

Board of Supervisors

Paul V. Milde, III, Chairman
Meg Bohmke, Vice Chairman
Jack R. Cavalier
Wendy E. Maurer
Laura A. Sellers
Gary F. Snellings
Robert "Bob" Thomas, Jr.

Thomas C. Foley
County Administrator

Infrastructure Committee Meeting AGENDA

April 4, 2017 – 1:30 pm
Conference Room A/B/C - Second Floor

Committee Members: Chairman Meg Bohmke, Jack Cavalier and Paul Milde

Agenda Item	
1.	Mt. Olive Road Water Line Extension Update
2.	Transportation Issues: <ul style="list-style-type: none">a. Route 17 STARS Projectb. Pole Mounted Speed Display Signs
	Next IC meeting is scheduled for May 2, 2017

INFRA04042017agenda



Current Situation

- In December 2017 Ms. Ann Pincumbe nominated a Large Scale Extension Project (LSEP) in the Mount Olive Road area of the Hartwood Election District by delivering 37 applications for a water extension.
- Staff reviewed the applications and mapped out a scenario to deliver services to the area which is outside of the Urban Service Area (USA)
- The scenario proposes a two phased extension project of 7.5 miles of pipe at a cost of \$6.3M and serving approximately 193 properties.
- If all 193 affected owners connect the County would only recover roughly \$1.6M in availability and connection fees.
- The Utility Commission voted to designate the project as a Large Scale Extension Project triggering the need for a Comprehensive Plan Compliance Review.

Proposed End State

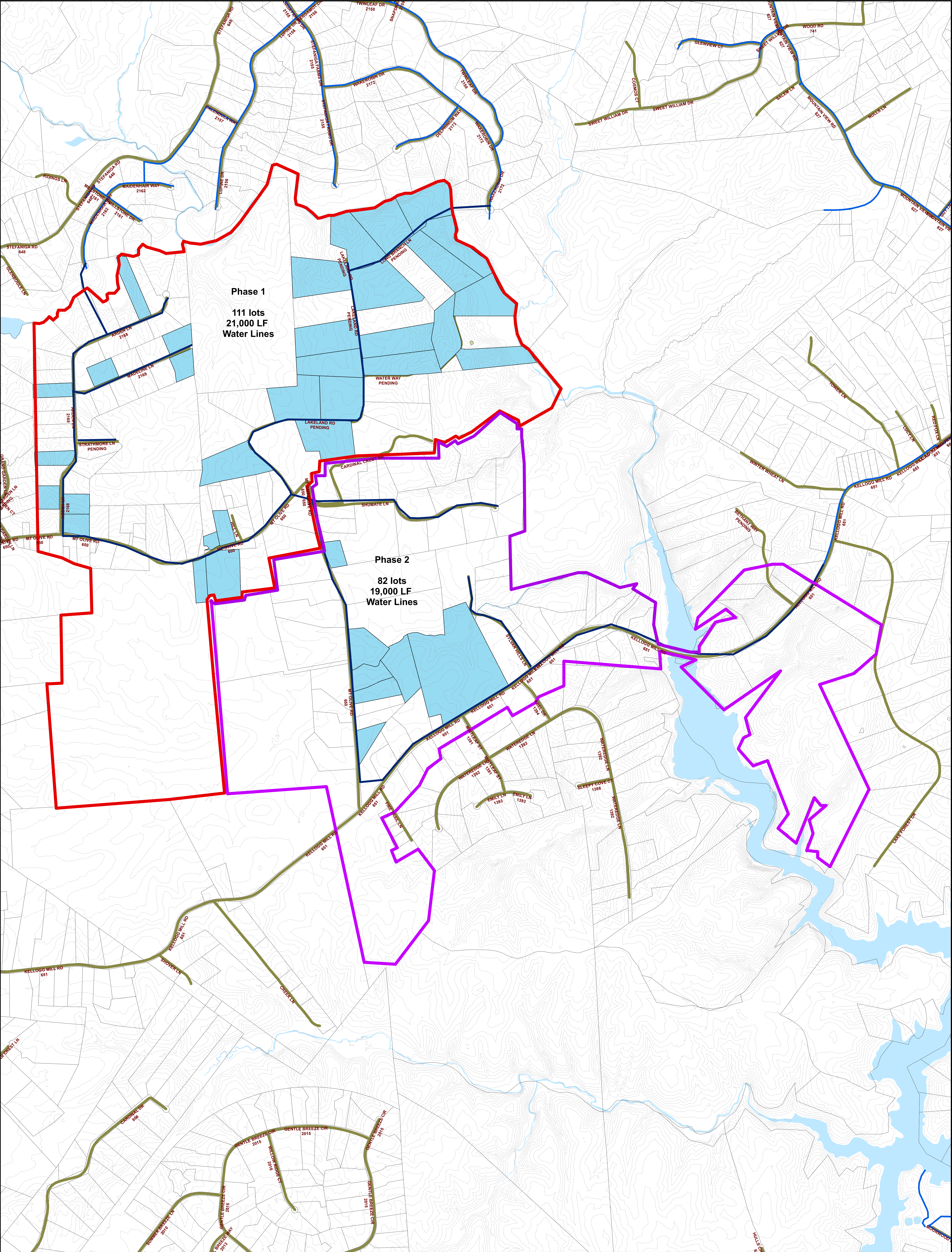
- Staff is preparing an application for the Comprehensive Plan Compliance Review with the Planning Commission and needs a Resolution from the Board to submit as the applicant.
- Staff is coordinating to send out a “mass-mailing” to the residents of the area to determine if there is adequate support for the project (50% or better is typically required).
- Assuming the Planning Commission finds the project is in conformance with the Comprehensive Plan, the project would move back to the Utilities Commission for consideration and a public hearing in October. The Utilities Commission will make a recommendation to the Board.
- If the Planning Commission finds it is not in compliance, the Board may choose to overturn their decision and proceed.
- Staff would need direction on where to place this in the CIP as it would affect other Availability Funded projects.

