STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

I-95/I-85 Interchange Study

Petersburg, Virginia

Framework Document Meeting

February 14, 2023

AGENDA

- **STARS program**
- **I-95/I-85 Interchange Study**
  - Study work group
  - Introduction and need
  - Scope of work overview
  - Information sharing
  - Proposed schedule
- **Next steps**

STARS PROGRAM

STARS Program Goals

- **Develop comprehensive, innovative transportation alternatives to improve congestion and safety**
- **Accelerate process of planning to design**
- **Involve planners, traffic engineers, safety engineers, and roadway designers**
- **Engage local stakeholders early in the process**
- **Identify project risks**
- **Improve readiness for project implementation**

STARS Project 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

Kimley»Horn

WHAT IS THE STARS PROGRAM?

Program to develop solutions to reduce crashes and congestion bottlenecks using a data-driven approach – created in 2006

VTrans needs
Safety data
Congestion data
District/locality priorities

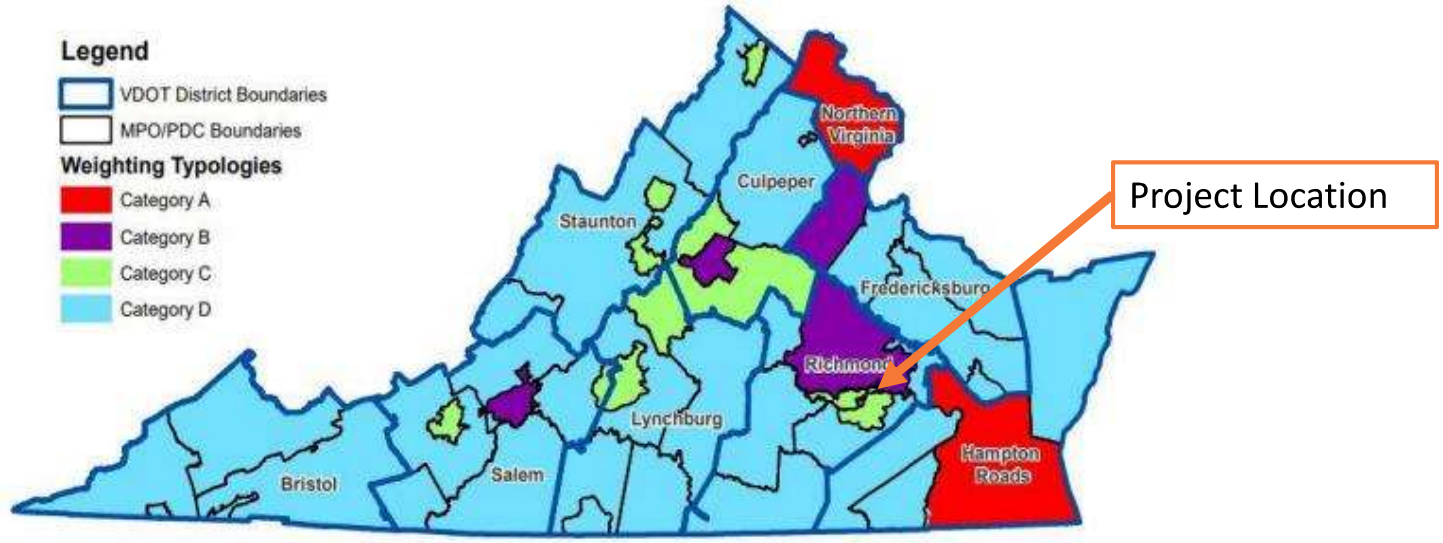
Use this information to identify corridors with safety and congestion challenges

Overall goal of STARS is to develop solutions that can be programmed in the VDOT Six-Year Improvement Program (SYIP) and/or Maintenance

http://www.virginiadot.org/projects/stars.asp

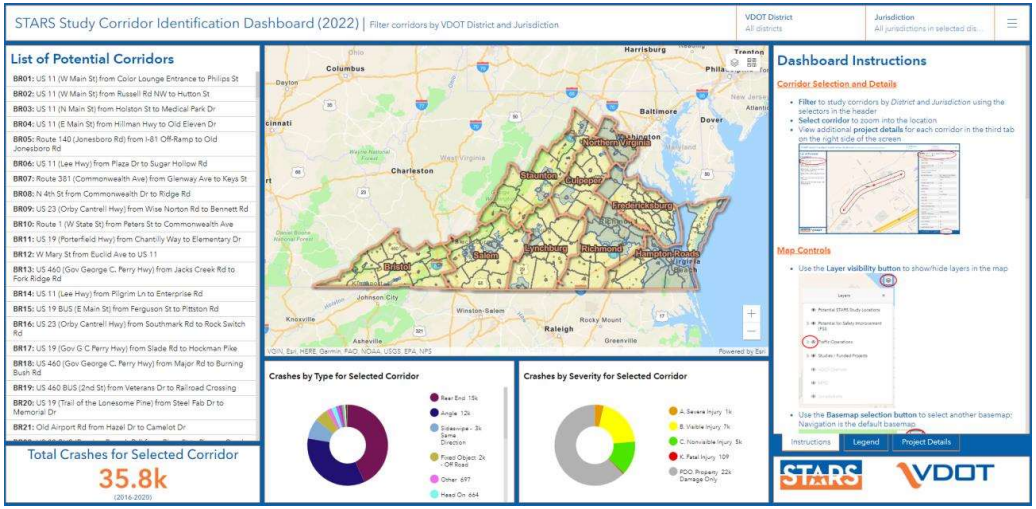
Importance of Corridor Identification

Factor	Congestion Mitigation	Economic Development	Accessibility	Safety	Environmental Quality	Land Use
Category A	45%	5%	15%	5%	10%	20%
Category B	15%	20%	20%	20%	10%	15%
Category C	15%	25%	15%	25%	10%	10%
Category D	10%	30%	10%	30%	10%	10%



STARS Corridor Identification Approach

- **Data-driven approach**
- **Aligns with SMART SCALE prioritization metrics**
- **Repeatable and defendable**
- **District collaboration at the start**
- **Helps the decision-making process**
- **Helps facilitate conversations with localities relative to needs and priorities**



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I-95/I-85 Interchange Study

Study Work Group Members

- **VDOT District**
  - Liz McAdory – Planning
  - Mark Riblett – Project Development
  - Rob Vilak – Traffic Engineering
  - Jason Zhang – Traffic Engineering
  - Scott Chapman – Location and Design
  - Erica Jeter – Environmental
- **VDOT Central Office**
  - Sharad Uprety – Planning
  - Alina Afzal – Planning
  - Jason Williams – Location and Design
  - Federico Gontaruk – Location and Design
- **VDOT Petersburg Residency**
  - Crystal Smith
- **City of Petersburg**
  - Reginald “Reggie” Tabor
  - Reggie Lantz
  - March Altman
  - Joanne Williams
  - Tangela Innis
- **FHWA**
  - Jose Granado
- **Tri-Cities Area MPO**
  - Ron Svejkovsky
- **Kimley-Horn**
  - Andy Nagle
  - Rob Prunty
  - Matt Harrell
  - Danielle McCray
  - Alex Iliev

CONTACT INFORMATION

- **VDOT Richmond District**
  - Liz McAdory– liz.mcadory@vdot.virginia.gov
- **VDOT Central Office**
  - Sharad Uprety– sharad.uprety@vdot.virginia.gov
  - Alina Afzal– alina.afzal@vdot.virginia.gov
- **Kimley-Horn**
  - Andy Nagle– Andy.Nagle@kimley-horn.com
    - (804) 292-2074

Study Work Group Roles and Responsibilities

- **Attend meetings and/or workshops**
  - Anticipate five in-person meetings and/or workshops
  - Technical group virtual meetings (as needed)
- **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**
  - Provide feedback on in-progress work and final work products
  - Provide feedback on study findings
- **Technical Committee**
  - Provide guidance and review of detailed analyses

