

US 301 / Rte 207 Arterial Preservation Plan Progress Update Meeting

December 7, 2017

L.E. Smoot Memorial Library

King George, VA

Agenda

1. Introductions / goal of today's meeting
2. Project Study Area
3. Study Scope
4. Regional Goals Review
5. Future Growth & Development
6. Opportunities for Improvement
7. Preliminary Recommendations
8. Next Steps

Introductions

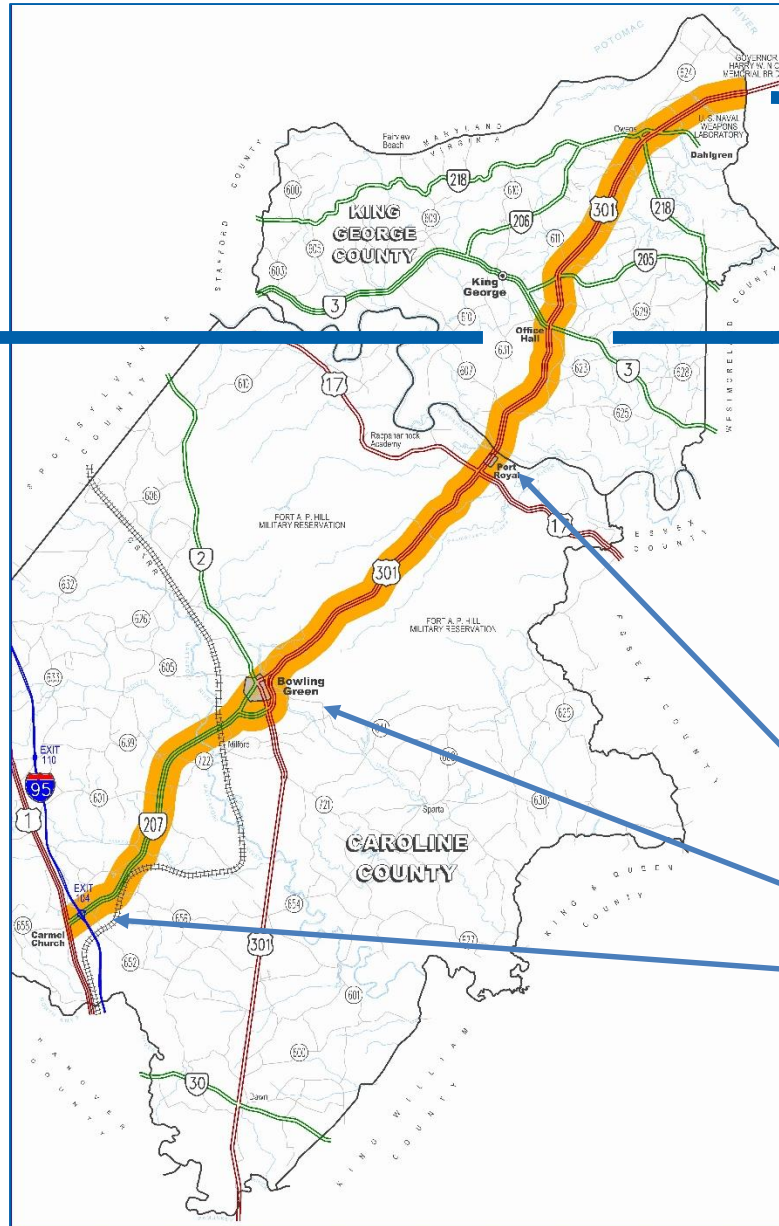
Today's meeting includes representation

from:

- Caroline County
- King George County
- Town of Bowling Green
- Town of Port Royal
- Fredericksburg Area MPO
- Department of Defense
- VDOT Fredericksburg District
- VDOT Central Office
- Goal of today's meeting is to:
 - Michael Baker International (consultant)
 - Discuss and agree on
 - Regional Goals
 - Future Growth
 - Corridor Deficiencies
 - Recommended Improvements

Study Area

A higher-level safety and access study will be performed in this area
(29 miles)



A more detailed access management study will be performed in this area
(12 miles)

Additional areas to receive higher level of detail analysis

Study Scope

Overview

Ultimate goal of Study

Adoption into County
Comprehensive Plans to allow for
follow-on project development,
funding support and good planning

The study will take on two phases of activity. The first and most detailed level of study will be focused on the section of US 301 in King George County due to development pressures expected as a result of plans to widen the Governor Nice Bridge

Typical elements of similar corridor

Chapter 1: Introduction

- 1.1 Study Purpose
- 1.2 Study Area
- 1.3 Review of Existing Studies and Documents
- 1.4 Public Involvement Process

Chapter 2: Existing Conditions

- 2.1 Land Use
- 2.2 Infrastructure
- 2.3 Access Points
- 2.4 Crash Analysis
- 2.4 Traffic Volumes
- 2.5 Traffic Operations

Chapter 3: 2040 Future Conditions

- 3.1 Future Land Use
- 3.2 Future Traffic Volumes
- 3.3 Transportation Operations and Deficiencies

Chapter 4: Recommendations

- 4.1 Toolbox of Recommendations
- 4.2 Specific Study Corridor Recommendations
- 4.3 Opinion of Costs
- 4.4 Conclusion and Next Steps

Regional Goals Overview



Regional Goals Review

Review existing Comprehensive Plans in order to keep recommendations aligned with regional goals

Regional Comprehensive Plans Reviewed

- 2013 King George County Comprehensive Plan
- 2030 Caroline County Comprehensive Plan
 - Port Royal
 - Bowling Green
 - Ruther Glen
- 2040 FAMPO Comprehensive Plan (Rural Section)
- George Washington Regional Commission
- VDOT Six-Year Plans

Overall Goals

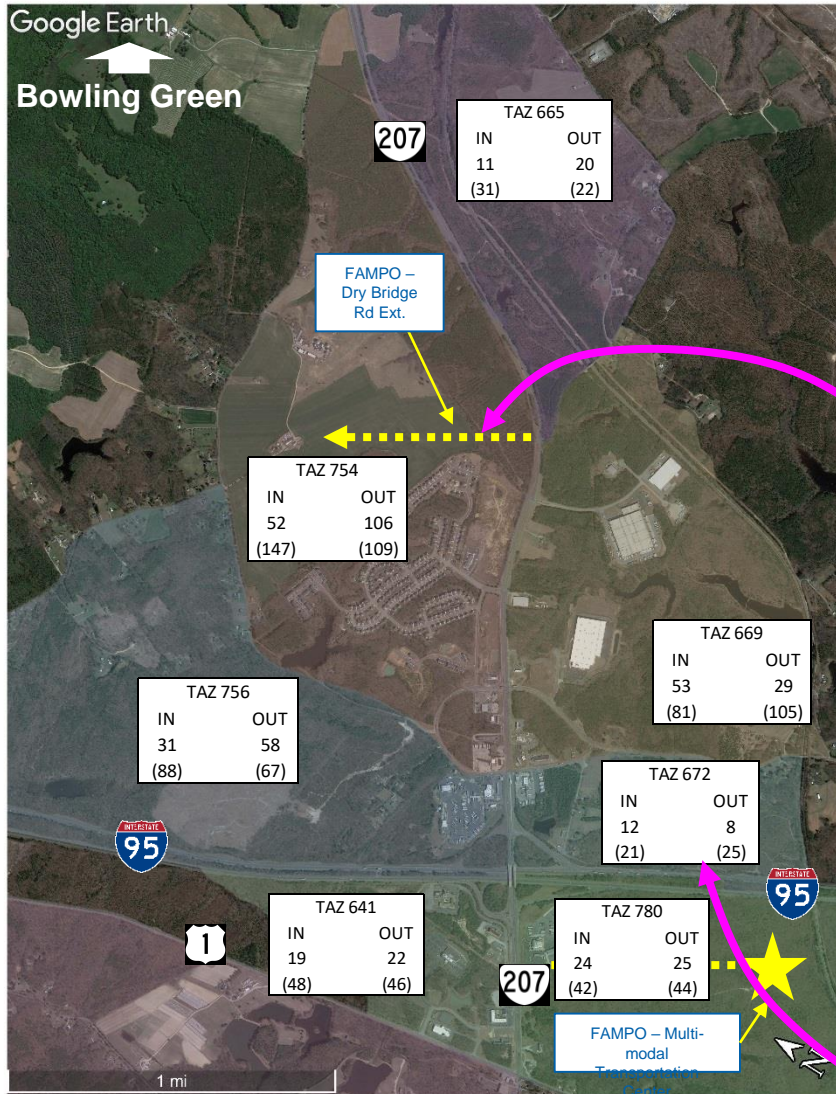
- Promote through-put and increase safety on the Route 207/301 corridor
- Pursue alternate routes and improvements for local traffic in and around the Route 207/301 corridor
- Manage development and provide new access points and connections along the corridor

Examples of Projects

- Road widening projects on collector arterials and locals roads
- Safety improvements to intersections
- Road extensions through or around the corridor
- Road widening of the Route 207/301 corridor

Methodology for Future Growth & Development

Example



Resources:

- Traffic Analysis Zones (TAZ) using regional data
 - TAZ volumes are the difference between 2040 volumes and existing volumes
- Regional, county, and town comprehensive plans
- VDOT planning and projects data
- Stakeholder comments

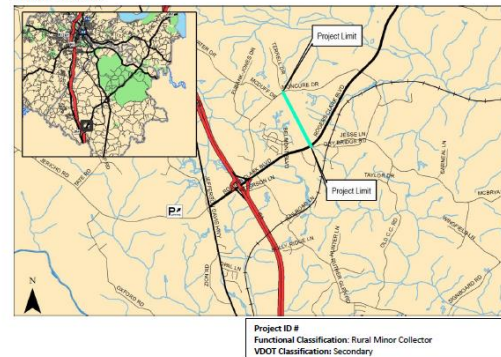
Project Descriptions for FAMPO Long Range Plan Regional Needs Plan Projects

Dry Bridge Road (SC-684) Extension (Caroline)

Project Name: Dry Bridge Road (SC-684) Extension	Preliminary Engineering Cost: \$714,050
Route Number: 684	Right-of-Way Cost: \$1,454,376
Project Type: New 2 Lane Alignment	Construction Cost: \$5,817,502
Jurisdiction: Caroline	Total Cost: \$7,985,928
Project Limit Start: CSX Rail Line	
Project Limit: Moncure Drive (SC-716)	
Length in Miles: 1.3	
	2040 Projected Volume: 12,000-15,000

Project Description:
Extend Dry Bridge Rd with landscaping. Improvements will include a new signalized intersection, a new unsignalized intersection and bicycle/pedestrian facilities.

Project Location Map:

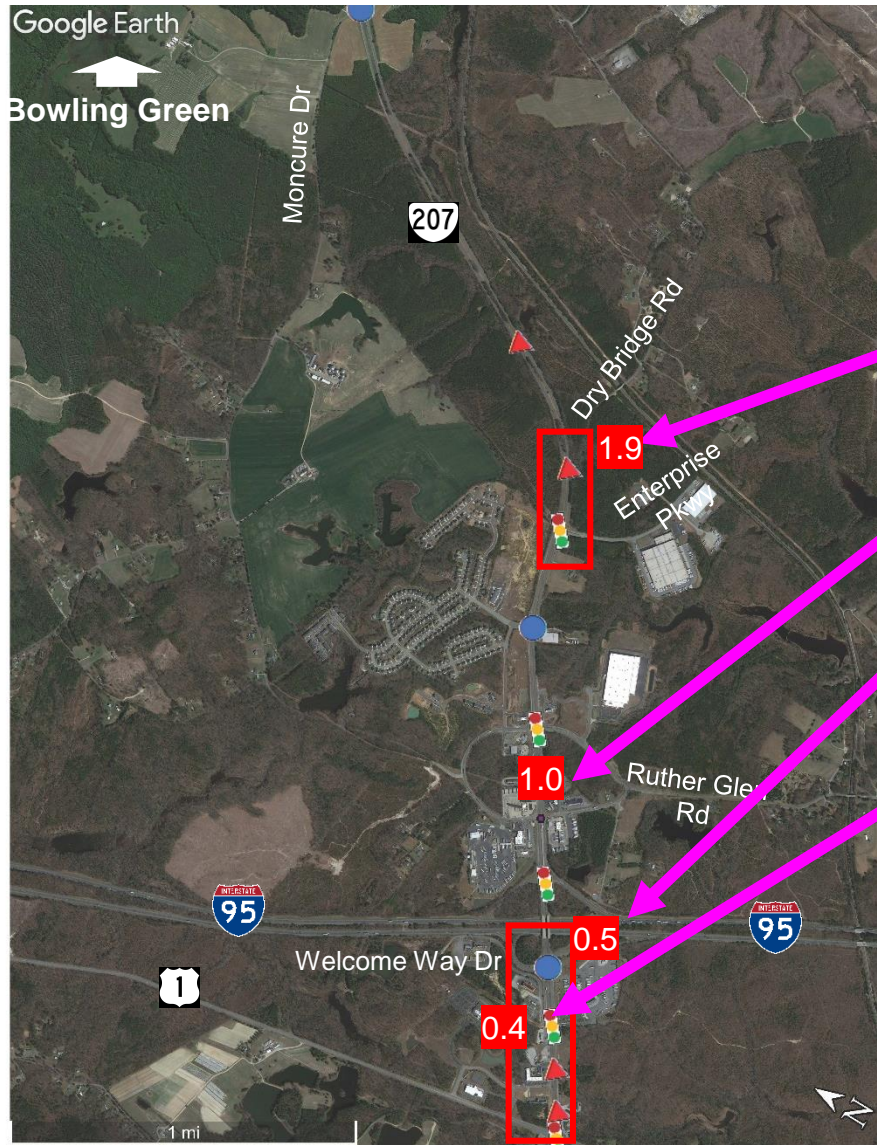


TAZ ###	
INTO TAZ	OUT OF TAZ
AM Peak Hour Volume	AM Peak Hour Volume
(PM Peak Hour Volume)	(PM Peak Hour Volume)

TAZ peak hour volumes indicate only the difference between 2040 land use and 2017 land use

Methodology for Opportunities for Improvement

Example








Resources:

- VDOT Road Design Standards
- Traffic operations for present and future
- Crash data
- Stakeholder comments

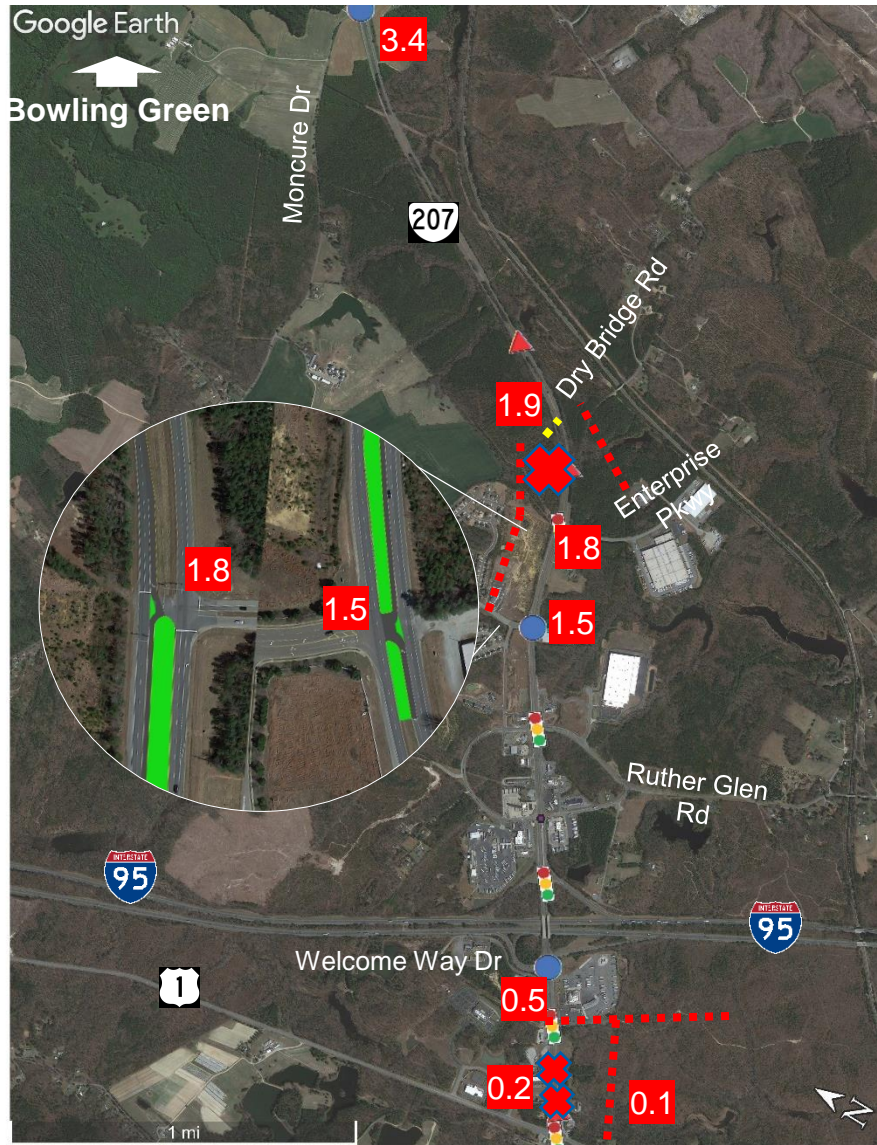
Examples:

- 1.9** Full median crossover at Dry Bridge Rd and Rte 207 within 950 ft (< 1320 ft) of signalized intersection at Enterprise Pkwy and Rte 207
- 1.0** Multiple business entrances/exits in turn lanes and intersections
- 0.5** Multiple crossovers and signalized intersections within close proximity of each other, 300 ft to 900 ft (< 1050 ft), between I-95 and Rte 207 Interchange and Rte 1 and Rte 207 intersection.
- 0.4** Welcome Way Dr and Rte 207 signal is affecting I-95 southbound to Rte 207 westbound ramp

-  Signalized Intersection
-  Unsignalized Intersection
-  Median Crossovers
-  Recommended Crossover Removal
-  Milepost