Request for the IC Committee/Board of Supervisors

- The full Board will be requested to authorize the County Administrator to submit an application for a Comprehensive Plan Compliance Review to support this project. The Committee may recommend the Board to approve or deny the request.

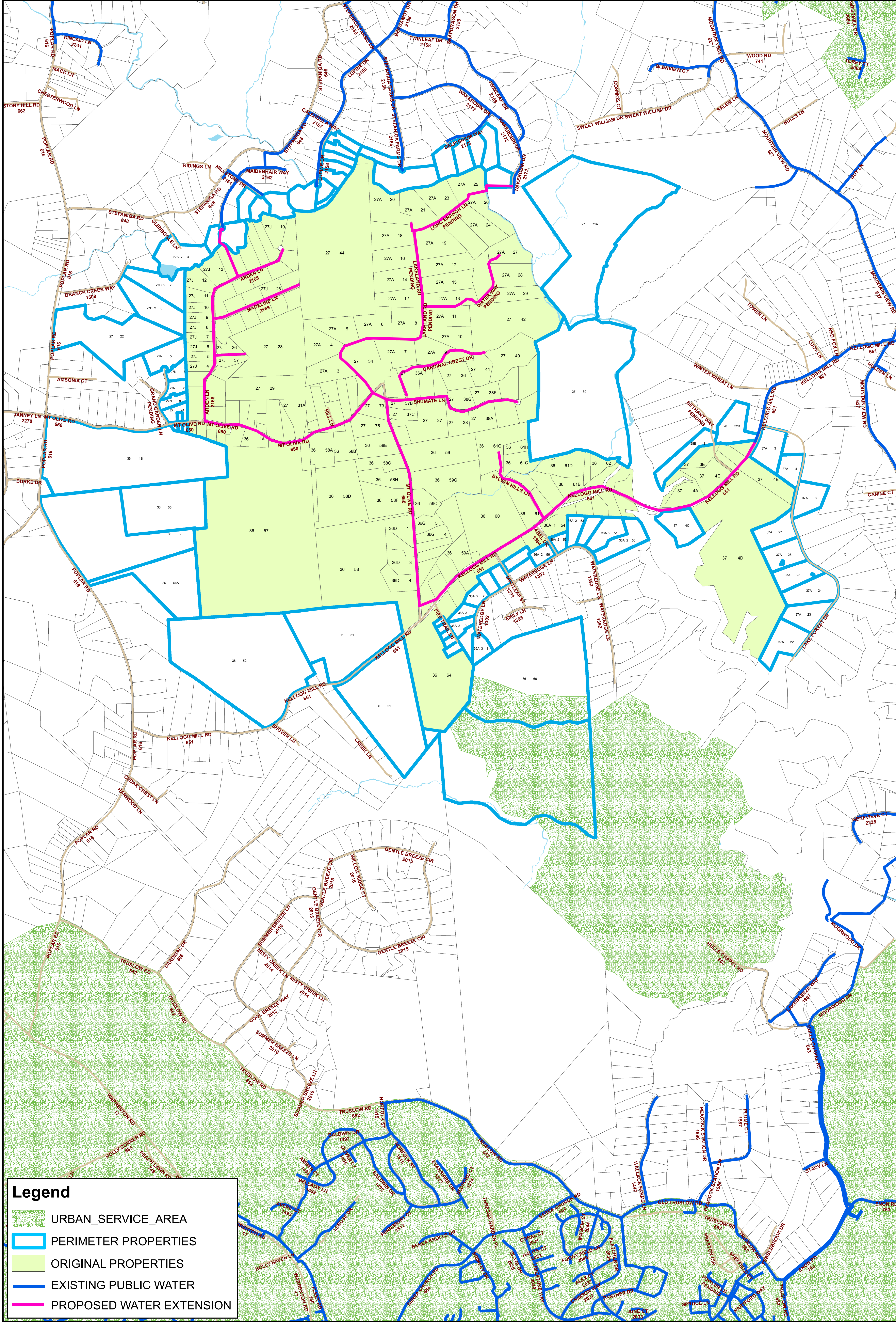
Benefits to the County

- Additional customers served in areas with potential well issues



Phase 1
111 lots
21,000 LF
Water Lines

Phase 2
82 lots
19,000 LF
Water Lines



Route 17 STARS Project

Background

- STARS (Strategically Targeted Affordable Roadway Solutions) Program develops comprehensive, innovative transportation solutions to relieve congestion bottlenecks and solve critical traffic and safety challenges throughout the commonwealth.
- Led by Virginia Department of Transportation (VDOT), with assistance from planners, traffic engineers, safety engineers, roadway design engineers and maintenance specialists, along with local stakeholders.
- VDOT District offices can leverage Statewide Planning and Research funding to help identify, plan, conceptually design, and ultimately program projects that reduce congestion and improve safety.
- STARS projects typically result in multiple recommended improvements that may be eligible for funding and implementation under maintenance budgets, applications in the SMART SCALE process, applications for the Highway Safety Improvement Program (HSIP), State of Good Repair budgets, and/or applications for revenue sharing.
- Five corridors within the Fredericksburg District were submitted to Central Office for consideration
- Central Office opted for a combined study both Route 17B (Stafford) and Route 3 (City of Fredericksburg) corridors.
- VDOT contracted with Parsons Brinckerhoff (PB) transportation engineers to complete the study.
- The project kicked off in August 2016, with a working group including representatives from PB, VDOT, FAMPO, Stafford County, and City of Fredericksburg.
- The consultant presented a draft report in November, 2016, which was reviewed by the working group.
- Draft recommendations were presented to the working group in March, based on comments and follow-up review of materials

Next Steps

- Parsons Brinckerhoff will give a joint presentation to the community in mid- to late April on both projects to solicit comments.
- VDOT will consider comments and make final recommendations.
- Localities work with VDOT and FAMPO to determine a funding strategy for these improvements.

Attached is a PowerPoint summary of the recommendations from the draft study (modified to remove specific information on Route 3 corridor).

