



CVTPO SELECT INTERSECTION STUDY

FINAL REPORT

November 2024

Prepared for



828 Main Street, #12, Lynchburg, VA 24504

Prepared by



902 East Jefferson Street, Suite 101, Charlottesville, VA 22901

TABLE OF CONTENTS

| | | |
|----------|--|-----------|
| 1 | Background | 1 |
| 1.1 | Study Purpose | 1 |
| 1.2 | Location Selection | 1 |
| 1.3 | Report Organization | 1 |
| 2 | Study Process | 7 |
| 2.1 | Crash and Safety Analysis | 7 |
| 2.1.1 | <i>Potential for Safety Improvement (PSI)</i> | 7 |
| 2.1.2 | <i>Crash Modification Factors</i> | 7 |
| 2.2 | Traffic Volumes | 7 |
| 2.2.1 | <i>Turning Movement Counts</i> | 7 |
| 2.2.2 | <i>Traffic Volume Development</i> | 7 |
| 2.3 | Relevant Standards | 8 |
| 2.3.1 | <i>Sight Distance</i> | 8 |
| 2.4 | Field Observations | 8 |
| 2.5 | Traffic Operations Analysis | 8 |
| 2.6 | Other Studies | 8 |
| 2.7 | Cost Estimates | 8 |
| 3 | Study Work Group | 9 |
| 4 | US Route 29 Business (Amherst Highway) and Sprouse Drive (761)/Faulconerville Drive (761) | 10 |
| 4.1 | Challenges and Considerations | 10 |
| 4.2 | Recommendations | 10 |
| 5 | US Route 29 Business (Amherst Highway) and Rothwood Road (657)/Francis Avenue (1204) | 12 |
| 5.1 | Challenges and Considerations | 12 |
| 5.2 | Recommendations | 12 |
| 6 | Forest Road (Route 221) and Rustic Village Road (609)/Gum Tree Road | 14 |
| 6.1 | Challenges and Considerations | 14 |
| 6.2 | Recommendations | 14 |
| 7 | Perrowville Road (663) and Mays Mill Road (622) | 16 |
| 7.1 | Challenges and Considerations | 16 |
| 7.2 | Recommendations | 16 |
| 8 | Amelon Expressway (130) and Amelon Road (669)/Amelon Center Parkway | 18 |
| 8.1 | Challenges and Considerations | 18 |
| 8.2 | Recommendations | 18 |
| 9 | Elk Creek/Mays Mill Road Bridge | 20 |

LIST OF TABLES

| | |
|--|----|
| Table 1: Crash Modification Factors | 7 |
| Table 2: Future Growth Rates | 7 |
| Table 3: Stopping Sight Distance | 8 |
| Table 4: Intersection Sight Distance | 8 |
| Table 5: Level of Service Criteria for Signalized and Unsignalized Intersections | 8 |
| Table 6: Study Work Group | 9 |
| Table 7: Minimum Sight Distance and Field Measurements | 12 |
| Table 8: Recent Roundabout Project Costs in the Lynchburg District | 18 |

LIST OF FIGURES

| | |
|--|----|
| Figure 1: Study Intersections | 1 |
| Figure 2: US Route 29 Business (Amherst Highway) and Sprouse Drive Summary Sheet | 11 |
| Figure 3: US Route 29 Business (Amherst Highway) and Rothwood Road Summary Sheet | 13 |
| Figure 4: Forest Road (Route 221) and Rustic Village/Gum Tree Road (609) Summary Sheet | 15 |
| Figure 5: Perrowville Road (663) and Mays Mill Road (622) Summary Sheet | 17 |
| Figure 6: Amelon Expressway (130) and Amelon Center Parkway Summary Sheet | 19 |
| Figure 7: Elk Creek/Mays Mill Road Bridge and Surrounding Area | 20 |

Appendices

| |
|---|
| Appendix A: Turning Movement Counts |
| Appendix B: Development Assumptions |
| Appendix C: Synchro, SimTraffic, and SIDRA Output Reports |
| Appendix C-1: Existing Synchro Reports |
| Appendix C-2: Existing SimTraffic Reports |
| Appendix C-3: 2045 Future Synchro Reports |
| Appendix C-4: 2045 Future SimTraffic Reports |
| Appendix C-5: 2045 With Improvements Synchro, SimTraffic, and SIDRA Reports |
| Appendix D: Cost Estimates |
| Appendix E: Study Work Group Meeting Presentations and Notes |

1 BACKGROUND

1.1 Study Purpose

This study evaluates safety and traffic conditions at intersections within the Central Virginia Transportation Planning Organization (CVTPO) region that were identified by CVTPO, Amherst County, Bedford County, and/or VDOT staff. The original goal of the study was to provide recommendations that will improve safety at these locations. As the study progressed, the scope of work was adjusted to include an intersection where significant future development is anticipated and a bridge that was washed out.

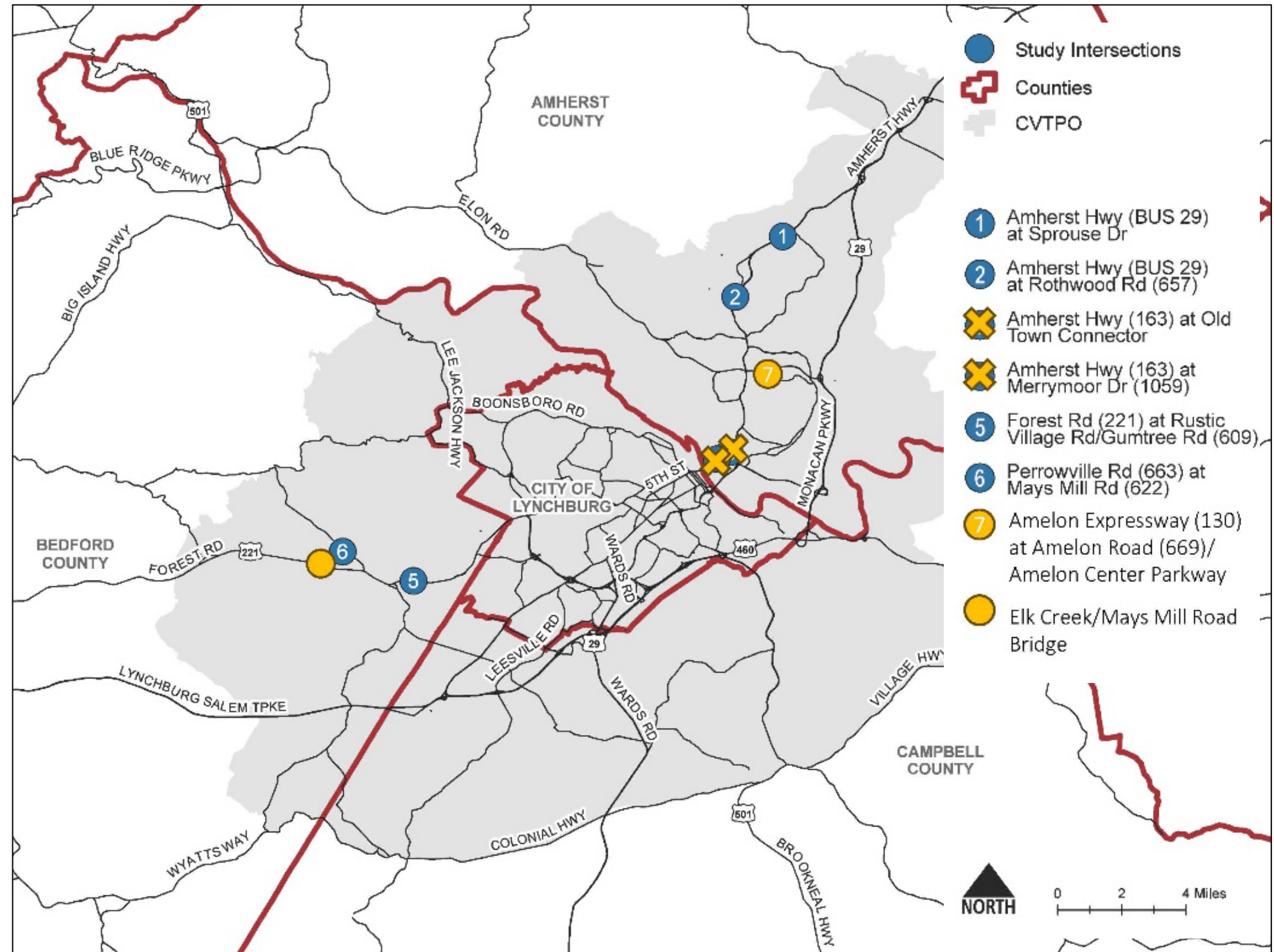
1.2 Location Selection

Seven intersections were initially identified for study, however, at its first meeting, the Study Work Group (SWG) agreed to change the study locations. Both the original study locations and revised locations are shown in **Figure 1**. The initial list included the intersections of Old Town Connector and Merrymoor Drive with Amherst Highway (163). These intersections were removed as they are currently being studied as part of a land development study. The intersection of Amelon Expressway (130) with Amelon Road (669)/Amelon Center Parkway (Amherst County) was added, as was consideration of the Elk Creek/Mays Mill Road bridge in Bedford County.

