

# East Albemarle Sub Area Study

March 31, 2008



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Report Prepared By



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## BACKGROUND

Albemarle County is experiencing growth and development in the eastern portion of the County and along Route 250 in particular, part of a larger growth trend that extends into northwest Fluvanna and southwest Louisa Counties, including the Zion Crossroads Area. The County has developed a conceptual plan to guide land use in the area through its Comprehensive Plan and would like to define an underlying transportation network for the area, given the recommendations of the Comprehensive Plan and the NW Fluvanna/SW Louisa Corridor Study. Additionally, the County would like to examine key intersections in greater detail, given the findings of the network analysis. In this context, there are several specific objectives of this study:

- Update the CorPlan model in the study area developed for the Eastern Planning Area (EPI) to reflect the recommendations of the Albemarle County Comprehensive Plan;
- Integrate with the NW Fluvanna/SW Louisa Multimodal Corridor Study;
- Evaluate alternative transportation networks that complement the Comprehensive Plan;
- Analyze key roads and intersections in the study area given the findings of the network analysis, and
- Identify specific short-term and long-term transportation projects that can be implemented through both the public sector and as part of private development proposals.

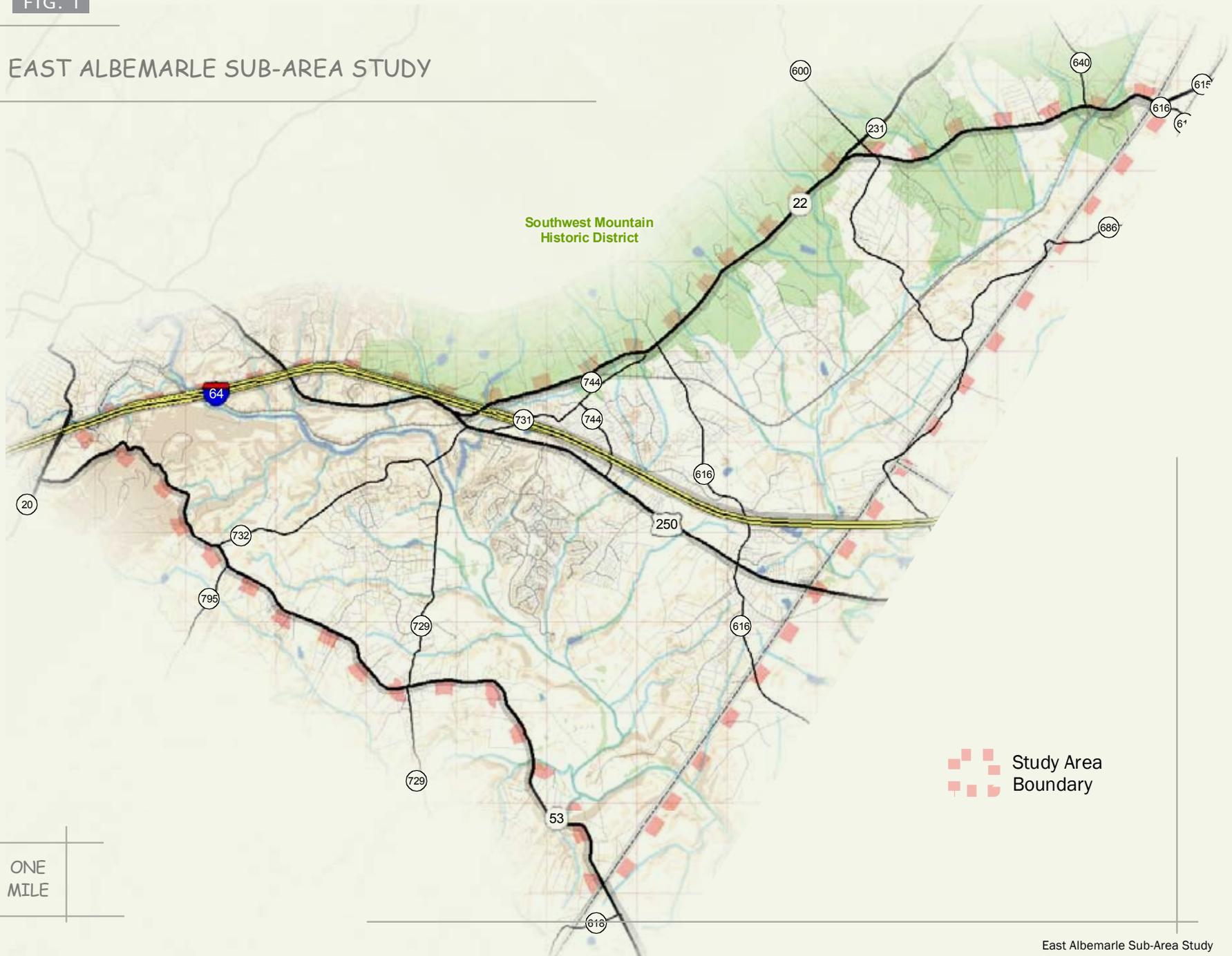
A project study team, comprised of individuals representing Albemarle County, the Thomas Jefferson Planning District Commission (TJPDC), the Virginia Department of Transportation (VDOT) and others, as necessary, was formed to guide the study process and recommendations.

## STUDY AREA

The study area represents the core of the travel shed in eastern Albemarle County. It is bounded by Interstate 64 on the west, Route 22 on the north, the Albemarle/Fluvanna County line on the east and Route 53 on the south. In addition, the network analysis will be expanded to include network connections to US 250 west of the I-64 interchange in the Pantops area (but will not be included in terms of socioeconomic data). The study area is illustrated in Figure 1 on the following page.