US 17BUS AND ROUTE 3 CORRIDOR IMPROVEMENT STUDY

Post Alternatives Development Workshop

February 28, 2017



PROJECT STUDY AREA

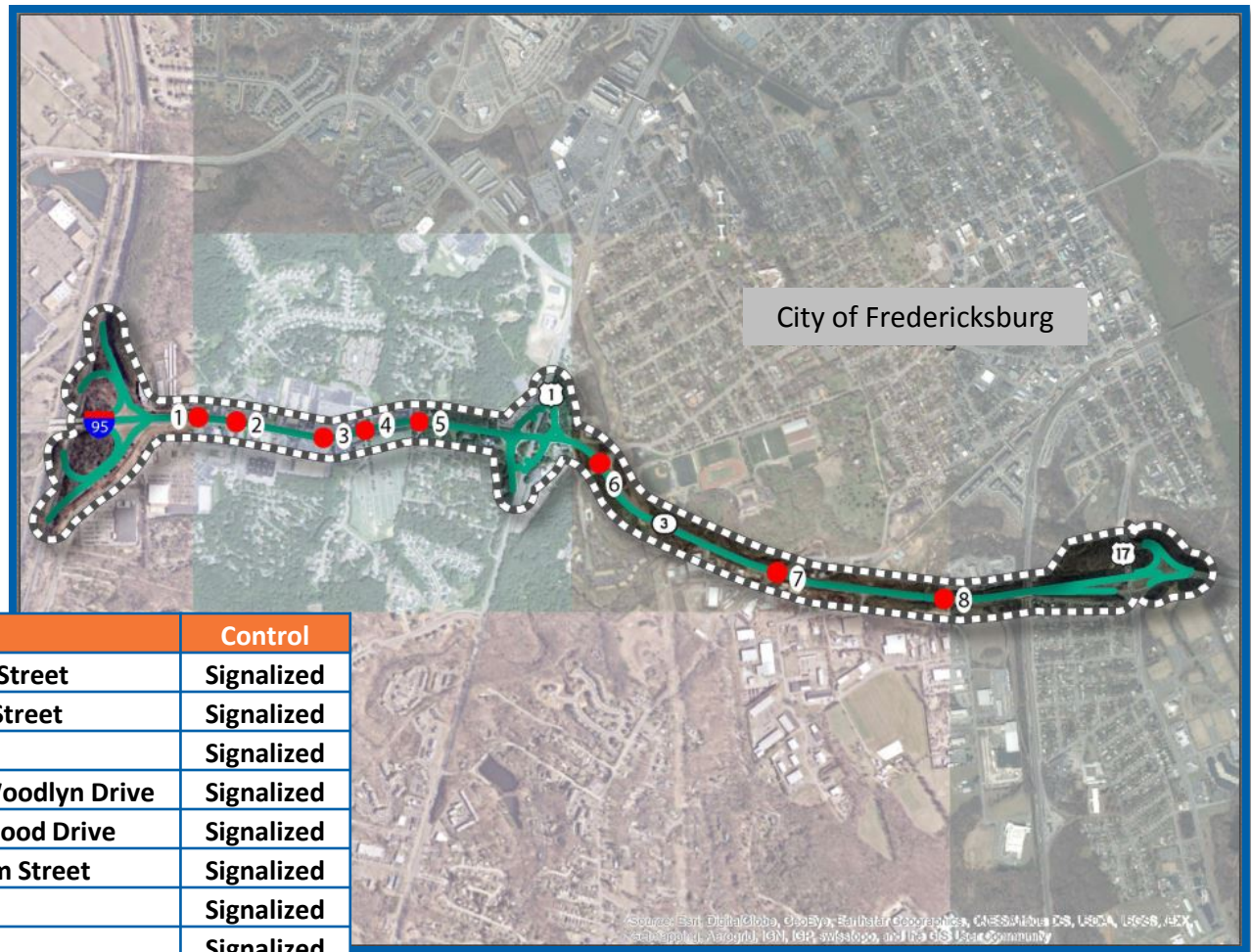
- US 17 BUS in Fredericksburg, VA
- 1.55 mile study corridor
- 4 study area intersections



Int #	Description	Control
1	Rte 17B at Short Street	Unsignalized
2	Rte 17B at Olde Forge Drive	Signalized
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

PROJECT STATUS UPDATE

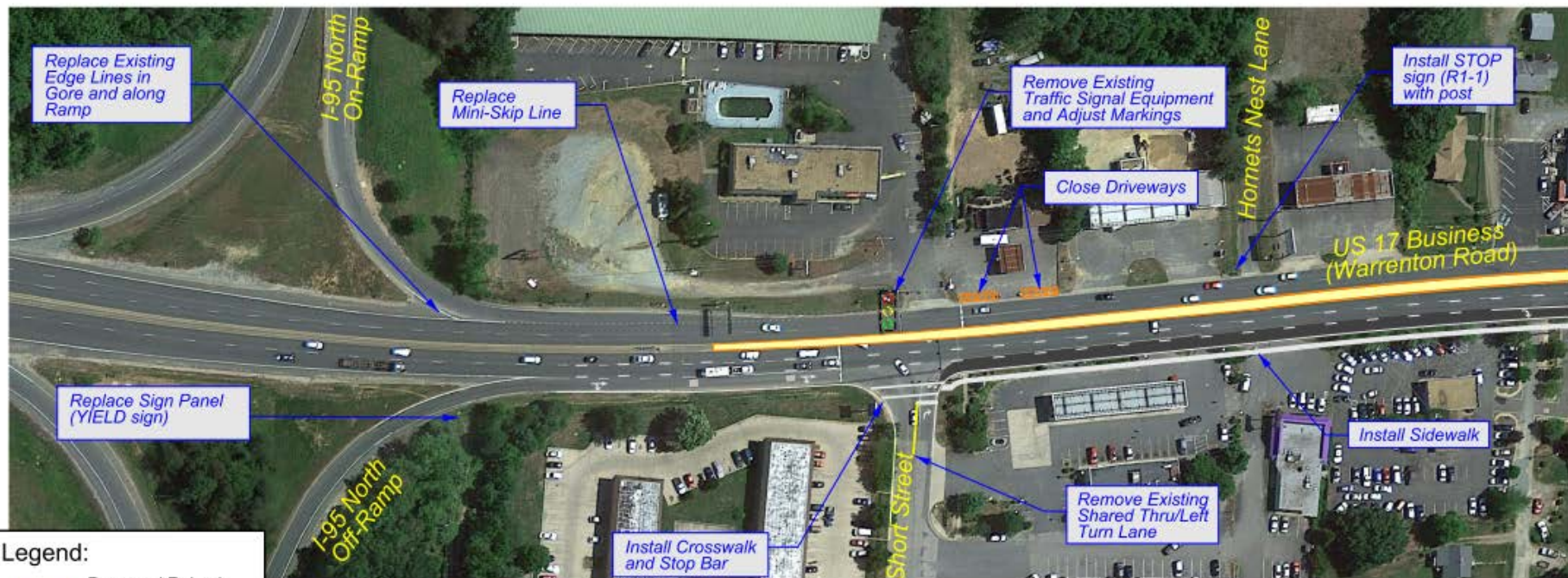
- Data Collection and Field Review - **COMPLETE**
- Crash Analysis - **COMPLETE**
- Existing Conditions Operational Analysis - **COMPLETE**
- Future No-Build Conditions Operational Analysis - **COMPLETE**
- Development of Improvement Alternatives – **COMPLETE**
- Future Build Conditions Operational and Crash Analyses - **COMPLETE**
- Planning-Level Cost and Schedule Estimates – **We are here!**
- Citizens Information Meeting
- Prioritization of Improvements
- STARS Improvement Summary Sheets
- Reporting