1.3 Report Organization

General methodologies and procedures applied to each study intersection are discussed in the initial portion of the report. The specific data and findings for the individual intersections follows.

FIGURE 1: STUDY INTERSECTIONS



2 STUDY PROCESS

2.1 Crash and Safety Analysis

FR-300 crash reports were collected for the study intersections for the five-year period from January 1, 2018, through December 31, 2022. Crash maps showing the location, crash type, and crash severity are provided in the intersection-specific portion of the report.

2.1.1 Potential for Safety Improvement (PSI)

PSI is a calculation that determines if the observed crash frequency exceeds the frequency that would typically be expected on a road with similar characteristics and traffic volumes. PSI is the best measure available for understanding whether crashes at an intersection are lower or higher than expected. VDOT publishes a ranking of intersections and road segments with PSI for each VDOT District. The PSI rankings for this study are based on 2018-2022 crash data. The lower the ranking, the higher the PSI. For example, the #1 ranked intersection with PSI has the highest potential for safety improvement, meaning the observed crash frequency is higher than the crash frequency that would be expected for an intersection with similar traffic volumes and characteristics. The following study intersections and adjacent segments are on the PSI list:

- Amherst Highway (Business 29) and Sprouse Drive
- Amelon Expressway (130) and Amelon Road (669)/ Amelon Center Parkway
- Forest Road (Route 221) east of Rustic Village Road/Gumtree Road (669).

2.1.2 Crash Modification Factors

One way to quantify the safety benefits of an improvement is to calculate the expected reduction in the number of crashes once the improvement is implemented. *The Highway Safety Manual* defines a method for calculating the expected reduction in crashes using crash modification factors (CMFs). Crash modification factors are ratios that estimate the degree to which a particular treatment (i.e., countermeasure or treatment) would reduce the number of crashes. The CMF ratio compares the expected average crash frequencies before and after a treatment is implemented. CMFs less than 1.0 indicate a treatment would reduce the crash frequency. CMFs greater than 1.0 indicate a treatment would increase the crash frequency. A CMF of 1.0 indicates a treatment would have no change in the expected crash frequency.

$$CMF = \frac{\text{Expected Average Crash Frequency after treatment is implemented}}{\text{Expected Average Crash Frequency before treatment is implemented}}$$

VDOT maintains a list of planning level CMFs for SMART SCALE project scoring. Those relevant to the study intersections are shown in **Table 1**.

TABLE 1: CRASH MODIFICATION FACTORS

| Int | CMF Description | CMF |
|-----|--|-------|
| 5 | Change Number of Approaches with Left-Turn Lanes from X Approaches to Y Approaches | 0.81* |
| 6 | Add Left-Turn Lane to Major Approach of 3-Leg Stop Controlled Intersection | 0.56 |
| 7 | Convert Stop-Controlled Intersection to Roundabout | 0.56 |

*CMF = 0.90^x

2.2 Traffic Volumes

2.2.1 Turning Movement Counts

Intersection turning movement counts were conducted at the intersection of Amelon Expressway (130) and Amelon Road (669)/Amelon Center Parkway in February 2024 and at all other study intersections in September 2023, during the morning peak period (7-9 AM) and afternoon peak period (4-6 PM). **Appendix A** contains the turning movement count data and the volumes are illustrated for each intersection in the intersection-specific sections of the report.

2.2.2 Traffic Volume Development

2.2.2.1 Future Growth Rates

To understand future traffic conditions at the study intersections and assess the long-term benefits of proposed improvements, traffic volumes were forecasted for 2050 traffic conditions. The traffic growth rates shown in **Table 2** were used to develop the future traffic volumes and are based on an evaluation of VDOT historical traffic counts, Pathways for Planning forecast data, and VDOT input.

TABLE 2: FUTURE GROWTH RATES

| Int | Jurisdiction | Facility | Growth Rate |
|-----|----------------|---------------------------|-------------|
| 1 | Amherst County | Amherst Highway (BUS 29) | 0.50% |
| 1 | Amherst County | Falconerville Drive (761) | 0.50% |
| 1 | Amherst County | Sprouse Drive | 0.50% |
| 2 | Amherst County | Amherst Highway (BUS 29) | 0.50% |
| 2 | Amherst County | Francis Avenue | 0.50% |
| 2 | Amherst County | Rothwood Road | 0.50% |
| 5 | Bedford County | Forest Road (221) | 2.00% |
| 5 | Bedford County | Rustic Village Road | 0.50% |
| 5 | Bedford County | Gumtree Road (609) | 2.00% |
| 6 | Bedford County | Perrowville Road (663) | 1.75% |
| 6 | Bedford County | Perrowville Road (663) | 1.75% |
| 6 | Bedford County | Mays Mill Road (622) | 0.50% |
| 7 | Amherst County | Amelon Expressway (130) | 0.50% |
| 7 | Amherst County | Amelon Road (669) | 0.50% |
| 7 | Amherst County | Amelon Center Parkway | 0.00% |

2.2.2.2 Development Traffic

At the intersection of Amelon Expressway (130) and Amelon Road (669)/Amelon Center Parkway, traffic generated by future approved and anticipated development was included in the future traffic volumes along with the background traffic growth. The development assumptions were created in cooperation with the Amherst County planning staff and are included in **Appendix B**.

2.3 Relevant Standards

2.3.1 Sight Distance

At those locations where sight distance appeared to be limited, intersection sight distance and stopping sight distance were measured. **Table 3** includes the minimum relevant stopping sight distances and **Table 4** includes the minimum relevant intersection sight distances.

TABLE 3: STOPPING SIGHT DISTANCE¹

| Design Speed (mph) | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Min Sight Distance (feet) | 200 | 250 | 305 | 360 | 425 | 495 | 570 | 645 |

TABLE 4: INTERSECTION SIGHT DISTANCE²

| Design Speed (mph) | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 |
|----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| 2 Lane Major Road | 335 | 390 | 445 | 500 | 555 | 610 | 665 | 720 |
| Right: 4 Lane Major Road Divided | 410 | 480 | 545 | 615 | 680 | 750 | 820 | 885 |
| Left: 4 Lane Major Road Divided | 355 | 415 | 475 | 530 | 590 | 650 | 710 | 765 |

2.4 Field Observations

Each of the study locations were visited either on September 28, 2023 or July 12, 2024. Speed limits, traffic control signs, pavement markings, and general site conditions were documented.

2.5 Traffic Operations Analysis

Traffic operations were analyzed during the AM and PM peak hours to understand if congestion is currently occurring and to determine if demand is close to exceeding capacity. This analysis provides a baseline for conducting the analysis of future conditions. The operations analysis was conducted using Synchro Version 11 and SimTraffic 11 software for all study intersections. Inputs and analysis methodologies were consistent with the VDOT Traffic Operations and Safety Analysis Manual (TOSAM) guidelines.

The traffic operations analysis produced two measures of effectiveness for evaluating operating conditions in the peak hours:

1. Level of Service/Control Delay: the delay drivers experience at a traffic control device (e.g. traffic signal or stop sign) – reported for each individual turning or through movement and for each intersection overall.
2. Queue Lengths: the length of the queue for each turning or through movement.

Level of Service (LOS) is a concept that describes how well a transportation facility operates from the traveler’s perspective. The *Highway Capacity Manual 6th Edition* defines six levels of service, ranging from A to F. LOS A represents the best operating conditions from the traveler’s perspective, and LOS F the worst. For cost, environmental impact, and other reasons, roadways are typically designed not to provide LOS A conditions during peak periods, but instead to provide some lower LOS that balances individual travelers’ desires against society’s desires and financial resources.³

Control delay is the service measure that defines LOS for motorized vehicles at intersections. **Table 5** lists the LOS thresholds for motorized vehicles at signalized and unsignalized intersections.

TABLE 5: LEVEL OF SERVICE CRITERIA FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS

| LOS | Control Delay (seconds per vehicle) at Signalized Intersections | Control Delay (seconds per vehicle) at Unsignalized Intersections |
|-----|---|---|
| A | ≤ 10 | ≤ 10 |
| B | > 10 – 20 | > 10 – 15 |
| C | > 20 – 35 | > 15 – 25 |
| D | > 35 – 55 | > 25 – 35 |
| E | > 55 – 80 | > 35 – 50 |
| F* | > 80 | > 50 |

*If the volume-to-capacity ratio is greater than 1.0, the LOS is F, even if delay is less than 80 seconds at signalized intersections or 50 seconds at unsignalized intersections.

The reported queue lengths are the 95th percentile queue lengths from the Synchro analysis. All outputs from Synchro and SimTraffic are provided in **Appendix C**. The results of the analysis for existing and future conditions are included in the intersection-specific portion of the report.

2.6 Other Studies

No additional studies were found addressing the study intersections.