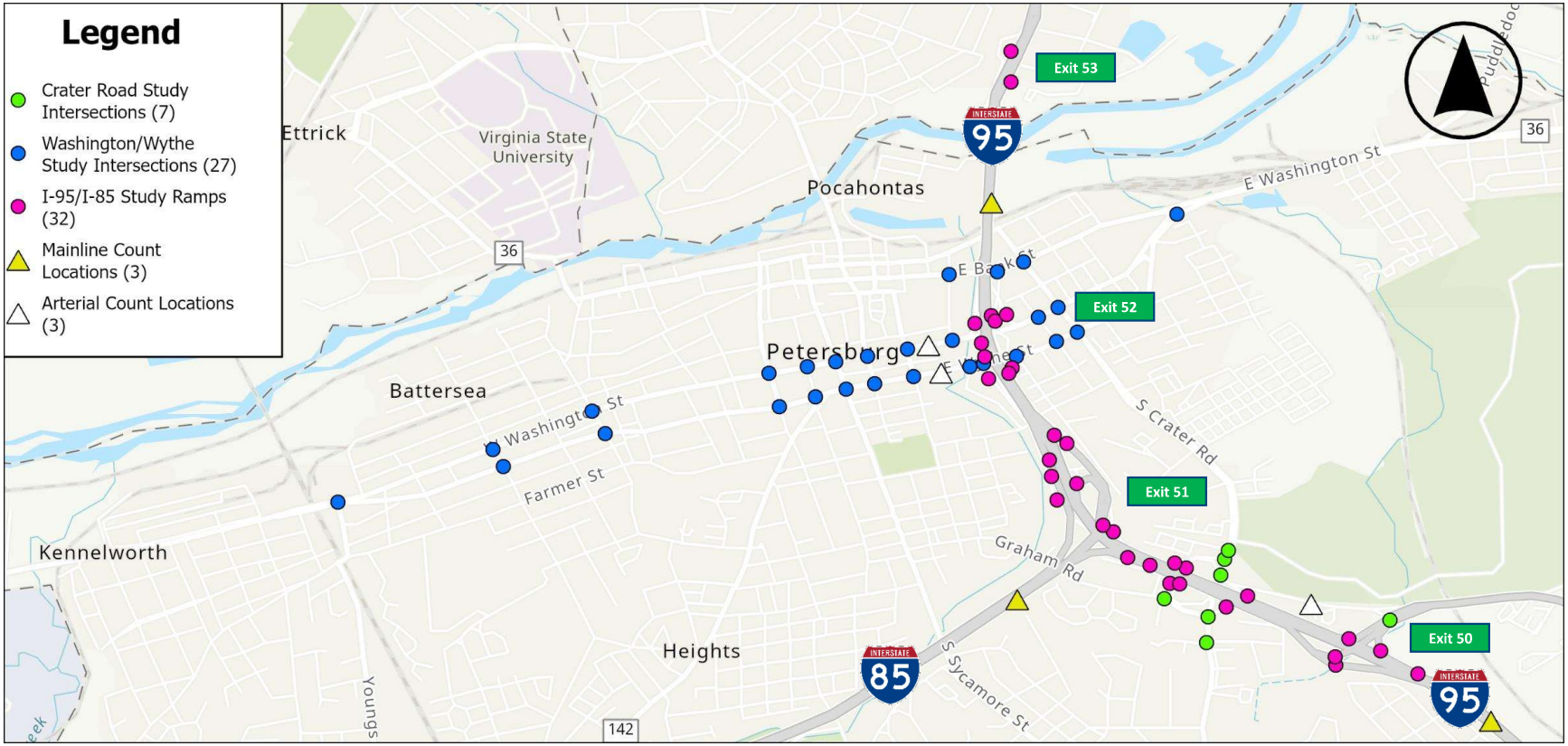
PROJECT PURPOSE

- **Develop improvement projects to address identified needs of network**
  - I-95/I-85 and Crater Road interchanges
    - Improving safety at hot spots
    - Mitigating congestion
    - Vetting phased improvements
  - Washington Street and Wythe Street corridors and interchange
    - Improving vehicular access
    - Mitigating congestion
    - One-way to two-way conversion feasibility
    - Multimodal connectivity and safety
    - Improving safety at hot spots
    - Provide gateway to Downtown Petersburg
- **Identify improvements that can be advanced for funding**

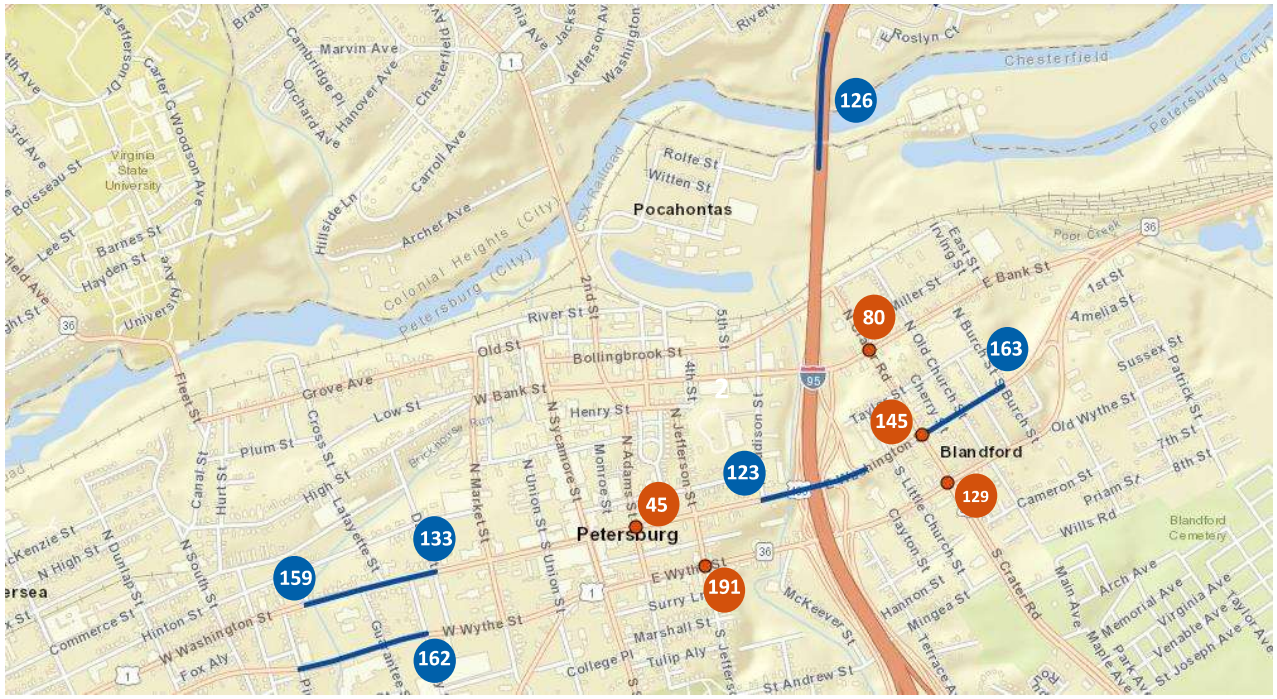
PROJECT STUDY AREA

Study Corridors

- I-95 from Crater Road (Exit 50) to Southpark Boulevard (Exit 53)
- Crater Road from Myrick Avenue to Columbia Road
- Washington Street and Wythe Street from Atlantic Street to Bank Street
- Bank Street from Madison Street to Crater Road



PROJECT STUDY AREA HIGH CRASH LOCATIONS



PSI Location Segment / Rank ##
PSI Location Intersection / Rank ##

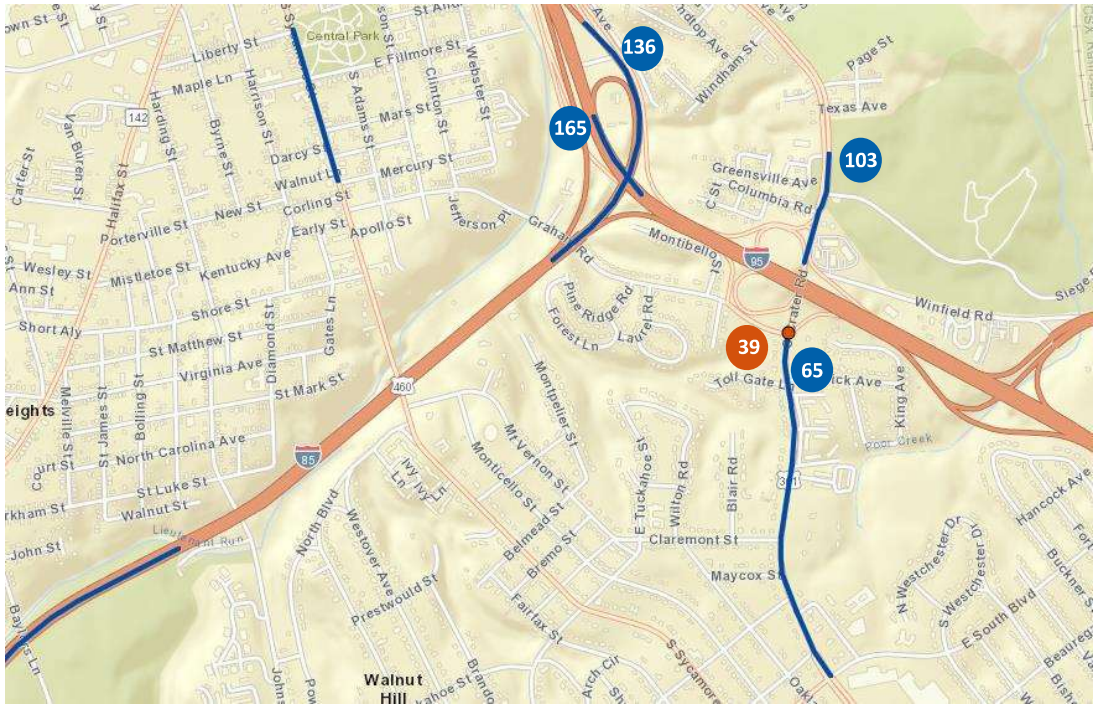
Segments

- Washington Street from Madison Street to east of
- I-95 (Rank 123)
- SB I-95 north of Bollingbrook Street (Rank 126)
- Washington Street from Guarantee Street to Davis Street (Rank 133)
- Washington Street from Hazel Street to Guarantee Street (Rank 159)
- Wythe Street from Pine Street to Perry Street
- (Rank 162)
- Washington Street from Crater Road to Burch Street (Rank 163)

