecks and solve critical safety challenges
- Involve planners, traffic engineers, safety engineers, roadway designers, and local stakeholders
THE STARS TEAM

VDOT Districts and Residencies
- Coordinate with localities, MPOs, and PDCs
- Submit STARS applications
- Lead STARS projects
- Coordinate with consultant team

VDOT Central Office
- Provides program oversight, data analysis, and application review

Consultants
- Provide project support

WHAT IS THE STARS PROGRAM?
Program to develop solutions to reduce crashes and congestion bottlenecks using a data-driven approach

Crash hotspots
Speed data
AADT data

Use this information together to identify corridors with safety and congestion challenges

Overall goal of STARS is to develop solutions that can be programmed in the VDOT Six-Year Improvement Program (SYIP)
Importance of Corridor Identification

<table>
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<tr>
<th>Factor</th>
<th>Congestion Mitigation</th>
<th>Economic Development</th>
<th>Accessibility</th>
<th>Safety</th>
<th>Environmental Quality</th>
<th>Land Use</th>
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<td>5%</td>
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<td>30%</td>
<td>18%</td>
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</table>

Legend
- VDOT District Boundaries
- MPO/POC Boundaries
- Counties and Cities

Weighting Typologies
- Category A
- Category B
- Category C
- Category D

Sample STARS Deliverables

Hungary Spring Road to Wistar Road
Recommended Improvements

Operations and Safety Improvements
- Developing recommendations for operations to improve safety and reduce conflicts.
- Enhances operations for bus and bicycle facilities.
- Reduces conflicts and improves safety for pedestrians at intersections.
- Provides enhanced road safety and operations for cyclists.
- Provides improved bicycle facilities in congested areas.
- Enhances operations for bus and bicycle facilities.
- Enhances operations for cyclists.

Traffic Operations
- Enhances operations for bus and bicycle facilities.
- Provides enhanced road safety and operations for cyclists.
- Enhances operations for cyclists.

Related to Hungary Spring Road to Wistar Road
- Enhances operations for bus and bicycle facilities.
- Provides improved bicycle facilities in congested areas.
- Enhances operations for cyclists.

West Broad Street (US 250) Corridor Improvement Study
SAMPLE STARS DELIVERABLES

DOUBLE "PEANUT" ROUNDABOUT
MAIN STREET AND BEDFORD AVENUE OPERATIONAL ANALYSIS AND ALTERNATIVE CONSIDERATIONS

PROJECT COST

<table>
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<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Preliminary Engineering</td>
<td>$190,000</td>
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<tr>
<td>Right-of-Way Acquisition</td>
<td>$500,000</td>
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<tr>
<td>Construction</td>
<td>$1,100,000</td>
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<td>Total Cost</td>
<td>$2,790,000</td>
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Traffic Operations Measures

<table>
<thead>
<tr>
<th>Description</th>
<th>AM</th>
<th>PM</th>
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<tr>
<td>Base Case</td>
<td>29,326</td>
<td>22,000</td>
</tr>
<tr>
<td>Design</td>
<td>5,490</td>
<td>11,244</td>
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<td>Savings</td>
<td>23,836</td>
<td>10,756</td>
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</table>

* Peak hour delay - delay per vehicle peak hour traffic volume

PROJECT DESCRIPTION

- "Peanut" roundabout consists of two, face-to-face roundabouts configured adjacent to each other, creating a "peanut" roundabout
- "Peanut" roundabouts are characterized by a tight, but efficient intersection with alternate vehicles entering from opposite directions
- "Peanut" roundabout creates an efficient intersection for vehicles traveling in opposite directions
- Provides for a larger lane/capacity within each roundabout with the potential for increased throughput

PROJECT MAPS

- Location Map
- Proposed Median
- Proposed Intersection

MAIN STREET AND BEDFORD AVENUE
TOWN OF APPOMATTOX, VA

INNOVATIVE INTERSECTIONS
**INNOVATIVE INTERSECTIONS**

- **What are innovative intersections?**
  - Designs where traffic movements are modified to improve safety, reduce delay, increase efficiency
  - Can reduce delays and crashes as much as 50%