Preliminary Recommendations

Phase 1 Area: Carmel Church

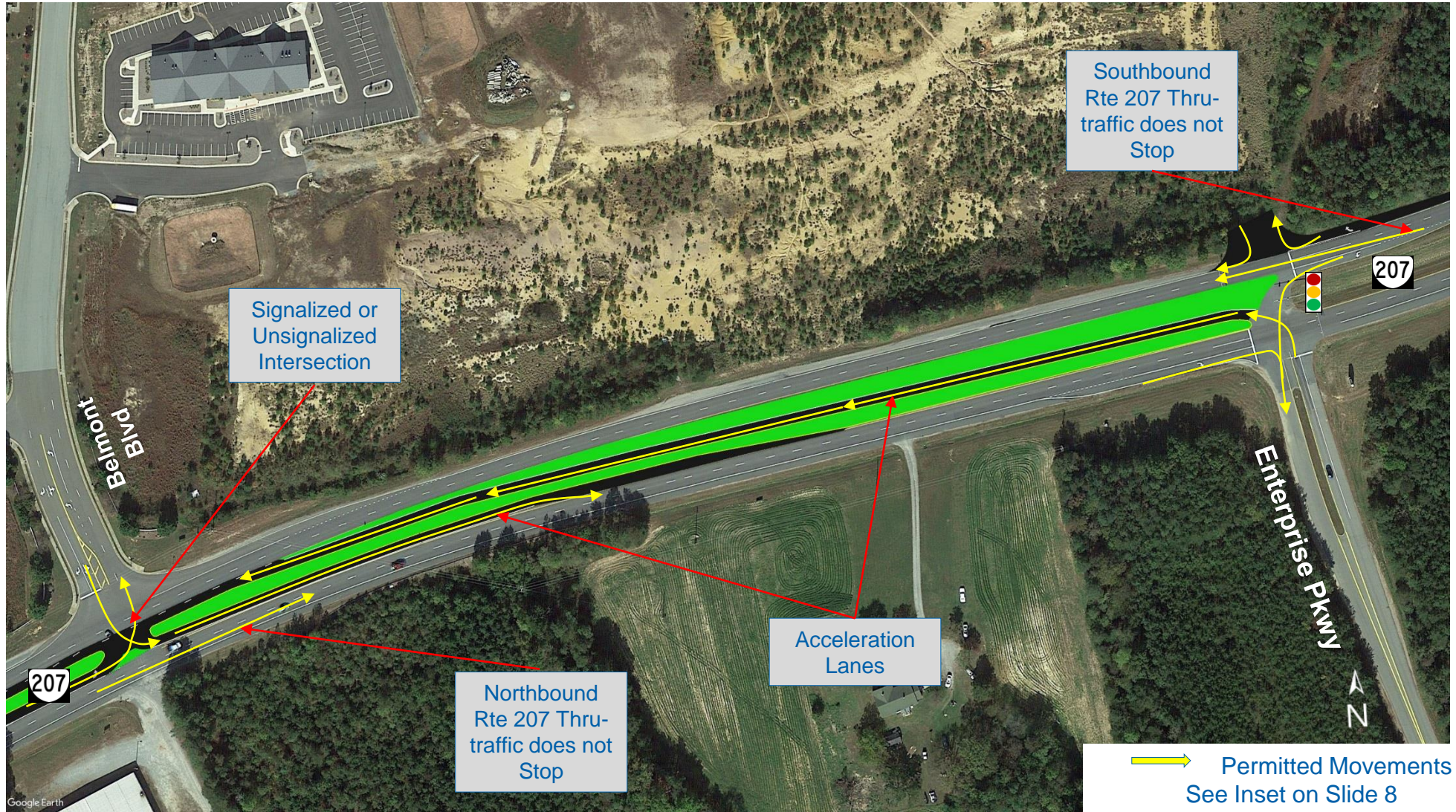


- 3.4** Extend Rte 207 southbound right-turn lane onto Moncure Dr
- 1.9** Realign Dry Bridge Rd with extension project. Evaluate speed zone between the section prior to Dry Bridge Rd and I-95 interchange due to increasing development
- 1.8** Reconfigure intersection to Continuous Green-T to accommodate Enterprise Pkwy traffic. Allow right-ins/outs for future road across from Enterprise Pkwy. Install three-phased traffic signal (see slide 9)
- 1.5** Reconfigure intersection to Continuous Green-T to accommodate Belmont Blvd. Install three-phased traffic signal (see slide 9)
- 0.6** I-95 Interchange requires further study. Short term solutions include modifying the northbound I-95 off ramp to include dedicated left turn lanes with a shared right turn and/or extending the southbound Rte 207 right-turn lane onto I-95
- 0.5** Intersection to require further study in conjunction with I-95 Interchange Study and/or multimodal transportation center
- 0.2** Consolidate Driveways between Welcome Way Dr and Rte 1 . Construct directional median at Partnership Blvd
- 0.1** Construct inter-parcel connectors to Rte 1 and Rte 207. Prohibit additional curb cuts along Rte 207 between Rte 1 and the I-95 interchange

- Signalized Intersection
- Unsignalized Intersection
- Planned Regional Road Extension
- Recommended Connection
- Median Crossovers
- Recommended Crossover Removal
- Milepost

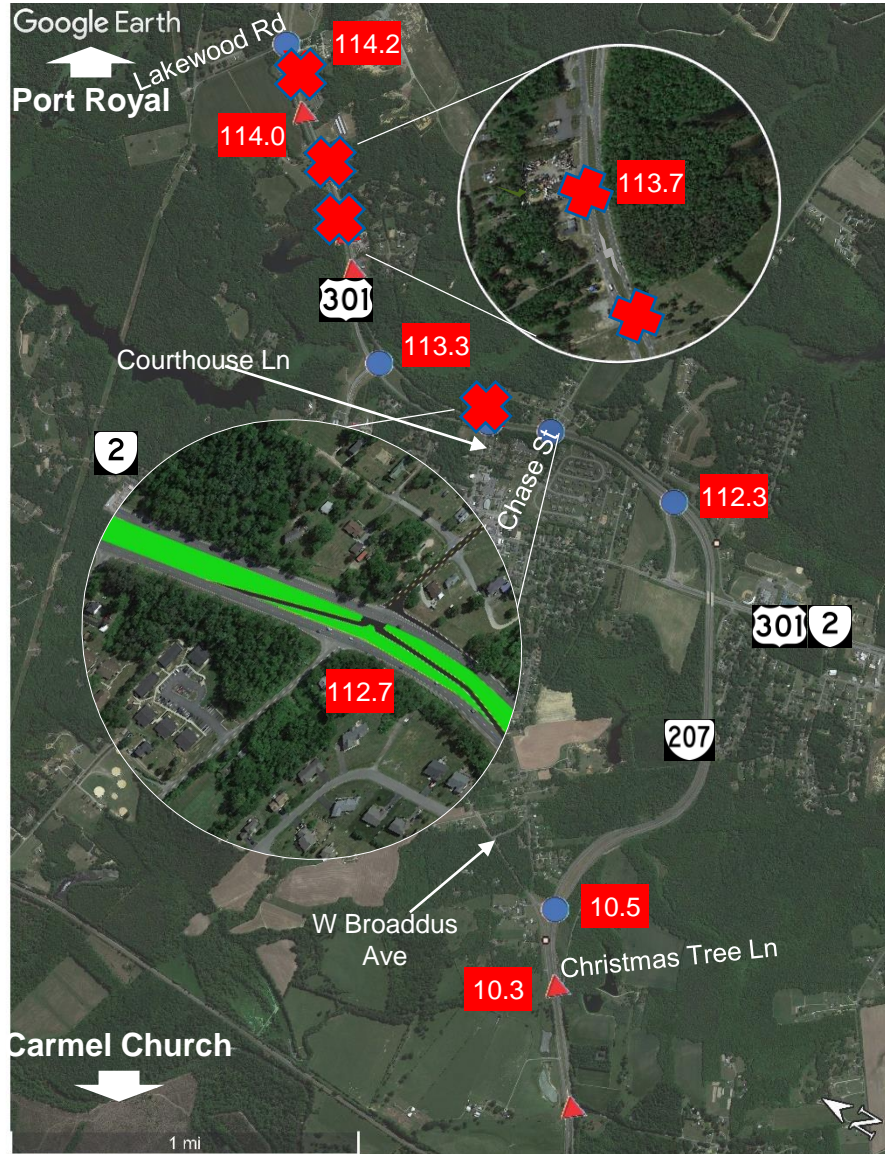
Preliminary Recommendations

Phase 1 Area: Carmel Church– Continuous Green-T



Preliminary Recommendations

Phase 1 Area: Town of Bowling Green



114.2 Extend US 301 existing turn-lanes. Evaluate US 301 northbound right-turn lane for future Army expansion

114.0 Construct left-turn lanes at median crossover

113.7 Construct Full Median crossover with turn lanes at Wagon Wheel Road

113.3 Eliminate southbound US 301 left-turn lane and extend median stop bars to improve sight distance. Reconfigure intersection for Continuous Green-T

112.7 Reconfigure intersection at Chase St and Rte 207 to Continuous Green-T to accommodate westbound traffic. Crossover at Courthouse Ln restricted to emergency vehicles only, extend southbound Rte 207 right-turn lane and permit right-in-slip section (see slide 11)

112.3

10.5 Reconfigure Rte 2 entrance onto Rte 207 to Continuous Green-T

- Reconfigure intersection at W Broaddus Ave and Rte 207 to Continuous Green-T with U-turn lanes located east of accel lanes

10.3

- Modify crossover at intersection of Christmas Tree Ln and Rte 207 to a directional median allowing left and U-turns from southbound Rte 207

- Signal (see slide 11)
- Unsignalized Intersection

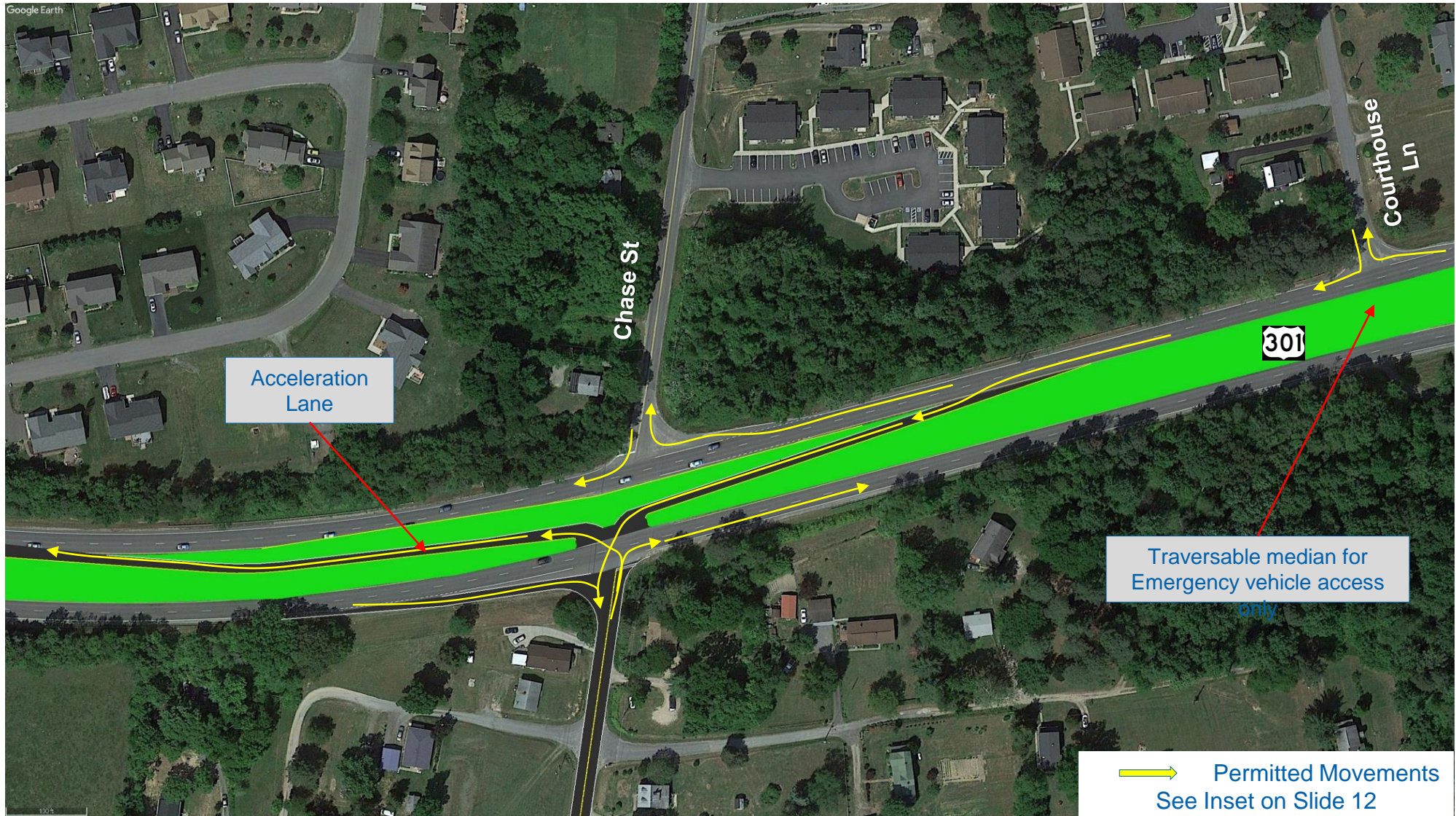
▲ Median Crossovers

✖ Recommended Crossover Removal

Milepost

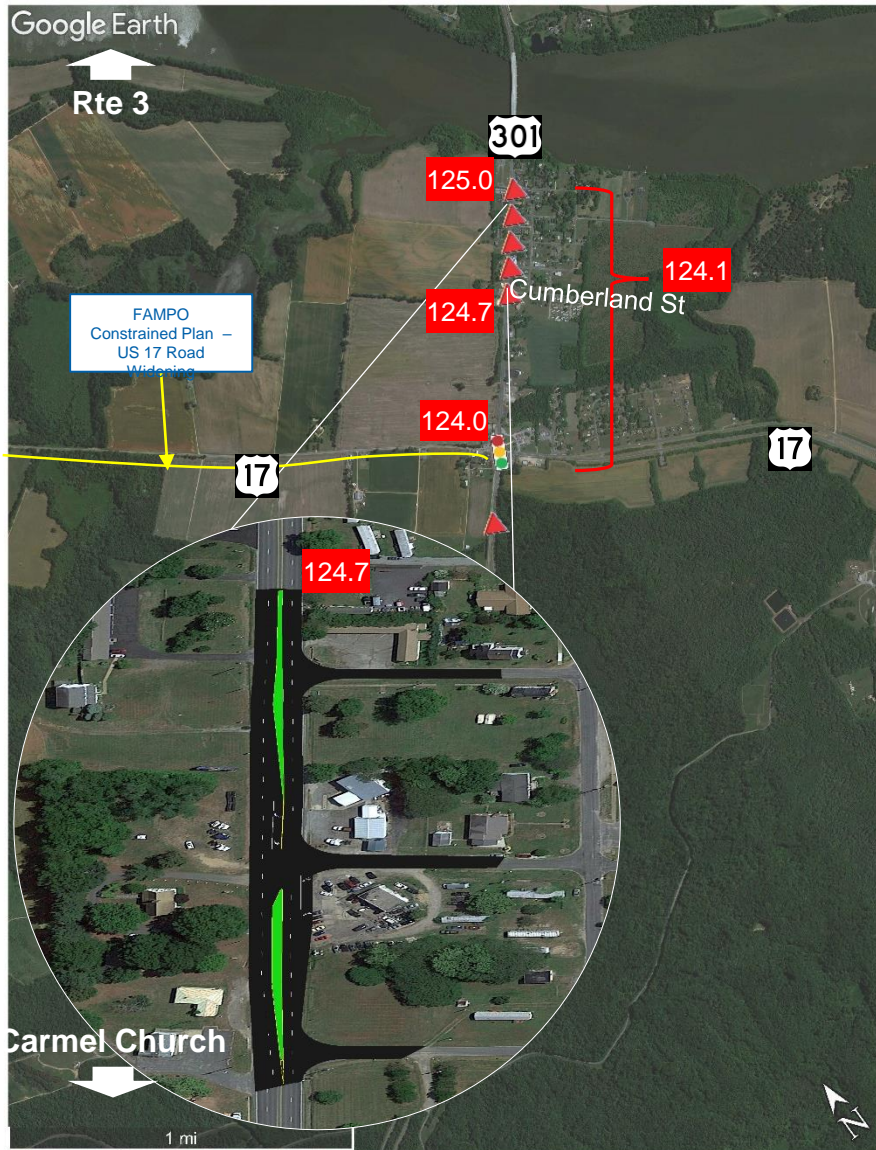
Preliminary Recommendations

Phase 1 Area: Town of Bowling Green – Continuous Green-T



Preliminary Recommendations

Phase 1 Area: Town of Port Royal








Short-term Recommendation:

- 124.7** Cumberland St to be designed as a full median crossover with turn lanes and an emergency-vehicle traffic control signal (See Slides 13/14). Convert the intersections of US 301 with Water St, Middle St, and Back St to only allow rights-in/out. Cumberland St intersection to also be configured to accommodate pedestrians.
- 124.1**
 - Reconstruct the intersection of Rte 17 and US 301 as part of the Rte 17 widening project. Construct dedicated left-turn lanes for the eastbound and westbound directions and consolidate commercial access points

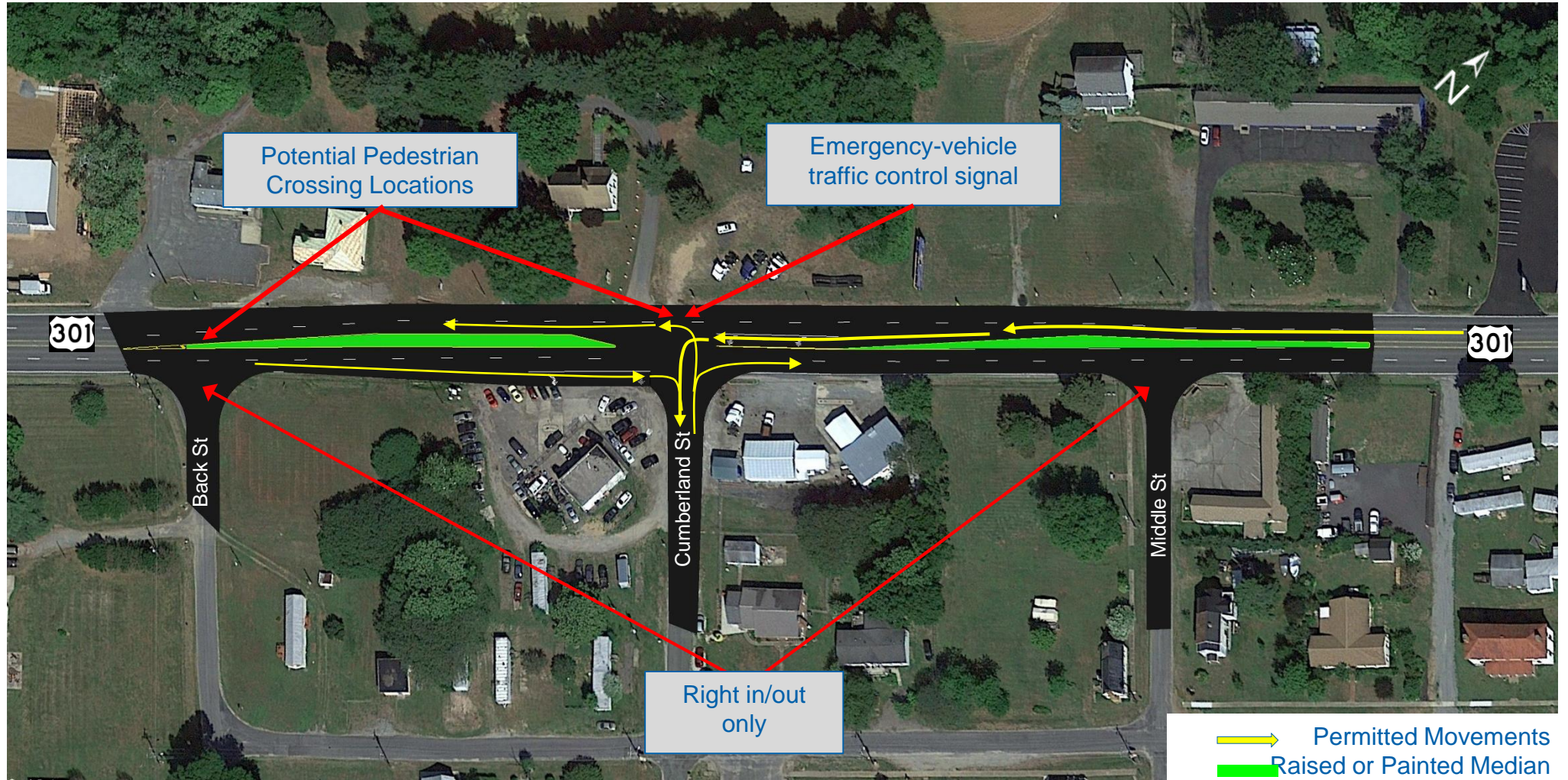
Long-term Recommendation:

- Improve US 301 from Rte 17 to the Rappahannock River Bridge to a four-lane divided roadway with curb, gutter, and sidewalks.
- Evaluate 35 MPH speed zone

- | | | | |
|---|--------------------------------|---|-------------------|
|  | Signalized Intersection |  | Median Crossovers |
|  | Unsignalized Intersection |  | Milepost |
|  | Planned Regional Road Widening | | |

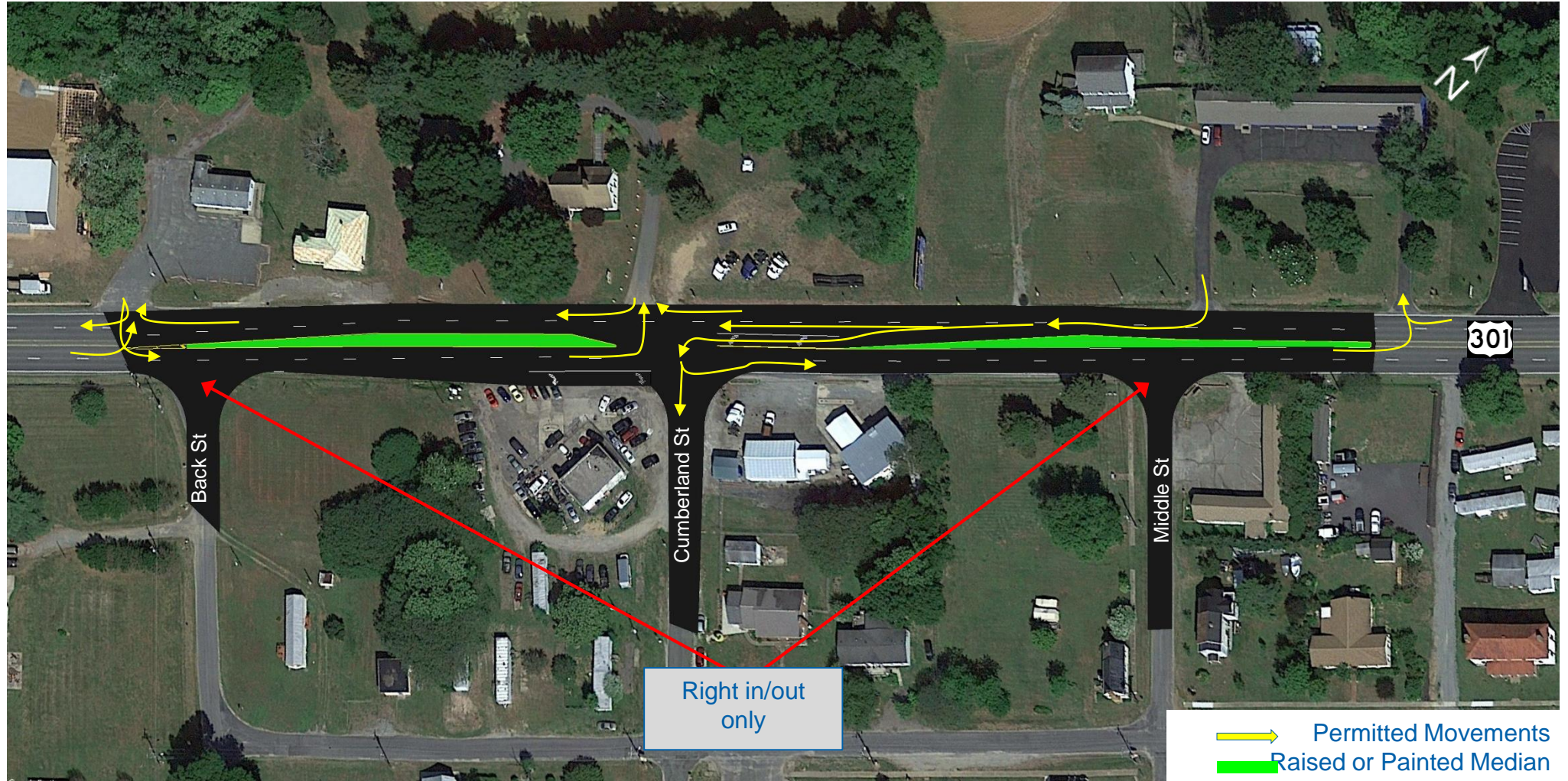
Preliminary Recommendations

Phase 1 Area: Town of Port Royal – Cumberland St Improvement



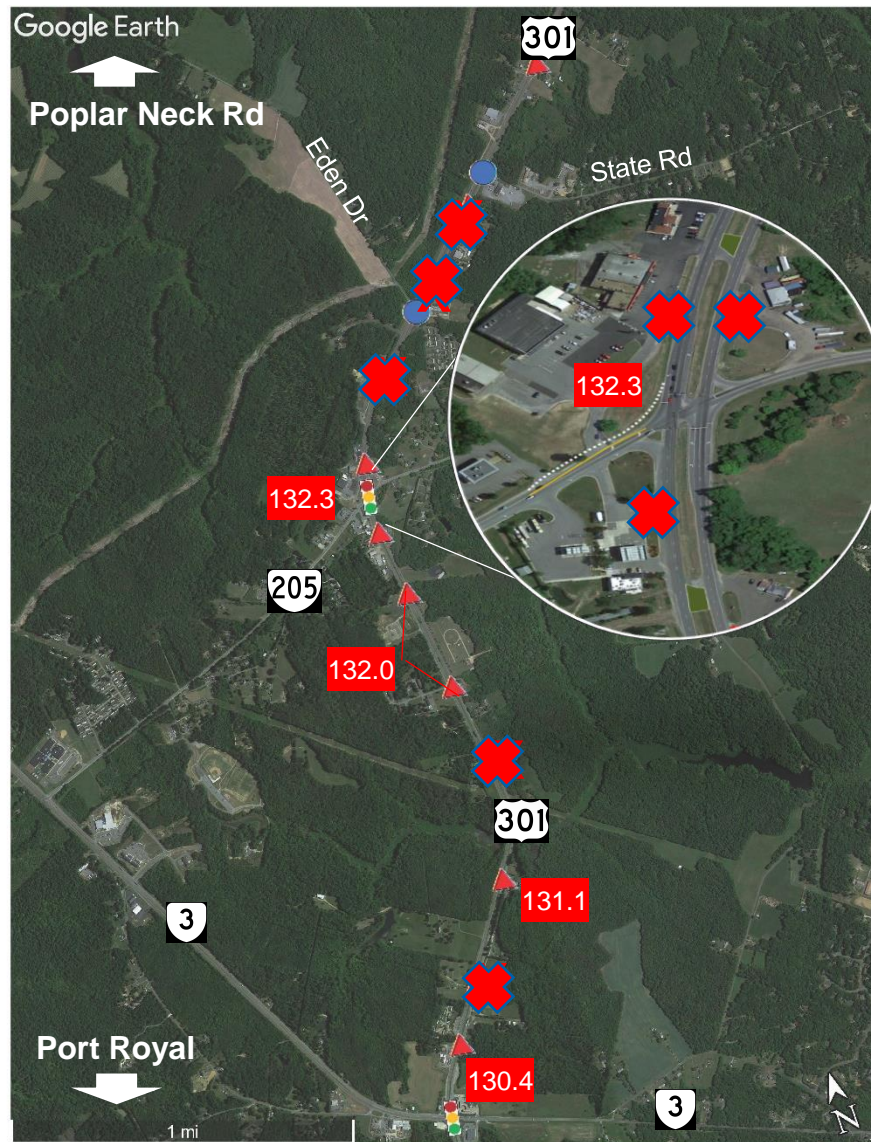
Preliminary Recommendations

Phase 1 Area: Town of Port Royal – Cumberland St Improvement








Preliminary Recommendations

King George County

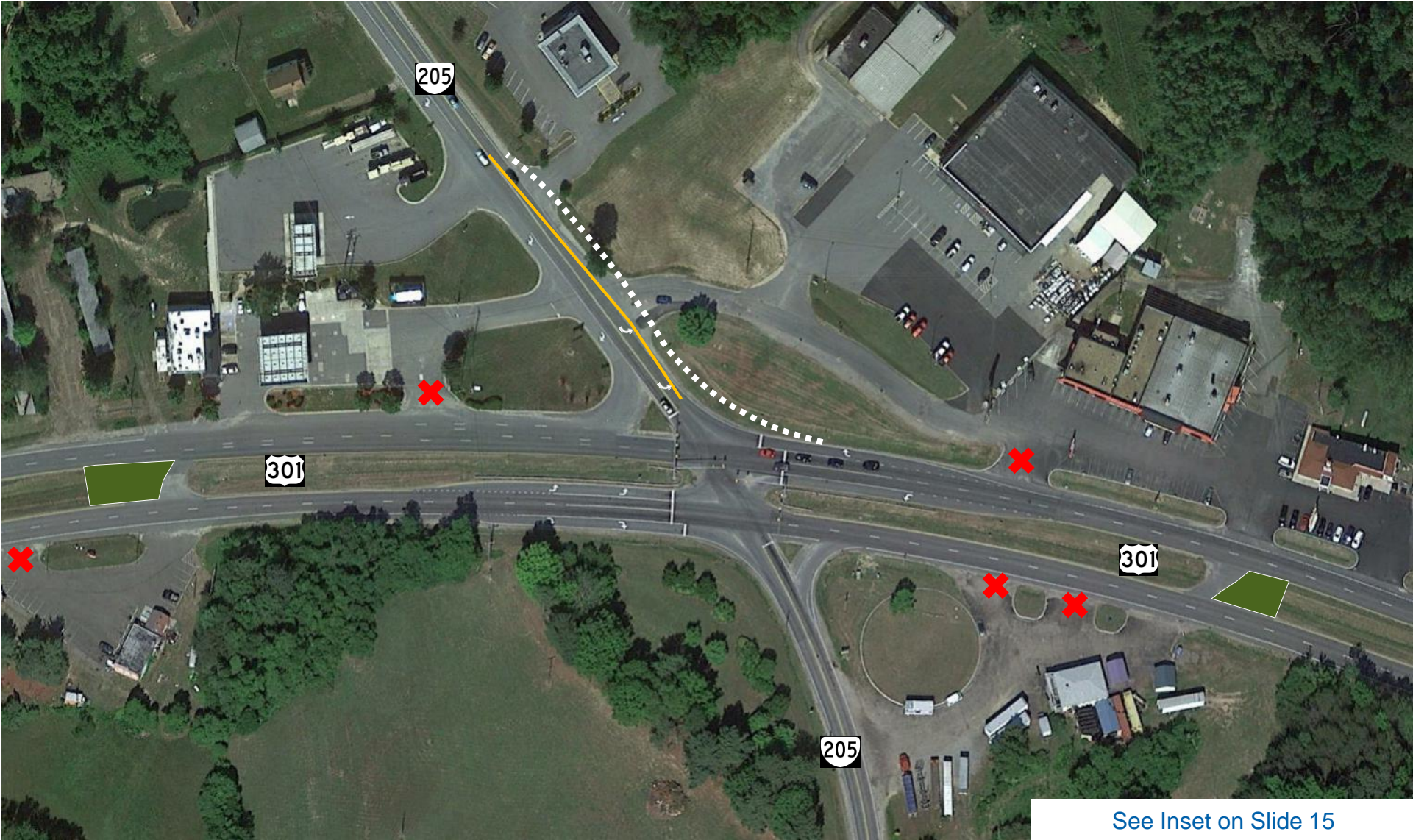


- 132.3** Construct an eastbound left turn lane and consolidate commercial access points at the intersection of Ridge Road and US 301. Convert the median crossovers to directional medians allowing left turns from the US 301 mainline (See Slide 16)
- 132.0** Construct left-turn lanes at median crossovers
- 131.1** Add existing left-turn lanes at median crossover
- 130.4** Construct a westbound left-turn lane at the intersection of Rte 3 and US 301 for westbound direction.

-  Signalized Intersection
-  Unsignalized Intersection
-  Median Crossovers
-  Recommended Crossover Removal
-  Milepost

Preliminary Recommendations

Phase 1 Area: King George County – Rte 205 Dedicated Left-Turn Lane

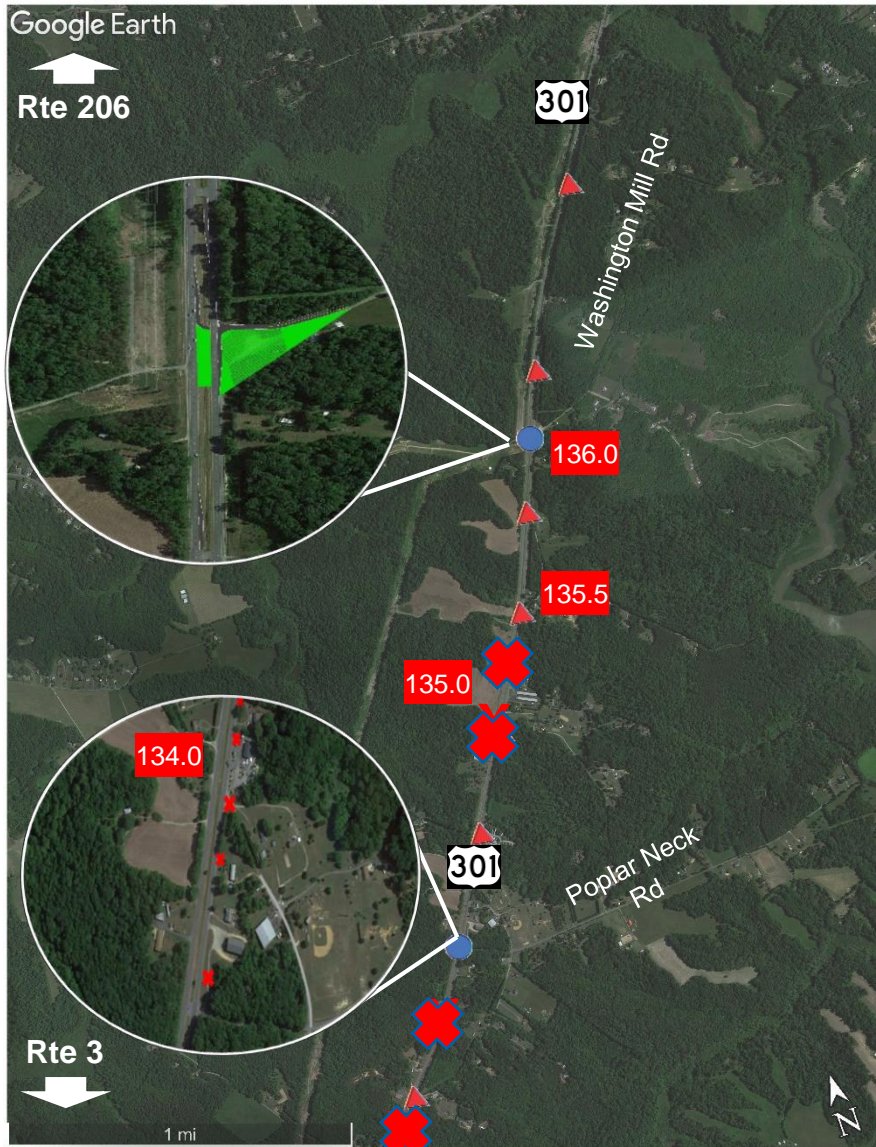


See Inset on Slide 15



Preliminary Recommendations

Phase 1 Area: King George County



136.0 Relocate the intersection of Washington Mill Road and US 301 to the north to remove the intersection skew. Construct the relocated intersection as an RCUT and reconstruct the median crossovers to the north and south to allow U-turns. Coordinate the intersection relocation with the King George County Road extension project.