FIG. 1

# EAST ALBEMARLE SUB-AREA STUDY



## GROWTH AND DEVELOPMENT TRENDS

### Dwelling Units and Employment

The travel demand model developed for the Eastern Planning Initiative (EPI) and used for the NW Fluvanna/SW Louisa study was used to estimate travel demand on alternative transportation networks in the study area. Growth and development is articulated in the travel demand model through the allocation of dwelling units and employment into traffic analysis zones (TAZ) within the study area. Future year forecasts from the EPI were used as control totals for the study area.

The Albemarle County Comprehensive Plan provided a basis for allocating dwelling units and employment within the study area. The Plan identifies one designated growth area at Rivanna Village. A majority of new population and dwelling units were allocated at this location. Outside of the Rivanna Growth area, the Comprehensive Plan reinforces existing rural settlement patterns; population and employment growth allocations here were minimal.

Although not part of the Eastern Albemarle study area, it is important to note that just east, in Northwest Fluvanna and Southwest Louisa Counties (Zion Crossroads area), up to 10,000 additional dwelling units and 27,000 additional jobs are anticipated at build out. The Northwest Fluvanna and Southwest Louisa Multimodal Corridor Study recommends strategies to reduce travel demand and encourage shorter trips, including the development of compact, walkable villages and mixed use centers. Still, that growth is anticipated to generate a significant number of vehicle trips passing through Eastern Albemarle en route to Charlottesville. Figure 2 on the following page depicts the existing (2005) transportation network capacity in the study area in terms of the number of lanes and vehicles per day. Generally speaking, vehicular capacity diminishes from east to west within the study area. This is attributed to the bottlenecking of all routes into Route 250 on the north side of the study area, and topography on Route 53 on the south side of the corridor.

# TRANSPORTATION NETWORK

Figure 2 depicts existing conditions (2005) of daily traffic volumes and estimates of congestion (based on volume to capacity ratios).

