

US 17BUS AND ROUTE 3 CORRIDOR IMPROVEMENT STUDY

Citizen Information Meeting

May 10, 2017



OVERVIEW

- **STARS Program Goals**
- **Project Background**
- **Scope of Work Overview**
- **Existing Conditions Overview**
- **Alternatives Analysis**
- **Recommendations**
- **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**

STARS Project Stakeholders



Develop Projects to Program in the
VDOT Six-Year Improvement Program

WHAT IS THE STARS PROGRAM?

Program to develop solutions to reduce crashes and congestion bottlenecks using a data-driven approach

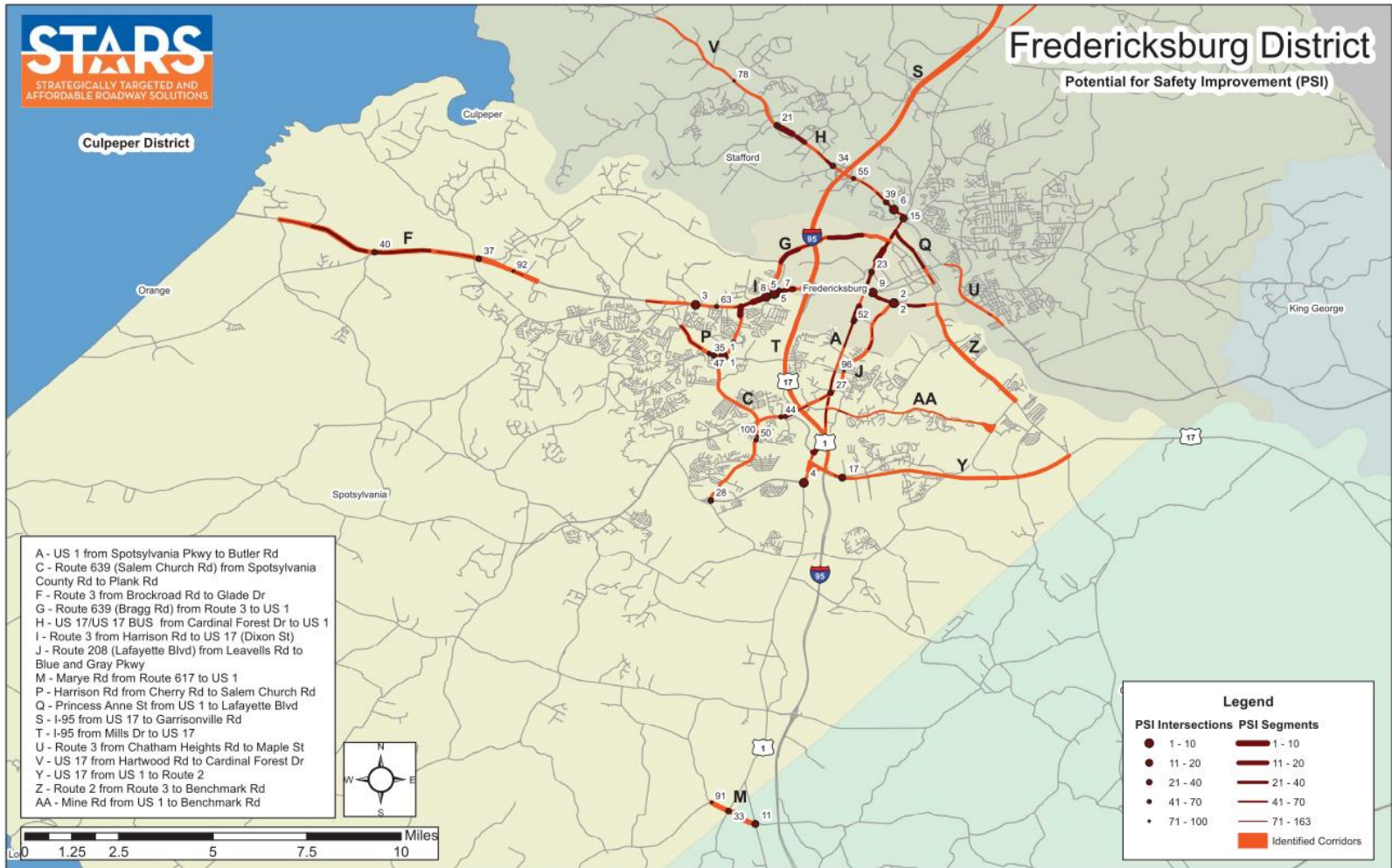
**Crash hotspots
Speed data
AADT data**



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

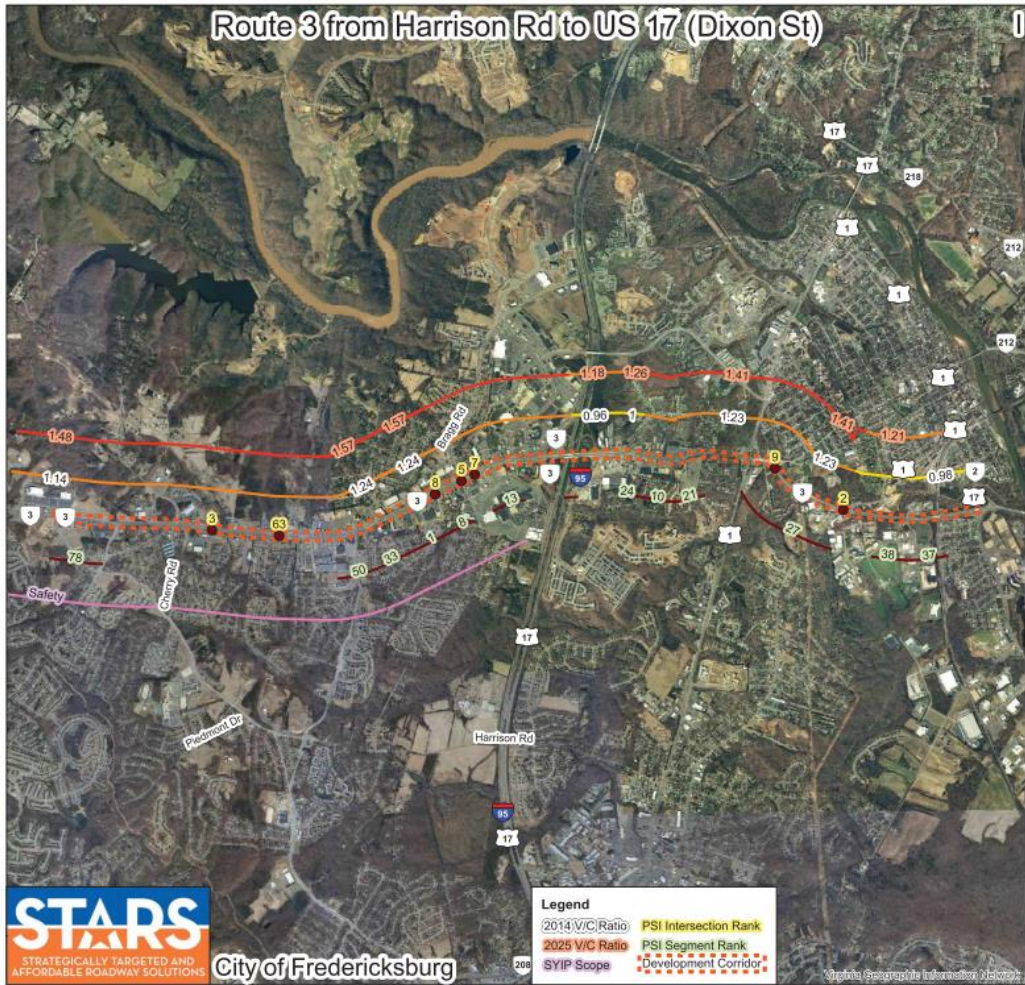
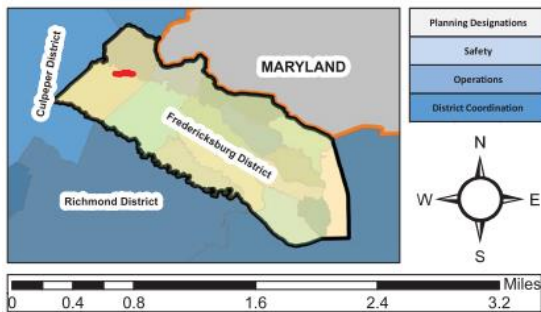
Overall goal of STARS is to develop solutions that can be programmed in the VDOT Six-Year Improvement Program (SYIP)

REVIEW POTENTIAL PROJECT CORRIDORS



REVIEW POTENTIAL PROJECT CORRIDORS

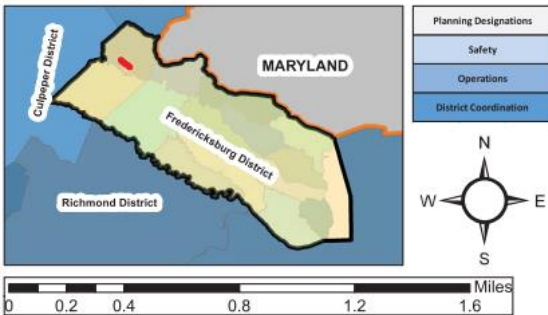
Data Driven Results	
Corridor Length (mi)	7.14
CoSS Corridor	No
Urban/ Rural	Urban
SYIP Project	Yes
2010-2013 Crashes	1713
Max PSI Seg Rank (FI)	1
Max PSI Int Rank (FI)	2
**Max V/C	1.24/1.57
Ratio (2014/2025)	
Max TTI Percentile (2014 PM Weekday)	99.6
Max PTI Percentile (2014 PM Weekday)	98.3
Max STI Percentile (2014 PM Weekday)	96.6
Notes	Includes PSI Segments: 1, 2, 7, 8, 10, 13, 21, 24, 25, 27, 29, 33, 37, 38, 48, 50, 78, 90, 122 Includes PSI Intersections: 2, 3, 5, 7, 8, 9, 63 SYIP Project (Design Underway): Safety (From Carl D. Silver Pkwy to Andora Dr) Average AADT west of I95 is 65642; Average AADT east of I95 is 40198
Additional Information Needed	
In Long-Range Plan?	
In State Highway Plan?	
NEPA Study	
Corridor Already Studied	
District Identified	
Problems	
District Administration Support	
Local / MPO Support	
Funding Identified	
Economic Development Impact	
Notes	



REVIEW POTENTIAL PROJECT CORRIDORS

Data Driven Results	
Corridor Length (mi)	4.49
Co55 Corridor	Yes
Urban/ Rural	Urban/Rural
SYIP Project	Yes
2010-2013 Crashes	659
Max PSI Seg Rank (F)	4
Max PSI Int Rank (F)	6
**Max V/C Ratio (2014/2025)	1.14/1.39
Max TTI Percentile (2014 PM Weekday)	97.1
Max PTI Percentile (2014 PM Weekday)	99.4
Max BTI Percentile (2014 PM Weekday)	99.4
Notes	Includes PSI Segments: 4, 18, 36, 41, 45, 60, 64, 75, 98, 108 Includes PSI Intersections: 6, 21, 34, 39, 55 SYIP Project (Construction Started): Reconstruction w/ Added Capacity (From 0.009 mi S of McLane Dr to 0.196 mi N of Stafford Lakes Pw)

Additional Information Needed	
In Long-Range Plan?	
In State Highway Plan?	
NEPA Study	
Corridor Already Studied	
District Identified Problems	
District Administration Support	
Local / MPO Support	
Funding Identified	
Economic Development Impact	
Notes	