2.7 Cost Estimates

Cost estimates were developed for the recommended improvement projects at all of the study locations except Amelon Expressway (130) and Amelon Road (669)/Amelon Center Parkway and the Elk Creek/Mays Mill Bridge. The following assumptions were made in the development of the cost estimates.

- The preliminary engineering cost was estimated based on the complexity of the project.
- All estimates were completed using 2024 dollars.
- For projects with anticipated right-of-way and/or utility impacts, those costs were estimated on a project-by-project basis based on the size and complexity of the project, as well as per inspection of the existing right-of-way limits as shown in the GIS parcel layer.
- Construction costs were estimated using VDOT’s CEWB Workbook version 3.1.

The preliminary engineering, right-of-way and utility relocation, construction, and total cost estimates for each improvement project are summarized in the intersection-specific portion of the report. A more detailed breakdown of the planning-level cost estimates is provided in **Appendix D**.

For Amelon Expressway (130) and Amelon Road (669)/Amelon Center Parkway, and the Elk Creek/Mays Mill Bridge, a cost range was developed based on recent VDOT projects.

¹ VDOT Road Design Manual Appendix A-1, page A1-30

² VDOT Road Design Manual Appendix A-1, page A1-33

³ Transportation Research Board, 2016. *Highway Capacity Manual, 6th Edition: A Guide for Multimodal Mobility Analysis*. Washington, D.C.

3 STUDY WORK GROUP

A study work group was created for this project including the members listed in **Table 6**. This group met three times over the course of the project. The first meeting, held on October 31, 2023, focused on review of the crash history and data collected. The second and third meetings held on August 14, 2024, focused on draft recommendations. The presentations and notes from these meetings are included in **Appendix E**.

TABLE 6: STUDY WORK GROUP

| Full Name | Organization |
|------------------|---------------------------|
| Jeremy Bryant | Amherst County |
| Tyler Creasy | Amherst County |
| Eric Smedley | Bedford County |
| Mariel Fowler | Central Virginia PDC |
| Kelly Hitchcock | Central Virginia PDC |
| Daniel Brown | VDOT Appomattox Residency |
| Steven Wright | VDOT Appomattox Residency |
| Matt Conner | VDOT Lynchburg District |
| Carson Eckhardt | VDOT Lynchburg District |
| Rick Youngblood | VDOT Lynchburg District |
| William Crawford | VDOT Salem District |
| Michael Gray | VDOT Salem District |
| Jim Keene | VDOT Salem District |
| Carol Moneymaker | VDOT Salem District |
| J.P. Morris | VDOT Salem District |
| Jeanie Alexander | EPR, P.C. |
| Hannah MacKnight | EPR, P.C. |
| Bill Wuensch | EPR, P.C. |

4 US ROUTE 29 BUSINESS (AMHERST HIGHWAY) AND SPROUSE DRIVE (761)/FAULCONERVILLE DRIVE (761)

AMHERST COUNTY

4.1 Challenges and Considerations

Issues identified at this intersection through field visits, discussions with the Study Work Group, and various analyses include the following:

- Angle collisions
- Lack of stop bars on both side street approaches
- No pavement markings within the median
- Intersection is on the PSI list

4.2 Recommendations

The following improvements are recommended:

- Add stop bars on side street approaches
- Add markings in median to clarify vehicle positioning including a double yellow centerline and yield lines
- Replace existing stop signs on side street approaches with oversized stop signs

A summary of the data and recommendations for this intersection is shown in **Figure 2**. As the improvements are focused on signs and pavement markings, use of VDOT maintenance funds is recommended for implementation.



FAULCONERVILLE DRIVE LOOKING EAST

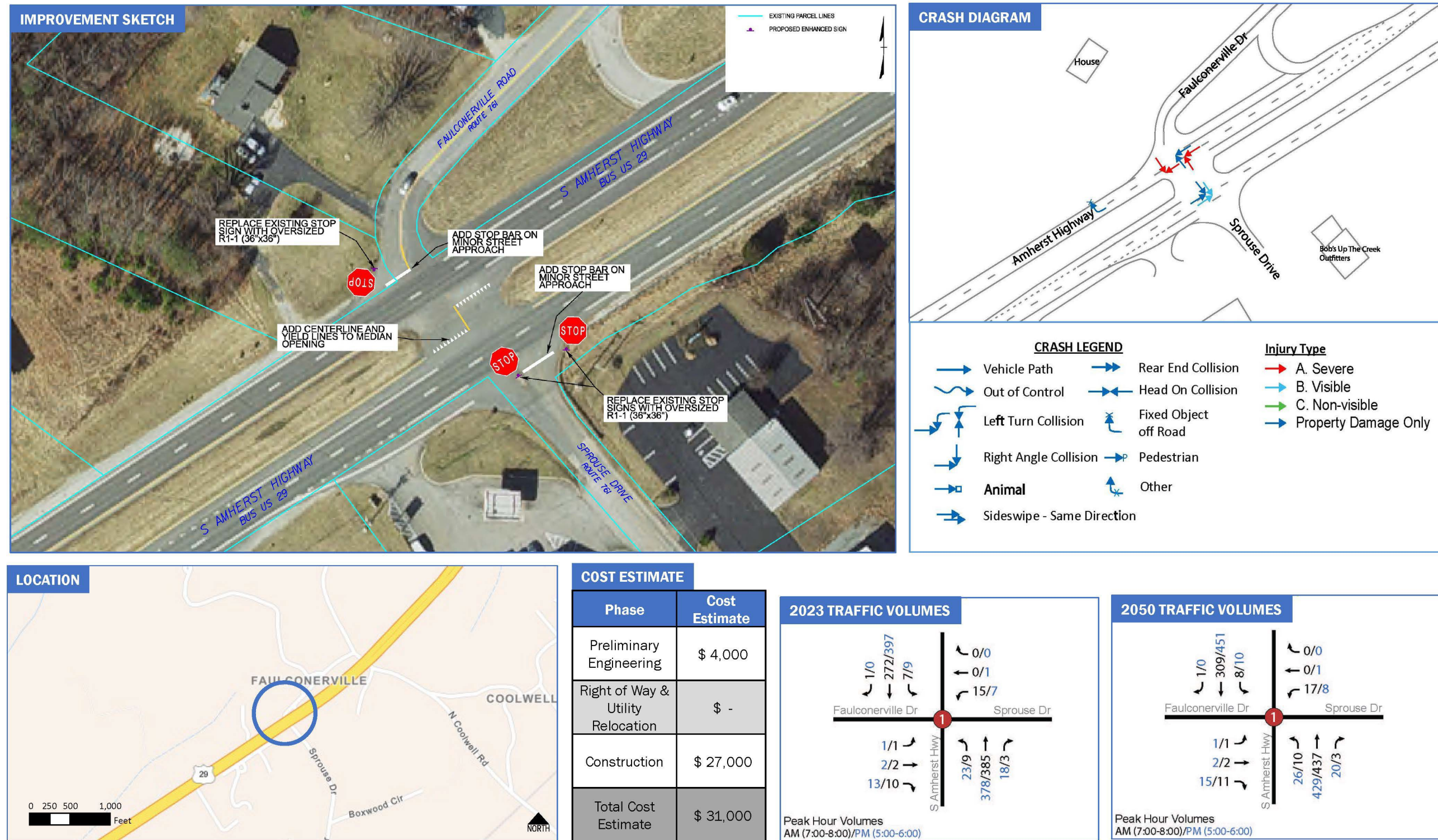


US ROUTE 29 BUSINESS LOOKING SOUTH

FIGURE 2: US ROUTE 29 BUSINESS (AMHERST HIGHWAY) AND SPROUSE DRIVE SUMMARY SHEET

US Route 29 Business (Amherst Highway) and Sprouse Drive (761)/Falconerville Drive(761)

AMHERST COUNTY



5 US ROUTE 29 BUSINESS (AMHERST HIGHWAY) AND ROTHWOOD ROAD (657)/FRANCIS AVENUE (1204)

AMHERST COUNTY

5.1 Challenges and Considerations

Issues identified at this intersection through field visits, discussions with the Study Work Group, and various analyses include the following:

- Lack of stop bars on both side street approaches
- No pavement markings within the median
- Sight distance does not meet standards to the north (eastbound approach and westbound median approach)
- Sight distance to the south (westbound Rothwood Road approach) limited if drivers do not pull up

Table 7 summarizes the minimum stopping and intersection sight distances and the sight distances measured in the field. As indicated in the table, the intersection sight distance north of the intersection is insufficient.

TABLE 7: MINIMUM SIGHT DISTANCE AND FIELD MEASUREMENTS

| Stopping Sight Distance (feet) | 55 mph Posted Speed Limit | | Field Measured | |
|--------------------------------|--|--|---|--|
| | Intersection Sight Distance SDR (feet) | Intersection Sight Distance SDL (feet) | Eastbound Approach (Francis Avenue) Looking North | Westbound Approach (from median) Looking North |
| 495 | 750 | 650 | 550 | 520 |

5.2 Recommendations

The following improvements are recommended:

- Add stop bars on side street approaches
- Replace existing stop signs on side street approaches with oversized stop signs
- Add markings in median to clarify vehicle positioning including a double yellow centerline and stop bars
- Add oversized stop signs in median

While the recommended improvements do not increase the available sight distance, the improvements indicate to drivers in the median that they are required to stop and where they should be positioned. These recommendations are appropriate given the low number of crashes experienced at the location. A summary of the data and recommendations for this intersection is shown in **Figure 3**. As the improvements are focused on signs and pavement markings, use of VDOT maintenance funds is recommended for implementation.