Intersections

- Washington Street at Adams Street (Rank 45)
- Bank Road at Crater Road (Rank 80)
- Wythe Street at Crater Road (Rank 129)
- Washington Street at Crater Road (Rank 145)
- Wythe Street at Jefferson Street (Rank 191)

PROJECT STUDY AREA HIGH CRASH LOCATIONS



PSI Location Segment / Rank ##
PSI Location Intersection / Rank ##

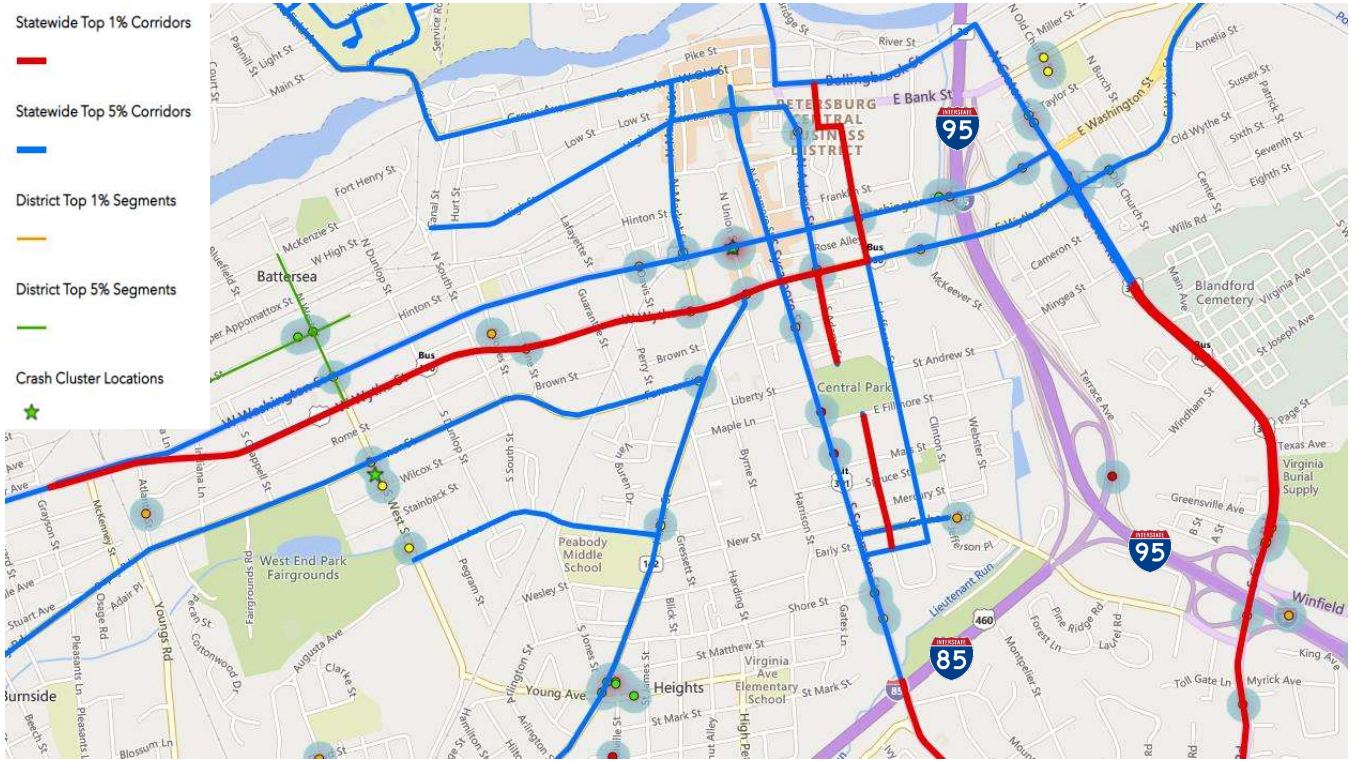
Segments

- Crater Road south of I-95 (Rank 65)
- Crater Road north of I-95 (Rank 103)
- Northbound I-85 to northbound I-95 on-ramp (Rank 136)
- Northbound I-95 to southbound I-85 on-ramp (Rank 165)

Intersections

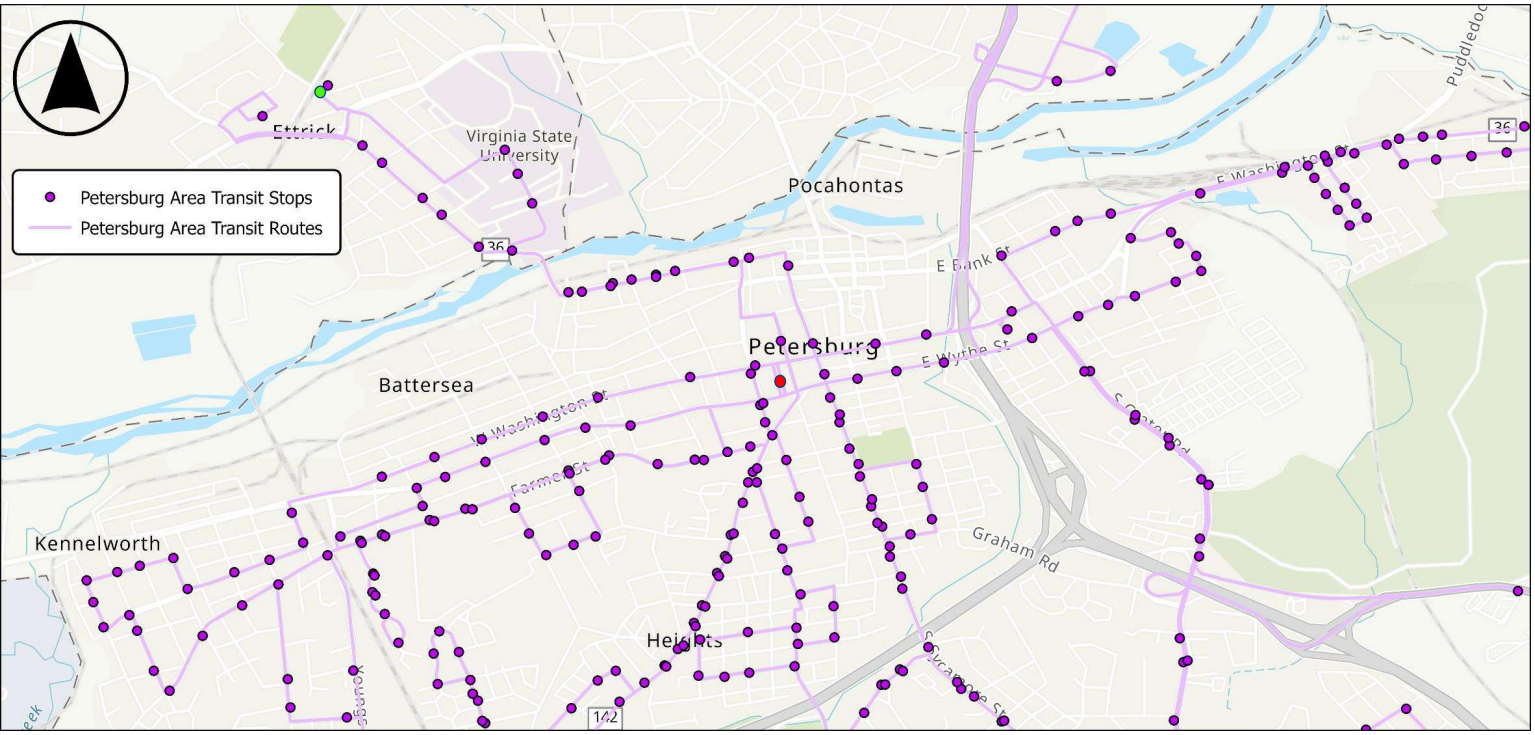
- Crater Road at Graham Road (Rank 39)

PROJECT STUDY AREA AND STUDY IDENTIFICATION BACKGROUND



- Virginia's Pedestrian Safety Action Plan (PSAP) identifies corridors with a history of pedestrian crashes
- Corridors are prioritized based on pedestrian crash history to identify future state pedestrian safety initiatives
- Crater Road, Washington Street, and Wythe Street fall within the statewide top 1% or 5% corridors