STARS PROGRAMMED PROJECTS

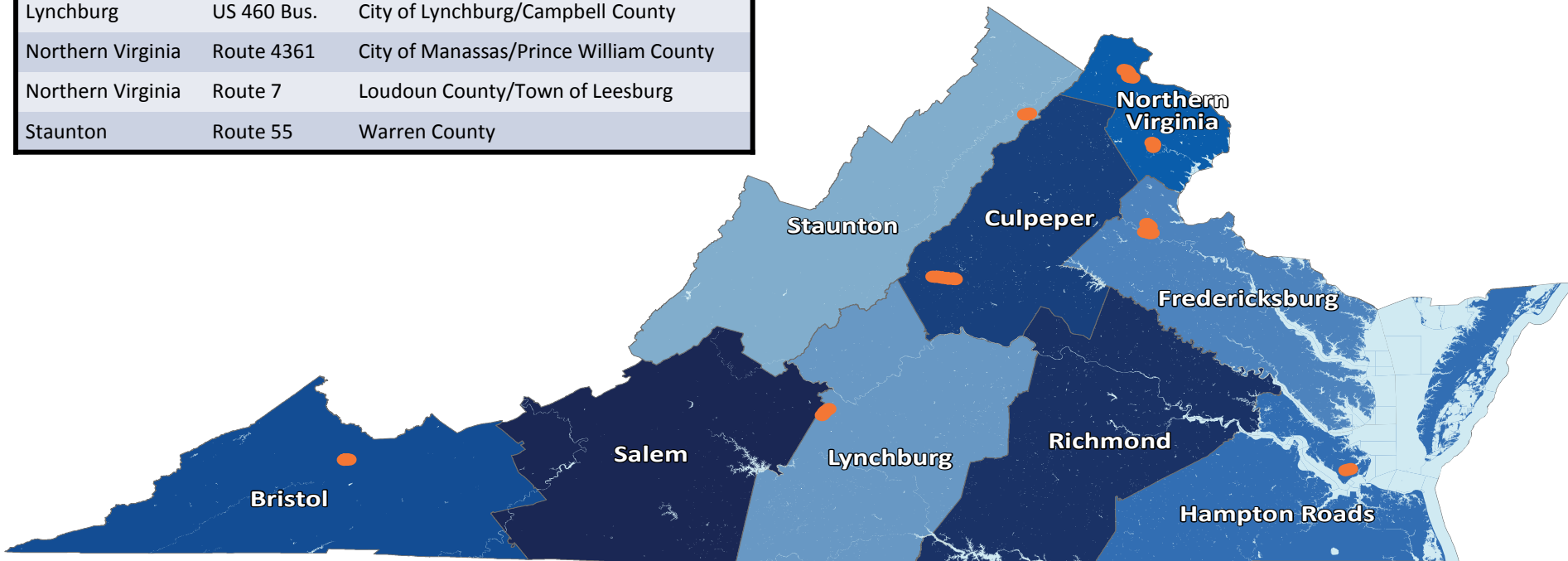


SELECTED STARS PROJECTS - 2016

District	Route	Jurisdiction
Bristol	US 460	Tazewell County
Culpeper	US 250	Albemarle County
Fredericksburg	Route 3	City of Fredericksburg
Fredericksburg	US 17 BUS	Stafford County
Hampton Roads	Route 258	City of Hampton
Lynchburg	US 460 Business	City of Lynchburg/Campbell County
Northern Virginia	Route 4361	City of Manassas/Prince William County
Northern Virginia	Route 7	Loudoun County/Town of Leesburg
Staunton	Route 55	Warren County

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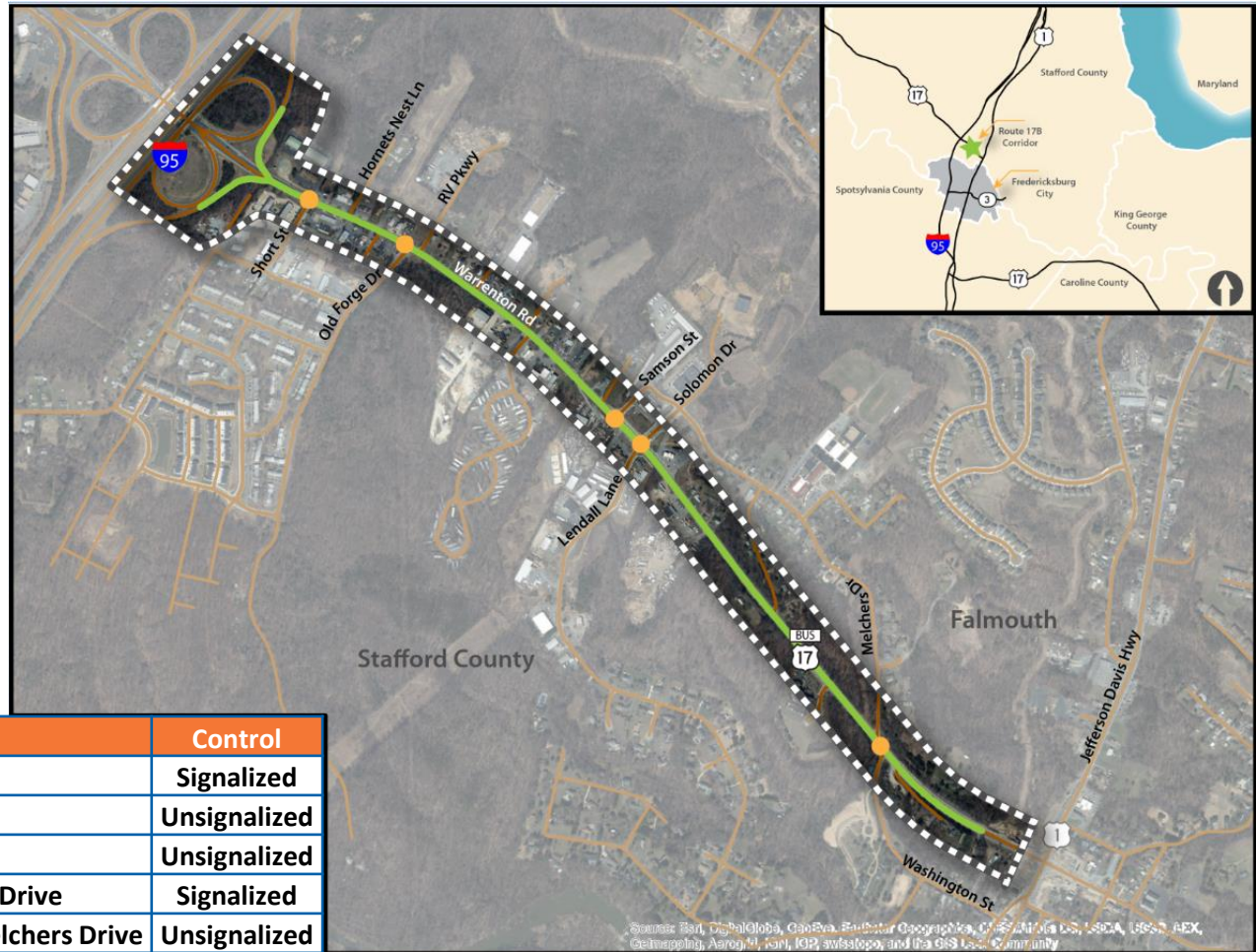
PROJECT BACKGROUND

■ Project Purpose

- Evaluate operational and safety conditions on:
 - US 17 BUS - East of I-95 to Washington Street
 - Route 3 – East of I-95 to Dixon Street (Rte 2)
- Develop potential projects to improve safety and operations in the study area
- Identify improvements that can be programmed into the VDOT Six-Year Improvement Program (SYIP)

PROJECT STUDY AREA

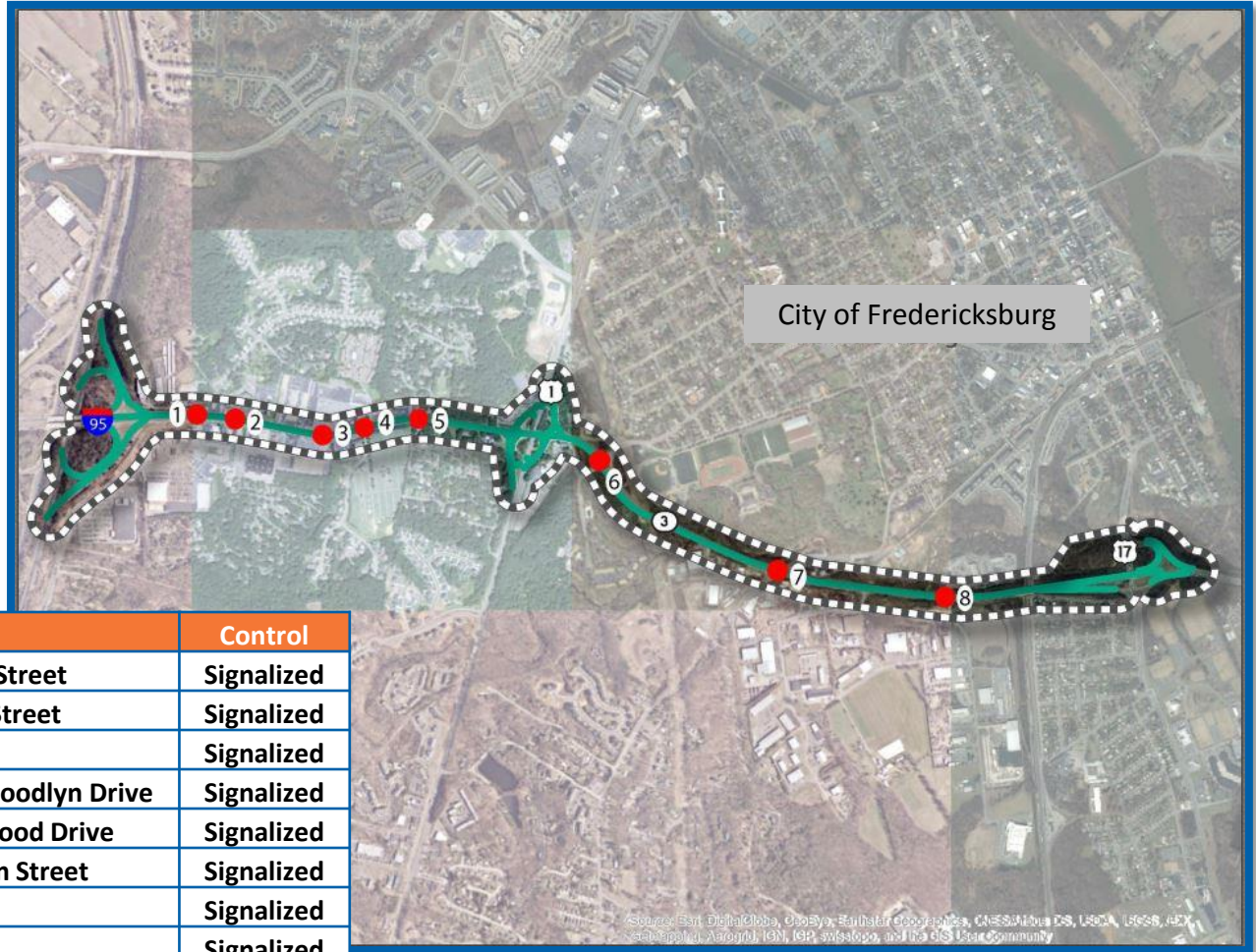
- US 17 BUS in Fredericksburg, VA
- 1.55 mile study corridor
- 5 study area intersections



Int #	Description	Control
1	Rte 17B at Short Street	Signalized
2	Rte 17B at Olde Forge Drive	Unsignalized
3	Rte 17B at Samson Street	Unsignalized
4	Rte 17B at Lendall Lane/Solomon Drive	Signalized
5	Rte 17B at Washington Street/Melchers Drive	Unsignalized