135.5

- Construct left and right turn lanes at the southern intersection of US 301 and Chestnut Hill Loop

135.0

- Eliminate crossovers and construct full median crossover in between existing crossovers to accommodate residential access

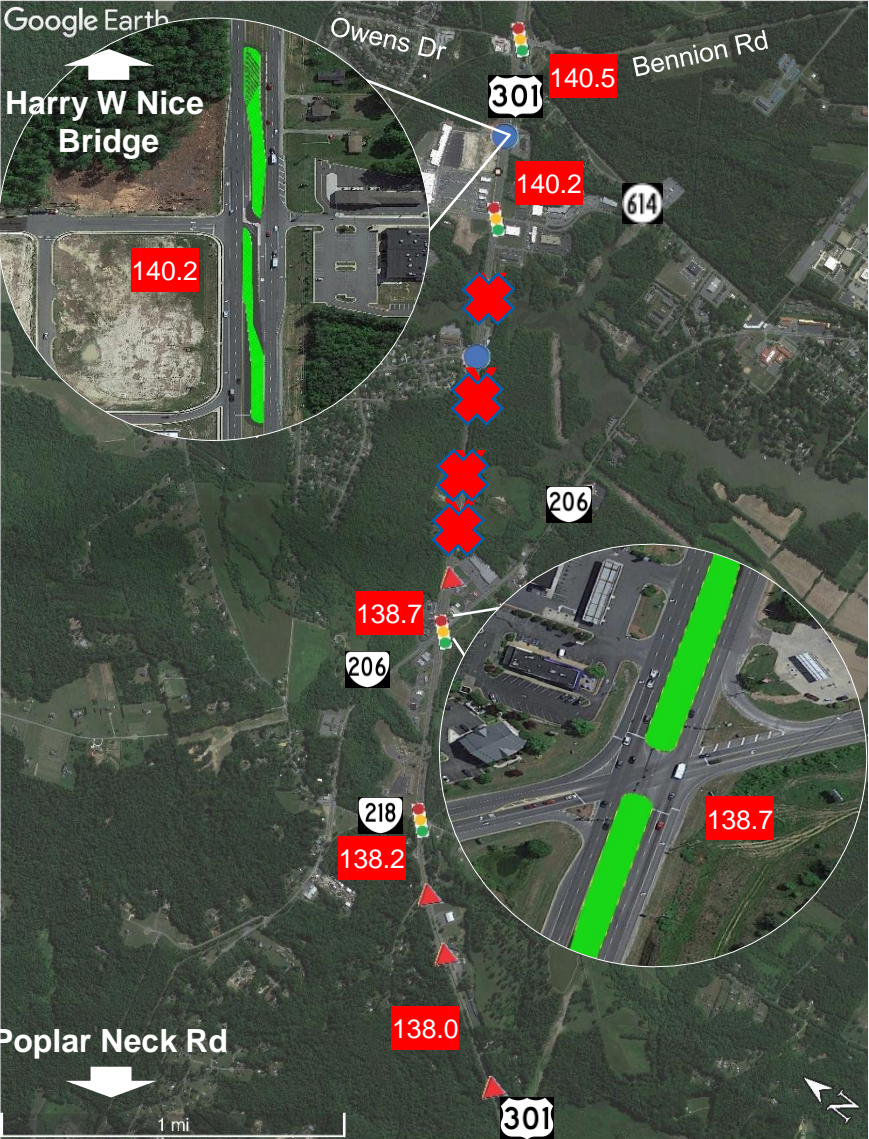
134.0

- Consolidate commercial access points in the Poplar Neck Rd vicinity. Close the SR 633 access point just north of Poplar Neck Road or reconstruct the access points to VDOT standards

- | | | | |
|--|---------------------------|--|-------------------------------|
| | Signalized Intersection | | Median Crossovers |
| | Unsignalized Intersection | | Recommended Crossover Removal |
| | ### Milepost | | |

Preliminary Recommendations

Phase 1 Area: King George County



140.5 Extend the southbound left-turn lane at the intersection of US 301 and Owens Drive to ensure vehicles entering the military base do not queue into the US 301 mainline. Evaluate speed between Owens Dr and University Dr

140.2

- RCUT at the intersection of Market Ctr and US 301. (See slide 19)

138.7

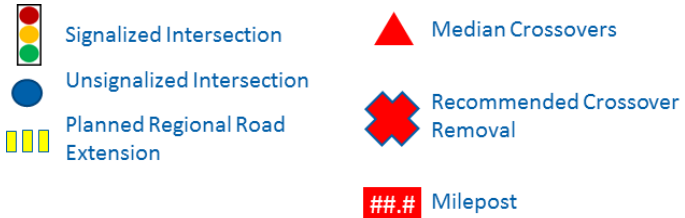
- Increase green time at the intersection of US 301 and Rte 206 by prohibiting northbound and southbound left turns from US 301 and constructing U-turn areas north and south of the intersection. Construct an additional left turn lane on the eastbound approach and extend the existing eastbound and westbound left-turn bays (See Slide 20)

138.2

- Reconstruct the intersection of US 301 and Rte 218 as an unsignalized directional median allowing left turns from northbound and southbound directions. Construct an acceleration lane for Rte 218 right-turns onto northbound US 301

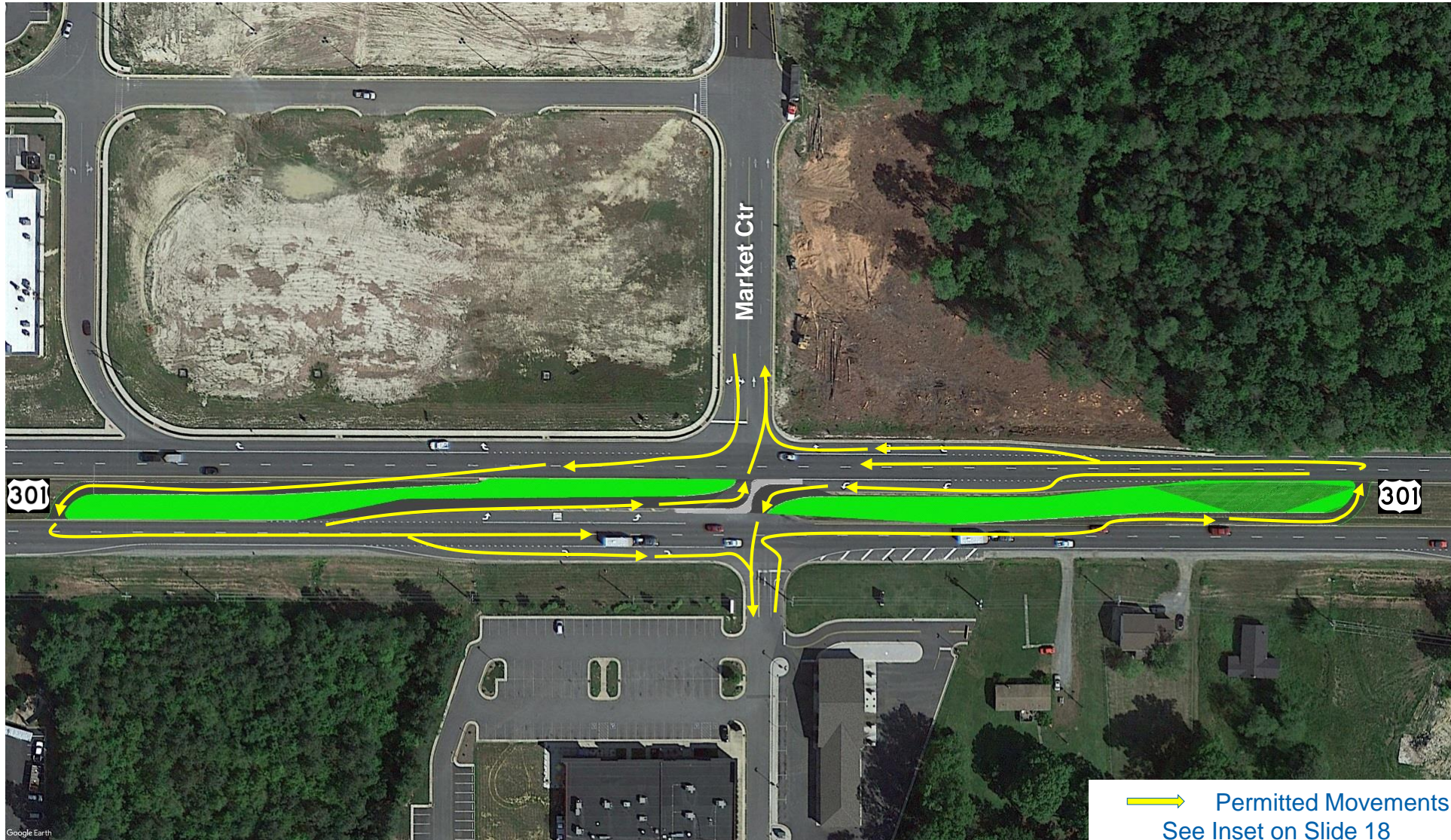
138.0

- Construct northbound and southbound left-turn lanes on US 301 at the full median



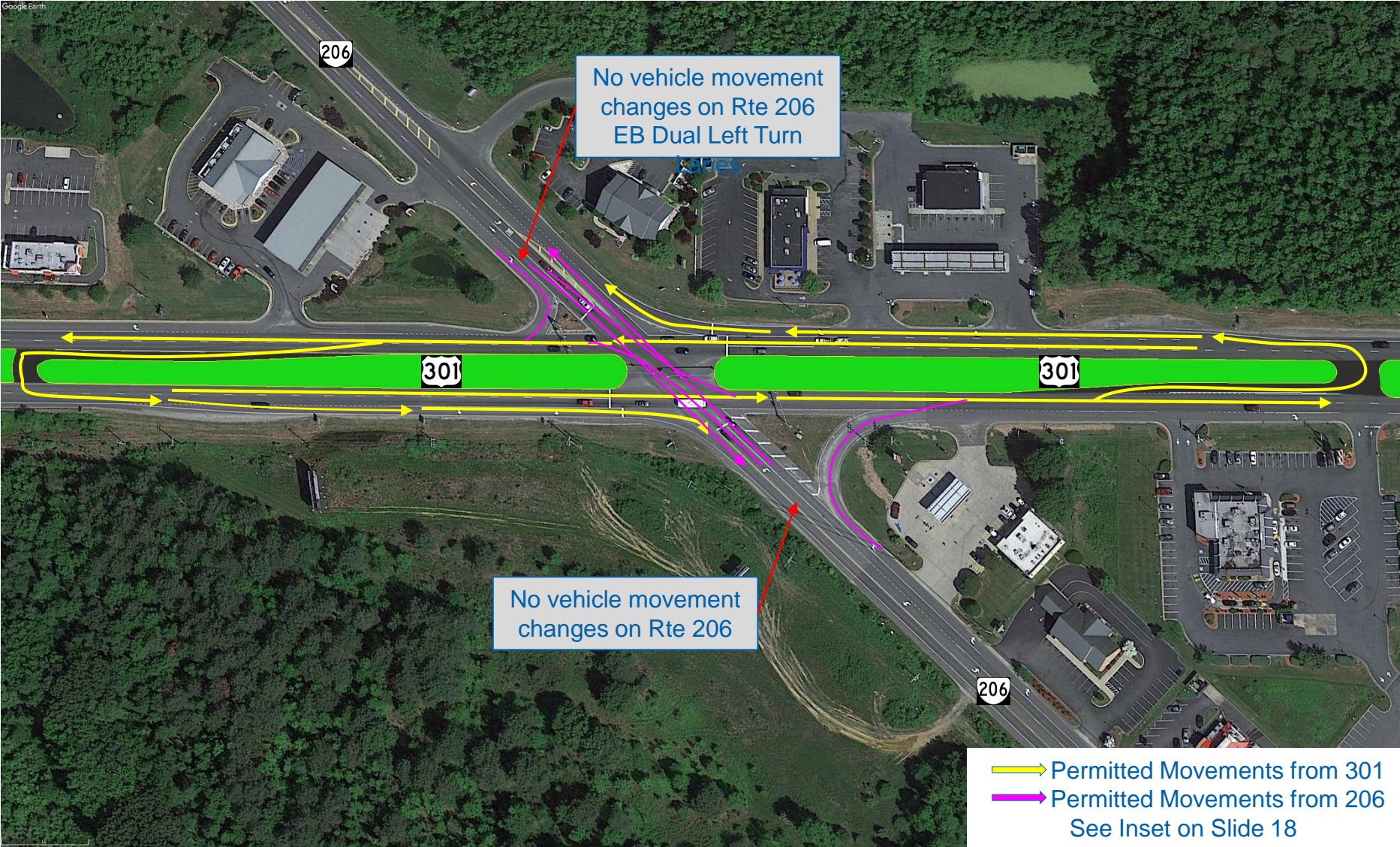
Preliminary Recommendations

Phase 1 Area: King George County – Market Ctr Improvement



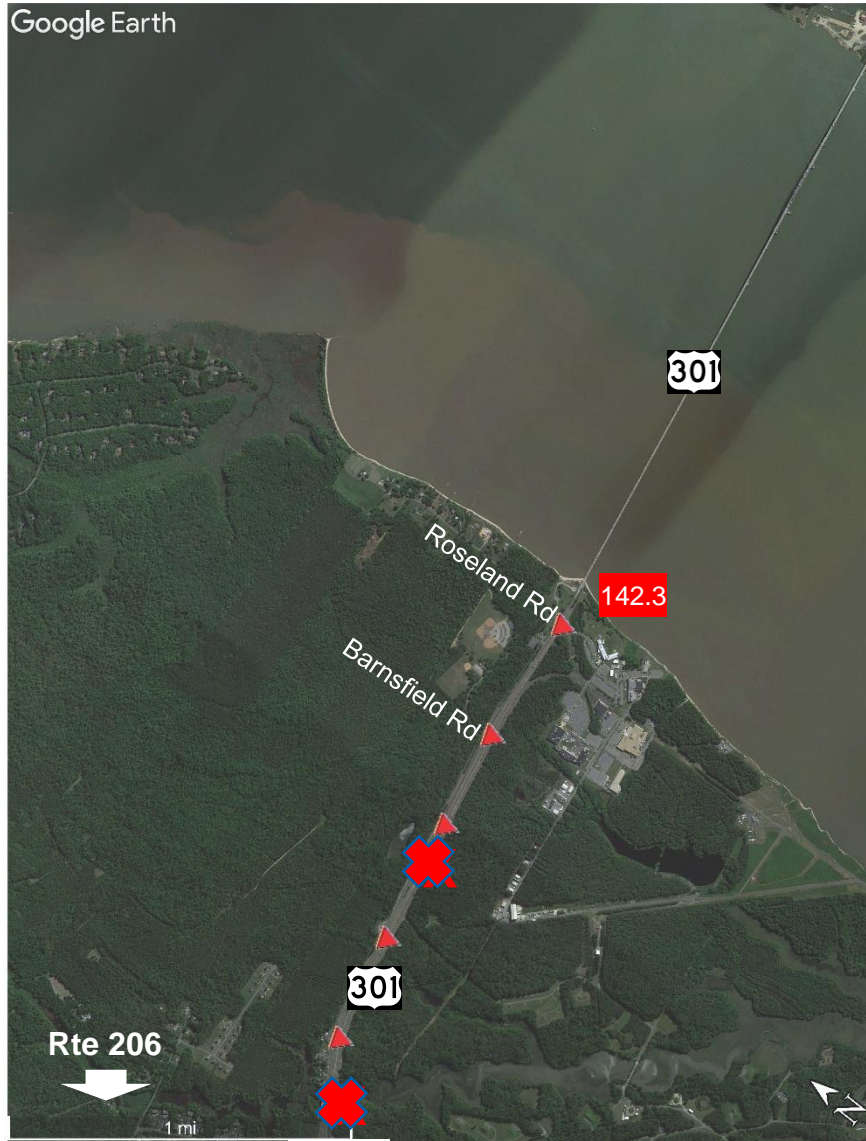
Preliminary Recommendations

Phase 1 Area: King George County – US 301 & Rte 206 Partial Median U-Turn

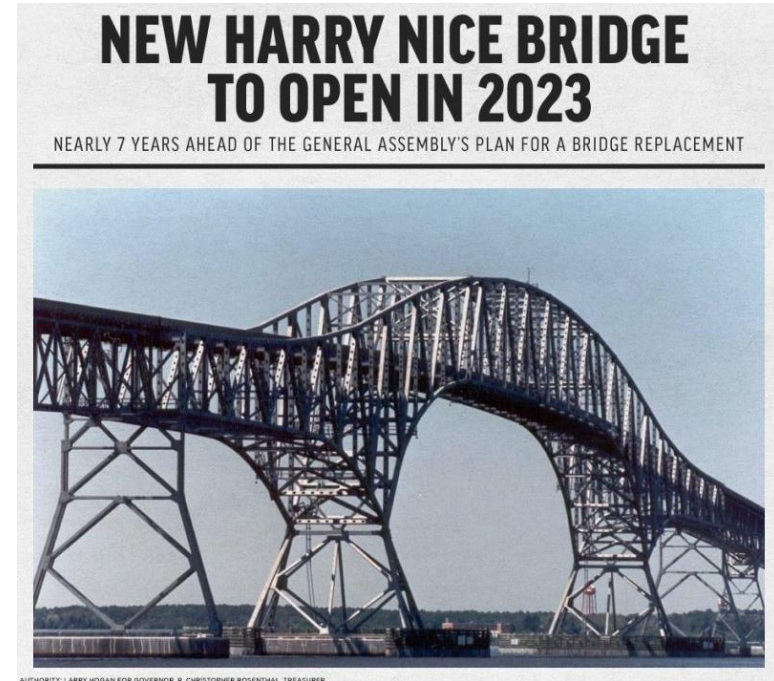







Preliminary Recommendations

Phase 1 Area: King George County

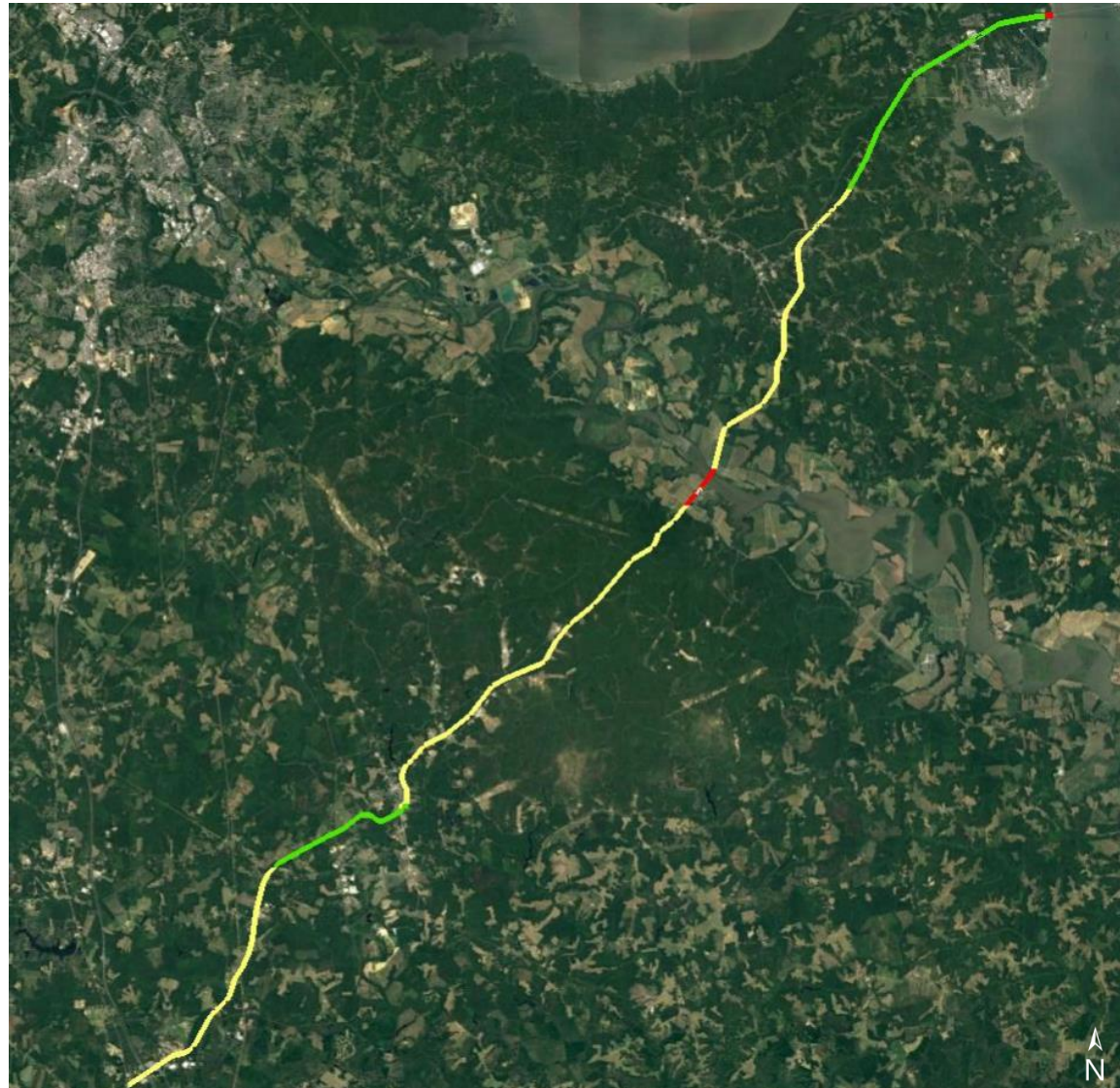


142.3 Planned Harry W. Nice Bridge Widening



-  Signalized Intersection
-  Unsignalized Intersection
-  Median Crossovers
-  Recommended Crossover Removal
-  Milepost