![Diagram of Continuous Green T (CGT) and Restricted Crossing U-Turn (RCUT)]

**INNOVATIVE INTERSECTIONS**

- **Re-route Left-Turn Movements**
  - More efficiently serves through traffic

- **Reduce Signal Phases**
  - Reduces delay

- **Remove and Separate Conflicts**
  - Improves safety
INNOVATIVE INTERSECTIONS

Why is VDOT promoting innovative intersections?
- Enhance mobility
- Improve safety
- Preserve capacity

What information has VDOT released?
- VDOT Junction Screening Tool (VJuST)
  - Microsoft Excel tool to screen innovative intersections/interchanges
- Informational brochures
  - Continuous Green-T
  - Displaced Left Turn
  - Quadrant Roadway
  - Restricted Crossing U-Turn
  - Roundabout
  - Median U-Turn

http://www.virginiadot.org/innovativeintersections/
Pleasant Valley Road Corridor Improvement Study

Study Work Group Members

- VDOT District*
  - Terry Short
  - Edwin Carter
  - Scott Alexander
  - Keith Rider
  - John-Allen Ennis
- VDOT Central Office
  - Bill Guiher
  - Terrell Hughes
- WinFred MPO
  - John Madera
- City of Winchester
  - Timothy Youmans
  - Andrew Dunn
  - Justin Hall
  - Perry Eisenach
- WinTran
  - Renee Wells
- Frederick County
  - John Bishop
- Kimley-Horn
  - Danielle McCray
  - Amanda Harmon

*May include other support staff as necessary
STUDY WORK GROUP ROLES AND RESPONSIBILITIES

- Attend meetings and/or workshops
  - Anticipated three in-person meetings and/or workshops
  - Technical conference calls
- Provide input in your focus area
  - Traffic engineering and traffic signal operations
  - Transportation planning
  - Preliminary design and cost estimating
  - Local familiarity
- Review interim and final deliverables
- Technical Committee
  - Provide guidance and review of detailed analyses

PROJECT STUDY AREA

- Pleasant Valley Road in City of Winchester
  - 4-lane undivided roadway
  - 2.2-mile study corridor
  - 10 signalized intersections
  - 5 unsignalized intersections
PLEASANT VALLEY ROAD
EXISTING SAFETY AND TRAFFIC OPERATIONS OVERVIEW

PLEASANT VALLEY ROAD: HIGH CRASH LOCATIONS

- **Potential for Safety Improvement (PSI)**
  Estimates how much the long term crash frequency could be reduced at an intersection or segment

- **Segment Rankings**
  Ranked by total PSI within Staunton District
  - 7, 9, and 19 – Between Tevis Street and Jubal Early Drive
  - 66 and 84 – Between Jubal Early Drive and Millwood Avenue
  - 42, 108, and 16 – Between Millwood Avenue and Cork Street

- **Intersection Rankings**
  Ranked by total PSI within Staunton District
  - 5 – Cork Street
  - 7 – Jubal Early Drive
  - 45 – Millwood Avenue
  - 100 – Tevis Street
Pleasant Valley Road:
Potential for Safety Improvement and Target Safety Needs

Outside of study area

Source: 2017 PSI Intersections - Staunton District

PSI/TSN (Intersection)

Pleasant Valley Road:
Potential for Safety Improvement and Target Safety Needs

Source: 2017 PSI Segments - Staunton District

PSI (Segment)  TSN (Segment)
**PLEASANT VALLEY ROAD**

**CRASH DATA**
*(JANUARY 1, 2013-APRIL 30, 2019)*

- VDOT’s Top 100 Potential for Safety Improvement Intersections
  - Tevis Street
  - Jubal Early Drive
  - Millwood Avenue
  - Cork Street

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**Fixed Object**

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**Fixed Object**
PLEASANT VALLEY ROAD

CRASH DATA
(JANUARY 1, 2013-APRIL 30, 2019)

- VDOT's Top 100 Potential for Safety Improvement Intersections
  - Tevis Street
  - Jubal Early Drive
  - Millwood Avenue
  - Cork Street