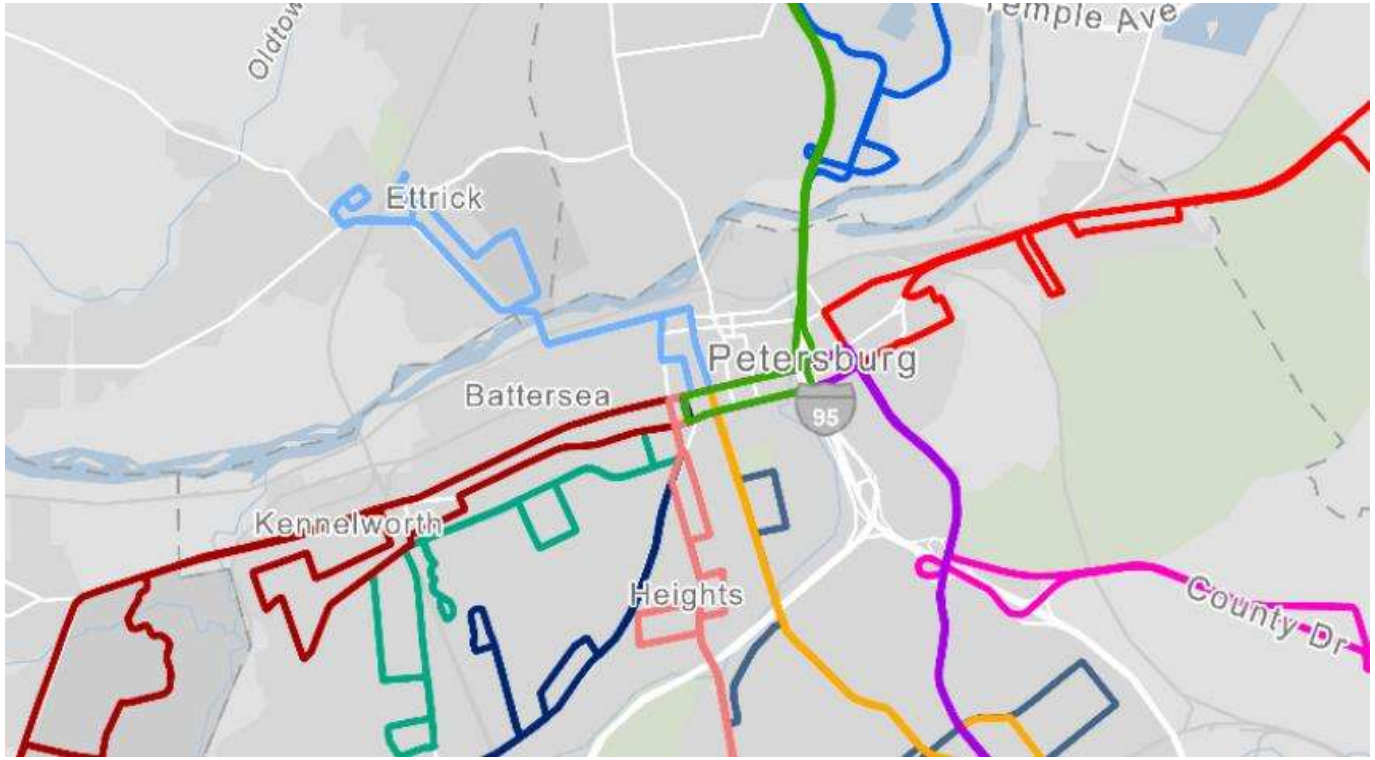
TRANSIT STOP LOCATIONS



Transit Routes and Headways

- Washington Street – 60 Minutes
- Blandford/Hopewell – 60 Minutes
- 460 County Drive – 60 Minutes
- South Park Mall – 60 Minutes
- South Crater Road – 60 Minutes
- Freedom Express – 120-240 Minutes
- Virginia Avenue – 60 Minutes
- Halifax Street – 60 Minutes
- Walnut Hill – 60 Minutes
- Mall Plaza – 60 Minutes
- Ettrick-Virginia Street-Amtrak – 60 Minutes
- Lee Avenue – 60 Minutes
- Transit stop
- Greyhound Station
- Amtrak Station

TRANSIT ROUTE MAP



PAT Routes

- Blandford/Hopewell
- County Drive (460)
- Ettrick/VSU/Amtrak
- Freedom Express
- Halifax Street
- Lee Avenue
- Mall Plaza
- South Crater Road
- Southpark Mall
- Virginia Avenue
- Walnut Hill
- Washington Street

Previous Safety and Operational Improvements

- **I-95/I-85 Interchange Roadway Safety Assessment (Kimley-Horn, 2013)**
  - Recommended improvements to mitigate current safety issues and risks
  - Identified potential long-term solutions and the need for continued study
- **I-95/I-85 Interchange Feasibility Study (Kittelson, 2015)**
  - Assessed 3 potential safety and operational projects at I-95/I-85 interchange
    1. Northbound I-85 off-ramp to southbound I-95 weaving section
    2. Crater Road to northbound I-95 weaving Section
    3. Northbound I-95 Off-Ramp to southbound I-85 ramp radius and bridge clearance
- **Phasing opportunities were reviewed by Kimley-Horn in 2022 for each safety improvement to improve competitiveness for funding**

PRIORITY 1 – I-85 NB TO I-95 SB

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- **Project 1 – US 460 BUS to S. Crater Road Connector**

  - Construct new connector road from US 460 BUS to S. Crater Road
  - Remove SB I-95 C-D road off-ramp to Graham Road

- **Benefits**
- **Removes SB C-D road weave**

PRIORITY 1 – I-85 NB TO I-95 SB

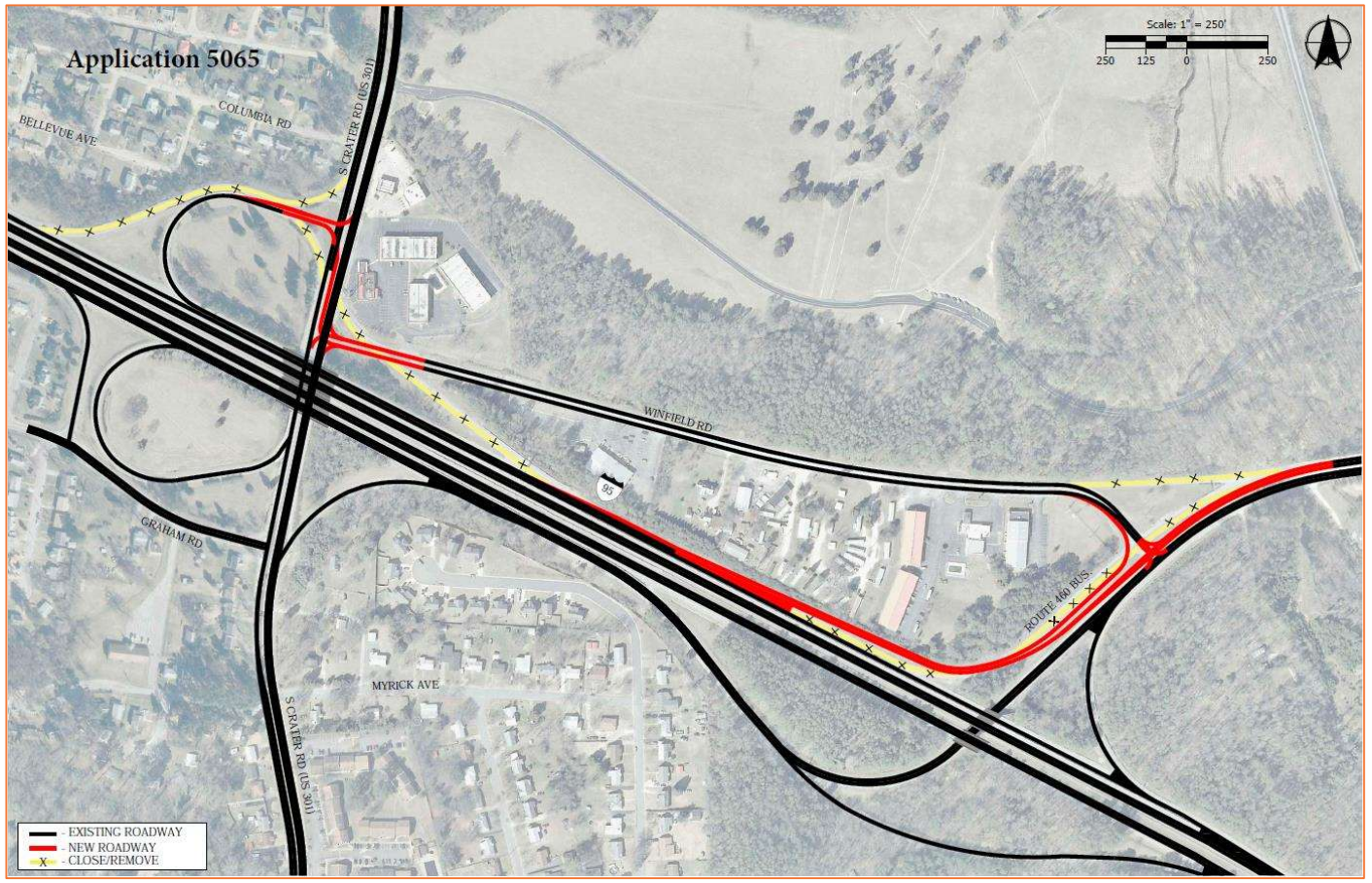
- **Project 2 – SB I-95 and S. Crater Road Improvements**