US ROUTE 29 BUSINESS LOOKING SOUTH

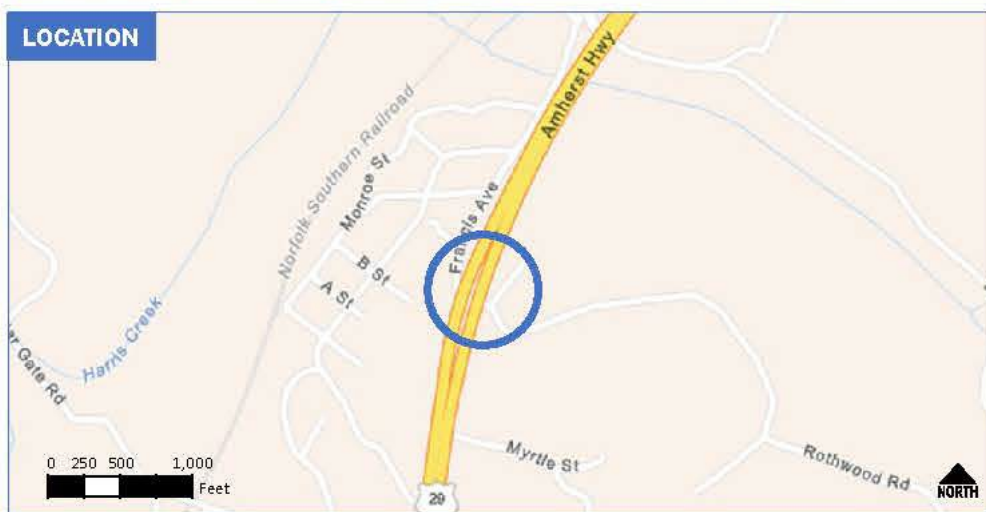
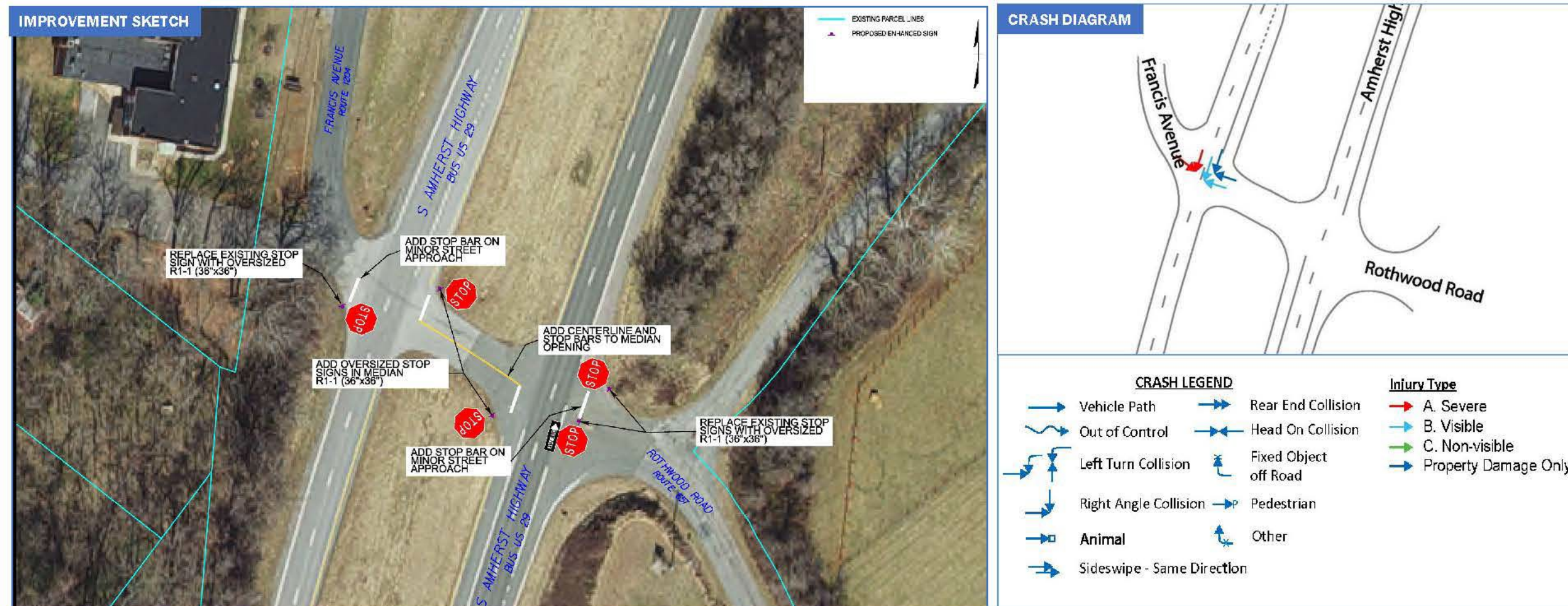


US ROUTE 29 BUSINESS LOOKING NORTH FROM MEDIAN

FIGURE 3: US ROUTE 29 BUSINESS (AMHERST HIGHWAY) AND ROTHWOOD ROAD SUMMARY SHEET

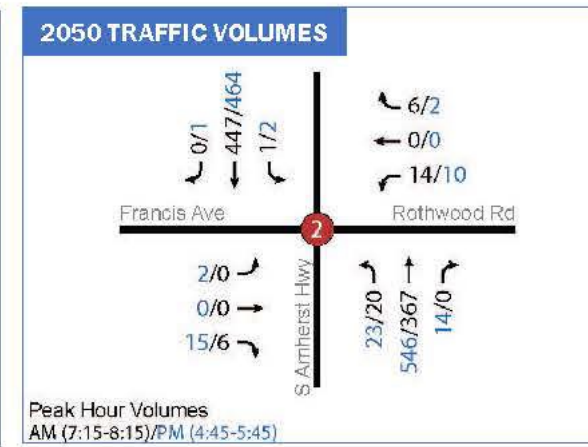
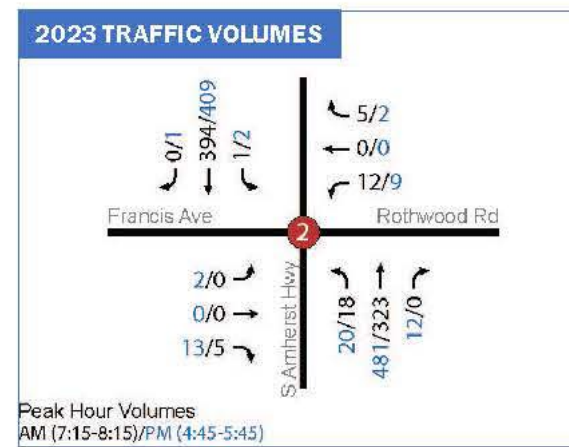
US Route 29 Business (Amherst Highway) and Rothwood Road (657)/Francis Avenue (1204)

AMHERST COUNTY



COST ESTIMATE

| Phase | Cost Estimate |
|-----------------------------------|------------------|
| Preliminary Engineering | \$ 5,000 |
| Right of Way & Utility Relocation | \$ - |
| Construction | \$ 35,000 |
| Total Cost Estimate | \$ 40,000 |



6 FOREST ROAD (ROUTE 221) AND RUSTIC VILLAGE ROAD (609)/GUM TREE ROAD

BEDFORD COUNTY

6.1 Challenges and Considerations

Issues identified at this intersection through field visits, discussions with the Study Work Group, and various analyses include the following:

- Goal at this intersection is to maximize efficiency and through capacity on Route 221
- Unclear whether angle collisions occurred prior to or following installation of Flashing Yellow Arrows (FYAs)
- Route 221 segment west of the intersection is on the PSI list

6.2 Recommendations

The following improvements are recommended:

- Left turn lanes on side street approaches
- Removal of split phasing
- Resubmit sidewalk funding application
- Evaluate FYAs (VDOT standard procedure)

A summary of the data and recommendations for this intersection is shown in **Figure 4**. The complexity and cost of the improvements lend themselves to funding through VDOT's SMART SCALE or Revenue Sharing programs.