FIG. 2

## EAST ALBEMARLE SUB-AREA STUDY

Existing (2005) Conditions

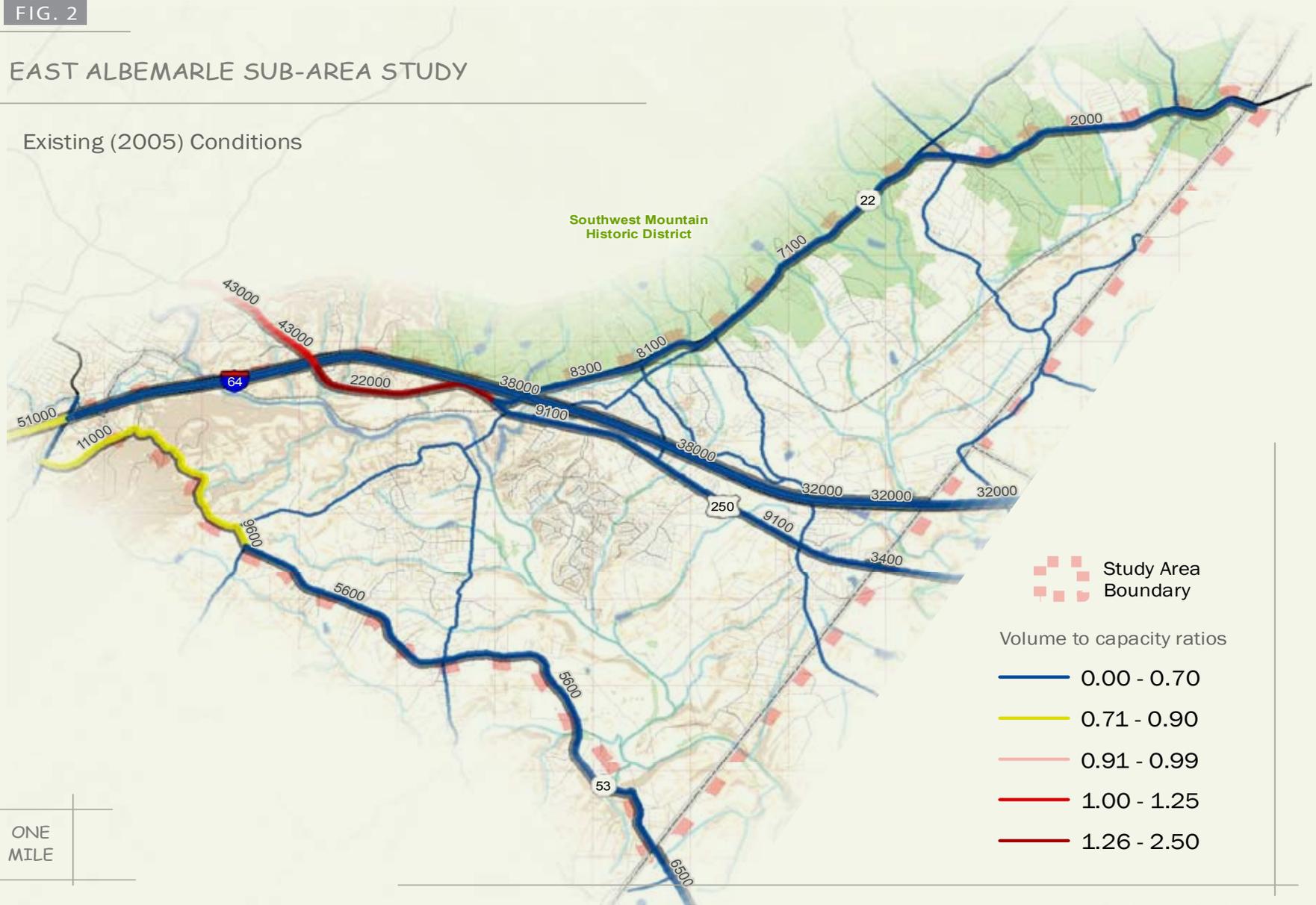
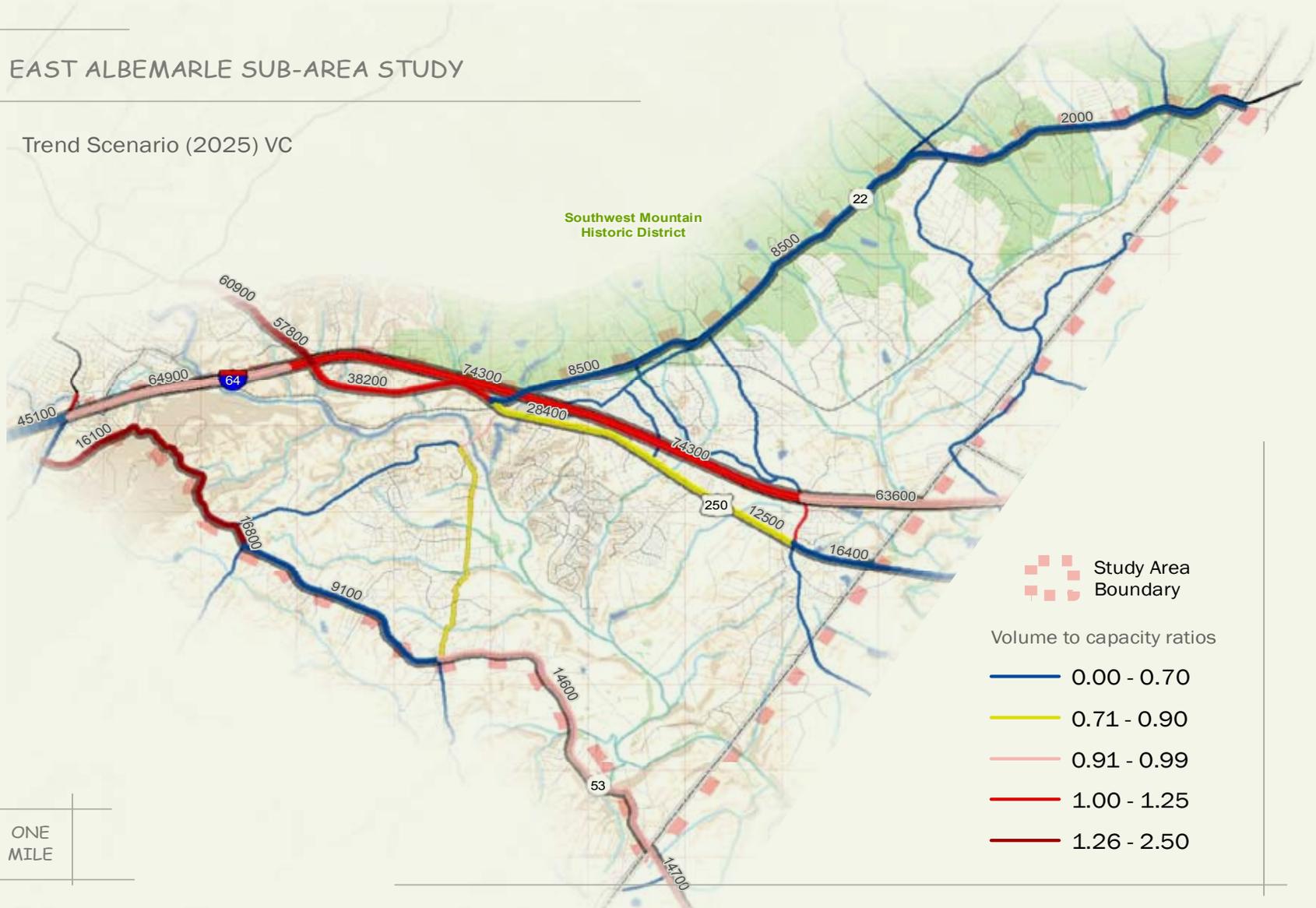


Figure 3 depicts future year (2025 ) trend scenario of daily traffic volumes and estimates of congestion (based on volume to capacity ratios) in the study area. The capacity issues noted in Figure 2 are exacerbated when future growth and development is considered. Specifically, capacity issues arise from travel demand generated by new growth associated with Rivanna Village and Northwest Fluvanna/Southwest Louisa.