  - Remove SB S. Crater Road loop ramp to SB I-95 C-D road and construct new ramp terminal at S. Crater Road
  - Construct SB I-95 C-D merge to SB I-95 mainline
  - Construct PNR Lot

- **Benefits**

- **Removes SB S. Crater Road weave, transportation demand management**

PRIORITY 2 – I-95 AND SOUTH CRATER ROAD



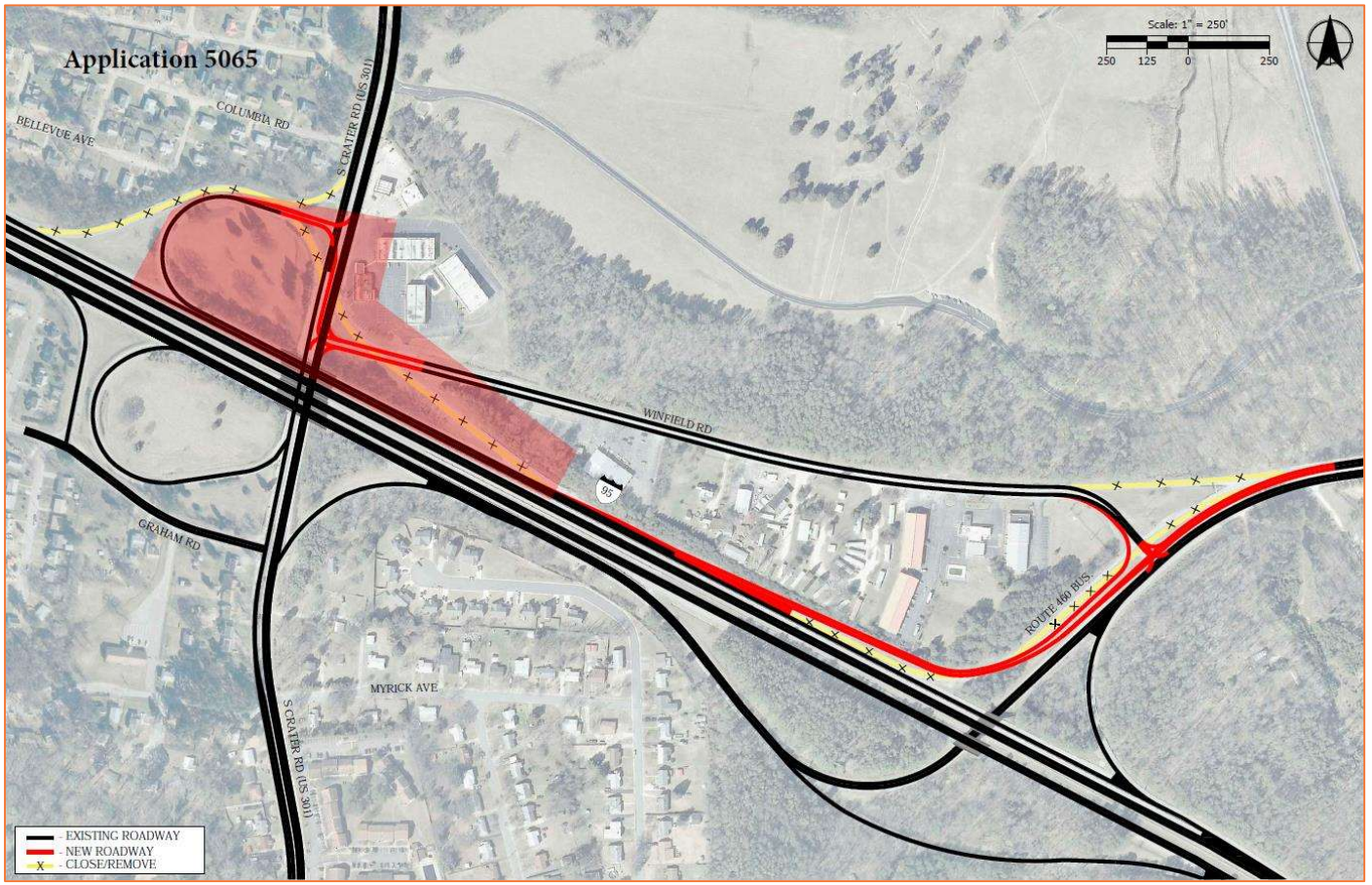
PRIORITY 2 – I-95 AND SOUTH CRATER ROAD

Project 1 – NB I-95 and S. Crater Road Improvements

- Construct new signal at NB I-95 C-D road off-ramp and S. Crater Road
- Remove NB I-95 C-D road off-ramp to NB S. Crater Road
- Construct WB Winfield Road approach

Benefits

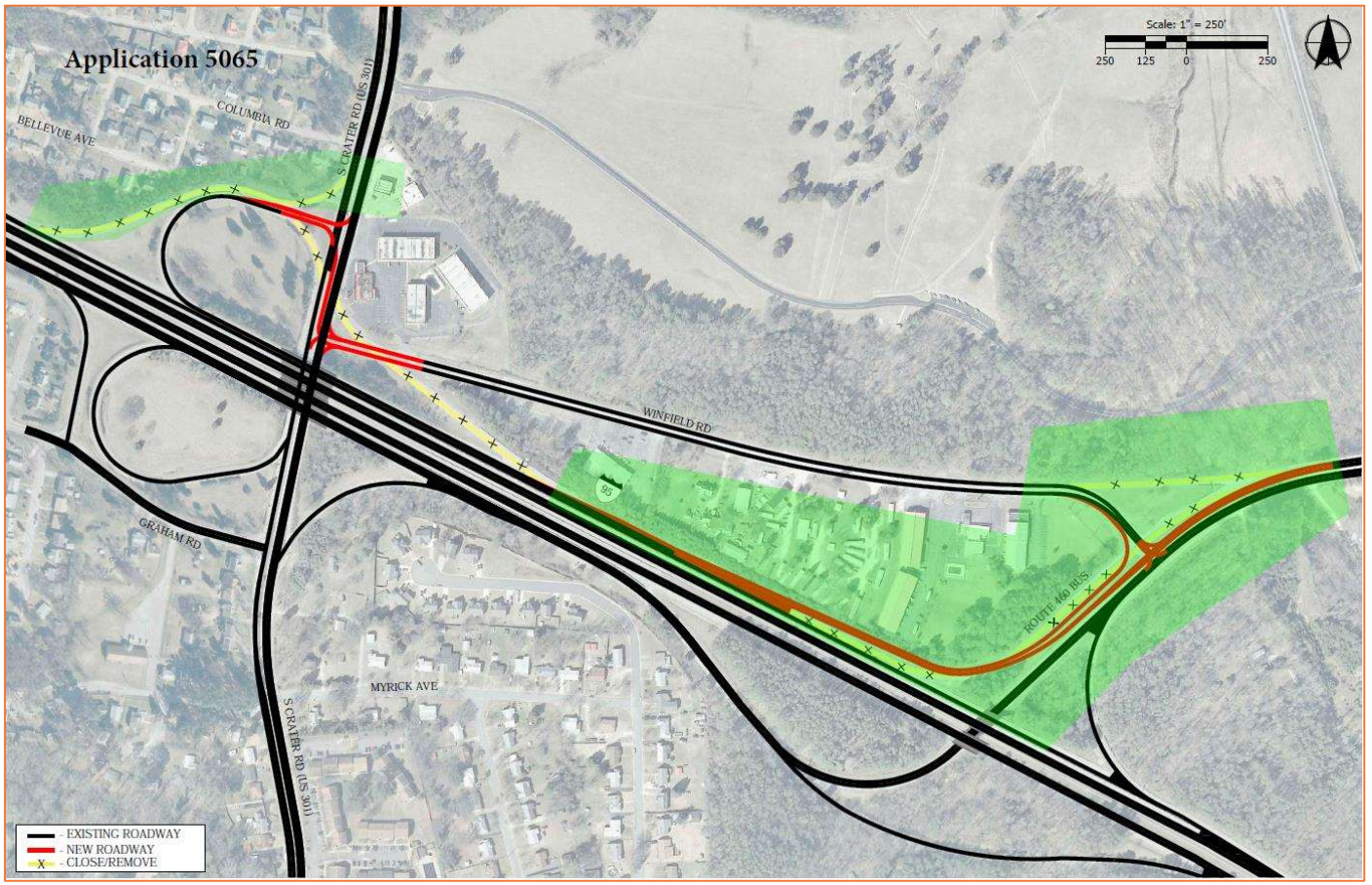
Removes weave between Route 460 BUS and S. Crater Road