Opportunities for Improvement Shoulders



Study team seeking more precise data about shoulders

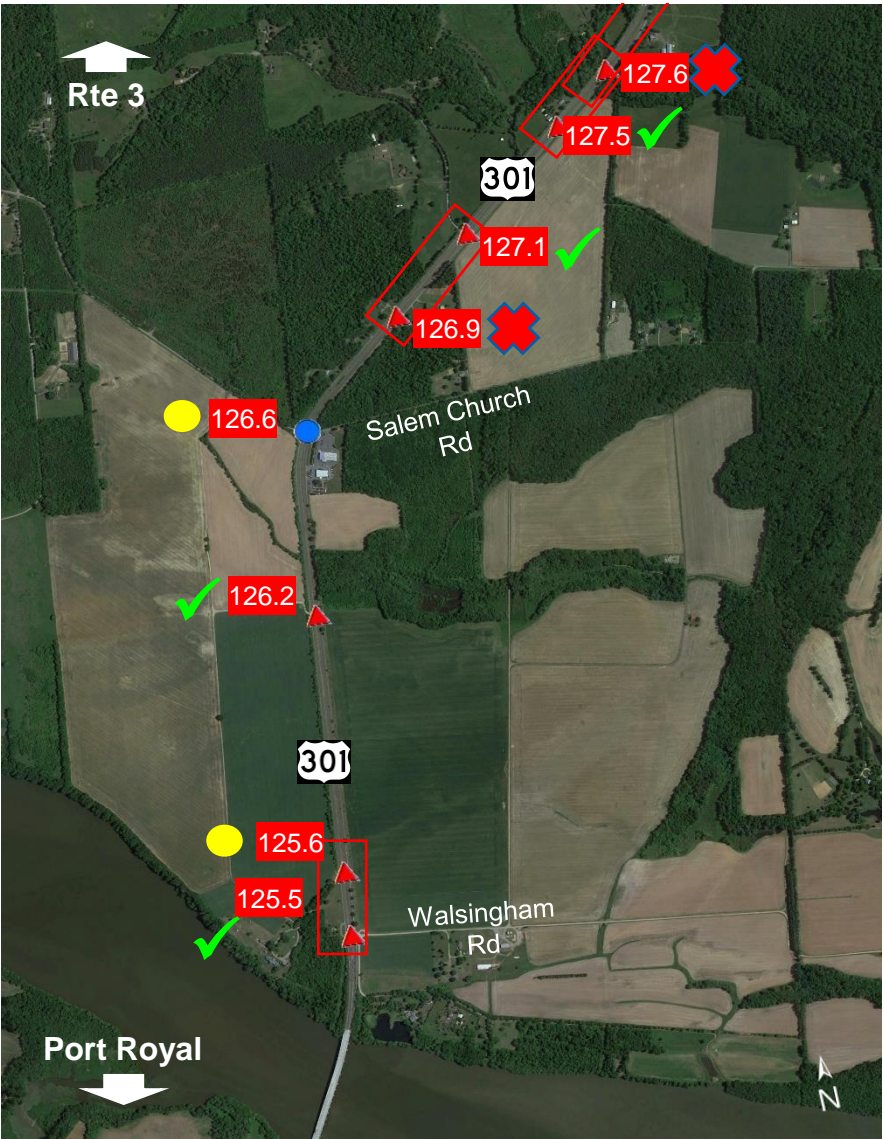
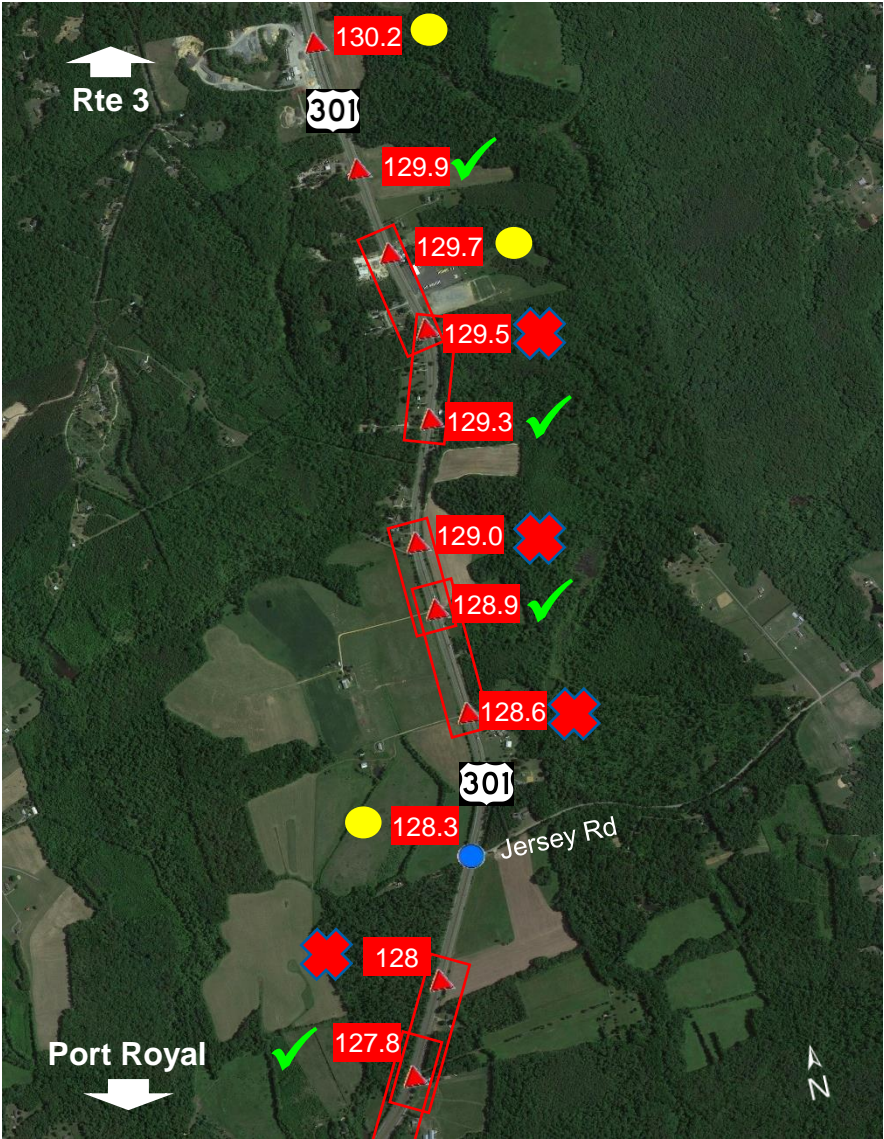
Meets VDOT Requirements

Meets on one-side of roadway

Does not meet

Preliminary Recommendations

Phase 2 Area: King George County



- Unsignalized Intersection
- ▲ Median Crossovers
- Inadequate intersection spacing per VDOT standards
- ✓ Meets requirements/no recommended improvements
- ✕ Recommend remove crossover
- Needs improvements
- ### Milepost

Preliminary Recommendations

Phase 2 Area: King George County



Milepost	Recommendation
130.2	Construct northbound and southbound left-turn lanes and lengthen southbound US 301 right-turn lane storage and taper; Expand spacing between opening in median to accommodate trucks turning
129.7	Construct northbound and southbound left-turn lanes ; Expand spacing between opening in median to accommodate trucks turning
128.3	Lengthen existing turn-lanes on US 301; Expand spacing between opening in median to accommodate traffic cutting median; Potential for road realignment (< 50°)
126.6	Lengthen existing left-turn lanes on US 301; Future VDOT project to provide actuated advance warning prior to intersection and reconfigure intersection for RCUT; Potential for road realignment (< 55°)

Preliminary Recommendations

Phase 2 Area: King George County

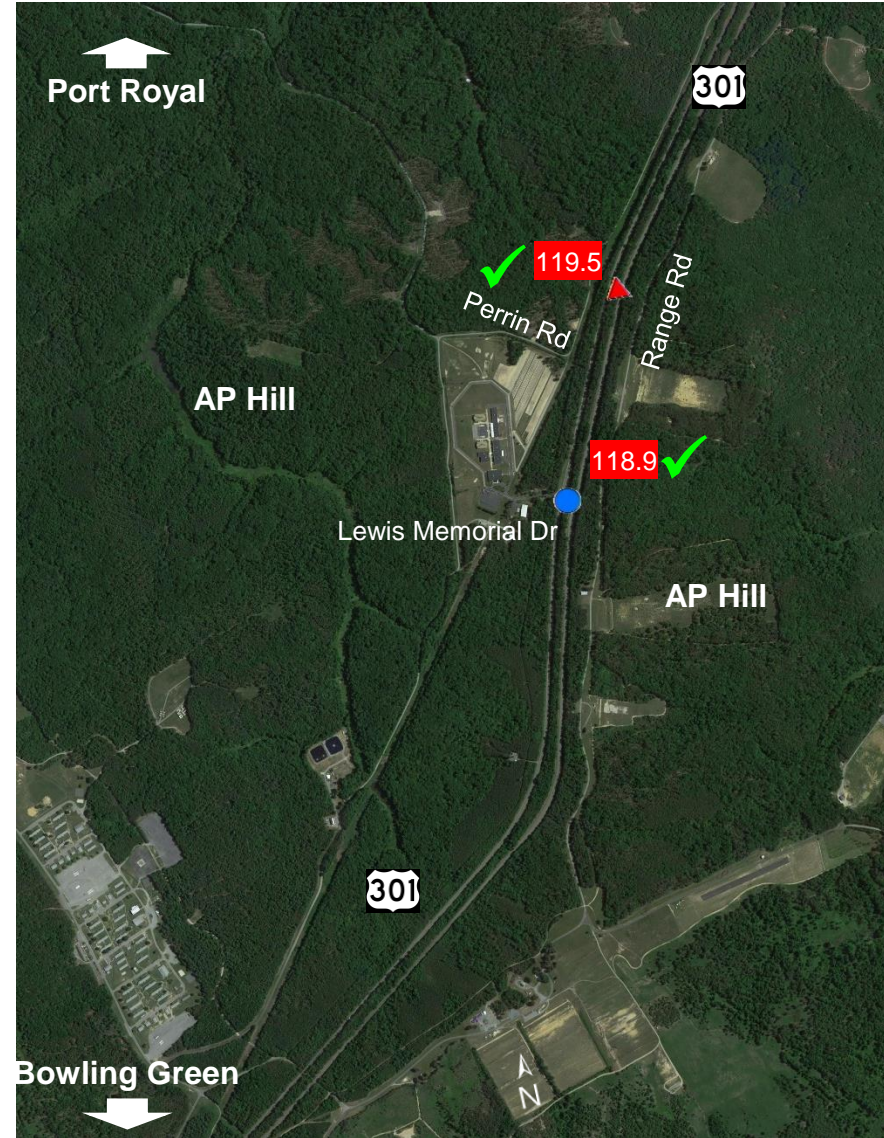
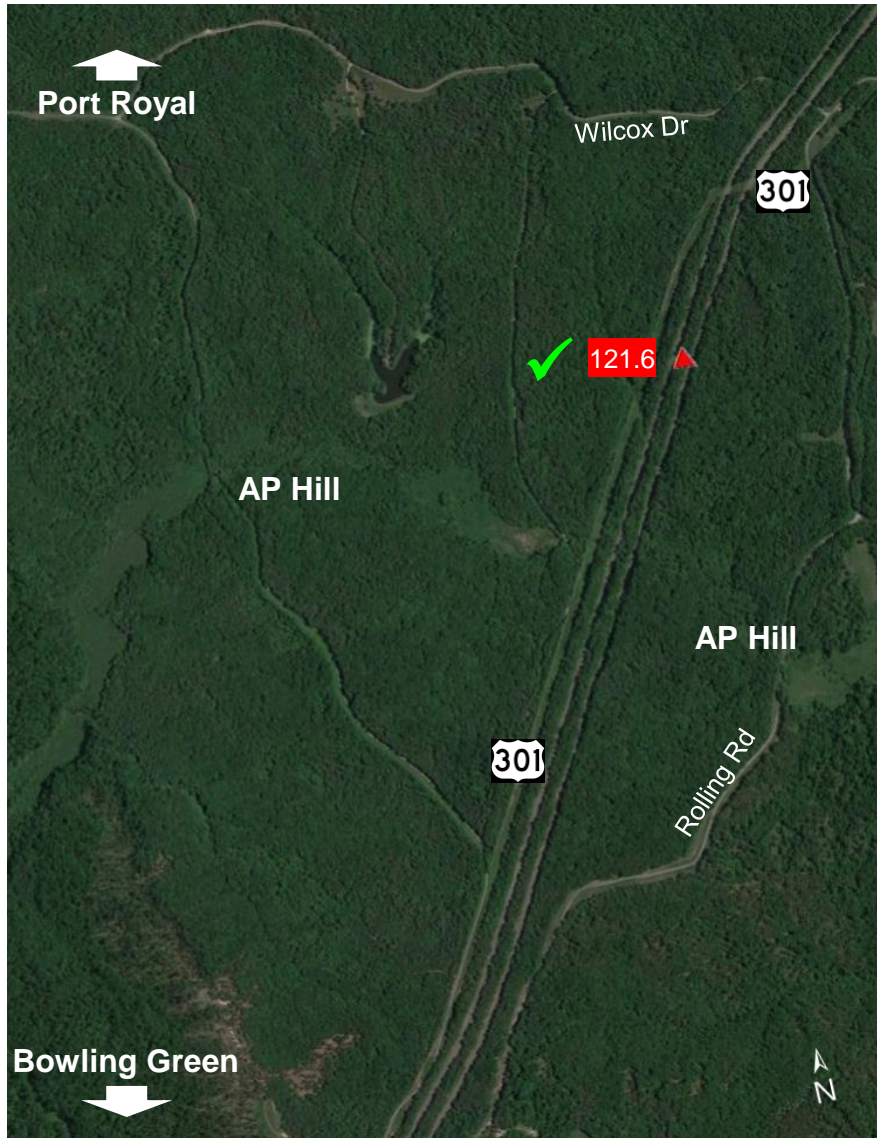
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Milepost	Recommendation
125.6	Reconfigure existing crossover to a directional median allowing left turns from northbound US 301

Preliminary Recommendations

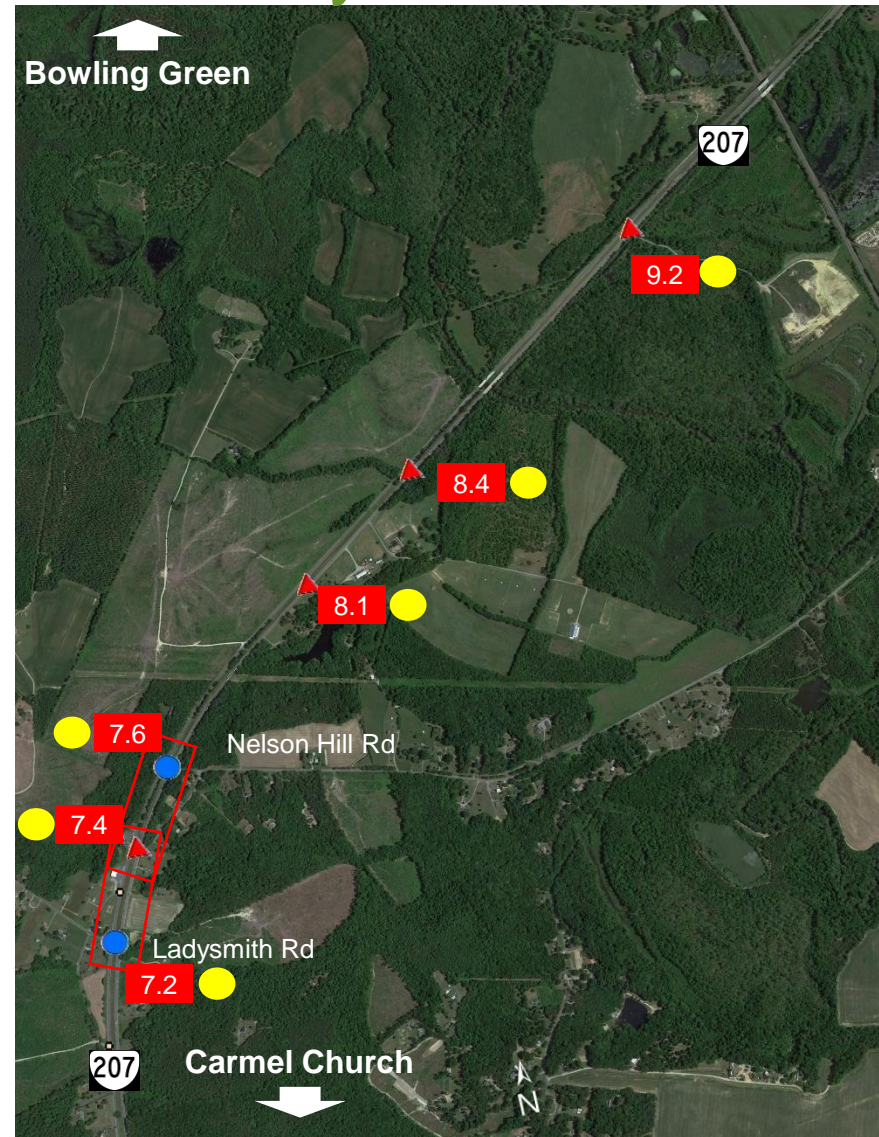
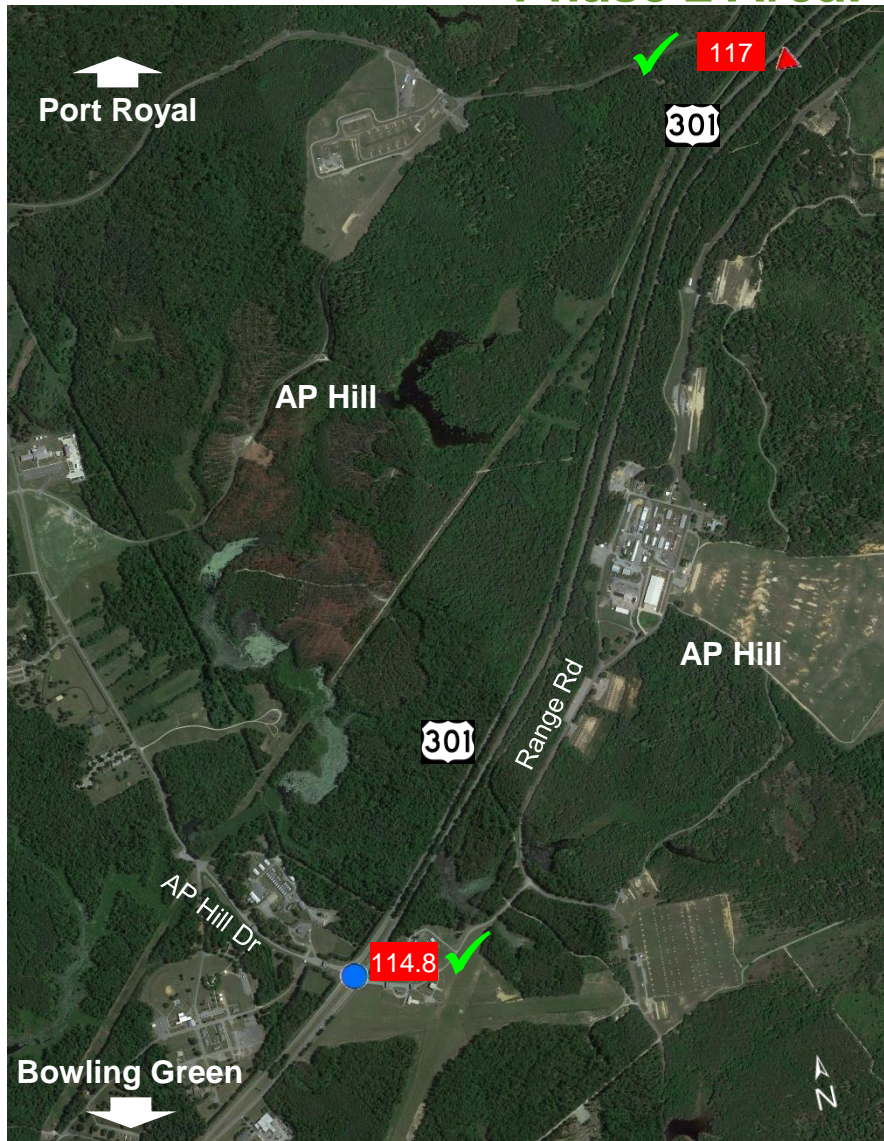
Phase 2 Area: Caroline County