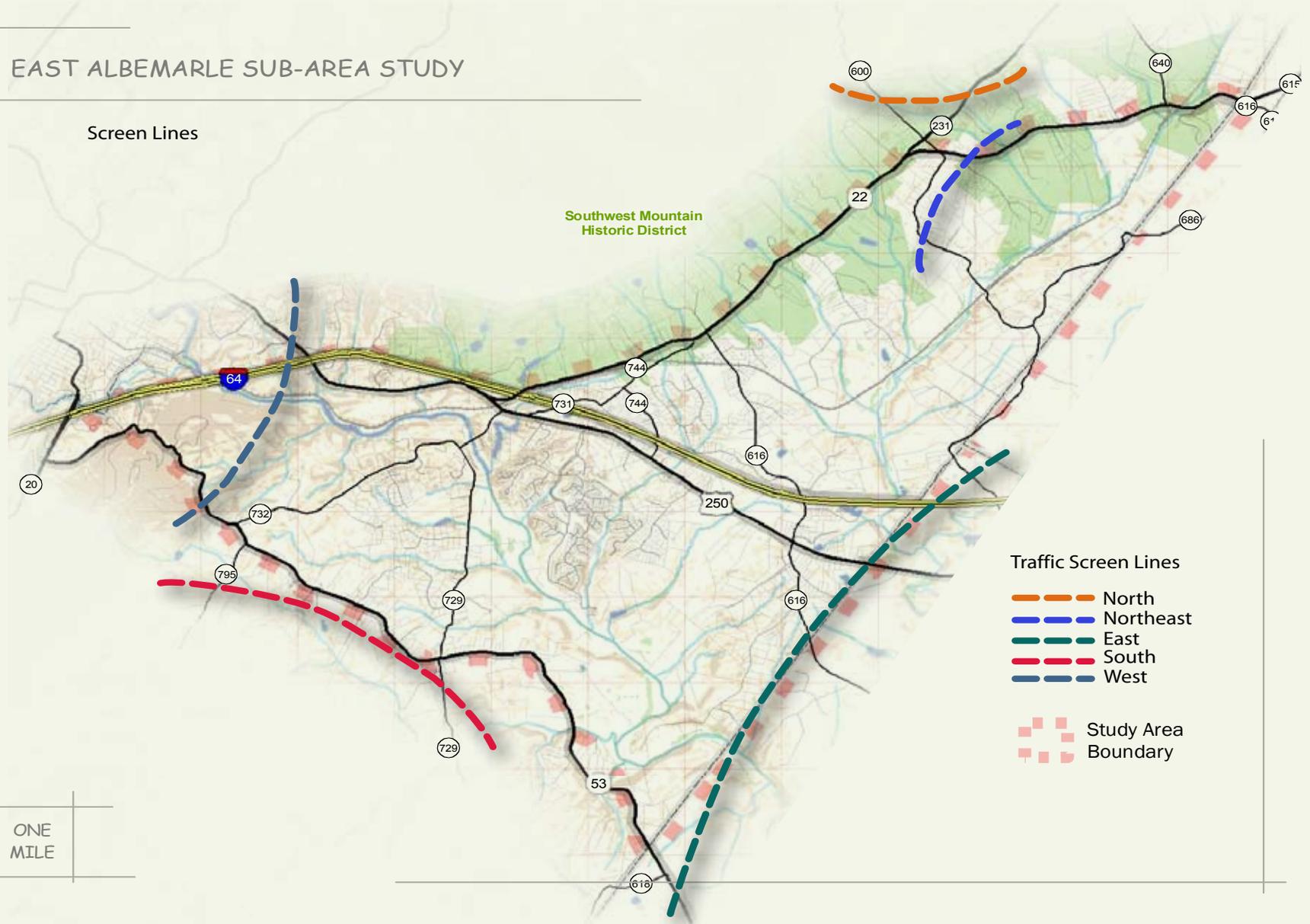
**FIG. 3** EAST ALBEMARLE SUB-AREA STUDY

Trend Scenario (2025) VC



A series of screenlines (depicted in Figure 4) were established to better evaluate traffic volumes passing through the study area. Volumes passing through these screenlines provided the basis for testing five different network capacity improvement alternatives, as described in Table 1.

**FIG. 4** EAST ALBEMARLE SUB-AREA STUDY



## NETWORK ALTERNATIVES

In terms of regional traffic flow, capacity issues can be described as an east to west trend. Based on existing traffic counts, traffic volumes entering the study area from the east on I-64 and Routes 53, 250 and 616 total 46,000 vehicles per day. Traffic builds as it passes through the west end, to and from Charlottesville, doubling to 92,000 vehicles per day. By the year 2025 traffic volumes are anticipated to increase to 102,000 vehicles per day on the east end and 140,000 vehicles on the west end. Capacity on existing roads, I-64 and Routes 53 and 250, is exceeded by traffic volumes by at least 20 percent at the west end of the study area.

The development of alternatives focused on addressing the east-west capacity issue. It begins with the development of the Base Alternatives, which includes the widening of Route 250 from I-64 to Glenmore, and then again from Black Cat Road (616) to the end of the study area (Fluvanna County Line). This is a recommendation of the Fluvanna-Louisa Northwest Corridor Study.

Subsequent alternatives considered a series of other capacity projects, including:

- Expanding Route 250 from four to six lanes from I-64 to Route 20;
- Expanding Route 250 from two to four lanes from I-64 to the Village of Rivanna;
- Expanding Route 250 from two to four lanes from the Village of Rivanna to Route 616 (Black Cat Road);
- Network connectivity enhancements and a new I-64 interchange in the Pantops area, consistent with the Pantops Master Plan;
- Expanding Route 729 from two to four lanes from Route 53 to Milton Road;
- Capacity enhancements (shoulders, turn lanes, straightening) to Route 729 from Route 53 to Milton Road;
- Enhancements to Route 616 from Route 250 to the end of the study area, and
- Widening Route 616 (Black Cat Road) from two to four lanes.

Route 53 at the west end of the study area, although considered a major potential 'choke point' in the system, was not considered for enhancement or expansion. Route 53 is constrained both by topography and by the presence of historically significant places, most importantly Monticello. The projects listed above were considered iteratively through a series of five distinct alternatives. The alternatives are summarized in Table 1. The traffic volumes, roadway capacity, and volume to capacity ratios for the base year and all alternatives are shown in Tables 2 and 3.