PRIORITY 2 – I-95 AND SOUTH CRATER ROAD

Project 2 – NB I-95 and US 460 BUS/Winfield Road

- Construct southern portion of project at US 460 BUS
- Removed S. Crater Road on-ramp to NB I-95 C-D road



Benefits

Removes NB weave to SB I-85

PRIORITY 3 – I-95 NB TO I-85 SB FLYOVER

PRIORITY 3 – I-95 NB TO I-85 SB FLYOVER

Project 1 – NB I-95 to US 460 BUS Deceleration Lane

- Build new NB I-95 deceleration lane to US 460 BUS

Benefits

Provides deceleration lane for exiting vehicles

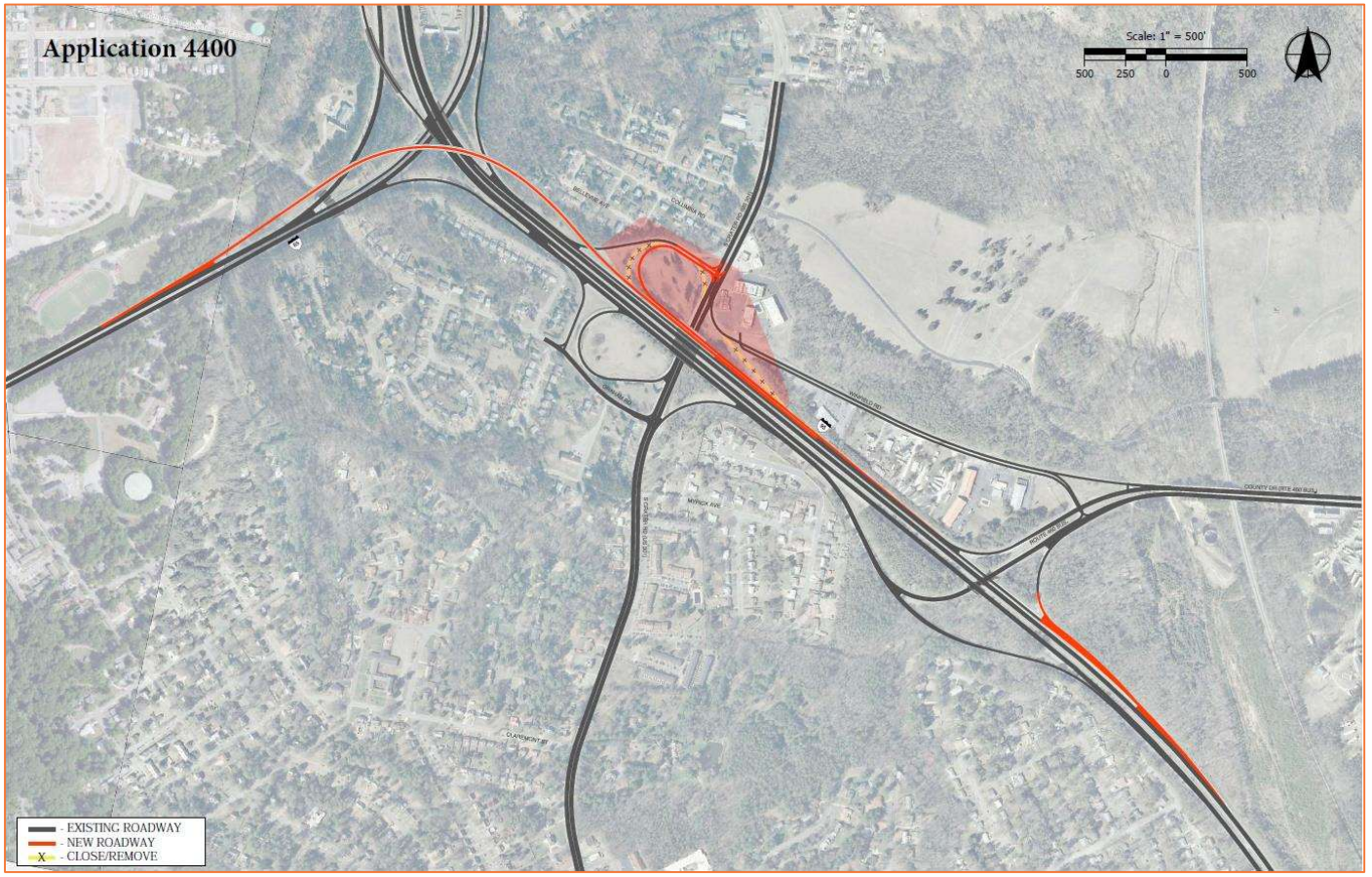
PRIORITY 3 – I-95 NB TO I-85 SB FLYOVER

Project 2 – NB I-95 and S. Crater Road Improvements

- Realign NB I-95 C-D road off-ramp to SB S. Crater Road and construct new traffic signal at ramp terminal
- Remove NB I-95 C-D road off-ramp to NB S. Crater Road

Benefits

Extends weave between US 460 BUS and S. Crater Road



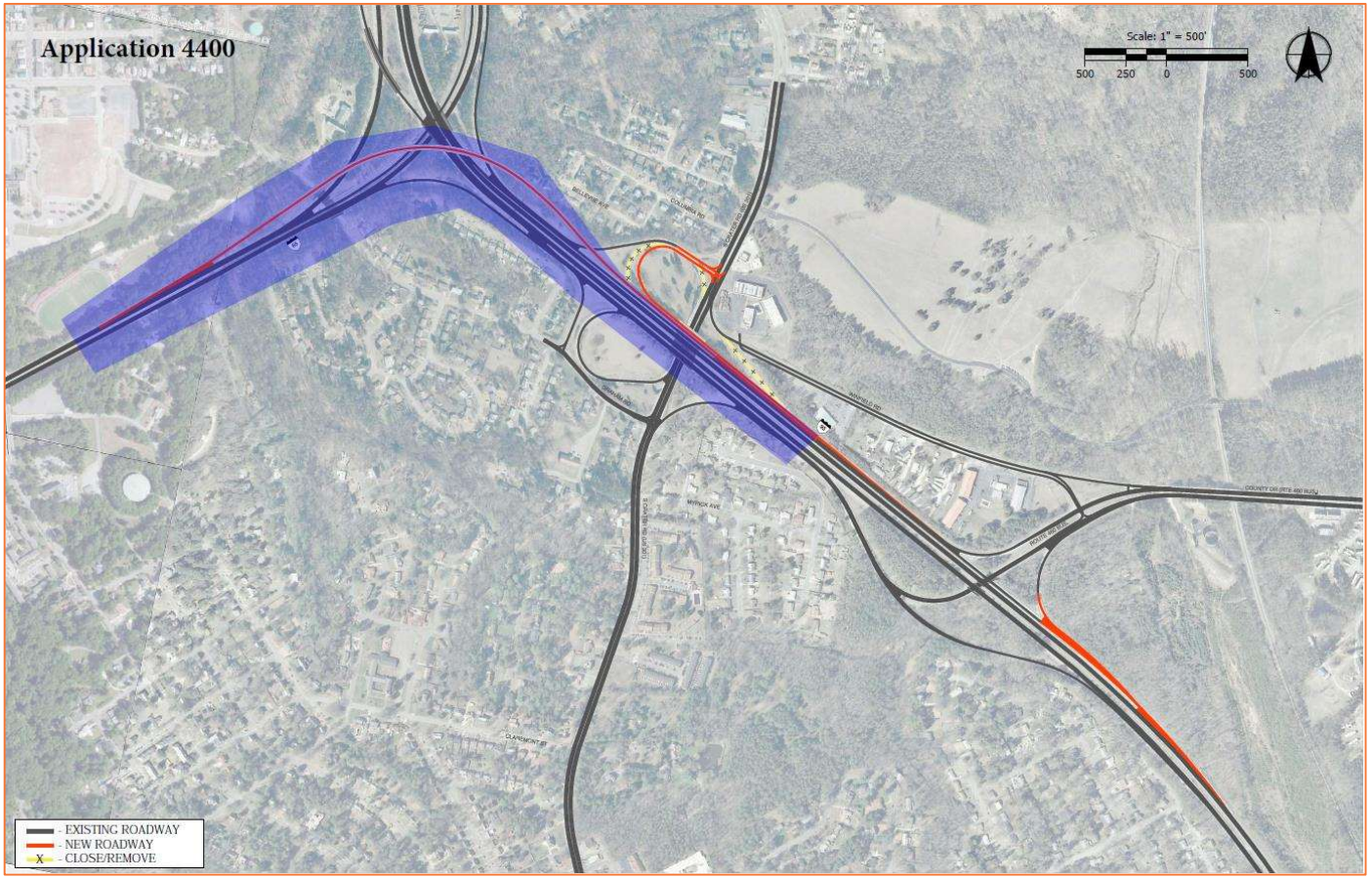
PRIORITY 3 – I-95 NB TO I-85 SB FLYOVER

Project 3 – NB I-95 to SB I-85 Flyover

- Construct flyover

Benefits

Improves NB I-95 weave



PHASING REVIEW CONCLUSIONS

- **Need to further vet constructability of phased improvements and refine concept sketches and cost estimates**
- **Further develop Priorities 2 and 3**
  - Consider combining Priorities 2 and 3 into one suite of improvements
  - Determine potential phased improvement packages if combined and vet constructability, concept sketches, and cost estimates