OVERALL SCHEDULE AND MAJOR MILESTONES

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Data Collection and Review											
Existing Analysis											
Future Traffic Volumes											
Future No-Build Analysis											
Future Alternatives Analysis											
Community Information Meeting											
Cost & Schedule Estimates											
Prioritization of Improvements											
STARS Summary Sheets											
Reporting											
Study Work Group Meetings											



FINAL ALTERNATIVES: US 17 BUS.

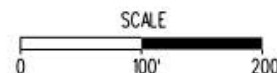


Legend:

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

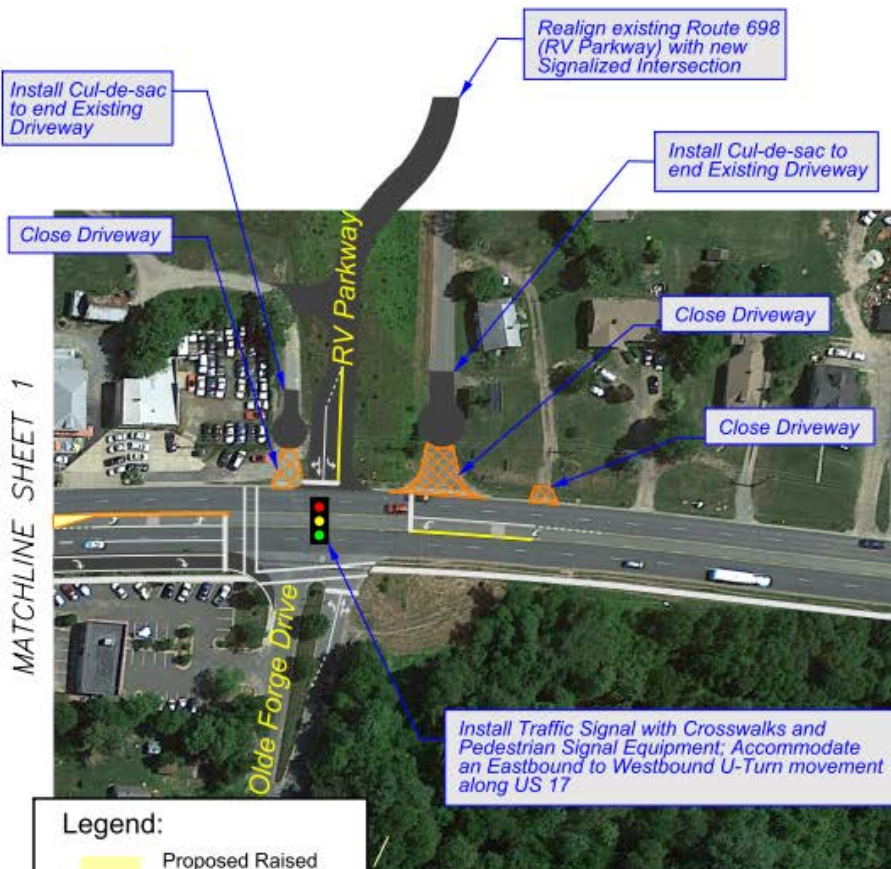
Final Conceptual Layout:

- 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	FEBRUARY 2017
FINAL CONCEPTUAL LAYOUT	
US 17 BUSINESS (WARRENTON RD) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 1 OF 5