- Unsignalized Intersection
- ▲ Median Crossovers
- Inadequate intersection spacing per VDOT standards
- ✓ Meets requirements/no recommended improvements
- ✘ Recommend remove crossover
- Needs improvements
- ##.# Milepost

Preliminary Recommendations

Phase 2 Area: Caroline County



- Unsignalized Intersection
- ▲ Median Crossovers
- Inadequate intersection spacing per VDOT standards
- ✓ Meets requirements/no recommended improvements
- ✘ Recommend remove crossover
- Needs improvements
- ##.# Milepost

Preliminary Recommendations

Phase 2 Area: Caroline County



Milepost	Recommendation
114.8 (US 301)	Intersection may require further study
9.2 (Rte 207)	Lengthen existing left-turn lanes on Rte 207
8.4 (Rte 207)	Lengthen existing left-turn lanes on Rte 207
8.1 (Rte 207)	Lengthen existing left-turn lanes on Rte 207

Preliminary Recommendations

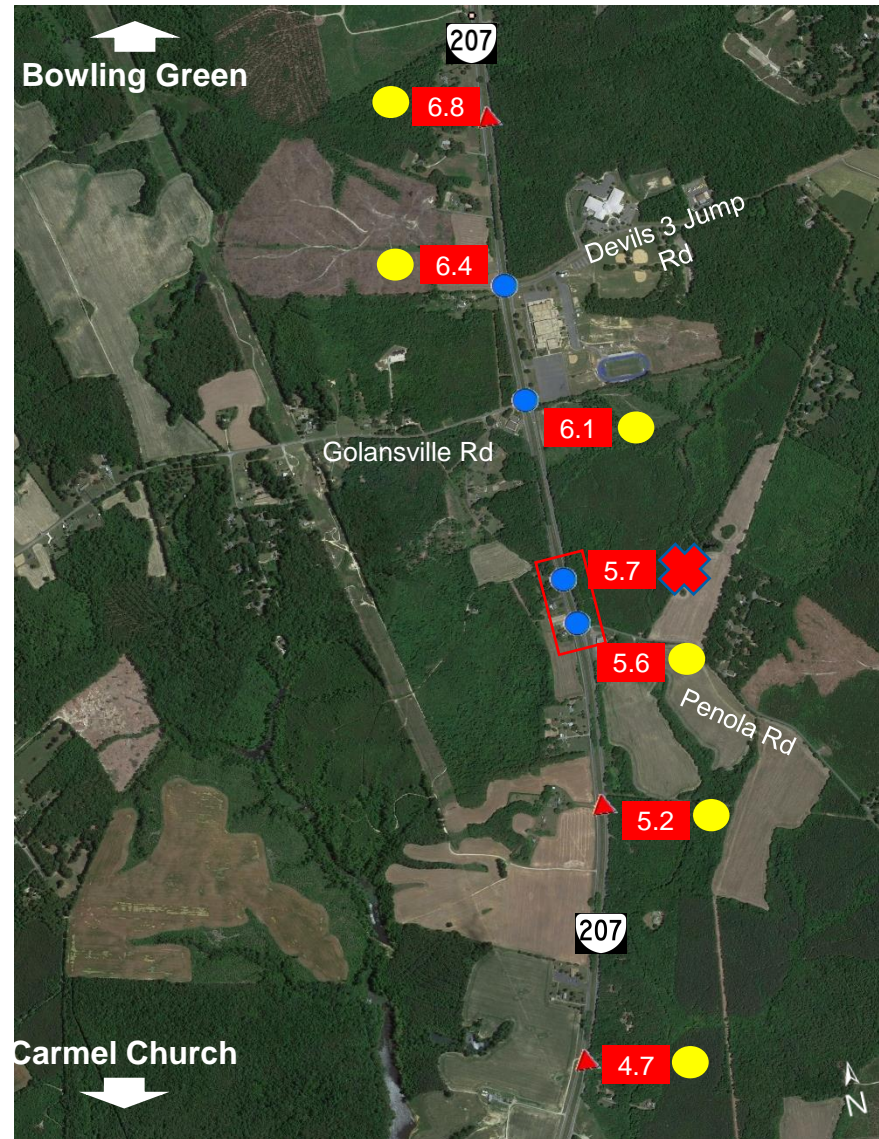
Phase 2 Area: Caroline County



Milepost	Recommendation
7.6	Lengthen existing turn-lanes on Rte 207
7.4	Reconfigure existing crossover to directional crossover to only permit lefts-in from Rte 207 northbound
7.2	Lengthen existing turn-lanes on southbound Rte 207

Preliminary Recommendations

Phase 2 Area: Caroline County



- Unsignalized Intersection
- ▲ Median Crossovers
- Inadequate intersection spacing per VDOT standards
- ✓ Meets requirements/no recommended improvements
- ✘ Recommend remove crossover
- Needs improvements
- ### Milepost

Preliminary Recommendations

Phase 2 Area



Milepost	Recommendation
6.8	Lengthen existing left-turn lanes on Rte 207
6.4	Lengthen existing left-turn lanes on Rte 207
6.1	Lengthen existing left-turn lanes on Rte 207
5.6	Lengthen existing left-turn lanes on Rte 207

Preliminary Recommendations

Phase 2 Area

N



Milepost	Recommendation
5.2	Lengthen existing left-turn lanes on Rte 207
4.7	Lengthen existing left-turn lanes on Rte 207

Next Steps

- Receive stakeholder comments on today's material no later than 5pm Friday, December 8.
 - Provide comments to Stephen Haynes with cc to Paul Prideaux
- Public Information Meeting on December 14th at Port Royal Volunteer Fire Station 5pm – 7pm
- Study team to hold individual discussions with stakeholders as requested to review public feedback and revise / agree on study recommendations.

Contact Information

Stephen Haynes – VDOT Contact

Stephen.Haynes@vdot.virginia.gov

540.899.4709

Paul Prideaux – Michael Baker Contact

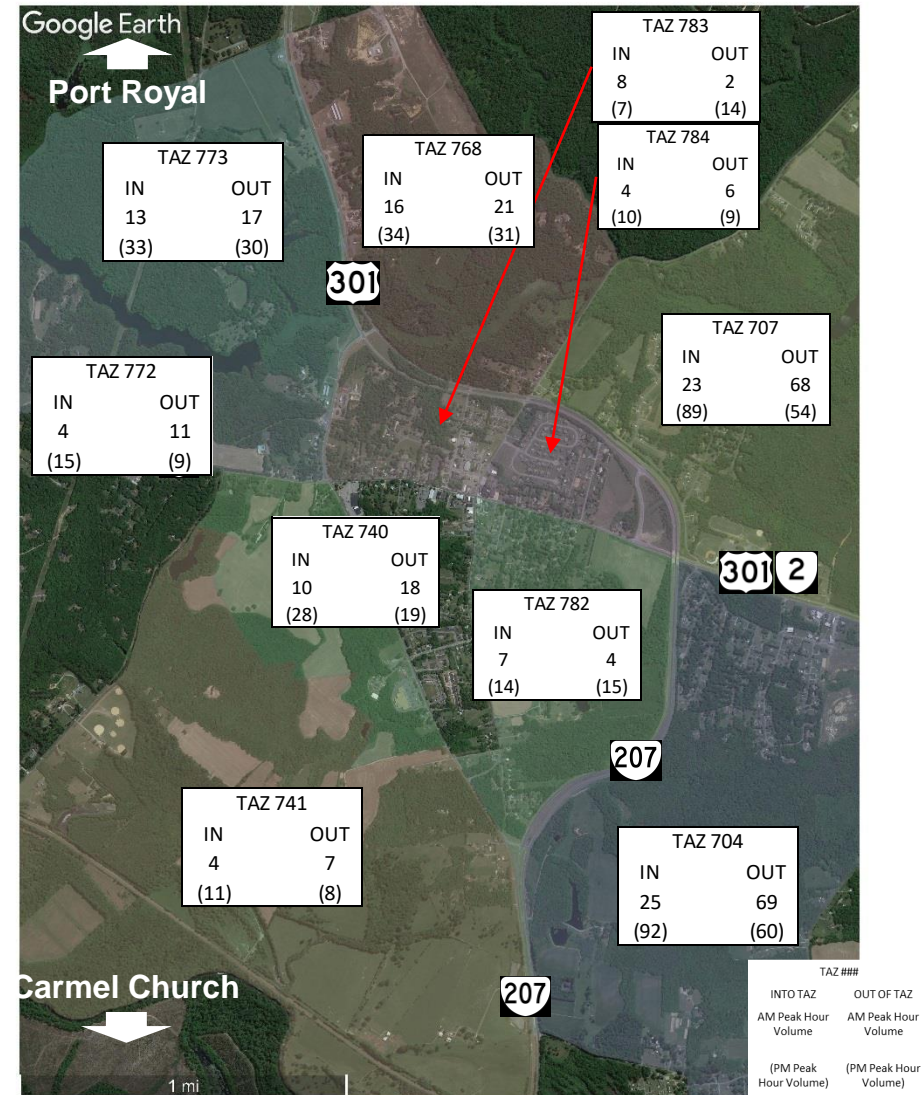
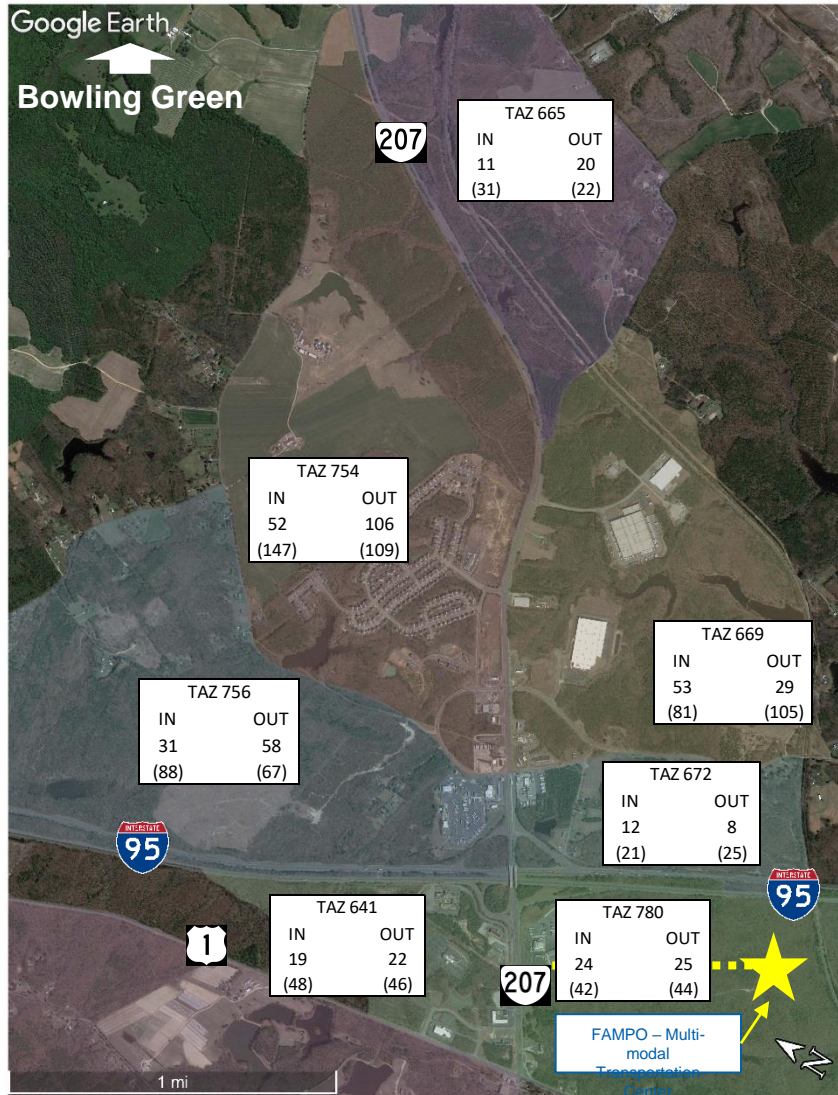
Paul.Prideaux@mbakerintl.com

804.287.3195

Appendix

Future Growth & Development

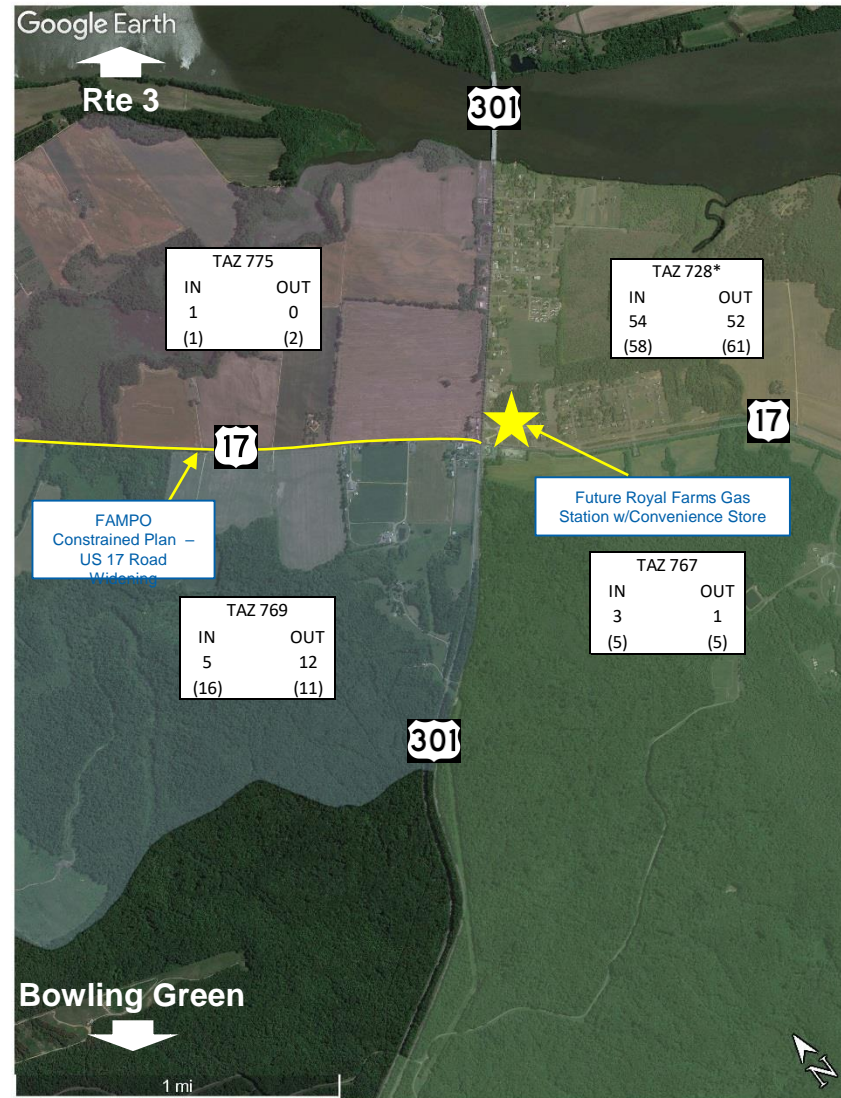
Phase 1 Area: US 301 / Route 207 Corridor



TAZ peak hour volumes indicate only the difference between 2040 land use and 2017 land use