PROJECT STUDY AREA

- Route 3 in Fredericksburg
- 2.55-mile study corridor
- 8 study area intersections



Int #	Description	Control
1	Rte 3 at Gateway Blvd/Ramseur Street	Signalized
2	Rte 3 at Altoona Drive/Mahone Street	Signalized
3	Rte 3 at Shopping Center	Signalized
4	Rte 3 at Huntington Hills Lane/Woodlyn Drive	Signalized
5	Rte 3 at Westmont Drive/Westwood Drive	Signalized
6	Rte 3 at Greenbrier Drive/William Street	Signalized
7	Rte 3 at Lafayette Blvd	Signalized
8	Rte 3 at Belman Road	Signalized

STUDY PROCESS OVERVIEW

- **Data Collection and Field Review**
- **Crash Analysis**
- **Existing Conditions Operational Analysis**
- **Future No-Build Conditions Operational Analysis**
- **Development of Improvement Alternatives**
- **Future Build Conditions Operational Analysis**
- **Planning-Level Cost and Schedule Estimates**
- **Citizens Information Meeting**
- **Prioritization of Improvements**
- **Reporting**

EXISTING CONDITIONS OVERVIEW

■ **US 17 BUS**

- VDOT functional classification: Other Principal Arterial
- 4-lane divided and undivided roadway

■ **Route 3**

- VDOT functional classification: Other Principal Arterial
- 4-lane divided and undivided roadway

SCOPE OF WORK OVERVIEW

- **Operations Analysis**

- **Analysis Periods**

- AM and PM peak hours
- Existing Conditions – **2016**
- Future Conditions – **2030**

- **Measures of Effectiveness**

- Intersections: Control Delay (sec/veh), Queue Length (feet)
- Arterials: Travel Time (sec), Average Travel Speed (ATS) (mph), ATS as a % of BFFS

EXISTING CONDITIONS OVERVIEW – US 17 BUS



EXISTING CONDITIONS OVERVIEW – US 17 BUS

■ Traffic Volume Data

- Intersection counts (6) collected on 5/17/16 – 5/19/16
- 48-hour classification counts (2) collected on 5/17/16 - 5/18/16

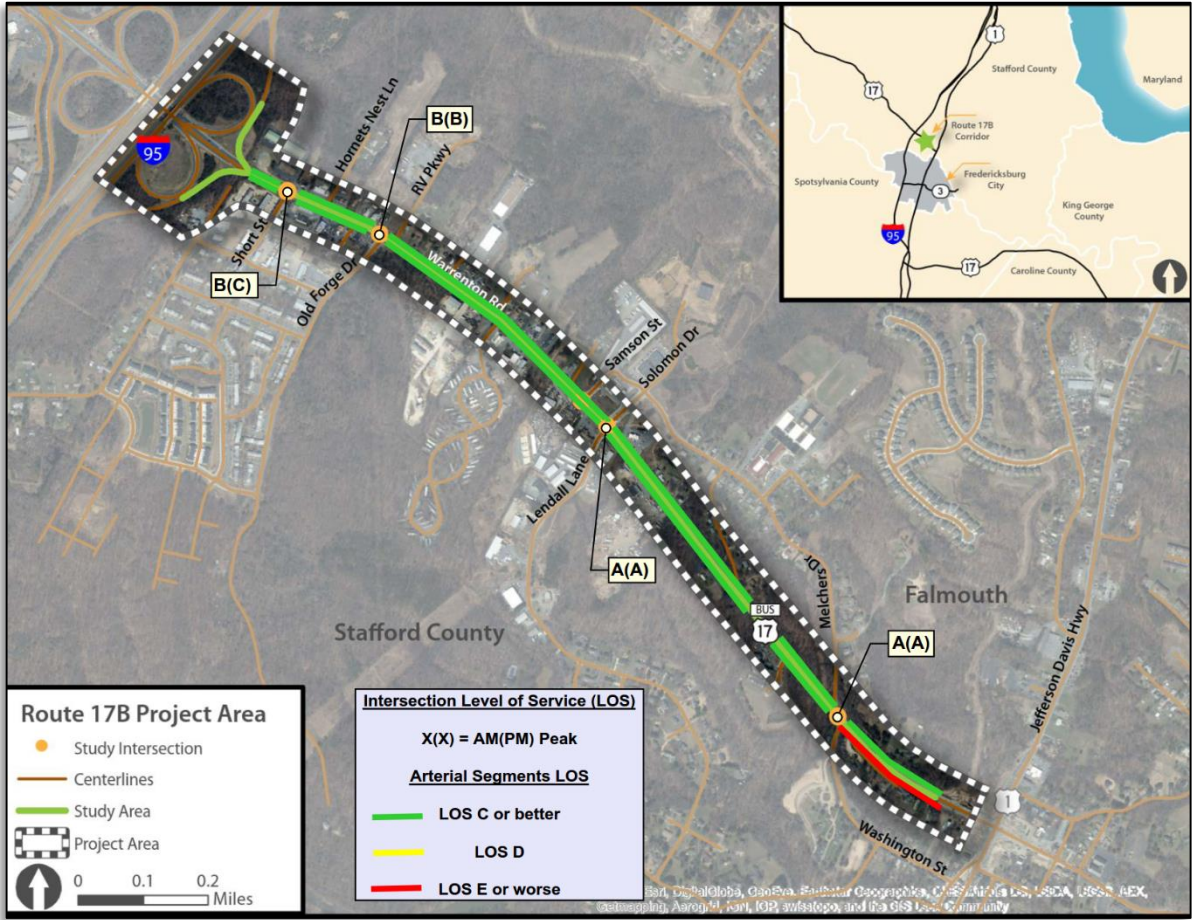
■ Peak Hours

- AM Peak Hour
 - 7:30 – 8:30AM
- PM Peak Hour
 - 4:45 – 5:45 PM

■ Average Daily Traffic (ADT)

- Based on 48-hour vehicle classification counts
 - Route 17 west of I-95 NB to EB Ramps: **36,131 vpd**
 - Route 17 west of Cambridge Street: **33,936 vpd**

EXISTING (2016) OPERATIONS RESULTS



EXISTING CONDITIONS OVERVIEW – ROUTE 3

■ Traffic Volume Data

- Intersection counts (8) collected on 4/25/16 – 4/26/16
- 7-day classification count (1) collected on 4/26/16 – 5/2/16
- 48-hour classification counts (3) collected on 4/25/16 – 4/27/16

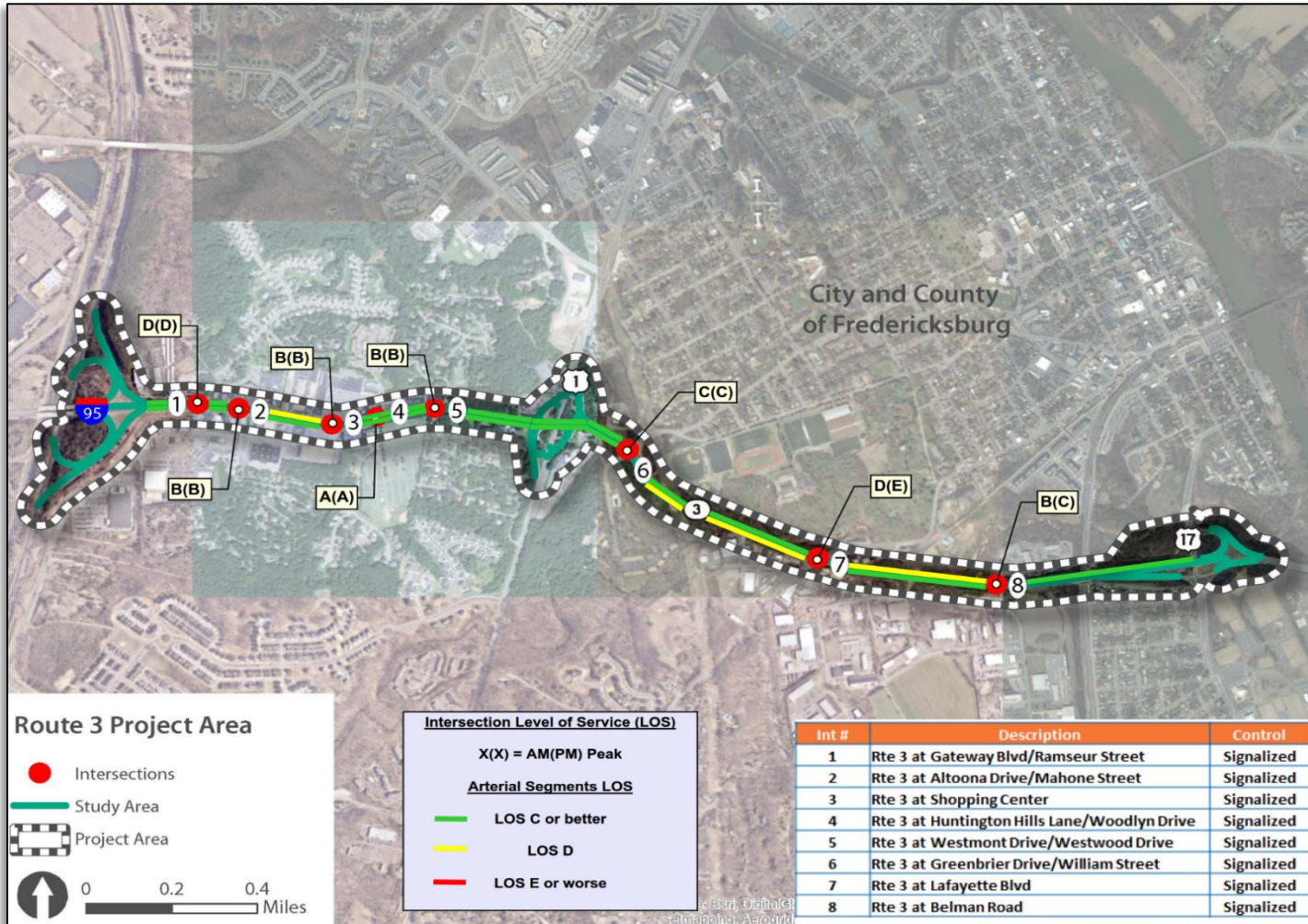
■ Peak Hours

- AM Peak Hour
 - 7:30 – 8:30 AM
- PM Peak Hour
 - 4:45 – 5:45 PM

■ Average Daily Traffic (ADT)

- Based on 48-hour vehicle classification counts
 - Route 3 east of Route 1: **46,340 vpd**