RUSTIC VILLAGE ROAD LOOKING NORTH AT FOREST ROAD
RUSTIC VILLAGE ROAD LOOKING NORTH AT FOREST ROAD



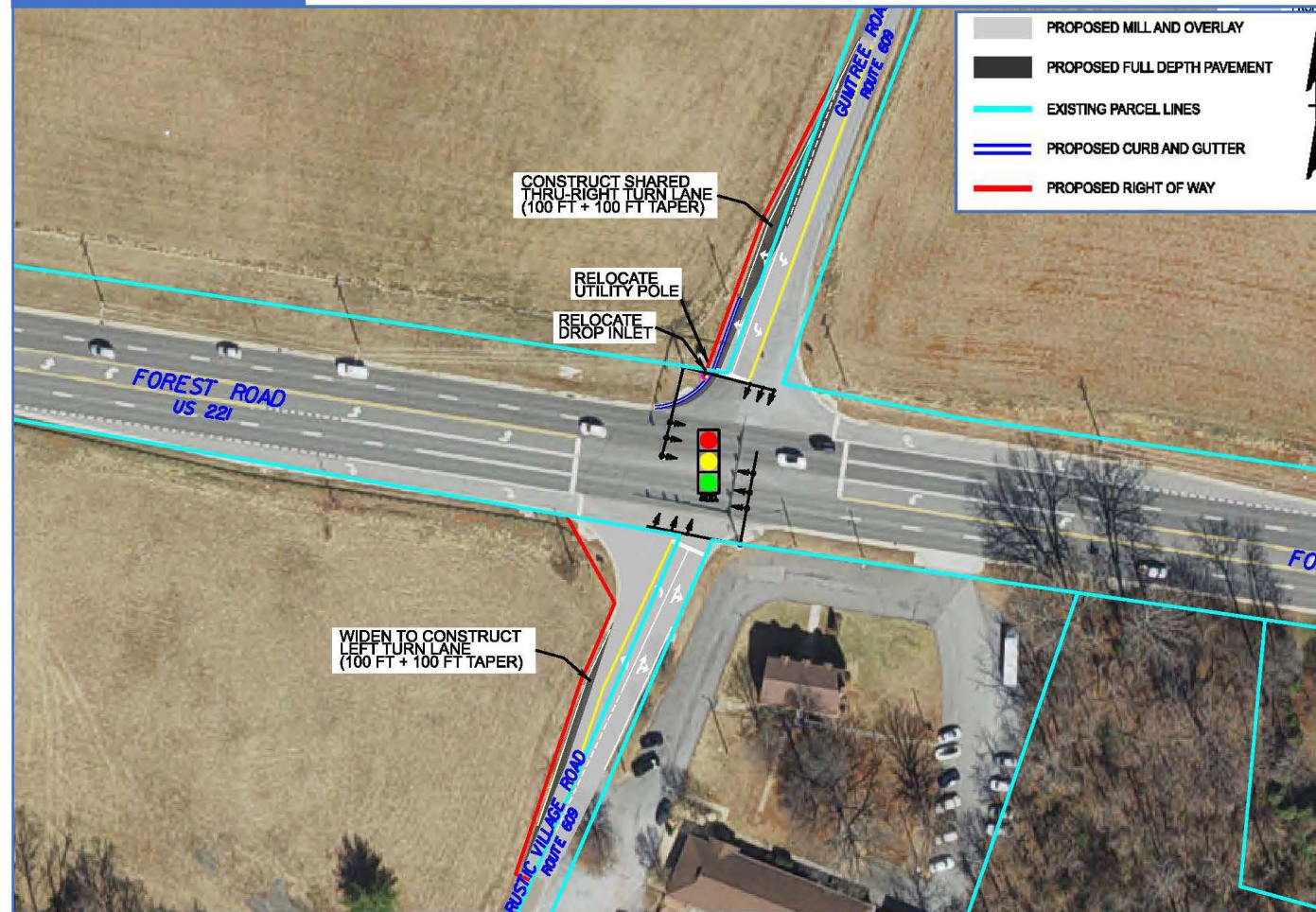
FOREST ROAD LOOKING WEST AT RUSTIC VILLAGE ROAD

FIGURE 4: FOREST ROAD (ROUTE 221) AND RUSTIC VILLAGE/GUM TREE ROAD (609) SUMMARY SHEET

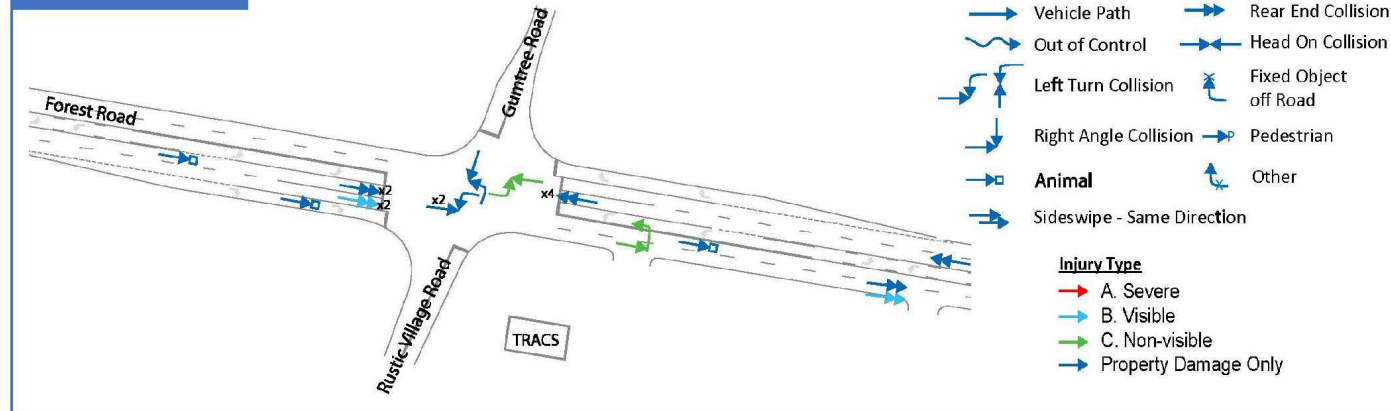
US 221 (Forest Road) and Rustic Village Road (609)/Gumtree Road

BEDFORD COUNTY

IMPROVEMENT SKETCH



CRASH DIAGRAM

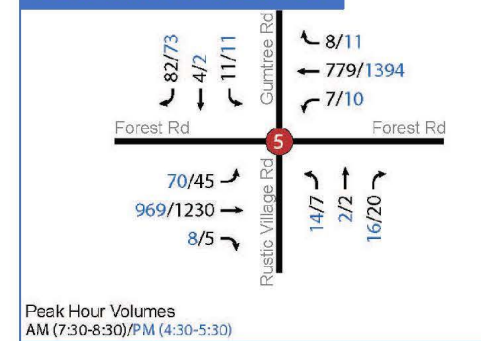


COST ESTIMATE

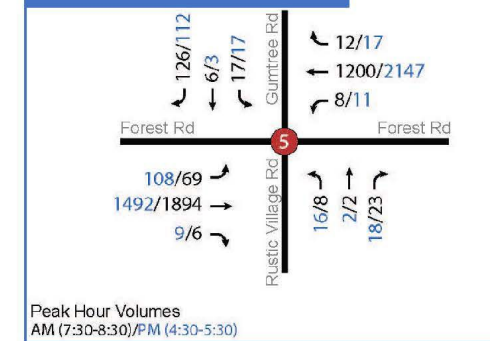
| Phase | Cost Estimate |
|-----------------------------------|--------------------|
| Preliminary Engineering | \$ 214,000 |
| Right of Way & Utility Relocation | \$ 78,000 |
| Construction | \$ 1,472,000 |
| Total Cost Estimate | \$1,764,000 |



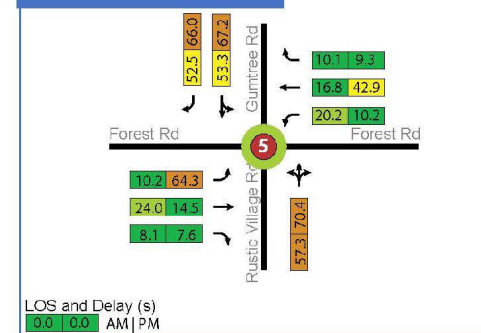
2023 TRAFFIC VOLUMES



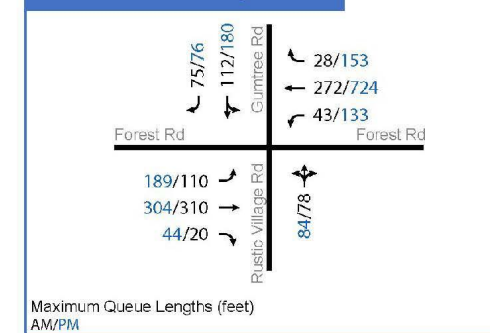
2050 TRAFFIC VOLUMES



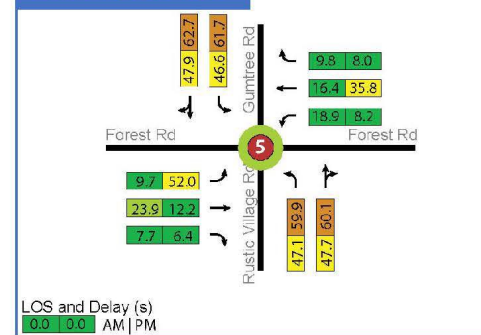
2050 NO BUILD LOS



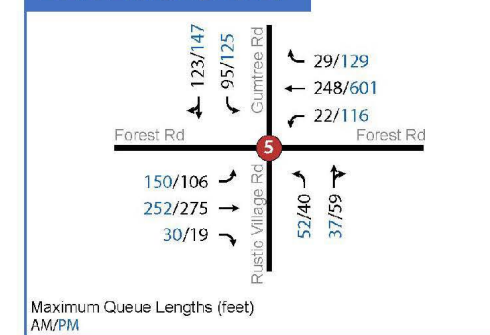
2050 NO BUILD QUEUES



2050 BUILD LOS



2050 BUILD QUEUES



7 PERROWVILLE ROAD (663) AND MAYS MILL ROAD (622) BEDFORD COUNTY

7.1 Challenges and Considerations

This location was identified by Bedford County staff as an opportunity for economic development. Recently it was announced that Solarix will occupy the space on the northwest corner of the intersection previously used by TEVA Pharmaceutical. While the primary access for trucks is located further north on Perrowville Road; improving this access is a priority for Bedford County.