Future Growth & Development

Phase 1 Area: US 301 / Route 207 Corridor



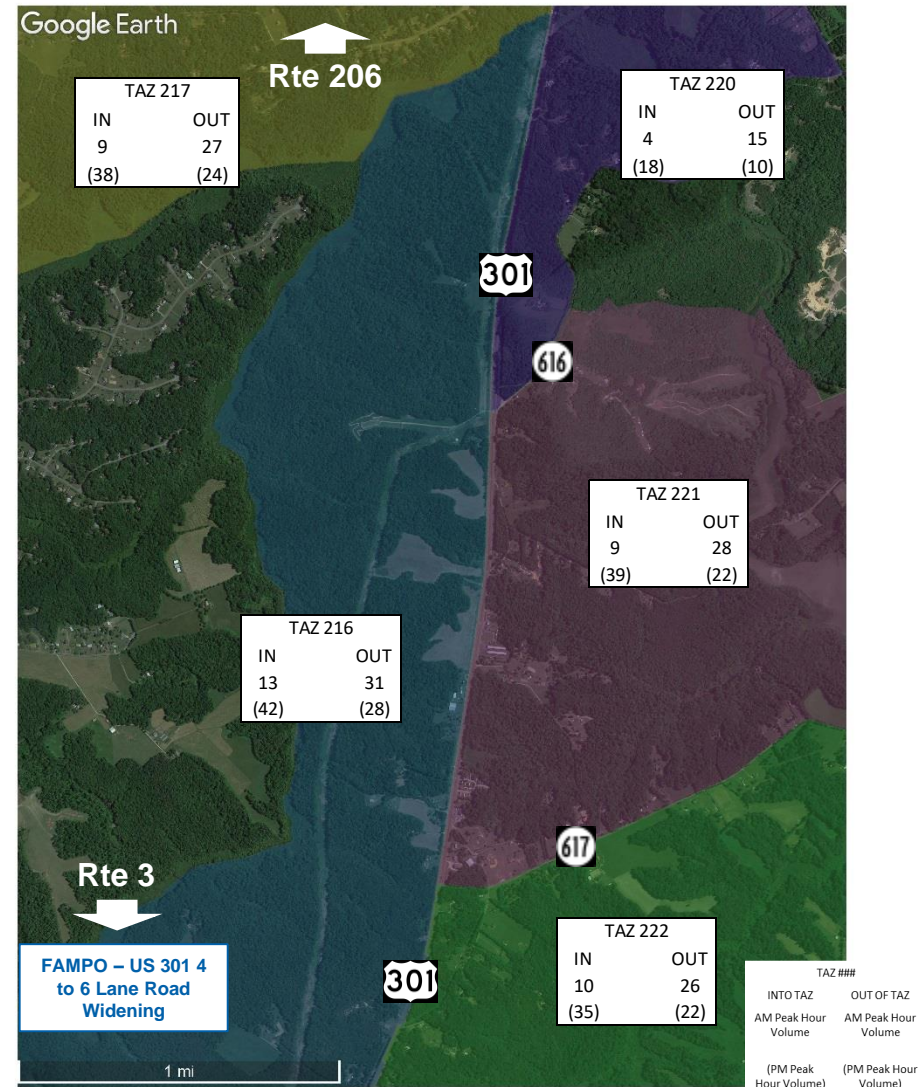
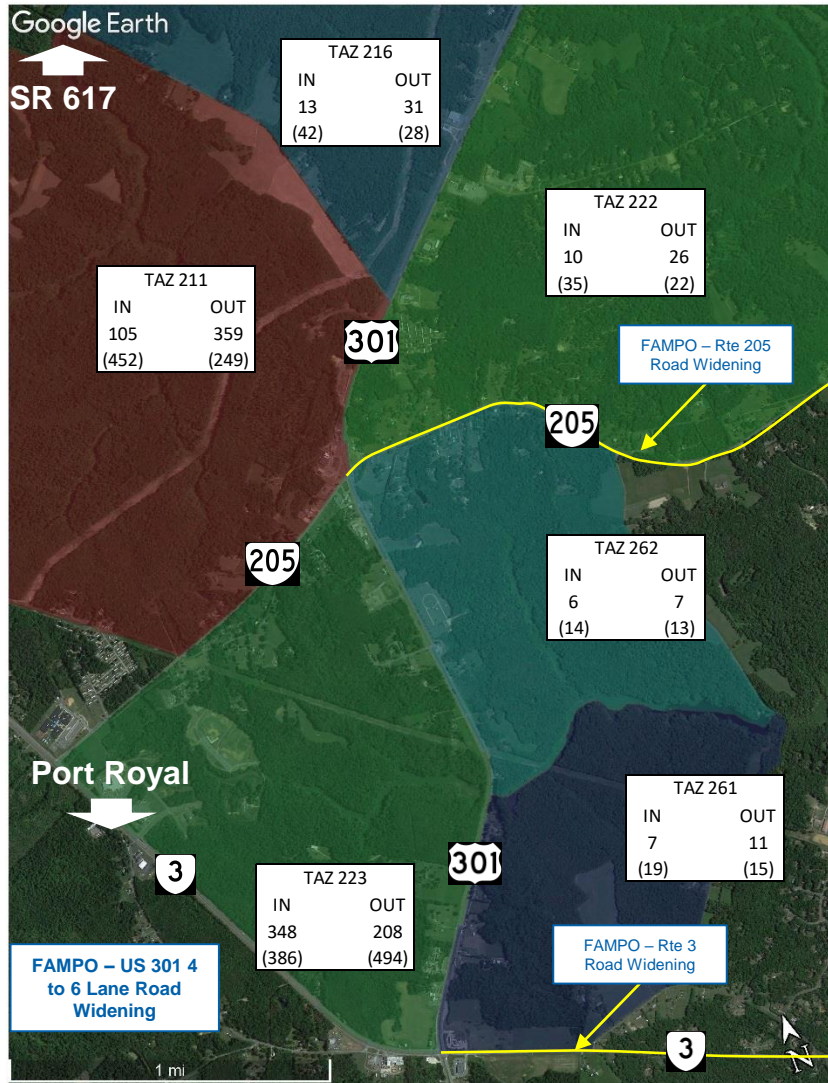
TAZ ###

INTO TAZ	OUT OF TAZ
AM Peak Hour Volume	AM Peak Hour Volume
(PM Peak Hour Volume)	(PM Peak Hour Volume)

TAZ peak hour volumes indicate only the difference between 2040 land use and 2017 land use

Future Growth & Development

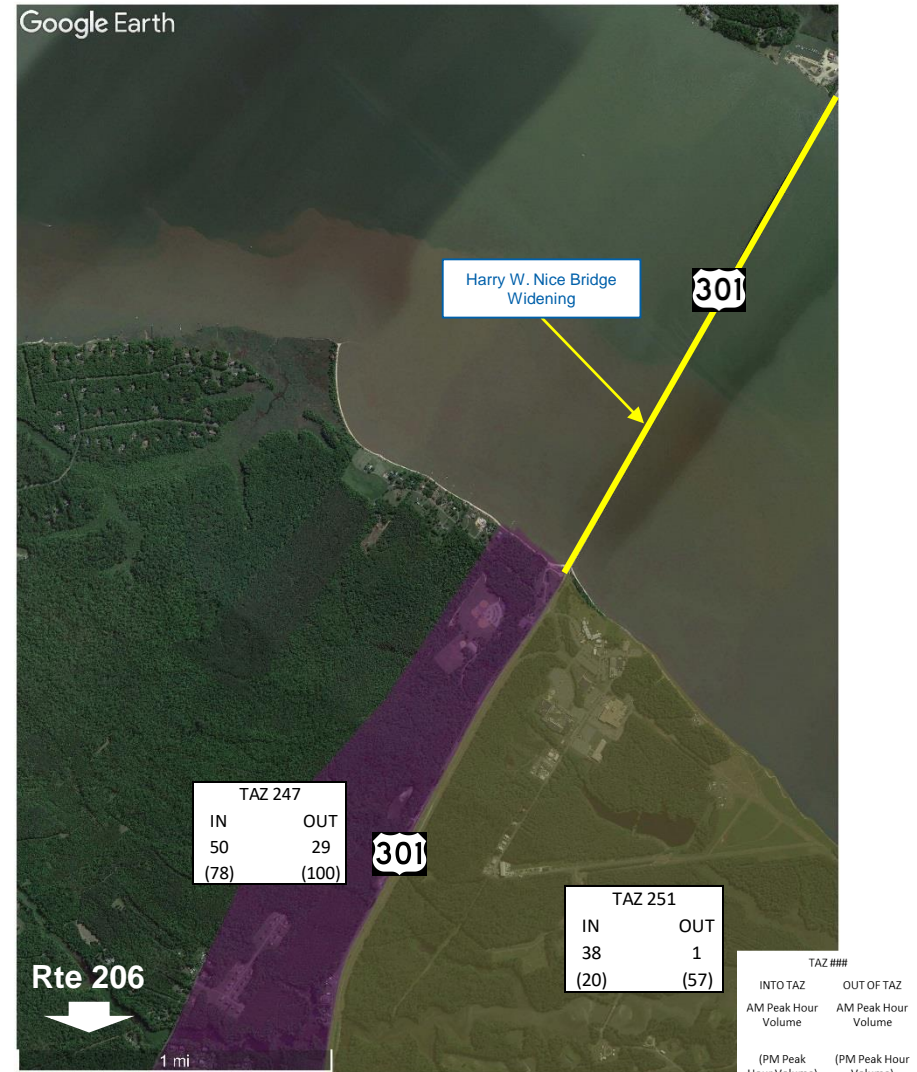
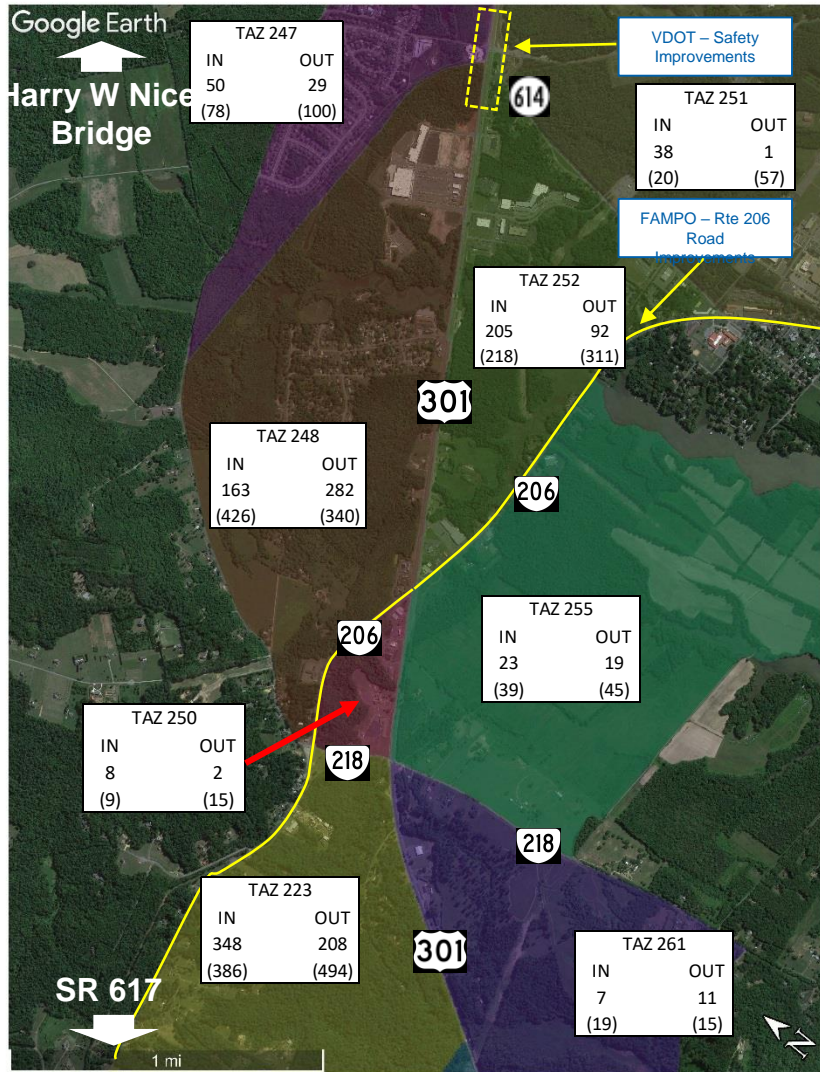
Phase 1 Area: US 301 / Route 207 Corridor



TAZ peak hour volumes indicate only the difference between 2040 land use and 2017 land use

Future Growth & Development

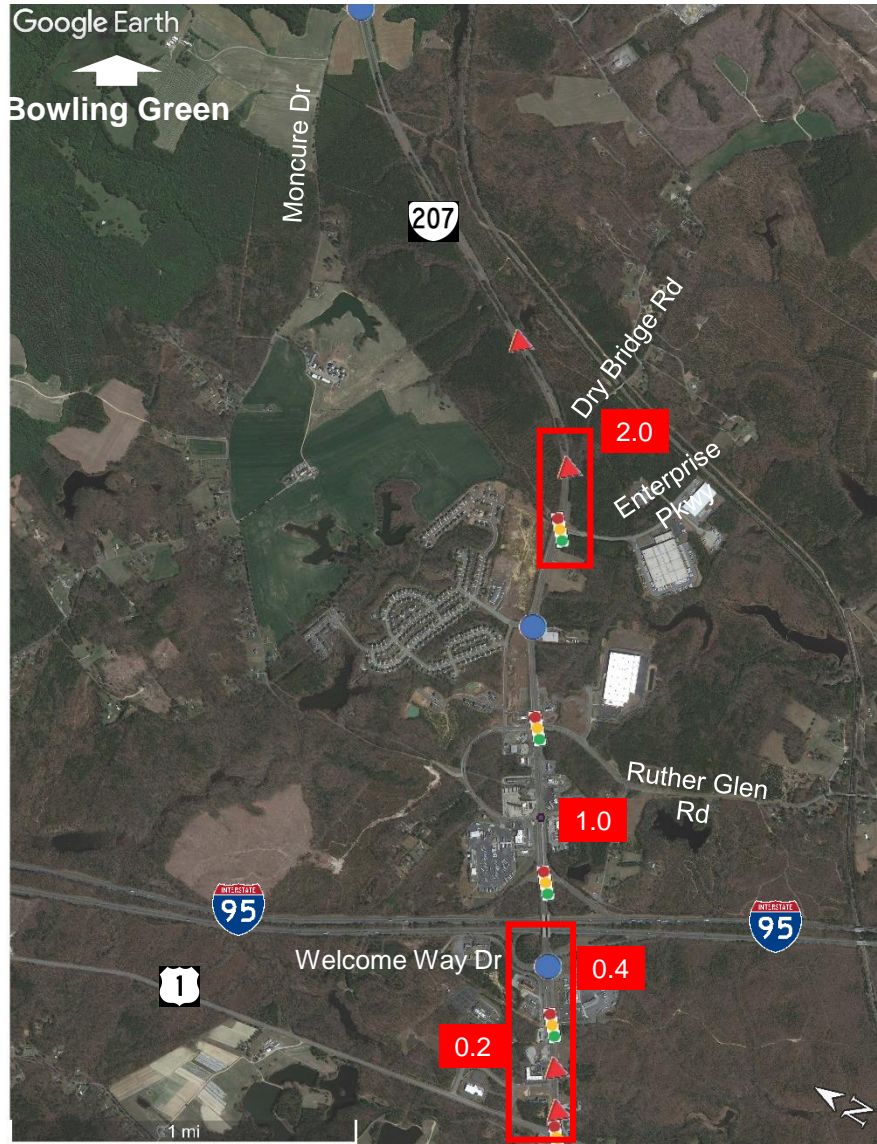
Phase 1 Area: US 301 / Route 207 Corridor







TAZ peak hour volumes indicate only the difference between 2040 land use and 2017 land use

Opportunities for Improvement

Phase 1 Area: Carmel Church

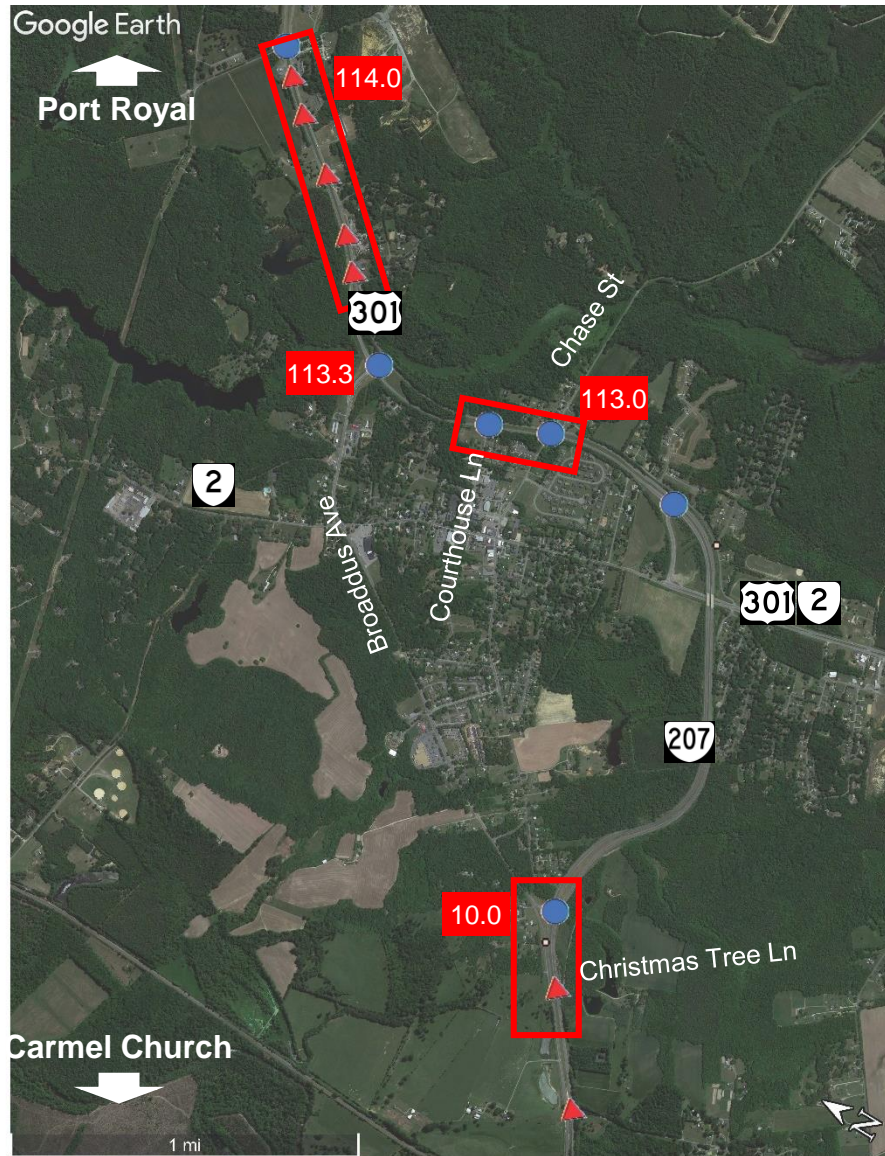


- 2.0 Full median crossover at Dry Bridge Rd and Rte 207 within 950 ft (< 1320 ft) of signalized intersection at Enterprise Pkwy and Rte 207
- 1.0 Multiple business entrances/exits in turn lanes and intersections
- 0.2 Multiple crossovers and signalized intersections within close proximity of each other, 300 ft to 900 ft (< 1050 ft), between I-95 and Rte 207 Interchange and Rte 1 and Rte 207 intersection.
- 0.4 Welcome Way Dr and Rte 207 signal is affecting I-95 southbound to Rte 207 southbound ramp

-  Signalized Intersection
-  Median Crossovers
-  Unsignalized Intersection
-  Inadequate intersection spacing per VDOT standards

Opportunities for Improvement

Phase 1 Area: Town of Bowling Green



114.0 Multiple crossovers and unsignalized intersections within close proximity of each other, 300 ft to 950 ft (< 1320 ft), between I-95 and Rte 207 Interchange and Rte 1 and Rte 207 intersection

113.3 Two-stage crossing at intersection of Bowling Green Turnpike and US 301. Sight distance is inadequate looking northbound from median crossover

113.0 Two unsignalized intersections at Courthouse Ln and Rte 207 within 950 ft (< 1320 ft) of signalized intersection at Chase St and Rte 207. **Significant concentration of traffic crashes at intersections**

10.0 Full median crossover at Christmas Tree Ln and Rte 207 within 700 ft of right out accel lane and 1100 ft of unsignalized intersection at W Broadus Ave and Rte 207