PETERSBURG DOWNTOWN MASTER PLAN – 2021 RFP

- **Dynamic, engaging, highly walkable open spaces and public realm**
  - Including street and pedestrian corridors
- **Ensure the downtown transportation network is functional and conductive to smart growth**
- **Provide incentives for the tourism district for developers**
- **Uplift and enhance the arts and entertainment in Downtown Petersburg**
- **Position Downtown Petersburg as an investment opportunity**
- **Provide wayfinding signage in Downtown Petersburg including enhanced gateway wayfinding signage at Exit 52**

Potential Future Developments

- **Petersburg was determined to be capable of supporting a Casino on Wagner Road**
  - 4-million square-foot casino resort
  - Located in the northwest quadrant of the I-95 at Wagner Road interchange
  - Will be put on the ballot in November for voting
- **Redevelopment in Prince George along Rives Road**
  - Worldwide Retail Solution Inc. 194,000 square-foot building located in SouthPoint Business Park
- **Any others?**

Scope of Work Overview

- *Data collection and field review*
- Crash analysis
- Existing conditions analysis
- Traffic forecasting ★
- No-Build conditions analysis
- Development and screening of improvement alternatives ★ ★
- Environmental justice
- Build conditions analysis ★
- Cost and schedule estimates
- STARS improvement summary sheets
- Reporting ★
- Public engagement

★ SWG Meeting

Anticipate in-person SWG meetings

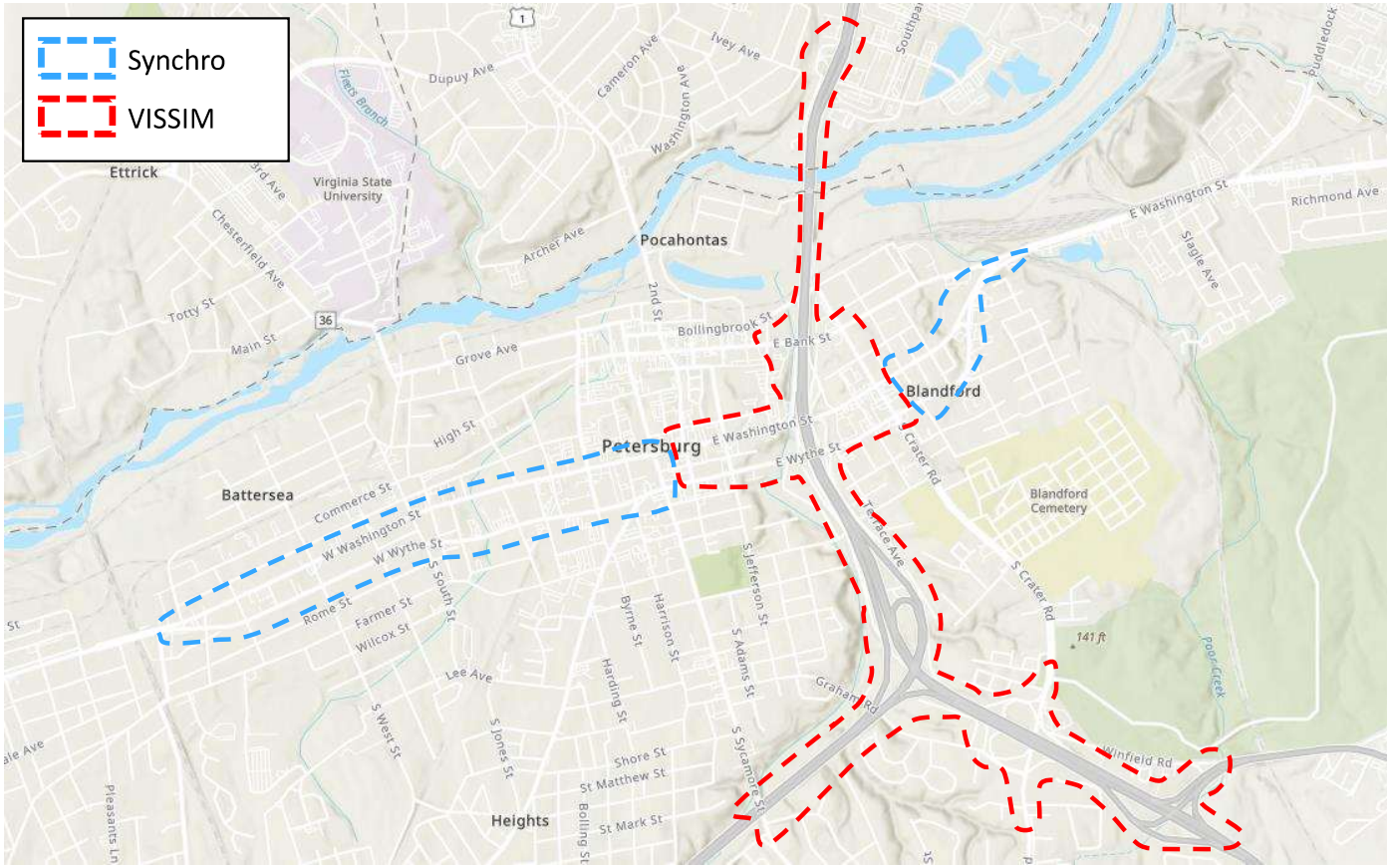
Additional Data Collection Efforts

- **Request Synchro/modeling files and signal timing plans**
- **Crash data (latest 5 years)**
- **Traffic forecasting**
  - SPS data
  - Historical data
  - Travel demand model data
- **As-built plans**
- **StreetLight data**
- **Transit stop data**

Operations Analysis Methodologies

- **Proposed approach**
  - Operational analysis of study area interstate segments, ramps, and arterial intersections
- **Analysis Periods**
  - AM and PM peak hours
  - Existing conditions – **2023**
  - Future conditions – **2045**

SOFTWARE TOOL ANALYSIS AREA

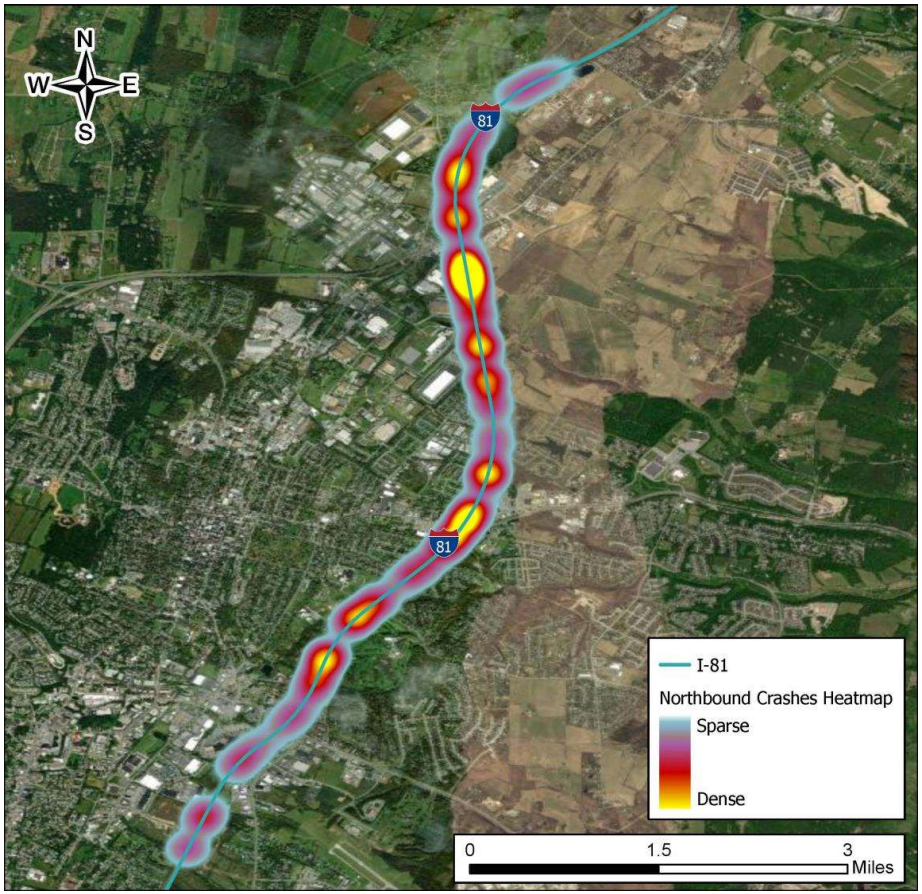


Analysis Measures of Effectiveness

Measure of Effectiveness	VJuST	Synchro	VISSIM
Volume-to-capacity (V/C) ratio	✓		
Control delay (and LOS)		✓	
95th percentile queue length		✓	
Density			✓
Speed			✓
Travel times			✓
Maximum queue			✓
Microsimulation delay			✓