EXISTING (2016) OPERATIONS RESULTS



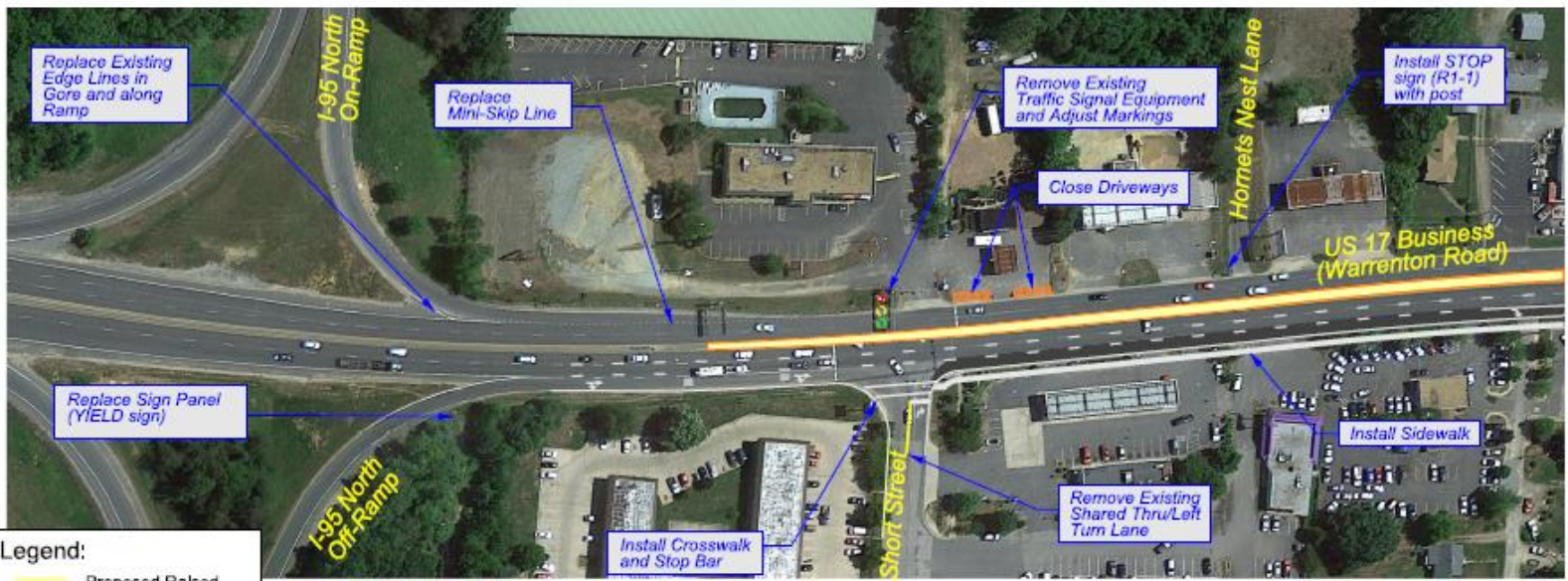
CRASH ANALYSIS

■ For Both Corridors

- Source: *VDOT Crashtools Database*
- Latest five years of crash data (2011-2016)
- US 17/Warrenton Road – **352 Crashes**
- SR 3/Plank Road/William Street/Blue and Gray Parkway – **936 Crashes**

RECOMMENDED IMPROVEMENTS

US 17 BUS

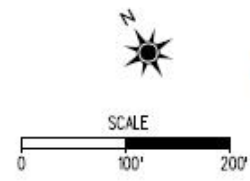


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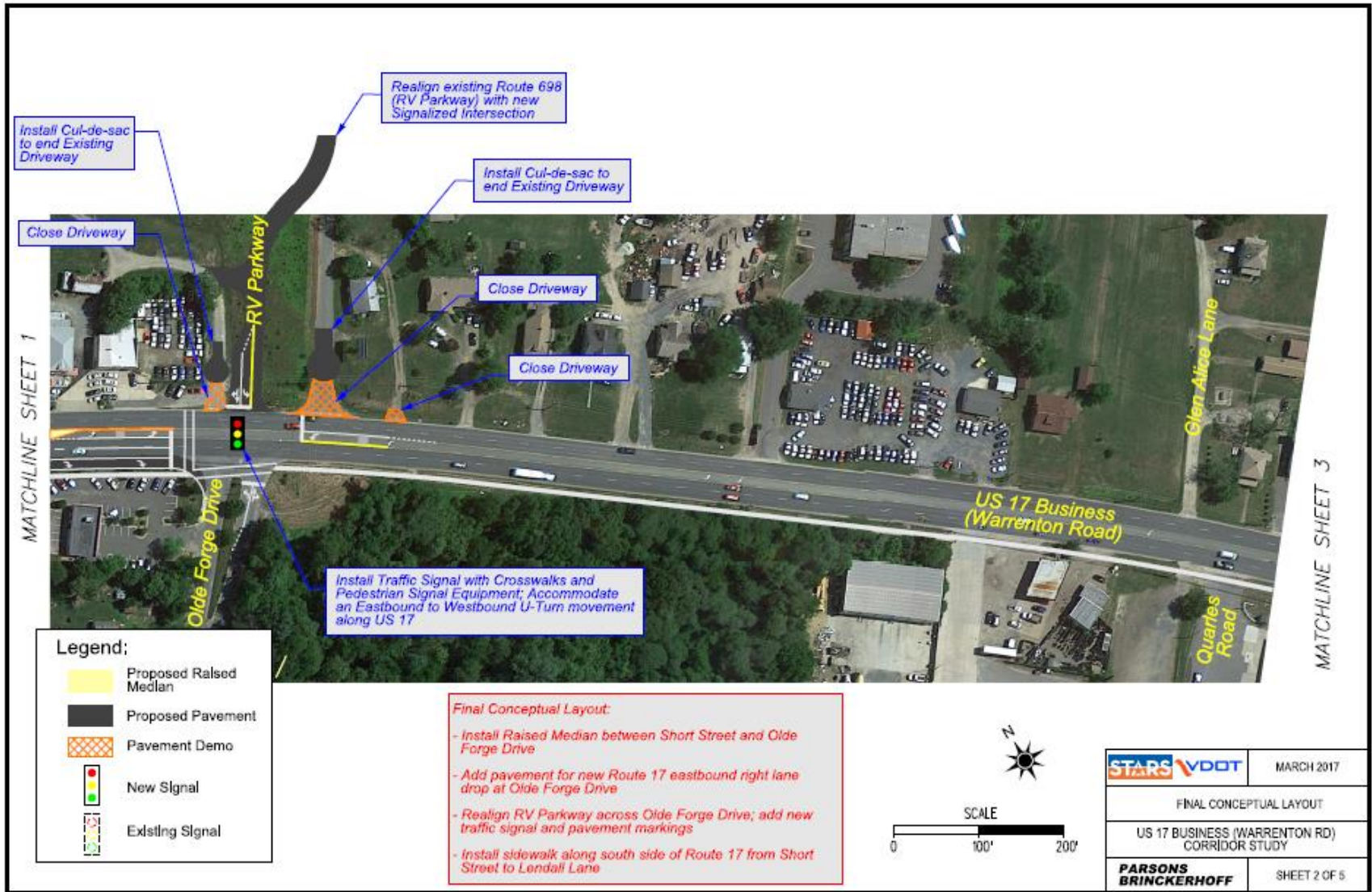
- Proposed Raised Median
- Proposed Pavement
- Pavement Demo
- New Signal
- Existing Signal

Final Conceptual Layout:

- Install Raised Median at the Short Street intersection to prohibit the Route 17 Eastbound and Westbound Left Turns and to allow the Short Street Northbound Right Turns only
- Install Raised Median between Short Street and Olde Forge Drive
- Add pavement for extending the I-95 Off-Ramp merge lane and Route 17 eastbound right lane drop at Olde Forge Drive
- Install sidewalk along south side of Route 17 from Short Street to Lendall Lane



STARS VDOT	MARCH 2017
FINAL CONCEPTUAL LAYOUT	
US 17 BUSINESS (WARRENTON RD) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 1 OF 5








MATCHLINE SHEET 2

MATCHLINE SHEET 4

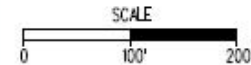


Legend:

-  Proposed Raised Median
-  Proposed Pavement
-  Pavement Demo
-  New Signal
-  Existing Signal

Final Conceptual Layout:

- Install sidewalk along south side of Route 17 from Olde Forge Drive to Lendall Lane
- Install Raised Median between Solomon Drive / Lendall Lane east to existing median
- Convert Solomon Drive southbound center lane to a shared Thru / Left and Adjust signal heads; Add pedestrian signal equipment and adjust pedestrian clearance timing



STARS VDOT	MARCH 2017
FINAL CONCEPTUAL LAYOUT	
US 17 BUSINESS (WARRENTON RD) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 3 OF 5

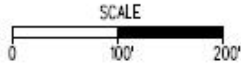
MATCHLINE SHEET 3

MATCHLINE SHEET 5



Final Conceptual Layout:

- Install Raised Median between Solomon Drive / Lendall Lane east to existing median, with a median break for the industrial site truck traffic
- Install Raised Median at Wyne Drive intersection
- Add right turn lane taper on Route 17 westbound at Wyne Drive



Install Stop Bar and STOP sign (R1-1) with Post

Replace and Relocate Damaged Route Designation Sign and Post

Install Right Turn Taper

Install Median Break for Industrial Site traffic

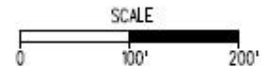
STARS VDOT	MARCH 2017
FINAL CONCEPTUAL LAYOUT	
US 17 BUSINESS (WARRENTON RD) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 4 OF 5

MATCHLINE SHEET 4



Legend:

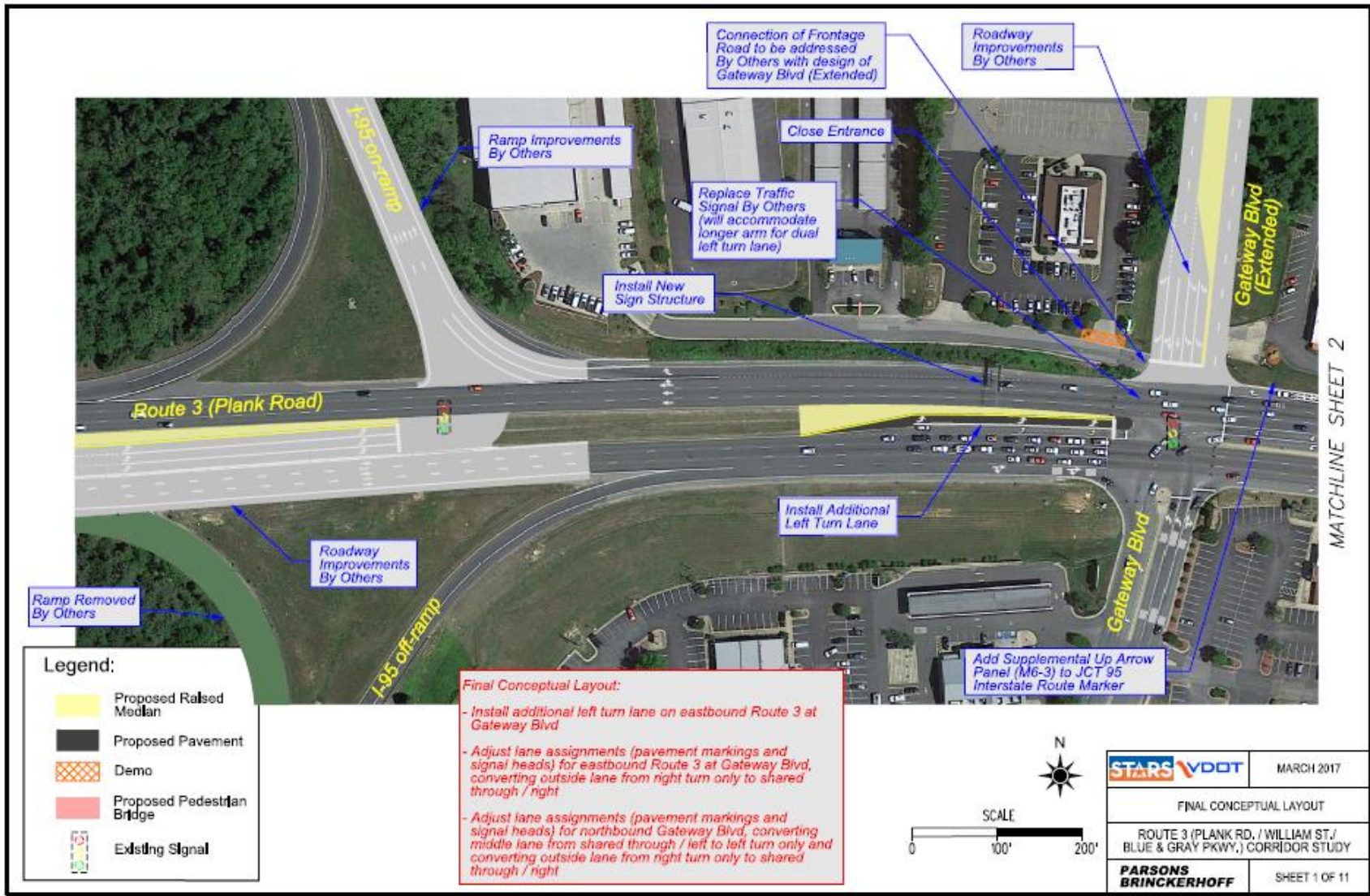
- Proposed Raised Median
- Proposed Pavement
- Pavement Demo
- New Signal
- Existing Signal