PROJECT PURPOSE AND SCOPE OVERVIEW
**PROJECT PURPOSE**

- Evaluate operational and safety conditions within study area
- Develop potential projects to improve safety and operations
- Consider innovative intersection designs, where applicable
- Identify improvements that can be advanced to funding
  - Programmed into the VDOT Six-Year Improvement Program (SYIP)

**SCOPE OF WORK OVERVIEW**

- Data Collection and Field Review
- Crash Analysis
- Existing Conditions Operational Analysis
- Traffic Forecasting
- Future No-Build Conditions Operational Analysis
- Concept Development and Screening
- Future Build Conditions Operational Analysis
- Cost and Schedule Estimates
- STARS Improvement Summary Sheets
- Reporting
- Public Engagement

Critical scoping items requiring consensus
### Data Collection Overview

**Traffic Volume Data – Week of 8/19/19**
- 15 12-hour turning movement counts
  - Includes U-turns, heavy vehicles, and pedestrians
- Four 48-hour classification counts collected to help understand recent growth patterns
- Travel time runs

**Field Observations**
- Observe traffic operations and safety condition during AM and PM peak periods – Week of 8/19/19
  - AM peak: 6:30 a.m. to 8:30 a.m.
  - PM peak: 4:00 p.m. to 6:00 p.m.
ANALYSIS SCENARIOS

- **Analysis Tools and Measures of Effectiveness**
  - Synchro 9
    - Control delay (seconds per vehicle)
    - 95th percentile queue length (feet)
  - SimTraffic 9
    - Microsimulation delay (seconds per vehicle)
    - Maximum percentile queue length (feet)
  - SIDRA 8
    - Tool to evaluate proposed roundabout geometry, if necessary

- **Analysis Periods**
  - AM and PM peak hours
  - Existing Conditions – 2019
  - Future Conditions – 2035 or 2040

ADDITIONAL DATA COLLECTION

- Request Synchro files and signal timing plans
- Crash data – will obtain last 5 years from VDOT
- Current or proposed transit stop locations
- Other studies, existing data
- Forecasting
  - SPS data
  - Regional travel demand model
  - Other?
PUBLIC ENGAGEMENT

- **Public Outreach Meeting**
  - One public meeting to be held within study area
  - Potential stakeholder meeting with businesses prior to public meeting
  - Public notification/available tools/outreach/locality role(s)

- **Potential Online Survey Tool**
  - Mapping feature for public input

- **SWG members to brief respective organizations**

COMMUNICATION PROTOCOLS

- **VDOT Staunton District**
  - Terry Short – Terry.Shortjr@vdot.virginia.gov

- **VDOT Central Office**
  - Terrell Hughes – Terrell.Hughes@vdot.virginia.gov

- **City of Winchester**
  - Perry Eisenach – Perry.Eisenach@winchesterva.gov

- **Frederick County**
  - John Bishop – jbishop@fcva.us

- **Kimley-Horn**
  - Danielle McCray – Danielle.McCray@kimley-horn.com
    - (703) 674-1381
  - Amanda Harmon – Amanda.Harmon@kimley-horn.com
    - (804) 672-4704
PROJECT INFORMATION SHARING

- **Website**: https://kimley-horn.securevdr.com/Authentication/Login
- **Username**: email address
- **Password**: you will create

OVERALL SCHEDULE AND MAJOR MILESTONES

- **June-July** – Kick-Off Meeting and Scoping
  - Full SWG Meeting
- **August** – Data Collection and Field Visit
- **September** – 2019 Existing Conditions Analysis
  - Technical Committee Review and Meeting
- **October-November** – No-Build Analysis/Concept Development and Screening
  - Full SWG Meeting
- **December** – Build Analysis
  - Technical Committee Review and Meeting
  - Full SWG Meeting
- **January-March** – Cost Estimates, Schedules, Reporting
  - Technical Committee Review and Meeting
  - Full SWG Meeting
  - Public Engagement

SMART SCALE portal opens in March
NEXT STEPS

- Finalize framework document
- Complete data collection and field visit
- Approve scope of work
- Base conditions analysis

Thank you.