MATCHLINE SHEET 2

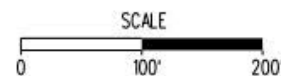


Legend:

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

Final Conceptual Layout:

- Install Raised Median between Short Street and Olde Forge Drive
- Add pavement for new Route 17 eastbound right lane drop at Olde Forge Drive
- Realign RV Parkway across Olde Forge Drive; add new traffic signal and pavement markings
- Install sidewalk along south side of Route 17 from Short Street to Lendall Lane



STARS VDOT	FEBRUARY 2017
FINAL CONCEPTUAL LAYOUT	
US 17 BUSINESS (WARRENTON RD) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 2 OF 5

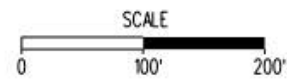


Legend:

- 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	FEBRUARY 2017
FINAL CONCEPTUAL LAYOUT	
US 17 BUSINESS (WARRENTON RD) CORRIDOR STUDY	
PARSONS BRINCKERHOFF	SHEET 3 OF 5

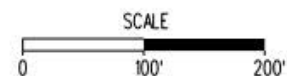


Legend:

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

Final Conceptual Layout:

- Install Raised Median between Solomon Drive / Lendall Lane east to existing median
- Install Raised Median at Wyne Drive intersection
- Add right turn lane taper on Route 17 westbound at Wyne Drive



Replace and Relocate
Damaged Route Designation
Sign and Post

Install Right Turn
Taper

Install Stop Bar

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

STARS VDOT

FEBRUARY 2017

FINAL CONCEPTUAL LAYOUT

US 17 BUSINESS (WARRENTON RD)
CORRIDOR STUDY

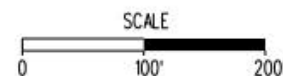
**PARSONS
BRINCKERHOFF**

SHEET 4 OF 5



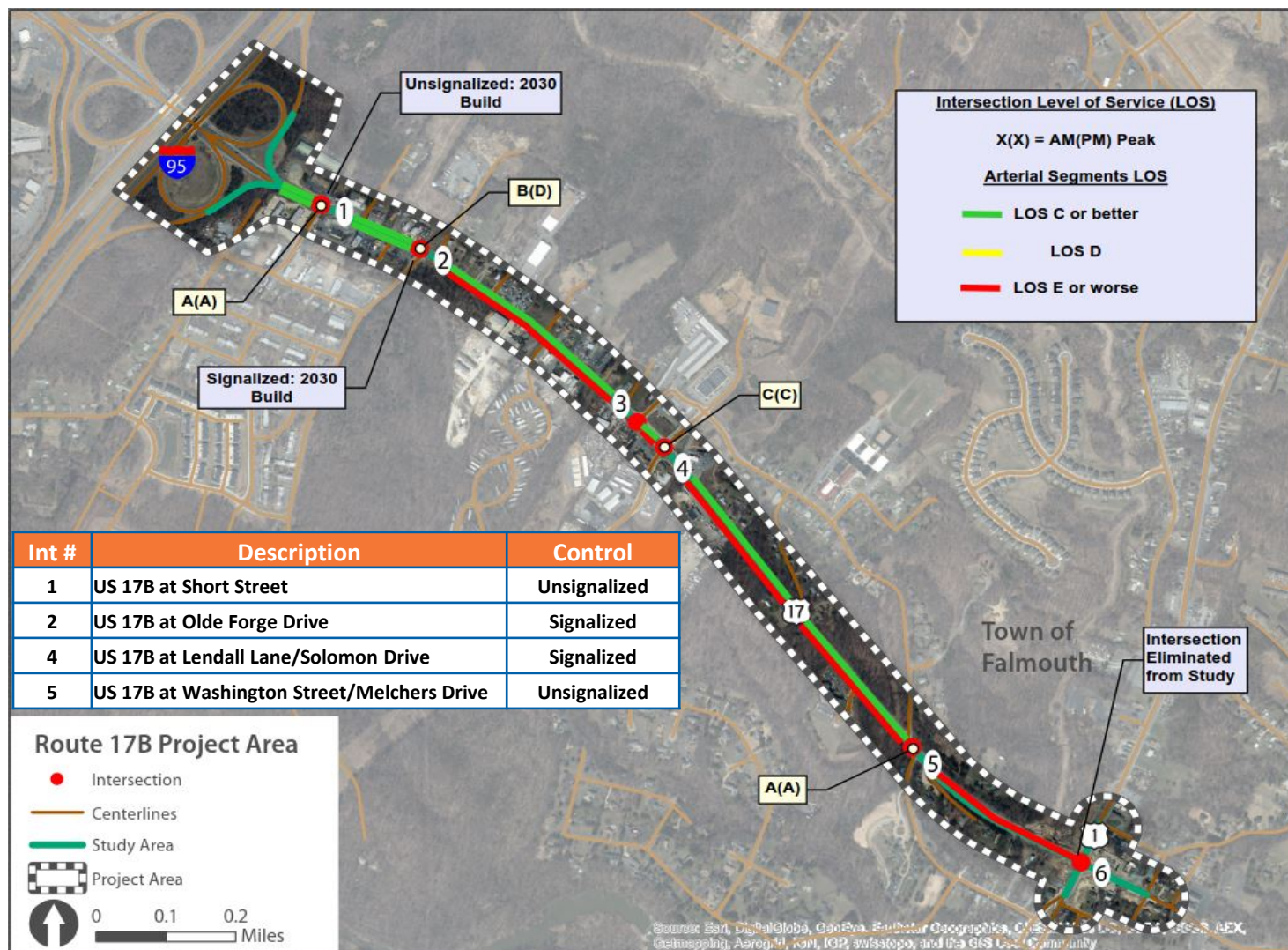
Legend:

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



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

US 17B: 2030 BUILD TRAFFIC ANALYSIS RESULTS



US 17B: 2030 BUILD TRAFFIC OPERATIONS SUMMARY

- **Reduction in total delay and delay/vehicle**
- **20% reduction in total travel time**
- **10% improvement in Average Travel Speed through the corridor**
- **Relocation of signal from Short Street to Olde Forge Drive**
 - Provides extended merge distance for I-95 off-ramp traffic
 - No queues backing up to the ramp merge
 - Operational and safety benefits
- **All intersections operate at an acceptable LOS D or better**

CRASH REDUCTION ANALYSIS – US 17B & SR 3

- **Interactive Highway Safety Design Model (IHSDM)**
 - Expected number of crashes based on improvements?
 - Percent reduction in crashes based on improvements?

2016 – No Build	2016 – Build	2030 – No Build	2030 – Build
<ul style="list-style-type: none">■ Crashes in 2016■ No improvements	<ul style="list-style-type: none">■ Crashes in 2016■ Improvements implemented	<ul style="list-style-type: none">■ Crashes in 2030■ No improvements	<ul style="list-style-type: none">■ Crashes in 2030■ Improvements implemented

CRASH REDUCTION ANALYSIS – US 17B & SR 3

■ IHSDM modeling inputs:

- Roadway type (segment, intersection, ramp)
- Historical crash data (2013 – 2015)
 - Location, Year, Severity, Type of Crash
- AADT (AM and PM peak-hour traffic volumes)
- Roadway design elements
 - Number of lanes, type of control, driveways, lighting, etc.

CRASH REDUCTION ANALYSIS – US 17B & SR 3

■ **Crash Modification Factors (CMFs):**

- Sources:
 - VDOT HB2 presentation
 - Clearinghouse CMF website
- Note: Not every improvement had an available/reliable CMF value
- CMFs were only applied to “applicable” crashes that may have been affected by the improvement

CRASH REDUCTION ANALYSIS RESULTS – US 17B

- **2016/2030 Expected Crashes (*No Build*) determined by:**
 - IHSDM output (no build conditions)

2016 – No Build	2016 – Build	2030 – No Build	2030 – Build
<ul style="list-style-type: none">■ Crashes in 2016■ No improvements	<ul style="list-style-type: none">■ Crashes in 2016■ Improvements implemented	<ul style="list-style-type: none">■ Crashes in 2030■ No improvements	<ul style="list-style-type: none">■ Crashes in 2030■ Improvements implemented
<div>41 expected crashes</div>		<div>54 expected crashes</div>	

CRASH REDUCTION ANALYSIS RESULTS – US 17B

- **2016/2030 Expected Crashes with CMFs (*Build*) determined by:**
 - IHSDM output (no build conditions) + CMF values

2016 – No Build	2016 – Build	2030 – No Build	2030 – Build
<ul style="list-style-type: none">■ Crashes in 2016■ No improvements	<ul style="list-style-type: none">■ Crashes in 2016■ Improvements implemented	<ul style="list-style-type: none">■ Crashes in 2030■ No improvements	<ul style="list-style-type: none">■ Crashes in 2030■ Improvements implemented
41 expected crashes	39 expected crashes	54 expected crashes	51 expected crashes

CRASH REDUCTION ANALYSIS RESULTS – US 17B

2016 – No Build	2016 – Build	2030 – No Build	2030 – Build
<ul style="list-style-type: none">Crashes in 2016No improvements	<ul style="list-style-type: none">Crashes in 2016Improvements implemented	<ul style="list-style-type: none">Crashes in 2030No improvements	<ul style="list-style-type: none">Crashes in 2030Improvements implemented
7% REDUCTION		7% REDUCTION	
41 expected crashes	39 expected crashes	54 expected crashes	51 expected crashes