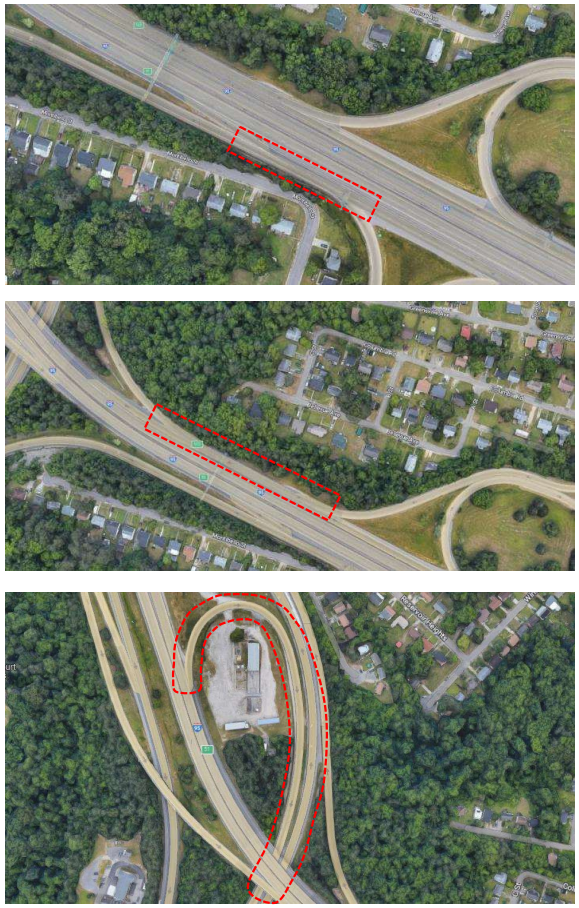
Safety Analysis Methodologies

- **Density heat maps**
- **Intersection crash summaries**
- **Crash modification factors (CMFs)**
- **Conflict point analysis**
- **ISATe will not be used**



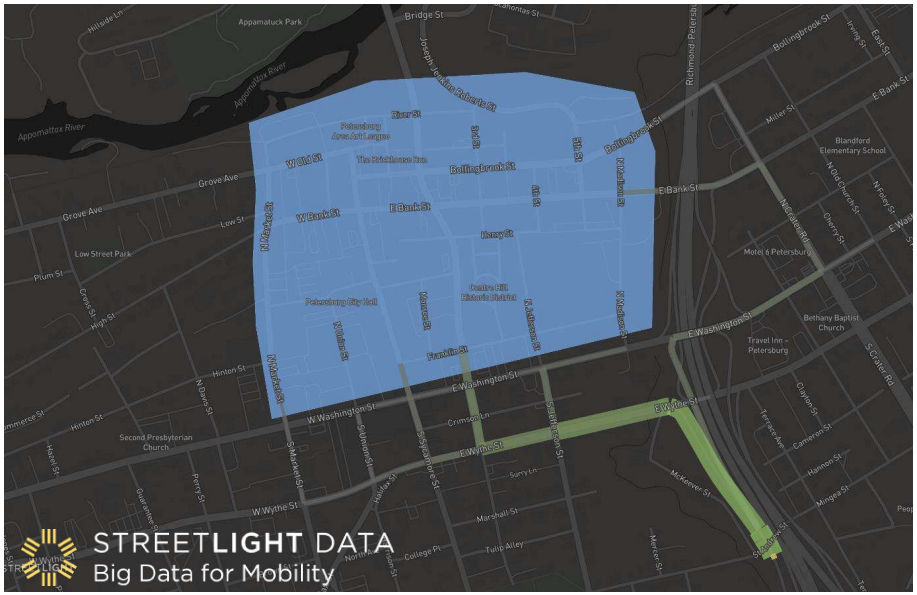
INTERCHANGE CONCEPT SCREENING PROCESS

- **Targeting improvements to address identified I-95/I-85 safety concerns**
  - Northbound I-85 off-ramp to southbound I-95 weaving section
  - Crater Road to northbound I-95 weaving section
  - Northbound I-95 off-ramp to southbound I-85 ramp radius and bridge clearance
- **Interim screening models will be developed to test phased improvements, with the final model including the full suite of study area improvements**



WASHINGTON STREET AND WYTHE STREET TWO-WAY CONVERSION

- **Review feasibility of converting Washington Street and Wythe Streets to two-way**
- **I-95 at Washington Street/Wythe Street interchange will be evaluated to improve downtown access in conjunction with two-way conversion**
- **StreetLight data, Travel Demand Model (TDM), and turning movement counts (TMCs) will be used to determine traffic volumes and patterns to determine cross-section that serves all modes of traffic**
- **Up to three two-way conceptual cross sections will be developed, leading to the selection of one concept for conceptual design and cost estimating**

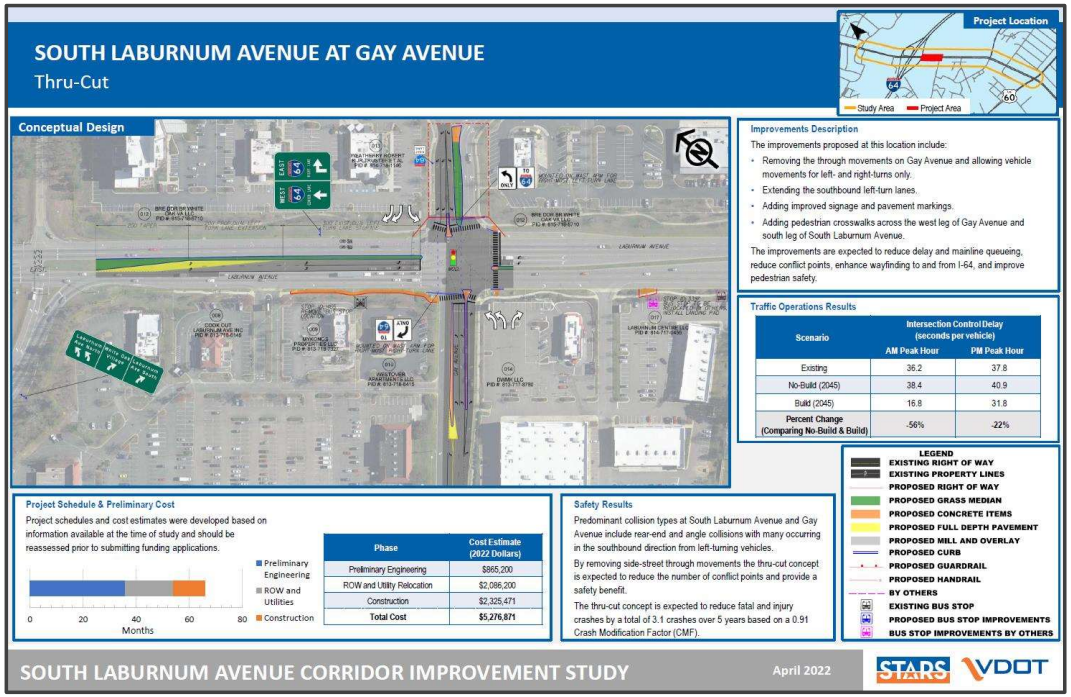


PUBLIC ENGAGEMENT AND OUTREACH

- **Public Outreach #1**
  - Existing needs identification and verification (spring 2023)
- **Public Outreach #2**
  - Concept development and screening feedback (summer 2023)
- **Options for public outreach**
  - MetroQuest survey
  - In-person public meetings
  - Combination

PROJECT DELIVERABLES

- **Final report**
  - Competitive interchange solutions
  - Feasibility and implementation plan for one-way to two-way conversion
  - Includes basis of design section
  - Prepares projects for advancement
- **STARS summary sheets**
  - Improvement description and sketch
  - Anticipated benefits
  - Estimated cost and schedule



PROJECT INFORMATION SHARING

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

- **Final deliverables will be uploaded to ProjectWise**

PROPOSED SCHEDULE

- **February** – kickoff meeting, framework document, scoping
  - Full SWG meeting
- **March-April** – existing conditions analysis and forecasting
  - Technical committee review
  - Full SWG meeting
- **April-June** – concept development and screening
  - Part 1 - I-95/I-85 interchange SWG meeting
  - Part 2 - Washington Street and Wythe Street SWG meeting
- **June-August** – build alternative selection
  - Full SWG meeting
- **August-September** – preferred alternative selection
- **September-November** – build conditions analysis, cost estimates, schedules, reporting
  - Technical committee review
  - Full SWG meeting

Next Steps

- **Finalize framework document**
- **Approve scope of work**
- **Continue data collection and field review**
- **Existing conditions analysis**
- **Next SWG meeting in mid-April**

STRATEGICALLY TARGETED AND AFFORDABLE ROADWAY SOLUTIONS

I-95/I-85 Interchange Study

Thank you.