**TABLE 1** Summary of Network Alternatives

Scenario	New I-64 interchange at Pantops	US 250 6 lanes West of I-64	US 250 4 lanes from I-64 to Glenmore	US 250 4 lanes from Glenmore to Black Cat Rd	US 250 4 lanes from Black Cat Rd to Co. Line	Enhancements to Route 729	Route 729 4 lanes	Route 616/ Union Mills enhancements	Black Cat Rd 4 lanes
Base			X		X				
Alt1		X	X		X	X			
Alt2			X		X			X	X
Alt3	X		X		X				
Alt4	X		X		X		X		
Alt5	X		X			X			

**TABLE 2** Traffic Volumes by Screenline: Existing, 2025 Trend, 2025 Alt 1

Road	Existing (2005)				2025 Base Recommended Vision				2025 Base Alt				2025 Alt 1				
	Lanes	Volume	Capacity	VC ratio	Lanes	Volume	Capacity	VC ratio	Lanes	Volume	Capacity	VC ratio	Lanes	Volume	Capacity	VC ratio	
<b>East</b>																	
I-64		4	32,000	69,000	0.5	4	63,500	69,000	0.9	4	63,600	69,000	0.9	4	64,200	69,000	0.9
Route 250	Richmond Road	2	3,400	15,600	0.2	4	16,500	35,700	0.5	4	15,900	35,700	0.4	4	15,200	35,700	0.4
Route 616	Union Mills Rd.	2	4,100	12,800	0.3	2	7,800	12,800	0.6	2	7,400	12,800	0.6	2	6,800	12,800	0.5
Route 53	Thomas Jefferson Pkwy	2	6,500	15,600	0.4	2	14,100	15,600	0.9	2	14,700	15,600	0.9	2	14,900	15,600	1.0
			<b>46,000</b>	<b>113,000</b>	<b>0.4</b>		<b>101,900</b>	<b>133,100</b>	<b>0.8</b>		<b>101,600</b>	<b>133,100</b>	<b>0.8</b>		<b>101,100</b>	<b>133,100</b>	<b>0.8</b>
<b>West</b>																	
250	Richmond Rd	4	43,000	35,700	1.2	4	57,100	35,700	1.6	4	57,800	35,700	1.6	6	67,500	52,000	1.3
I-64		4	38,000	69,000	0.6	4	64,600	69,000	0.9	4	64,900	69,000	0.9	4	56,200	69,000	0.8
Route 53	Thomas Jefferson Pkwy	2	11,000	12,800	0.9	2	16,800	12,800	1.3	2	16,100	12,800	1.3	2	15,500	12,800	1.2
			<b>92,000</b>	<b>117,500</b>	<b>0.8</b>		<b>138,500</b>	<b>117,500</b>	<b>1.2</b>		<b>138,800</b>	<b>117,500</b>	<b>1.2</b>		<b>139,200</b>	<b>133,800</b>	<b>1.0</b>
<b>North</b>																	
231	Gordonsville Rd	2	5,100	12,800	0.4	2	5,100	12,800	0.4	2	5,100	12,800	0.4	2	5,100	12,800	0.4
600	Cismont Lane	2	210	12,800	0.0	2	6,500	12,800	0.5	2	6,500	12,800	0.5	2	4,100	12,800	0.3
			<b>5,310</b>	<b>25,600</b>	<b>0.2</b>		<b>11,600</b>	<b>25,600</b>	<b>0.5</b>		<b>11,600</b>	<b>25,600</b>	<b>0.5</b>		<b>9,200</b>	<b>25,600</b>	<b>0.4</b>
<b>South</b>																	
729	Buck Island Rd	2	1,600	12,800	0.1	2	1,400	12,800	0.1	2	1,700	12,800	0.1	2	2,000	12,800	0.2
795	James Monroe Pkwy	2	3,200	12,800	0.3	2	7,200	12,800	0.6	2	6,800	12,800	0.5	2	7,200	12,800	0.6
			<b>4,800</b>	<b>25,600</b>	<b>0.2</b>		<b>8,600</b>	<b>25,600</b>	<b>0.3</b>		<b>8,500</b>	<b>25,600</b>	<b>0.3</b>		<b>9,200</b>	<b>25,600</b>	<b>0.4</b>
<b>Northeast</b>																	
22	Louisa Rd	2	2,000	12,800	0.2	2	1,000	12,800	0.1	2	2,000	12,800	0.2	2	2,000	12,800	0.2
Route 600		2	250	12,800	0.0	2	5,400	12,800	0.4	2	5,500	12,800	0.4	2	3,000	12,800	0.2
			<b>2,250</b>	<b>25,600</b>	<b>0.1</b>		<b>6,400</b>	<b>25,600</b>	<b>0.3</b>		<b>7,500</b>	<b>25,600</b>	<b>0.3</b>		<b>5,000</b>	<b>25,600</b>	<b>0.2</b>