Issues identified at this intersection through field visits, discussions with the Study Work Group, and various analyses include the following:

- Lack of left turn lane
- Significant topographical changes

7.2 Recommendations

The following improvements are recommended:

- Construct westbound left turn lane

A summary of the data and recommended improvements for this intersection is shown in **Figure 5**. The complexity and cost of the improvements lend themselves to funding through VDOT's SMART SCALE or Revenue Sharing programs.



PERROWVILLE ROAD LOOKING NORTH AT MAYS MILL ROAD



MAYS MILL ROAD LOOKING EAST AT PERROWVILLE ROAD



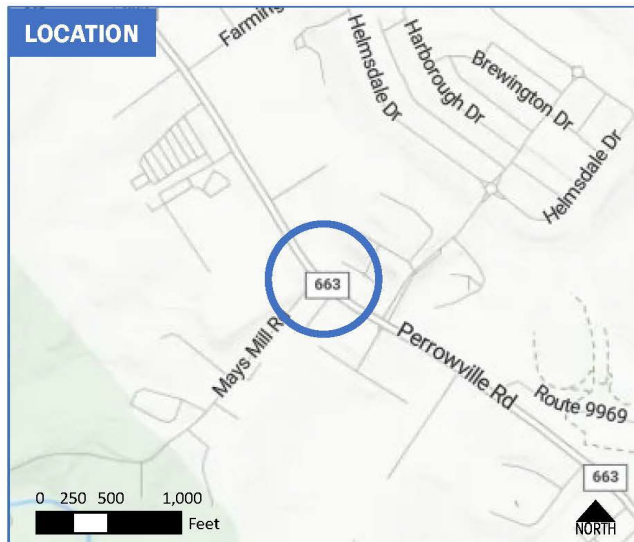
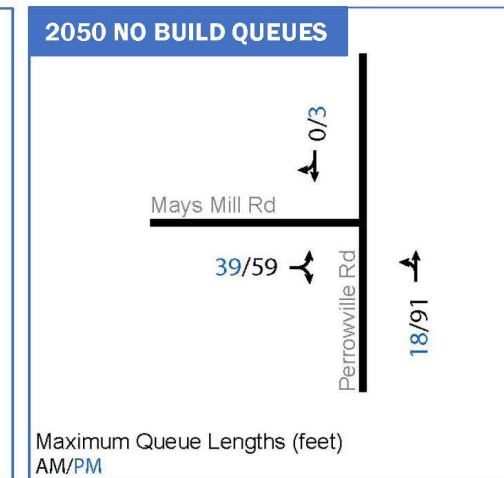
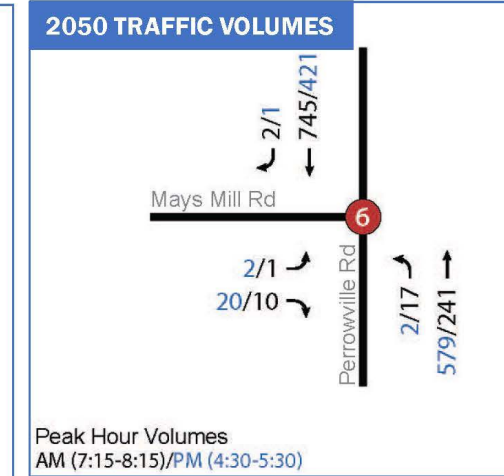
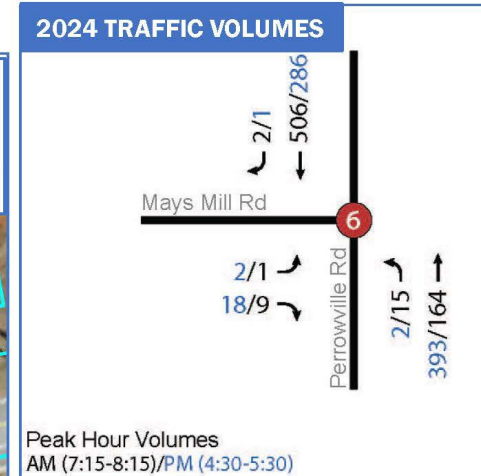
PERROWVILLE ROAD LOOKING SOUTH AT MAYS MILL ROAD

FIGURE 5: PERROWVILLE ROAD (663) AND MAYS MILL ROAD (622) SUMMARY SHEET

Perrowville Road (663) and Mays Mill Road (622)

BEDFORD COUNTY

IMPROVEMENT SKETCH

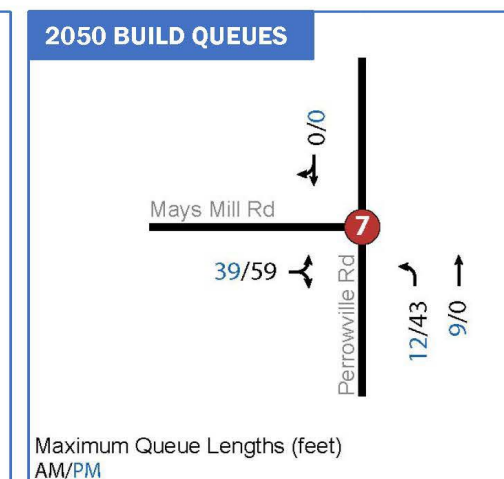
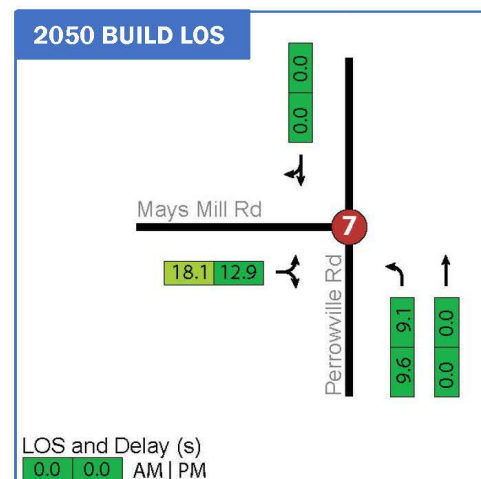


COST ESTIMATE

| Phase | Cost Estimate |
|-----------------------------------|---------------------|
| Preliminary Engineering | \$ 123,000 |
| Right of Way & Utility Relocation | \$ - |
| Construction | \$ 971,000 |
| Total Cost Estimate | \$ 1,094,000 |

SAFETY BENEFITS

| Crash Modification Description | CMF |
|--|------|
| Add Left-Turn Lane to Major Approach of 3-Leg Stop Controlled Intersection | 0.56 |



8 AMELON EXPRESSWAY (130) AND AMELON ROAD (669)/AMELON CENTER PARKWAY

AMHERST COUNTY

8.1 Challenges and Considerations

This location was identified for study by Amherst County staff based on current development proposals in the area and expected future growth in the Amelon Commerce Center.

Issues identified at this intersection through field visits, discussions with the Study Work Group, and various analyses include the following:

- Traffic volumes are expected to increase significantly with future development
- Large vehicles must be accommodated
- Intersection is on the PSI list

The detailed traffic calculations and assumptions used to develop the future traffic volumes are included in **Appendix B**.

8.2 Recommendations

No specific improvements for this intersection are recommended at this time; rather, the analysis in this report is provided for informational purposes. The analysis indicates that delays and queues will increase on the southbound approach of the intersection with the expected development. The analysis results shown in **Figure 6** are for a single lane roundabout. As shown, a single lane roundabout is sufficient to handle the anticipated traffic volumes at the intersection. However, given that Amelon Expressway currently provides two lanes per direction today, consideration should be given to the number of lanes provided. In addition to the number of lanes, the roundabout design requires further refinement to accommodate the large vehicles expected at the Amelon Commerce Center. A dual lane roundabout is shown in **Figure 6** to provide an idea of the maximum impacts that the design may have.

The level of concept development for the roundabout does not lend itself to a detailed cost estimate. However, a summary of recent roundabout construction projects and their costs was compiled. **Table 8** below summarizes the recent roundabout projects.