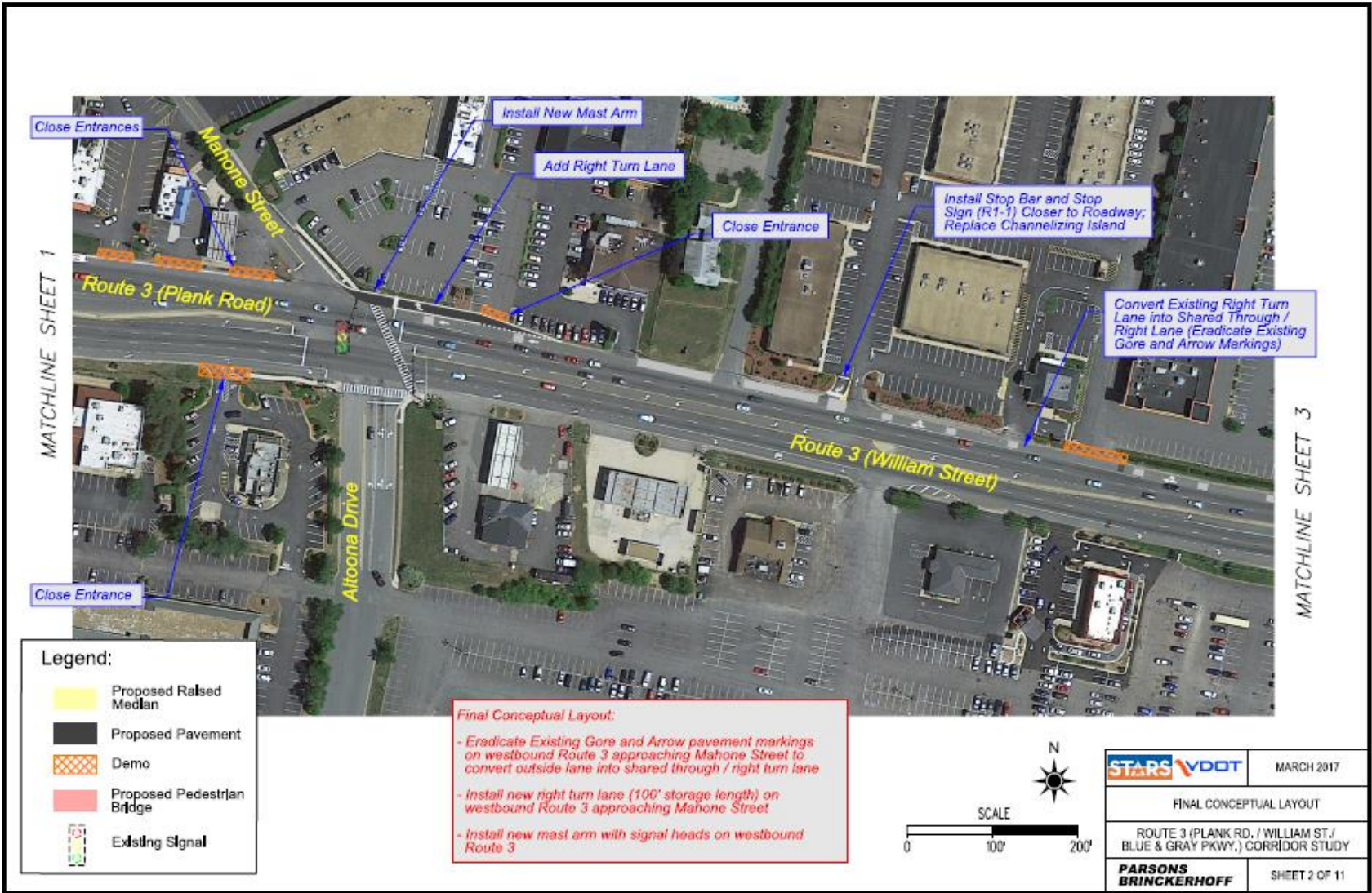


STARS VDOT	MARCH 2017
FINAL CONCEPTUAL LAYOUT	
US 17 BUSINESS (WARRENTON RD) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 5 OF 5

RECOMMENDED IMPROVEMENTS

Route 3





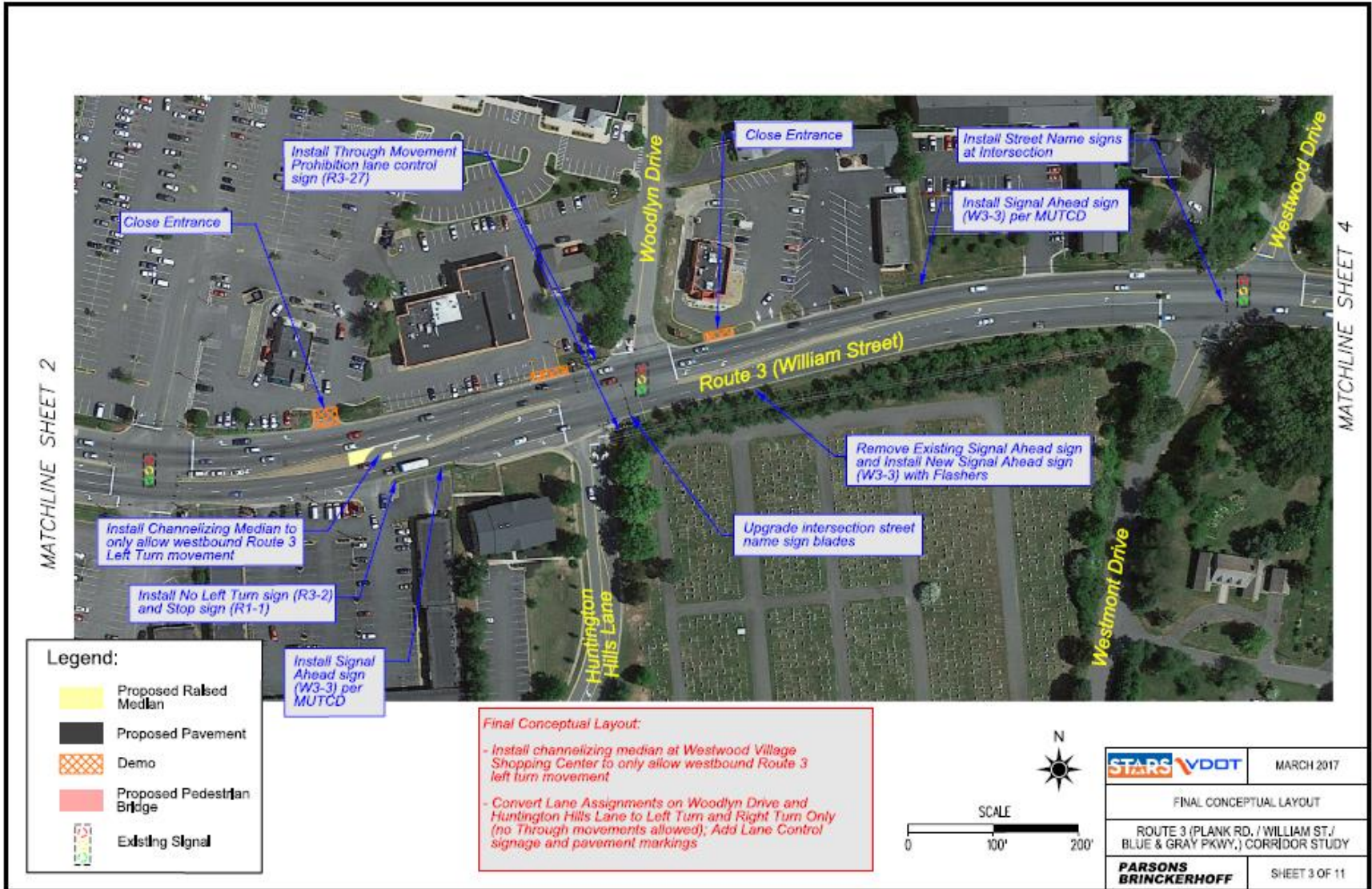
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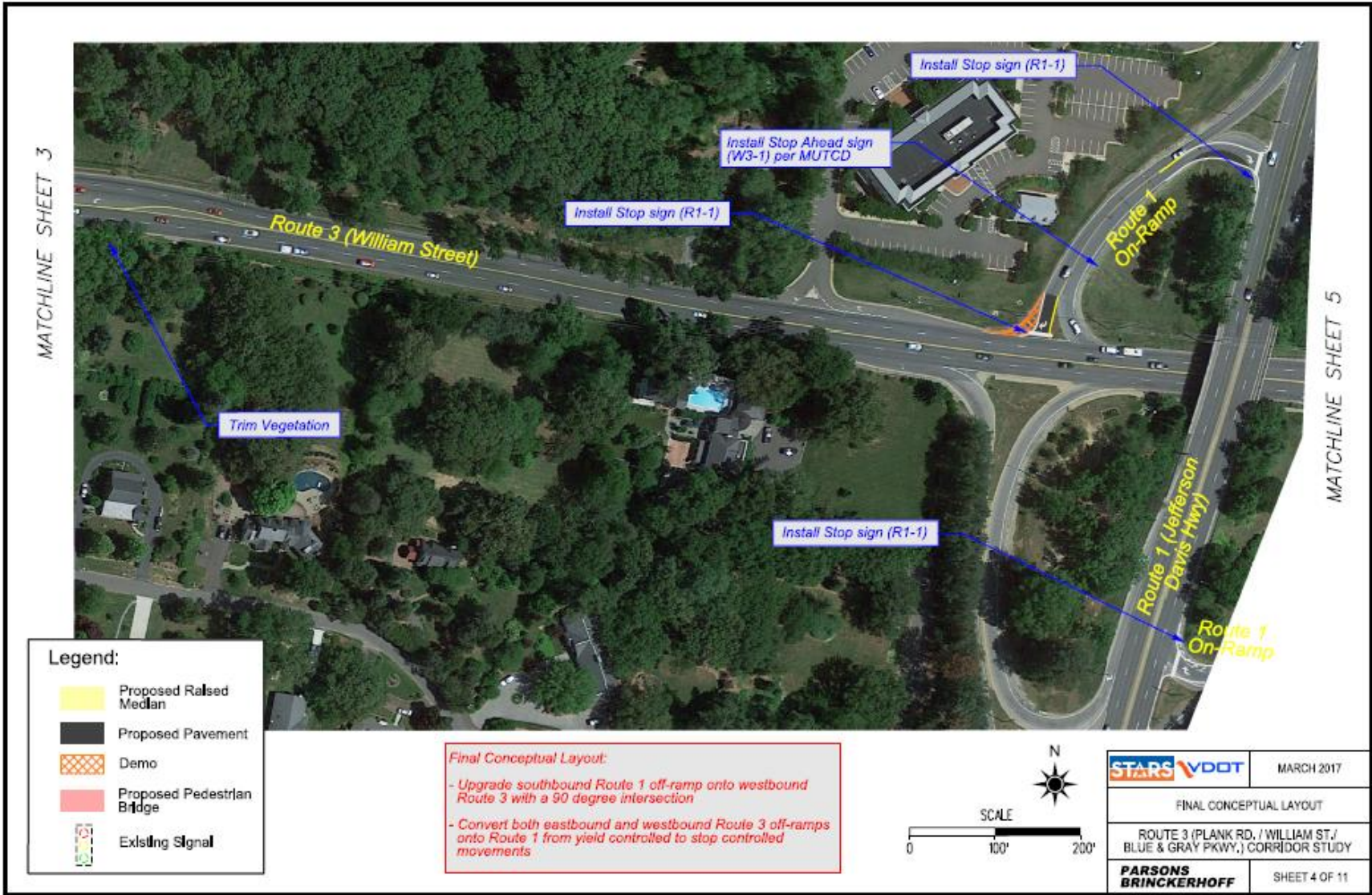
	Proposed Raised Median
	Proposed Pavement
	Demo
	Proposed Pedestrian Bridge
	Existing Signal