VC = volume to capacity ratio

**TABLE 3** Traffic Volumes by Screenline: Alternatives 2-5

Road	2025 Alt 2				2025 Alt 3				2025 Alt 4				2025 Alt 5				
	Lanes	Volume	Capacity	VC ratio	Lanes	Volume	Capacity	VC ratio	Lanes	Volume	Capacity	VC ratio	Lanes	Volume	Capacity	VC ratio	
<b>East</b>																	
I-64		4	63,400	69,000	0.9	4	64,000	69,000	0.9	4	64,100	69,000	0.9	4	68,200	69,000	1.0
Route 250	Richmond Road	4	16,000	35,700	0.4	4	16,500	35,700	0.5	4	16,500	35,700	0.5	2	12,400	15,600	0.8
Route 616	Union Mills Rd.	2	7,900	15,600	0.5	2	7,300	12,800	0.6	2	6,600	12,800	0.5	2	7,600	12,800	0.6
Route 53	Thomas Jefferson Pkwy	2	14,400	15,600	0.9	2	14,900	15,600	1.0	2	14,900	15,600	1.0	2	14,900	15,600	1.0
			<b>101,700</b>	<b>135,900</b>	<b>0.7</b>		<b>102,700</b>	<b>133,100</b>	<b>0.8</b>		<b>102,100</b>	<b>133,100</b>	<b>0.8</b>		<b>103,100</b>	<b>113,000</b>	<b>0.9</b>
<b>West</b>																	
250	Richmond Rd	4	57,500	35,700	1.6	4	41,600	35,700	1.2	4	41,800	35,700	1.2	4	42,000	35,700	1.2
I-64		4	65,200	69,000	0.9	4	64,100	69,000	0.9	4	64,300	69,000	0.9	4	65,000	69,000	0.9
Route 53	Thomas Jefferson Pkwy	2	16,100	12,800	1.3	2	15,500	12,800	1.2	2	14,900	12,800	1.2	2	15,600	12,800	1.2
			<b>138,800</b>	<b>117,500</b>	<b>1.2</b>		<b>121,200</b>	<b>117,500</b>	<b>1.0</b>		<b>121,000</b>	<b>117,500</b>	<b>1.0</b>		<b>122,600</b>	<b>117,500</b>	<b>1.0</b>
<b>North</b>																	
231	Gordonsville Rd	2	5,100	12,800	0.4	2	5,100	12,800	0.4	2	5,100	12,800	0.4	2	5,100	12,800	0.4
600	Cismont Lane	2	6,400	12,800	0.5	2	2,800	12,800	0.2	2	2,900	12,800	0.2	2	2,700	12,800	0.2
			<b>11,500</b>	<b>25,600</b>	<b>0.4</b>		<b>7,900</b>	<b>25,600</b>	<b>0.3</b>		<b>8,000</b>	<b>25,600</b>	<b>0.3</b>		<b>7,800</b>	<b>25,600</b>	<b>0.3</b>
<b>South</b>																	
729	Buck Island Rd	2	1,400	12,800	0.1	2	1,000	12,800	0.1	2	2,200	12,800	0.2	2	1,000	12,800	0.1
795	James Monroe Pkwy	2	6,900	12,800	0.5	2	7,500	12,800	0.6	2	7,400	12,800	0.6	2	7,600	12,800	0.6
			<b>8,300</b>	<b>25,600</b>	<b>0.3</b>		<b>8,500</b>	<b>25,600</b>	<b>0.3</b>		<b>9,600</b>	<b>25,600</b>	<b>0.4</b>		<b>8,600</b>	<b>25,600</b>	<b>0.3</b>
<b>Northeast</b>																	
22	Louisa Rd	2	2,000	12,800	0.2	2	2,000	12,800	0.2	2	2,000	12,800	0.2	2	2,000	12,800	0.2
Route 600		2	3,000	12,800	0.2	2	2,900	12,800	0.2	2	2,900	12,800	0.2	2	2,000	12,800	0.2
			<b>5,000</b>	<b>25,600</b>	<b>0.2</b>		<b>4,900</b>	<b>25,600</b>	<b>0.2</b>		<b>4,900</b>	<b>25,600</b>	<b>0.2</b>		<b>4,000</b>	<b>25,600</b>	<b>0.2</b>

VC = volume to capacity ratio

## NETWORK ANALYSIS AND RECOMMENDATIONS

Traffic forecasts were prepared for each of the alternatives (see Tables 1-3). The following major conclusions can be drawn from the alternative network analysis.

- Network enhancements and/or a new interchange at I-64 have a significant impact on future traffic volumes on US 250 west of I-64 (a reduction of 15,000 to 16,000 vehicles per day).
- US 250 from Rivanna Village to I-64 will ultimately need to be four lanes. This is attributed to growth associated with the Village.
- In the future, volumes on I-64 will increase substantially to the full capacity of the roadway. Therefore, shifting traffic from US 250 via an interchange near Rivanna Village will not be of benefit to the transportation system.

The conclusions are the embodiment of Alternative 5 of this study. Alternative 5 is the recommended network alternative. Specific project recommendations are based on this preferred network scenario. The Figures 5-9 on the following pages illustrate the five different alternatives analyzed. Project recommendations, presented in Table 4 and Figure 10, are based on adoption of the recommended Alternative 5.