TABLE 8: RECENT ROUNDABOUT PROJECT COSTS IN THE LYNCHBURG DISTRICT

| Location | Cost* | Jurisdiction | Source |
|------------------------------|--------------|-------------------|---|
| Route 6 at Route 151 | \$15,705,000 | Nelson County | https://smartportal.virginiahb2.org/#/forms/ss/2024/full/F42-0000009639-R01/#general |
| US 360 at US 501 | \$9,921,000 | Halifax County | https://smartportal.virginiahb2.org/#/applications/2022/smartScale/view/F30-0000007300-R01 |
| US 501 at Factory St/Wall St | \$7,537,000 | South Boston Town | https://smartportal.virginiahb2.org/#/applications/2022/smartScale/view/F30-0000007247-R01 |
| US 15 at US 360 | \$5,217,000 | Charlotte County | https://vdot.virginia.gov/projects/lynchburg/route-15-roundabout-at-route-360.asp |
| Route 45 at Columbia Rd | \$3,500,000 | Cumberland County | https://www.virginiadot.org/projects/lynchburg/route-45-at-route-690-roundabout.asp |

*Rounded to nearest \$1,000.

A summary of the data and a two lane roundabout footprint are shown in **Figure 6**.



AMELON EXPRESSWAY LOOKING EAST TOWARD AMELON CENTER PARKWAY

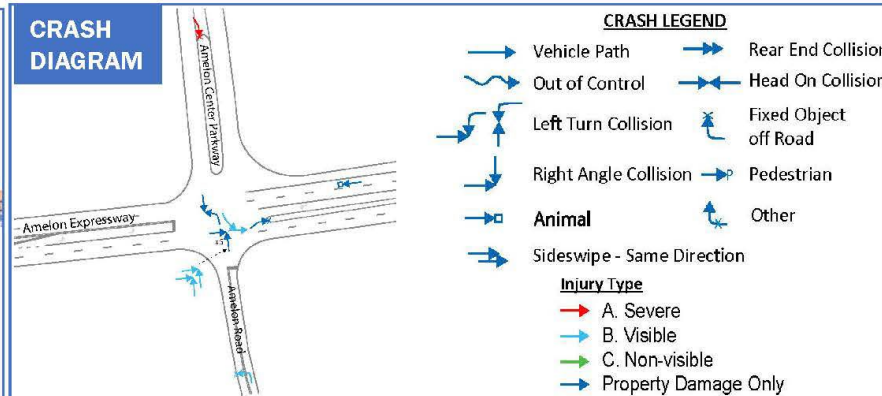
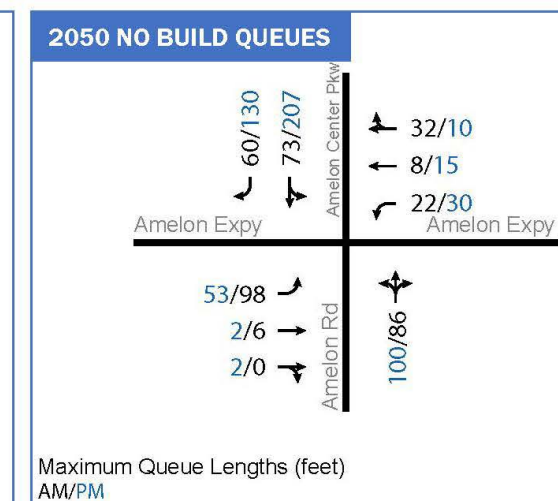
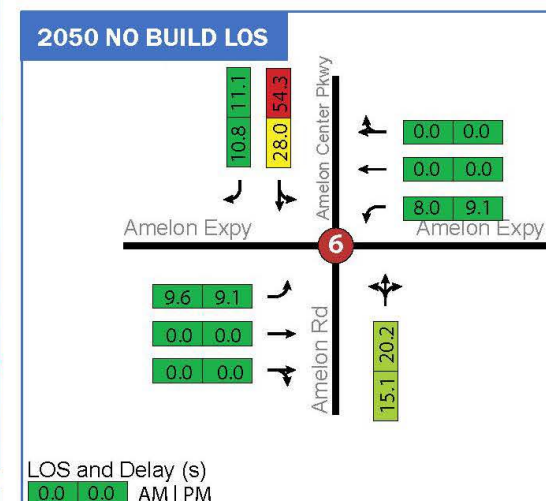
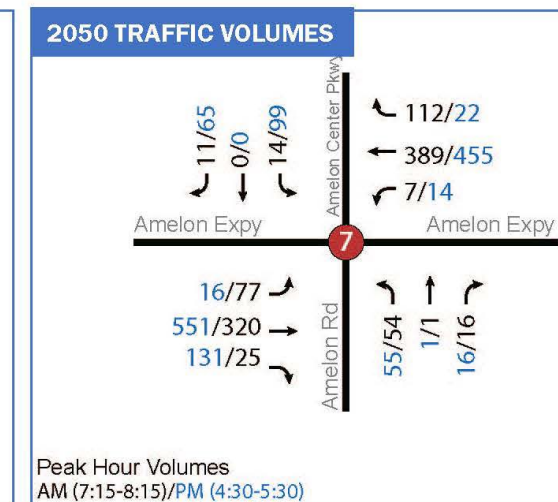
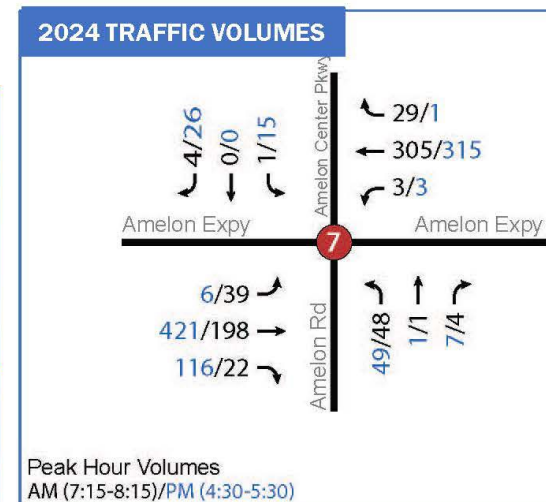
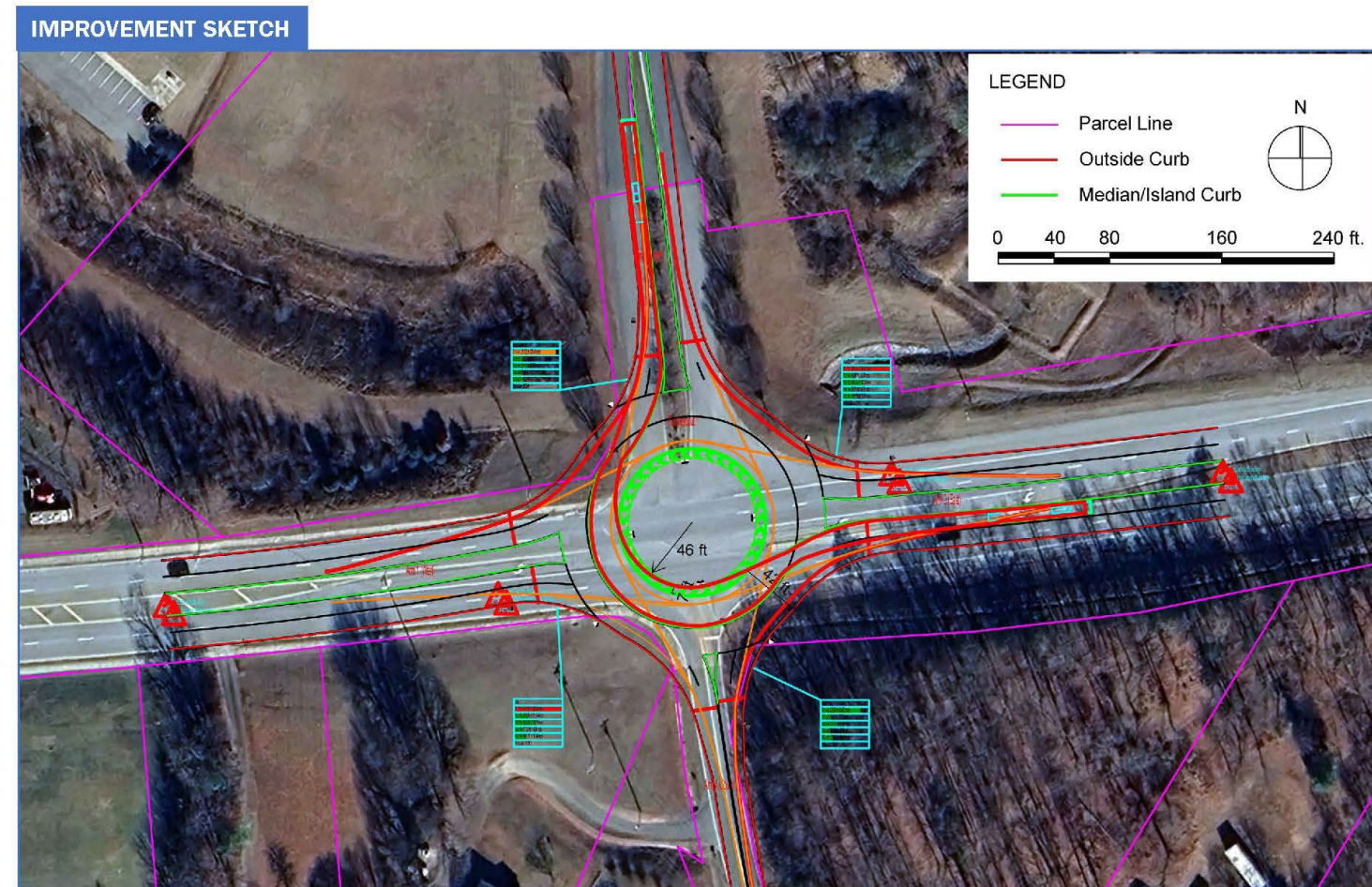