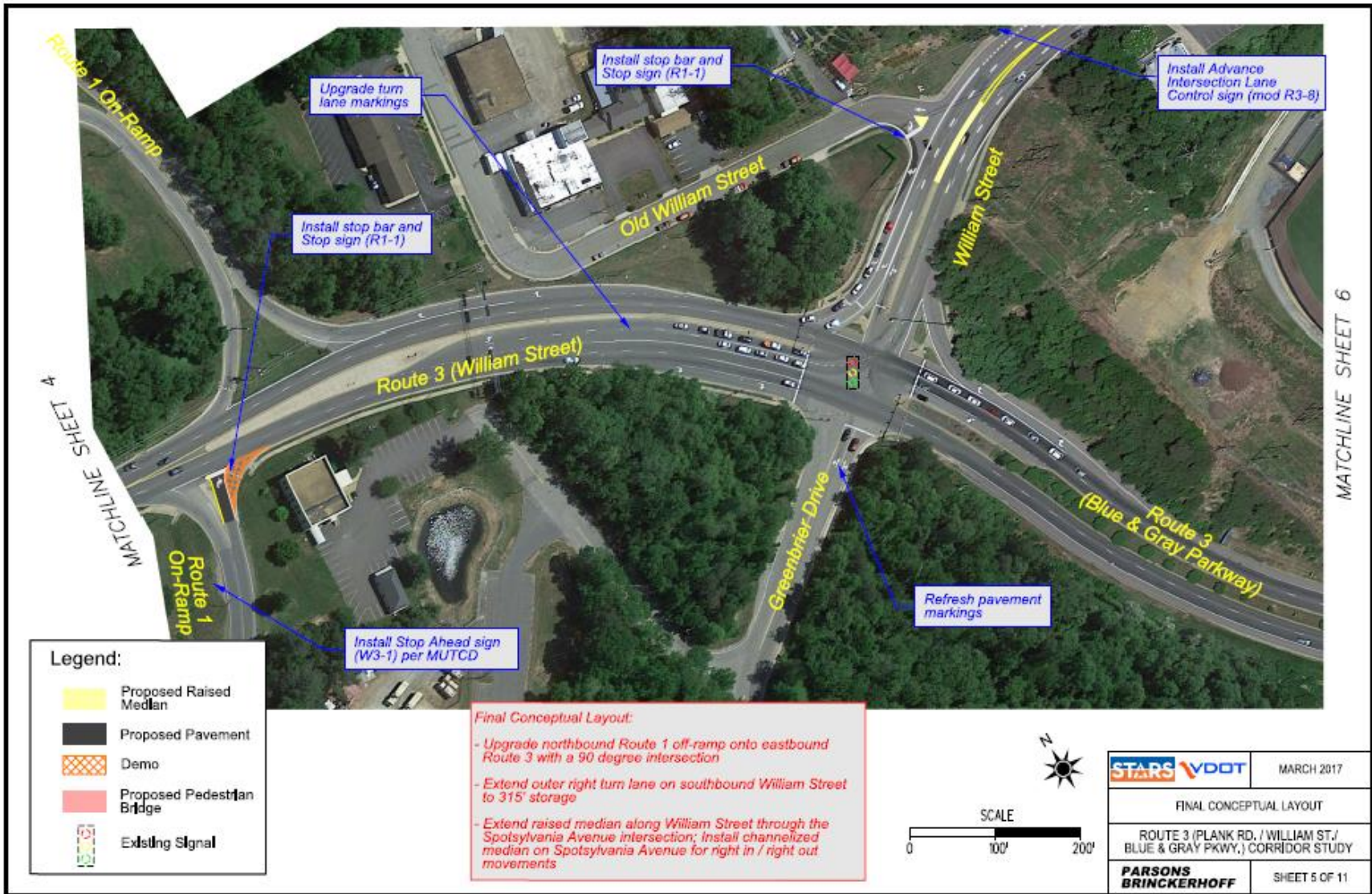
Final Conceptual Layout:

- Eradicate Existing Gore and Arrow pavement markings on westbound Route 3 approaching Mahone Street to convert outside lane into shared through / right turn lane
- install new right turn lane (100' storage length) on westbound Route 3 approaching Mahone Street
- install new mast arm with signal heads on westbound Route 3

	MARCH 2017
FINAL CONCEPTUAL LAYOUT	
ROUTE 3 (PLANK RD. / WILLIAM ST. / BLUE & GRAY PKWY.) CORR[DOR STUDY	
PARSONS BRINCKERHOFF	SHEET 2 OF 11









- Legend:**
- Proposed Raised Median
 - Proposed Pavement
 - Demo
 - Proposed Pedestrian Bridge
 - Existing Signal

STARS VDOT	MARCH 2017
FINAL CONCEPTUAL LAYOUT	
ROUTE 3 (PLANK RD. / WILLIAM ST. / BLUE & GRAY PKWY.) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 6 OF 11

Legend:

- Proposed Raised Median
- Proposed Pavement
- Demo
- Proposed Pedestrian Bridge
- Existing Signal

Remove Existing Crosswalk, Ramps and Pedestrian Signal Equipment at Intersection

Install Shared Use Path Outside Existing Guardrail

Install Lane Reduction arrows and Lane Ends sign (W4-2) per MUTCD

MATCHLINE SHEET 6

MATCHLINE SHEET 8

Install Shared Use Path

Remove Existing Path

Remove Existing Sidewalk, Ramps, and Crosswalk Markings

Remove Existing Yield Sign

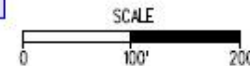
Install Right Turn Auxiliary Lane

Remove Existing Pedestrian Refuge Area

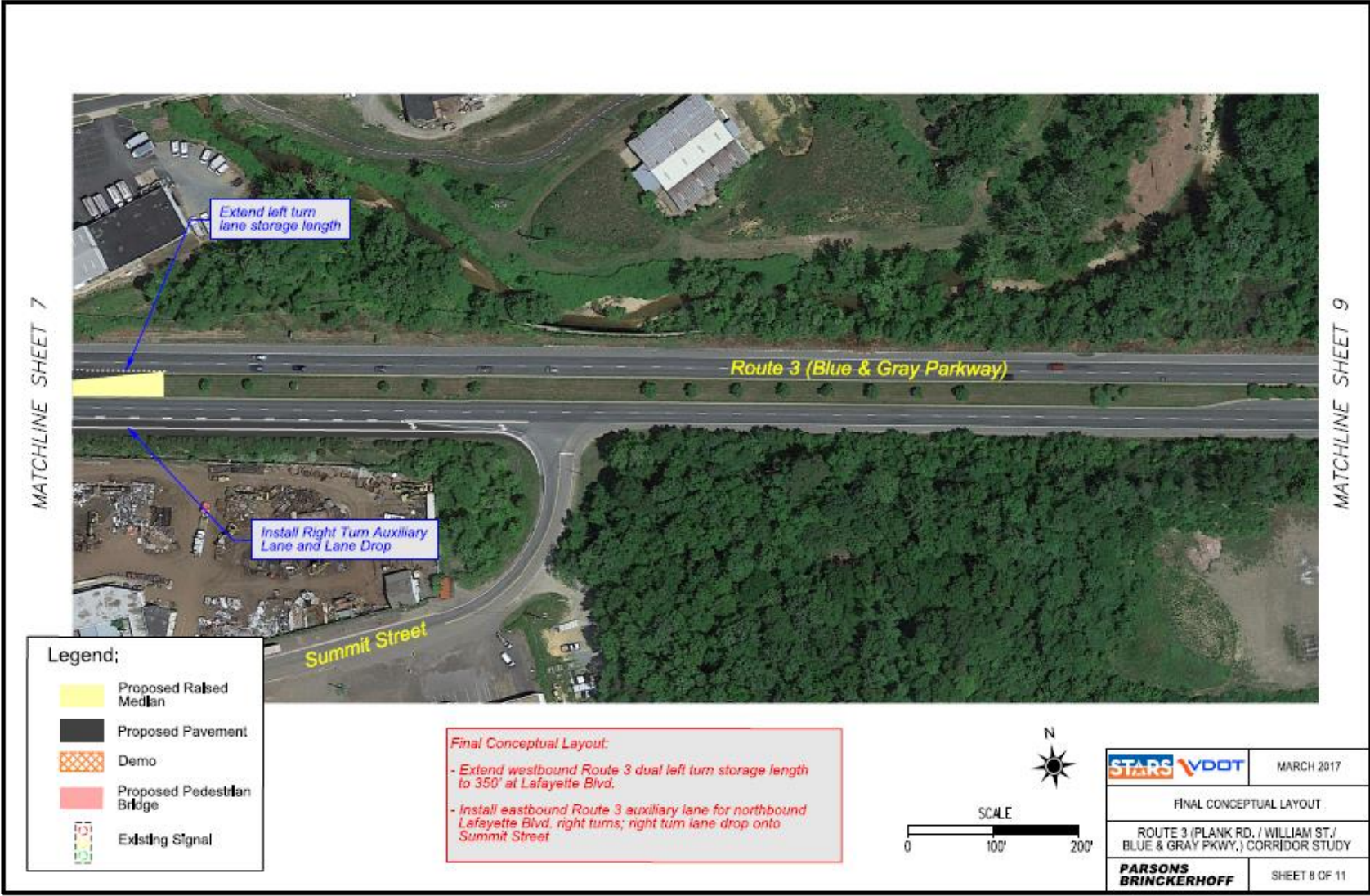
Alum Spring Road

Roadway Improvements by Others (Right Turn Lane from SB Lafayette Blvd. onto Alum Spring Rd., Median Work at Alum Spring Rd., Additional Lane on SB Lafayette Blvd.)