FIG. 5

## EAST ALBEMARLE SUB-AREA STUDY

### Alternative 1 (2025)

US 250 6 lanes West of I-64

US 250 4 lanes from I-64 to Glenmore

US 250 4 lanes from Black Cat Rd to Co. Line

Enhancements to Route 729

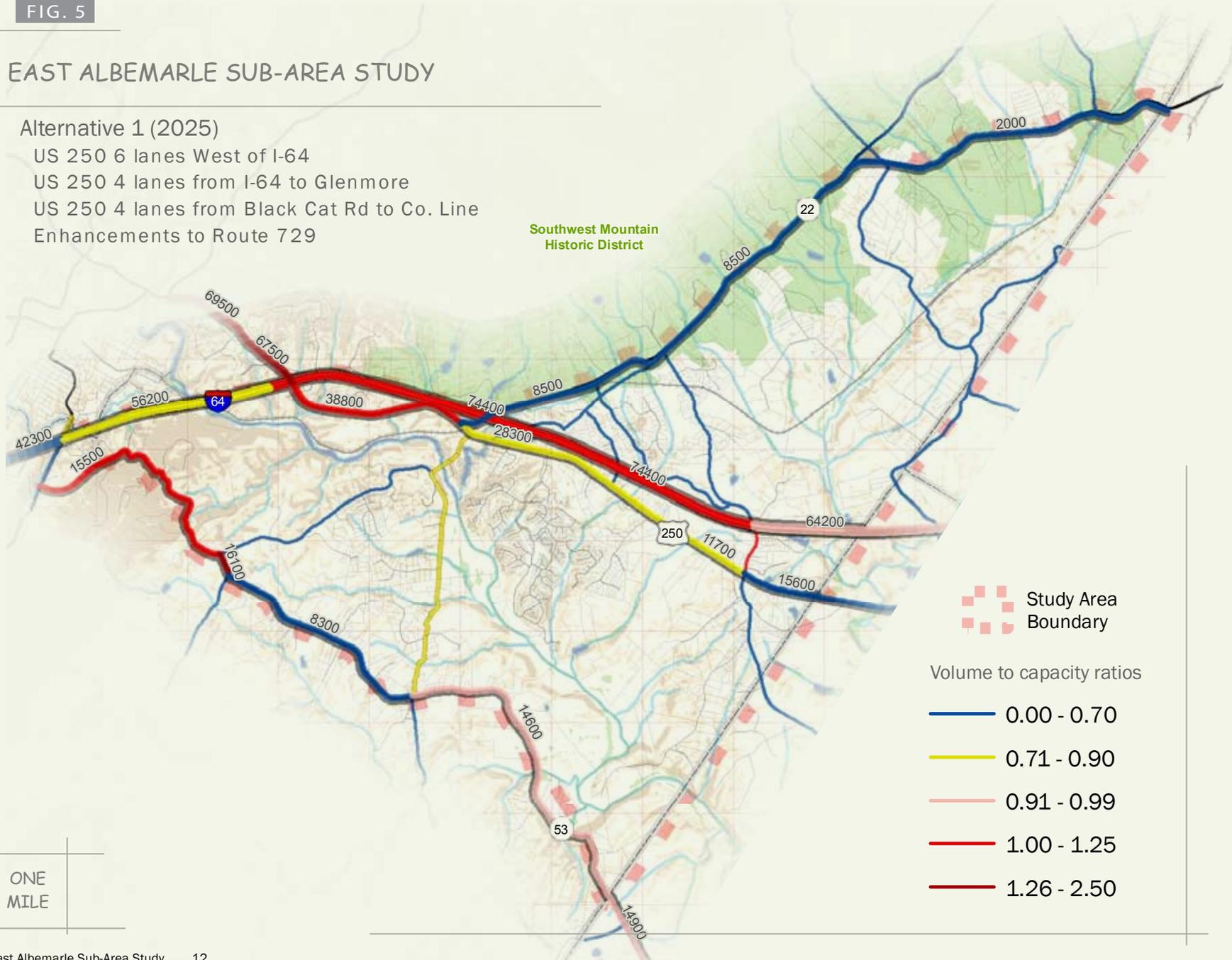


FIG. 6

## EAST ALBEMARLE SUB-AREA STUDY

### Alternative 2 (2025)

- US 250 4 lanes from I-64 to Glenmore
- US 250 4 lanes from Black Cat Rd to Co. Line
- Route 616/Union Mills enhancements
- Black Cat Rd 4 lanes