AMELON CENTER PARKWAY LOOKING WEST TOWARD AMELON CENTER PARKWAY

FIGURE 6: AMELON EXPRESSWAY (130) AND AMELON CENTER PARKWAY SUMMARY SHEET

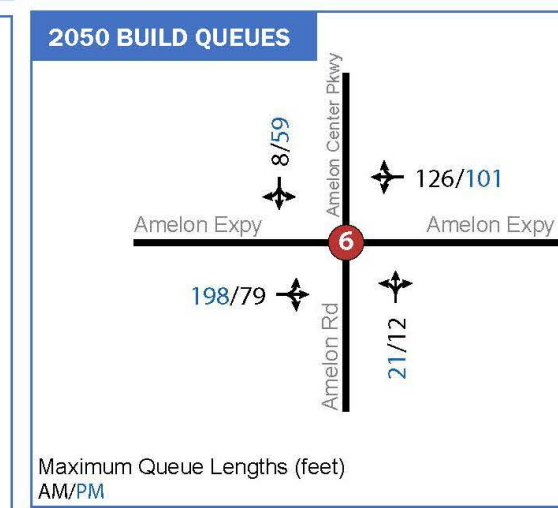
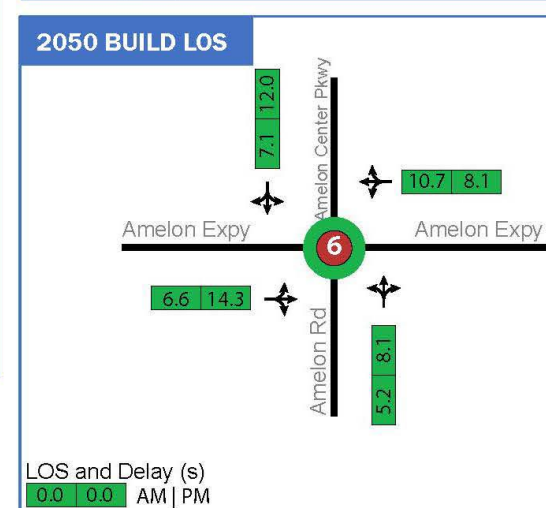
Amelon Expressway (130) and Amelon Road (669)/Amelon Center Parkway

AMHERST COUNTY



SAFETY BENEFITS

| Crash Modification Description | CMF |
|--|------|
| Convert Stop-Controlled Intersection to Roundabout | 0.56 |



9 ELK CREEK/MAYS MILL ROAD BRIDGE BEDFORD COUNTY

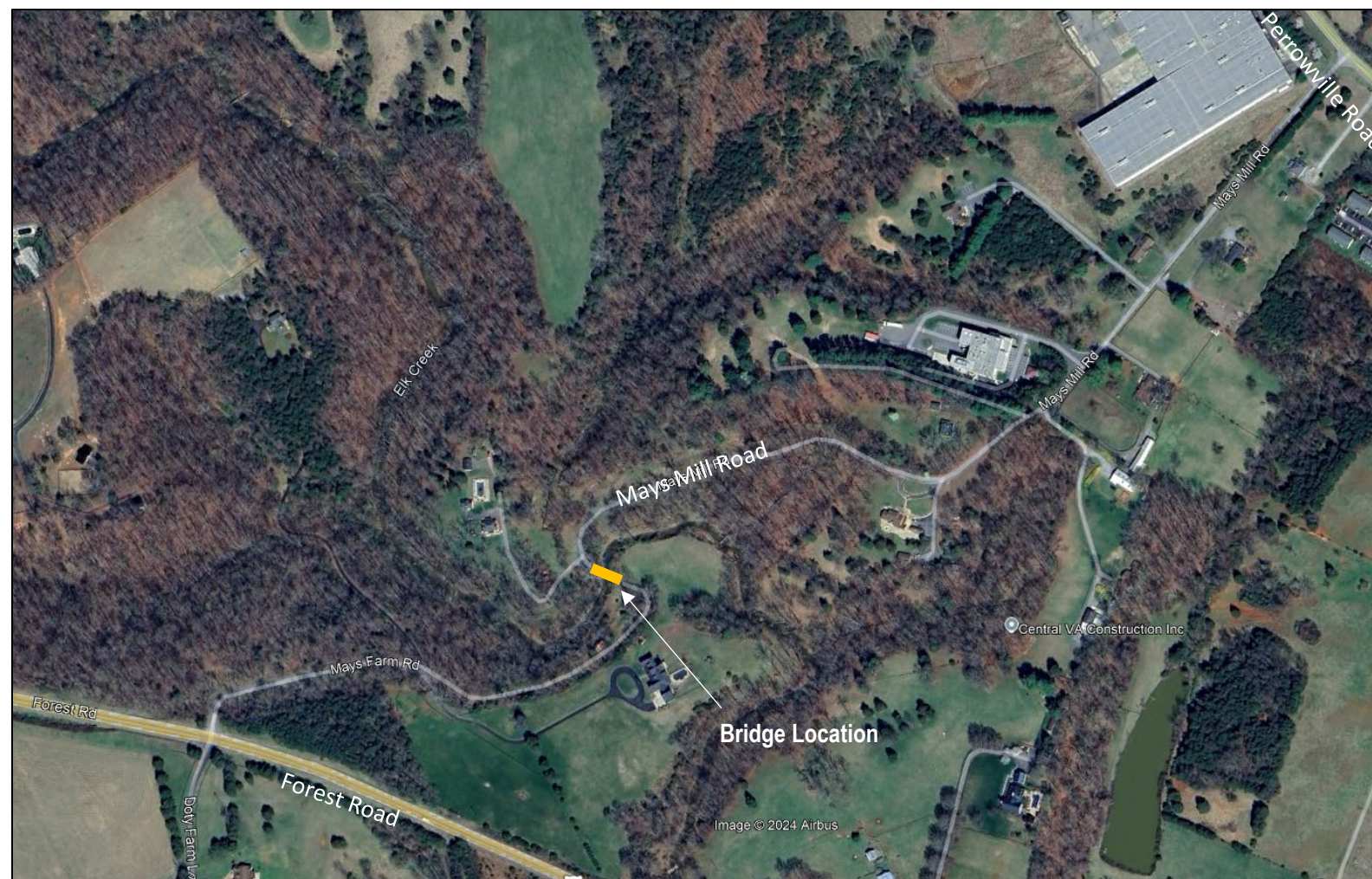
This location was identified by Bedford County staff as discussion of the Mays Mill Road intersection with Perrowville Road unfolded. Previously Mays Mill Road connected Perrowville Road to Forest Road via a bridge over the Elk Creek. Years ago (possibly in the 1980's) this bridge was washed out and was not replaced.

Issues identified at this location through field visits and discussions with the Study Work Group include the following:

- Disrepair of both approaches to the bridge – the northbound approach is currently grass and the width of the pavement is 14 feet in some areas
- Significant topographical changes along both approaches to the bridge
- Bedrock along both approaches to the bridge

No improvements are recommended at this location at this time. However, a comparison of recent bridge and roadway construction projects was conducted to provide an order of magnitude cost for replacing the bridge and its approaches. Based on these recent projects the cost to replace the bridge likely ranges between \$3.5 million and \$5.0 million. (A 60-foot long by 44-foot wide bridge was assumed.) The cost to improve the road between Route 221 and Perrowville Road, assuming VDOT GS-3 design criteria, likely ranges between \$10 million and \$15 million. Note that the bridge is not accessible unless the road is improved. A full alignment and preliminary design report should be completed as a first step in advancing improvements.

FIGURE 7: ELK CREEK/MAYS MILL ROAD BRIDGE AND SURROUNDING AREA



MAYS MILL ROAD NORTH OF FORMER BRIDGE LOOKING SOUTH



MAYS MILL ROAD NORTHBOUND APPROACH TO FORMER BRIDGE LOOKING NORTH



MAYS MILL ROAD NORTHBOUND APPROACH TO FORMER BRIDGE LOOKING SOUTH