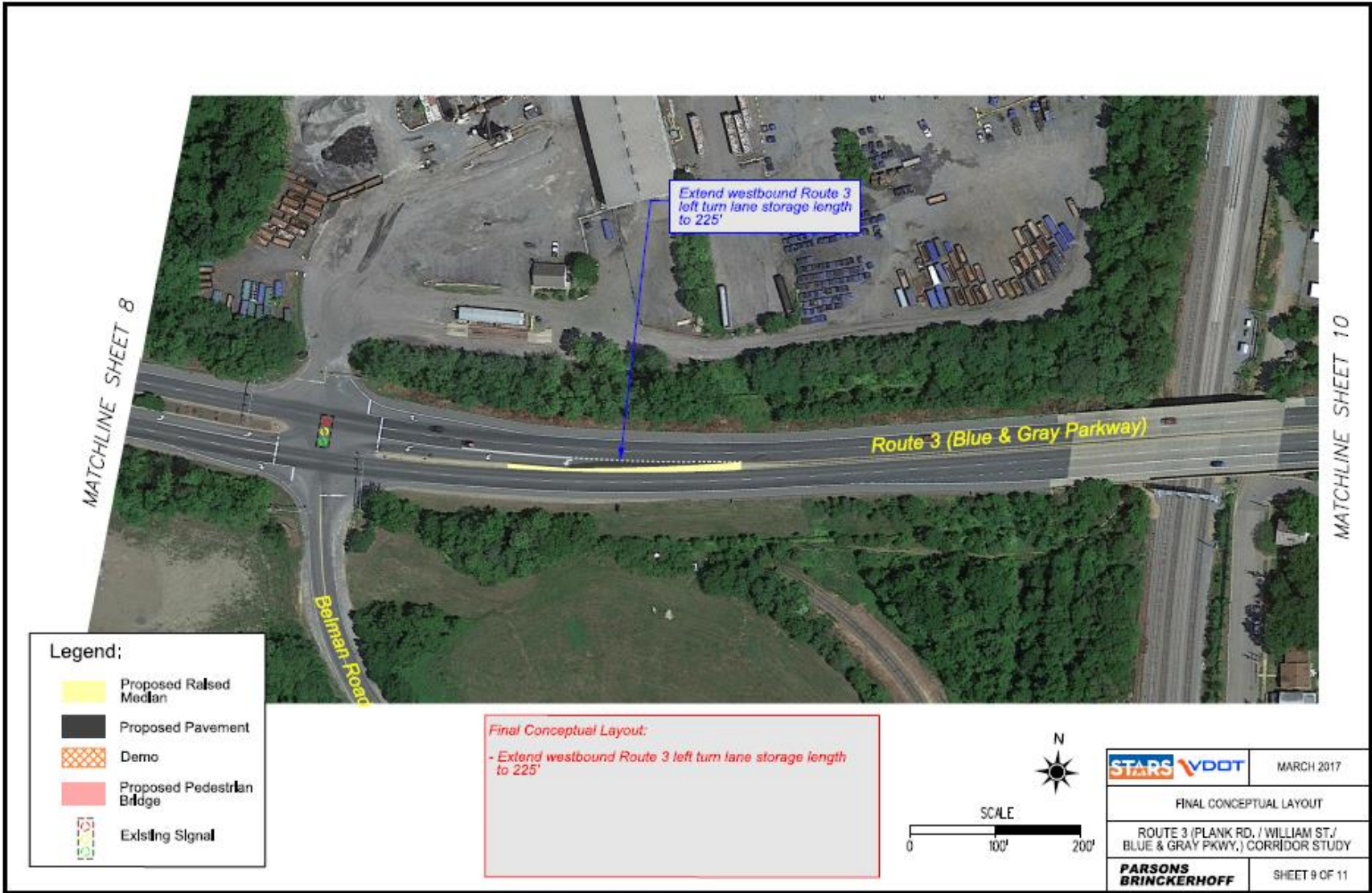
- Final Conceptual Layout:**
- Extend eastbound Route 3 left turn storage length to 300'
 - Extend westbound Route 3 dual left turn storage length to 350'
 - Extend northbound Lafayette Blvd. left turn storage length to 250'
 - Install eastbound Route 3 auxiliary lane for northbound Lafayette Blvd. right turns

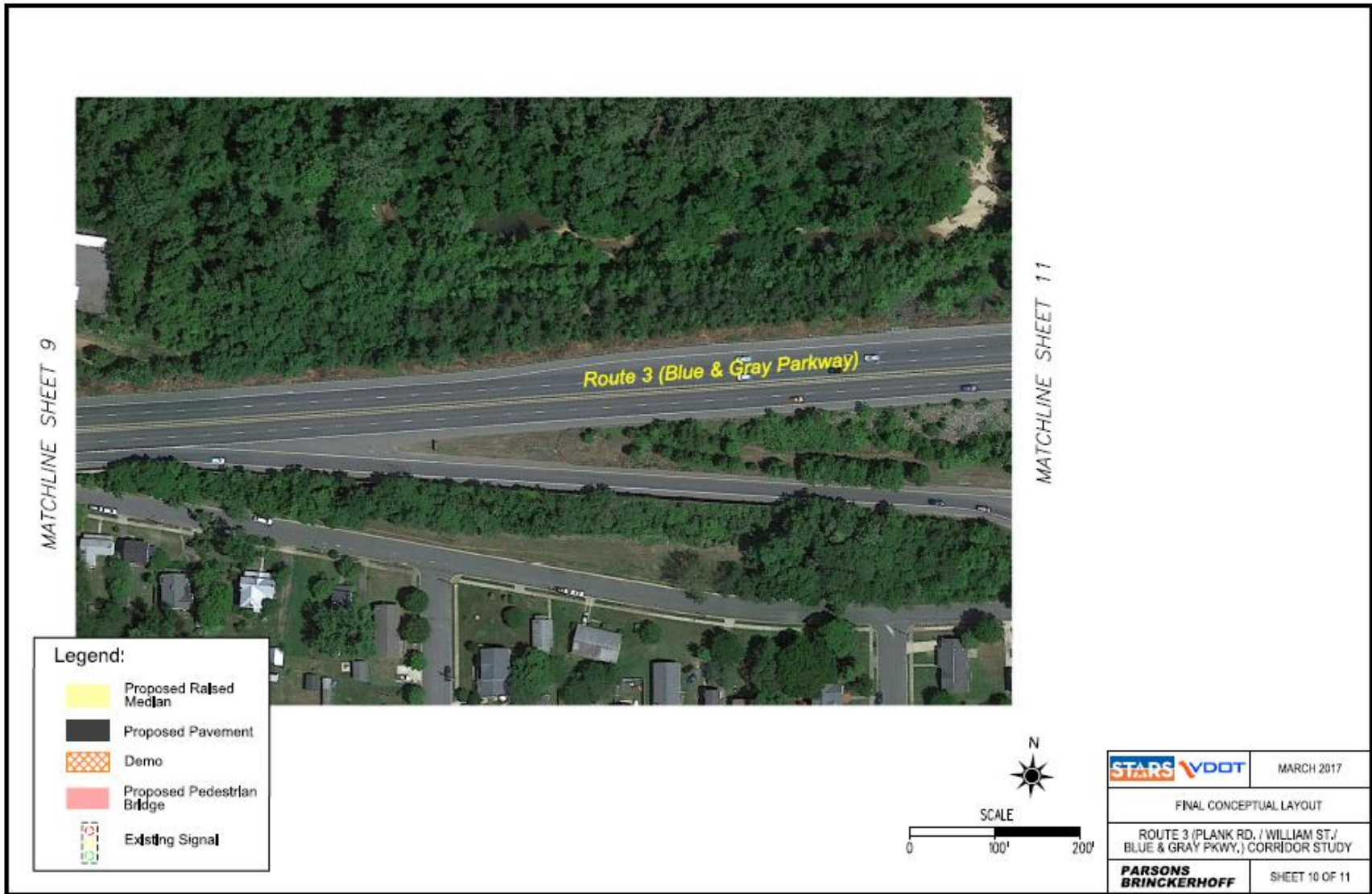


STARS VDOT	MARCH 2017
FINAL CONCEPTUAL LAYOUT	
ROUTE 3 (PLANK RD. / WILLIAM ST. / BLUE & GRAY PKWY.) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 7 OF 11

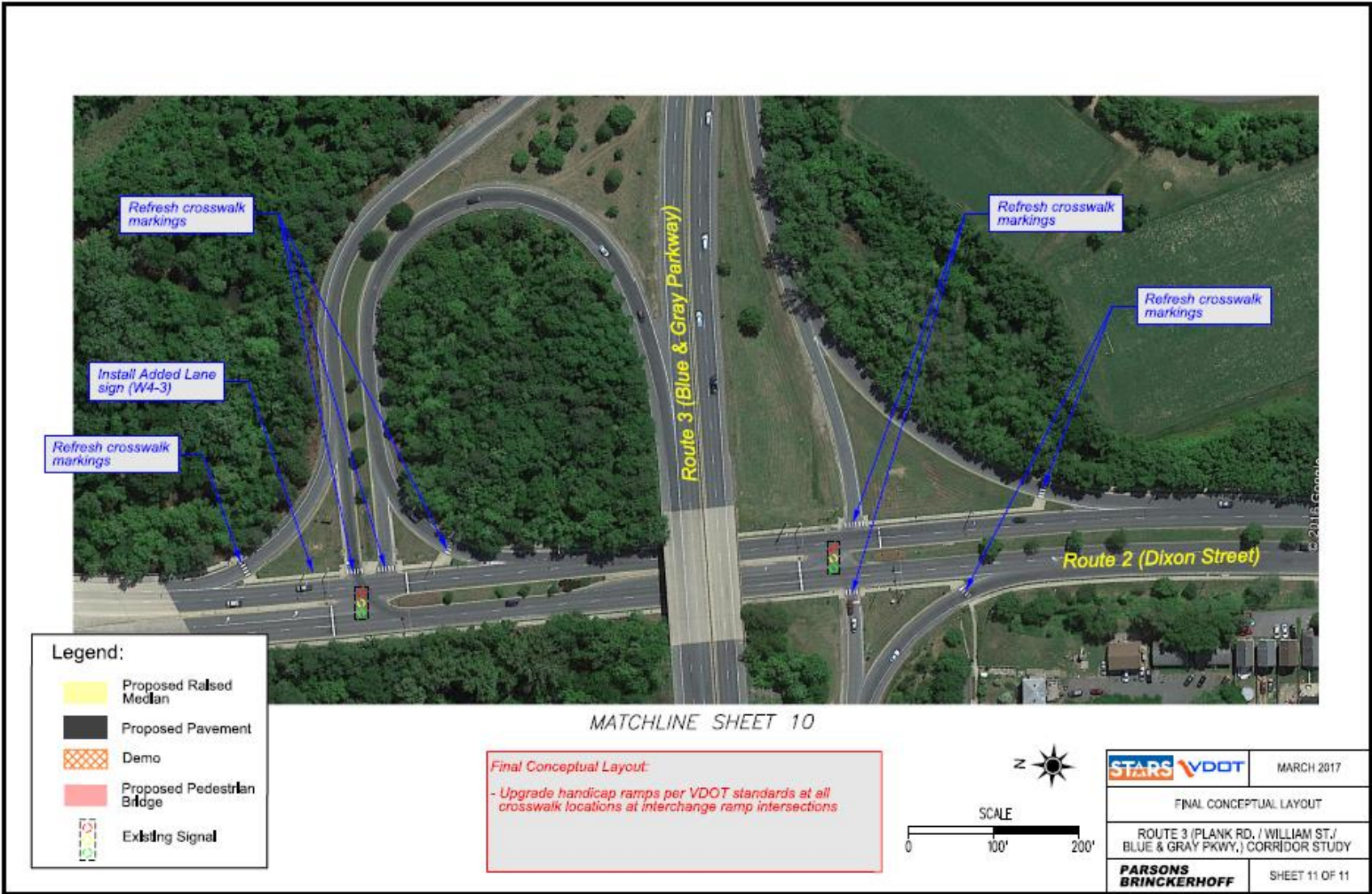


STARS VDOT	MARCH 2017
FINAL CONCEPTUAL LAYOUT	
ROUTE 3 (PLANK RD. / WILLIAM ST./ BLUE & GRAY PKWY.) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 8 OF 11





STARS VDOT	MARCH 2017
FINAL CONCEPTUAL LAYOUT	
ROUTE 3 (PLANK RD. / WILLIAM ST. / BLUE & GRAY PKWY.) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 10 OF 11