Signalized Intersection



Median Crossovers



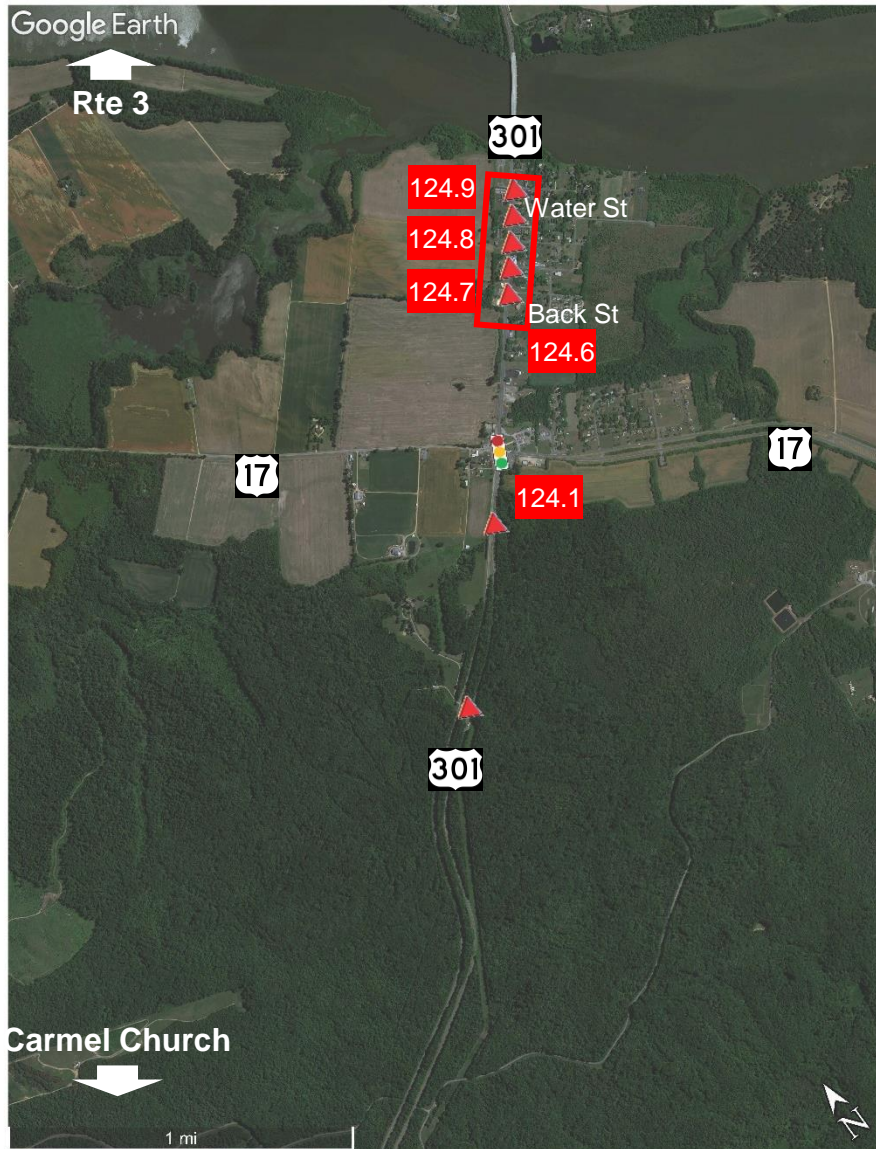
Unsignalized Intersection







Inadequate intersection spacing per VDOT standards

Opportunities for Improvement

Phase 1 Area: Town of Port Royal

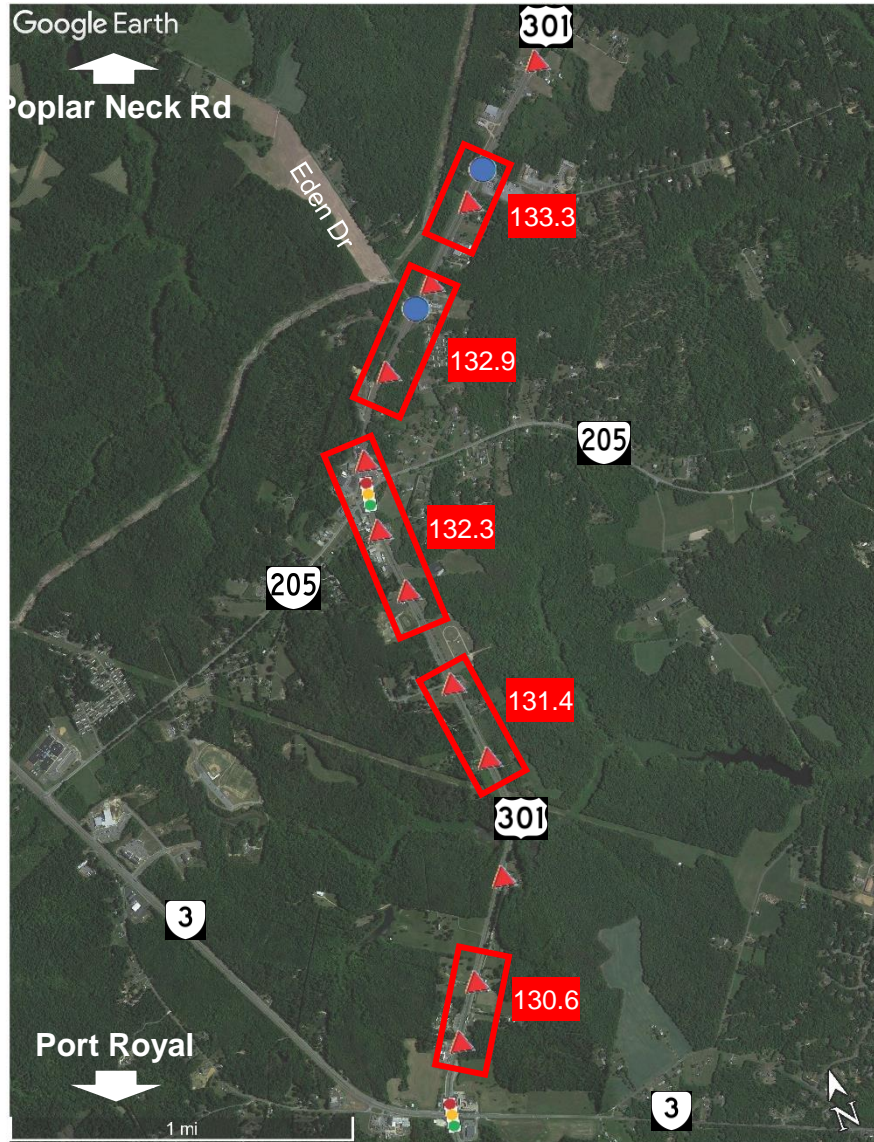


- 124.9** Multiple crossovers within close proximity of each other , 300 ft to 500 ft (< 565 ft), between Water St and US 301 and Back St and US 301 intersections. **Significant concentration of traffic crashes near Water St**
- 124.8** No pedestrian accommodations such as sidewalks and signage. Pedestrians must use fairly narrow shoulders with ditches
- 124.7** No dedicated turn lanes for turn movements within town on US 301
- 124.6** Speed zone is 35 MPH entering Port Royal Southbound, however increases to 45 MPH following Back St
- 124.1** Business entrances/exits are within intersection functional area





-  Signalized Intersection
-  Median Crossovers
-  Unsignalized Intersection
-  Inadequate intersection spacing per VDOT standards

Opportunities for Improvement

Phase 1 Area: King George County

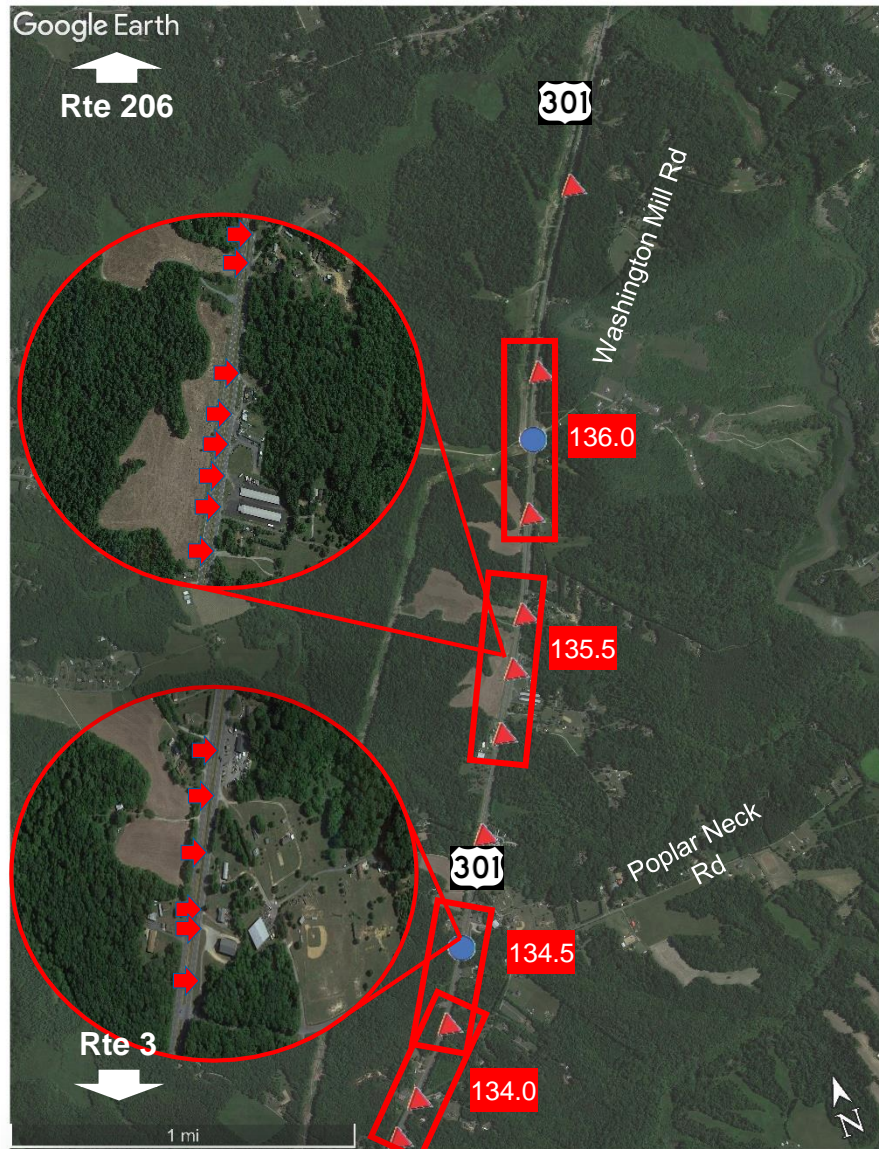


- 133.3** Full median crossover within 550 ft (< 1320 ft) of unsignalized intersection at State Rd and US 301
- 132.9** Full median crossovers within 400 ft to 1000 ft (<1320 ft) of unsignalized intersection at Eden Dr and US 301
- 132.3** Multiple crossovers within 400 ft to 600 ft (<1320 ft) of signalized intersection at Ridge Rd and US 301. Businesses with multiple driveways in turn lanes and signalized intersection
- 131.4** Median crossovers within 1280 ft (<1320 ft) of each other
- 130.6**
 - Median crossovers within 960 ft (<1320 ft) of each other





-  Signalized Intersection
-  Median Crossovers
-  Unsignalized Intersection
-  Inadequate intersection spacing per VDOT standards

Opportunities for Improvement

Phase 1 Area: King George County

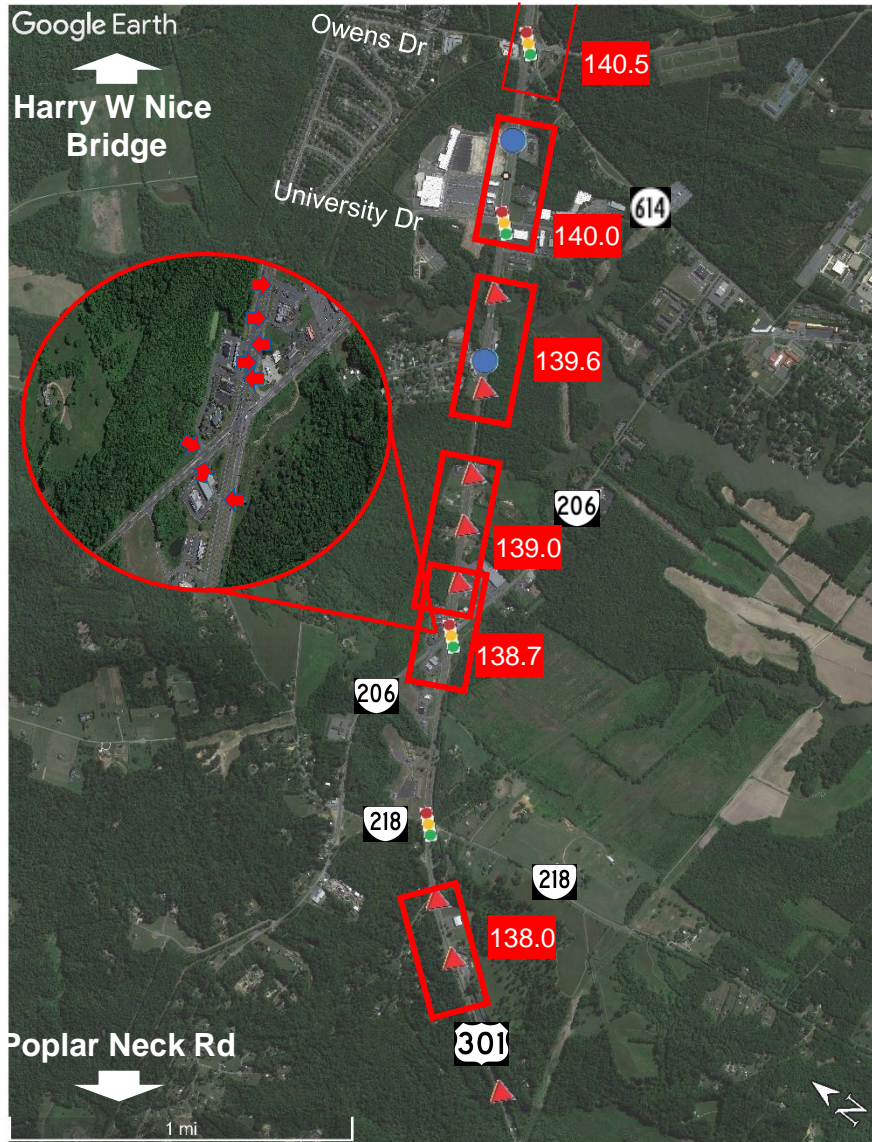


- 136.0** Full median crossovers within 1100 ft (< 1320 ft) of unsignalized intersection at Washington Mill Rd and US 301
- 135.5**
 - Full median crossovers within 1000 ft (<1320 ft) of each other. Multiple business driveways on US 301
- 134.5**
 - Full median crossovers within 1100 ft (< 1320 ft) of unsignalized intersection at Poplar Neck Rd and US 301. Multiple business and residential driveways on US 301
- 134.0**
 - Multiple median crossovers within 700 ft to 1250 ft (<1320 ft) of each other

- | | | | |
|---|---------------------------|---|--|
|  | Signalized Intersection |  | Median Crossovers |
|  | Unsignalized Intersection |  | Inadequate intersection spacing per VDOT standards |

Opportunities for Improvement

Phase 1 Area: King George County



140.5 Full median crossovers within 1000 ft (< 1320 ft) of signalized intersection at Owens Dr and US 301 (See slide 16)

140.0 Unsignalized intersection within 1280 ft (<1320 ft) of signalized intersection at University Dr and US 301

139.6 Full median crossovers within 1000 ft (< 1320 ft) of unsignalized intersection at Danube Dr and US 301.

139.0 Multiple median crossovers within 800 ft (<1320 ft) of each other

138.7 Full median crossover within 800 ft (<1050 ft) of signalized intersection at Rte 206 and US 301. Multiple business driveways in turn lanes and intersection functional area

138.0 Full median crossovers within 950 ft (<1320 ft) of each other



Signalized Intersection



Median Crossovers



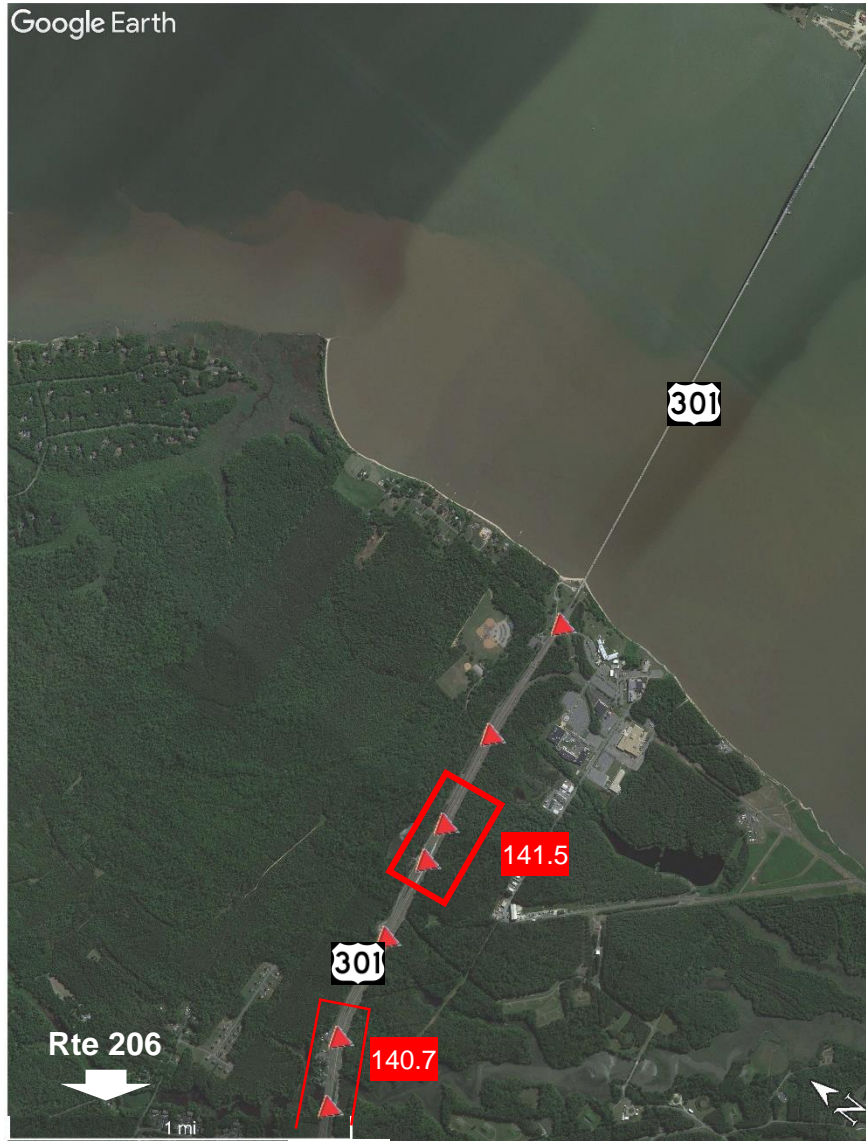
Unsignalized Intersection



Inadequate intersection spacing per VDOT standards

Opportunities for Improvement

Phase 1 Area: King George County



140.7 Full median crossovers within 1000 ft (< 1320 ft) of signalized intersection at Owens Dr and US 301 (See slide 15)

141.5 Full median crossovers within 650 ft (<1320 ft) of each other



Signalized Intersection



Median Crossovers



Unsignalized Intersection



Inadequate intersection spacing per VDOT standards