CRASH REDUCTION ANALYSIS RESULTS – US 17B

- **2016/2030 Expected Crashes with Hybrid Method (*Build*) determined by:**

- IHSDM output (improvements that *could* be modeled) + CMF values (improvements that *could not* be modeled)

2016 – No Build	2016 – Build	2030 – No Build	2030 – Build
<ul style="list-style-type: none">■ Crashes in 2016■ No improvements	<ul style="list-style-type: none">■ Crashes in 2016■ Improvements implemented	<ul style="list-style-type: none">■ Crashes in 2030■ No improvements	<ul style="list-style-type: none">■ Crashes in 2030■ Improvements implemented
41 expected crashes	38 expected crashes	54 expected crashes	50 expected crashes

CRASH REDUCTION ANALYSIS RESULTS – US 17B

2016 – No Build	2016 – Build	2030 – No Build	2030 – Build
<ul style="list-style-type: none">Crashes in 2016No improvements	<ul style="list-style-type: none">Crashes in 2016Improvements implemented	<ul style="list-style-type: none">Crashes in 2030No improvements	<ul style="list-style-type: none">Crashes in 2030Improvements implemented
8% REDUCTION		8% REDUCTION	
41 expected crashes	38 expected crashes	54 expected crashes	50 expected crashes

CRASH REDUCTION ANALYSIS RESULTS – US 17B

■ Summary of expected crashes for all conditions:

2016 – No Build	2016 – Build	2030 – No Build	2030 – Build
<ul style="list-style-type: none">Crashes in 2016No improvements	<ul style="list-style-type: none">Crashes in 2016Improvements implemented	<ul style="list-style-type: none">Crashes in 2030No improvements	<ul style="list-style-type: none">Crashes in 2030Improvements implemented
7-8% REDUCTION		7-8% REDUCTION	
41 expected crashes	CMFs: 39 expected crashes Hybrid: 38 expected crashes	54 expected crashes	CMFs: 51 expected crashes Hybrid: 50 expected crashes

NEXT STEPS

■ February – March

- Community Information Meeting
- Cost & schedule estimates
- Project Prioritization

■ April - June

- Study Work Group Meeting – Finalize Prioritized Projects
- Project Summary Sheets
- Reports

STARS

STRATEGICALLY TARGETED AND
AFFORDABLE ROADWAY SOLUTIONS

US 17 BUS AND ROUTE 3 CORRIDOR IMPROVEMENT STUDY

Thank you!



Pole Mounted Speed Display (PMSD) Signs

April 4, 2017

- Pole Mounted Speed Display (PMSD) signs are installed to provide a real-time, dynamic display of a driver's vehicular speed.
- PMSD signs are allowed under Part 2 of the U.S. Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD) under Section 2B.13 in the 2009 version where general guidance for their use is provided.
- These signs are installed in conjunction with regulatory speed limit or advisory speed signs in order to provide drivers with immediate confirmation of their actual speed in relation to the posted speed limit or advisory speed.
- These signs provide a mechanism to reduce vehicle speeds at locations where driving the posted speed limit or advisory speed is particularly critical, such as in residential and other pedestrian-oriented areas or in locations where there are speed-related safety concerns.
- Some reports on the application of these signs indicate they can promote a reduction in vehicle speeds up to 5 MPH, however the actual results achieved at any particular location will vary.
- VDOT approval is required for these signs to be installed within public right-of-way.
- VDOT requires that the roadway is residential and/or pedestrian oriented with no more than two lanes (one lane per travel direction) with a posted speed limit of 40 MPH or less where the 85th percentile speeds exceeds the posted speed limit by at least 10 MPH for the travel direction(s) and time period of concern.
- These signs can also be installed at other non-residential locations deemed appropriate by the Regional Traffic Engineer such as to encourage compliance for advisory speed conditions at a curve as an example or to address locations with identified, speed-related safety concerns.
- The County would need to amend its Residential Traffic Management Plan (RTMP) to add a section regarding the general criteria, steps/process, and cost and funding information for PMSD signs.
- If the County decides to include a new section in its RTMP for PMSD signs, it will be responsible for installation, maintenance and funding all costs associated with them.
- The cost to purchase one PMSD sign unit with pole installation kit and solar panel (instead of going with electrical) to power it would be approximately \$5,000. Since these signs are generally installed in both directions, the typical installation would cost \$10,000.

Graphic Depicting Sign and Actual Photograph