PLEASE PROVIDE YOUR COMMENTS



Your
Input

Prioritization of
Improvements

Final
Recommendations

STARS

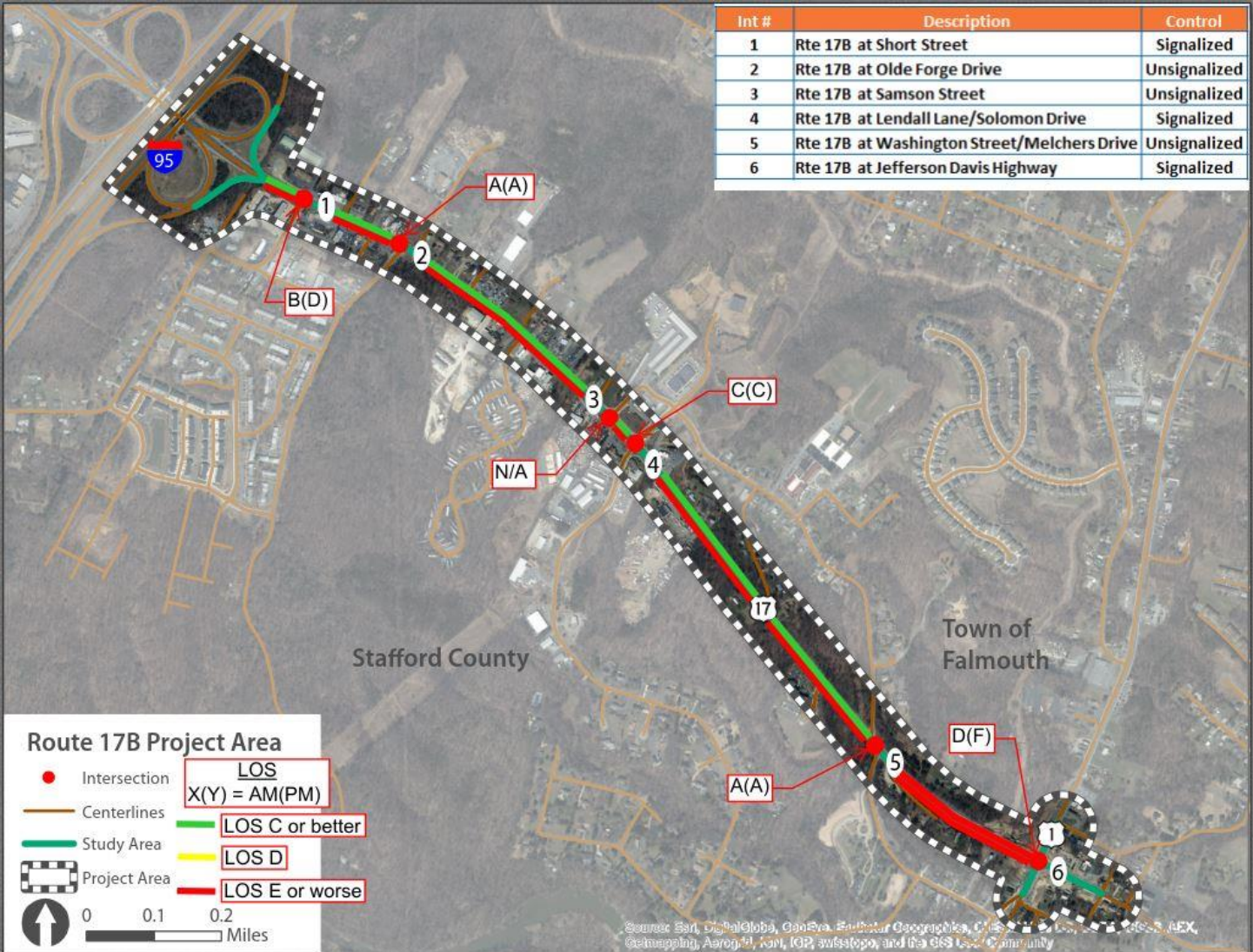
STRATEGICALLY TARGETED AND
AFFORDABLE ROADWAY SOLUTIONS

US 17 BUS AND ROUTE 3 CORRIDOR IMPROVEMENT STUDY

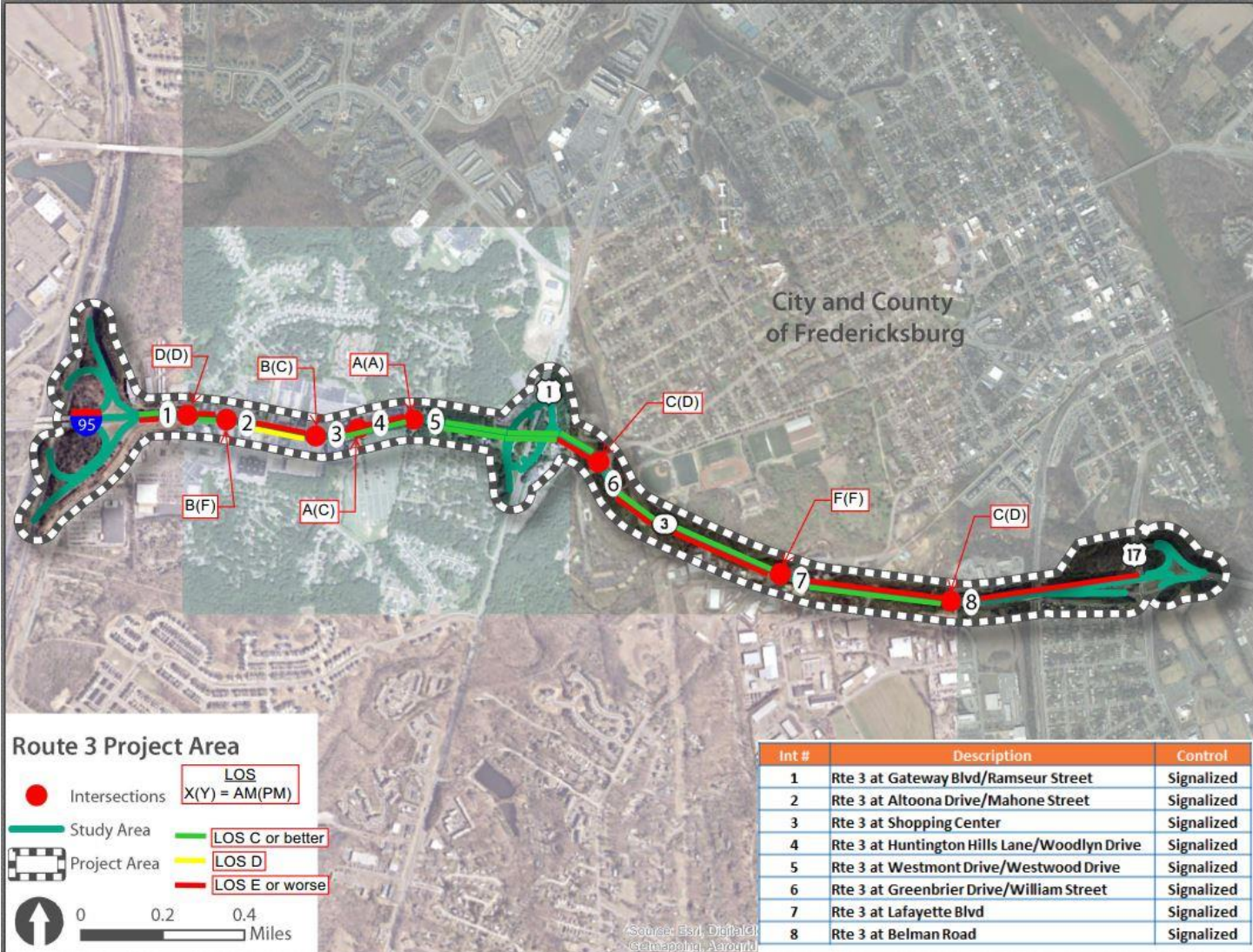
Thank you!



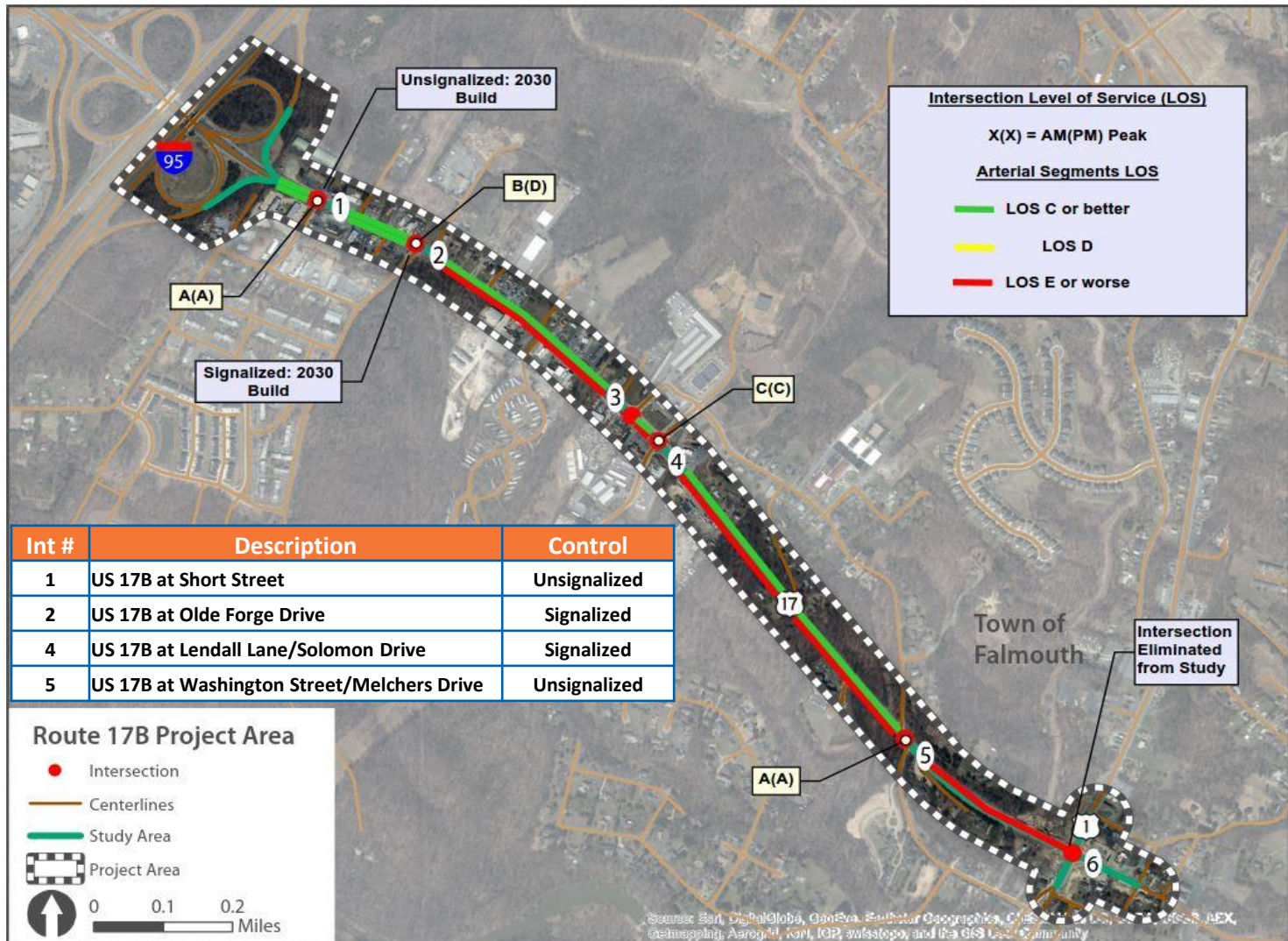
2030 No BUILD TRAFFIC ANALYSIS



2030 No BUILD TRAFFIC ANALYSIS



US 17B: 2030 BUILD TRAFFIC ANALYSIS RESULTS



ROUTE 3: 2030 BUILD TRAFFIC ANALYSIS RESULTS