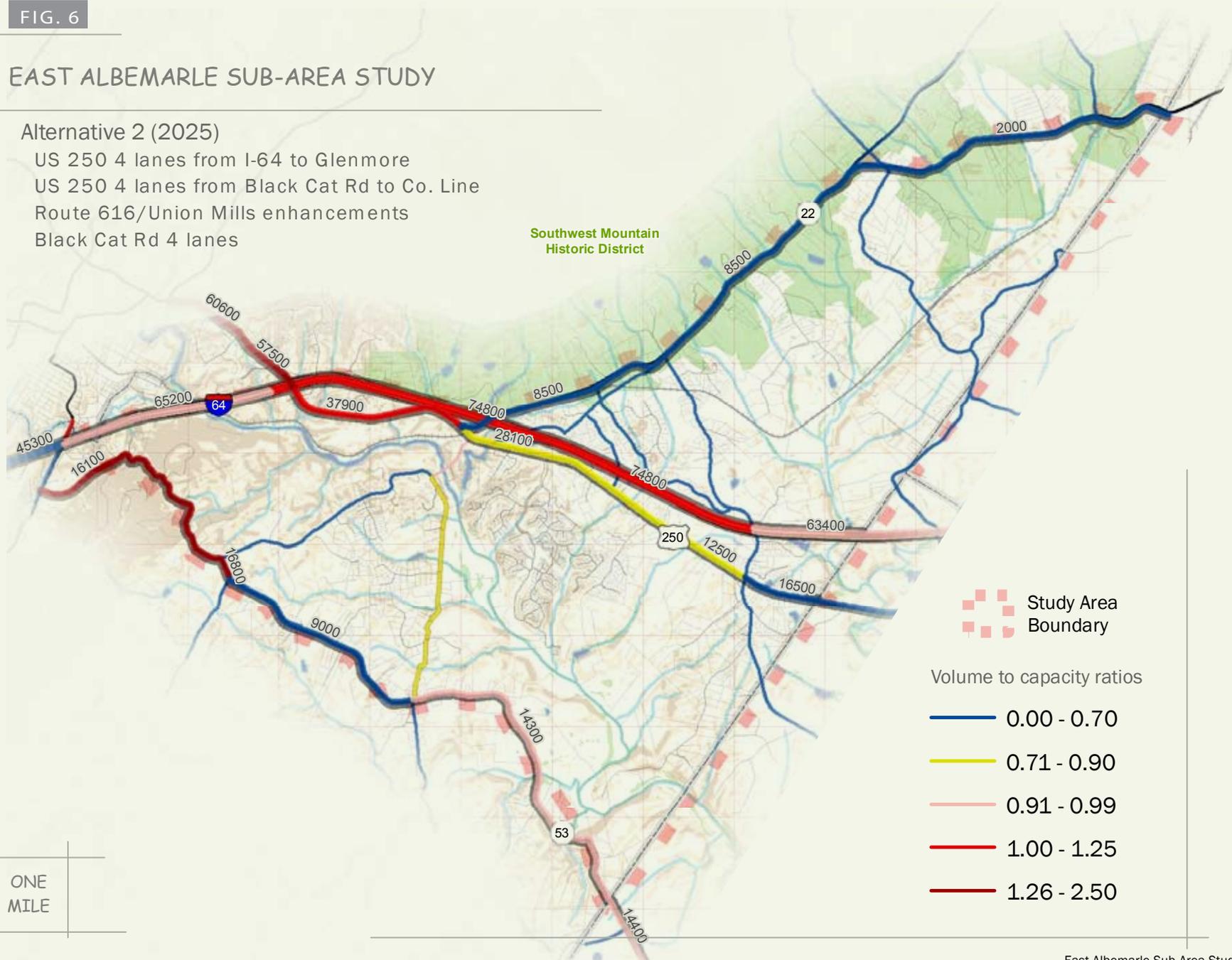


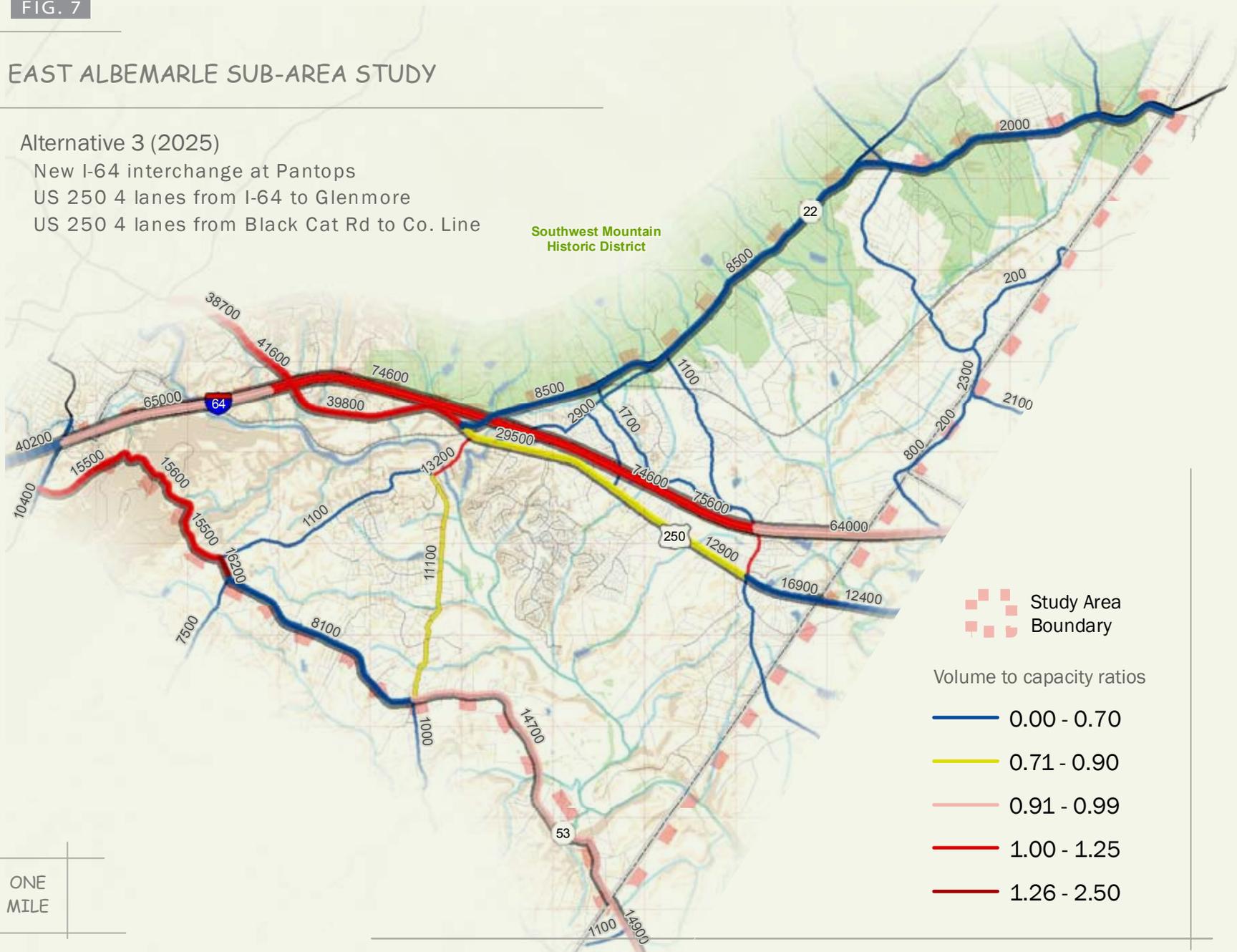
FIG. 7

# EAST ALBEMARLE SUB-AREA STUDY

## Alternative 3 (2025)

- New I-64 interchange at Pantops
- US 250 4 lanes from I-64 to Glenmore
- US 250 4 lanes from Black Cat Rd to Co. Line

Southwest Mountain  
Historic District



ONE  
MILE

FIG. 8

## EAST ALBEMARLE SUB-AREA STUDY

### Alternative 4 (2025)

- New I-64 interchange at Pantops
- US 250 4 lanes from I-64 to Glenmore
- US 250 4 lanes from Black Cat Rd to Co. Line
- Route 729 4 lanes

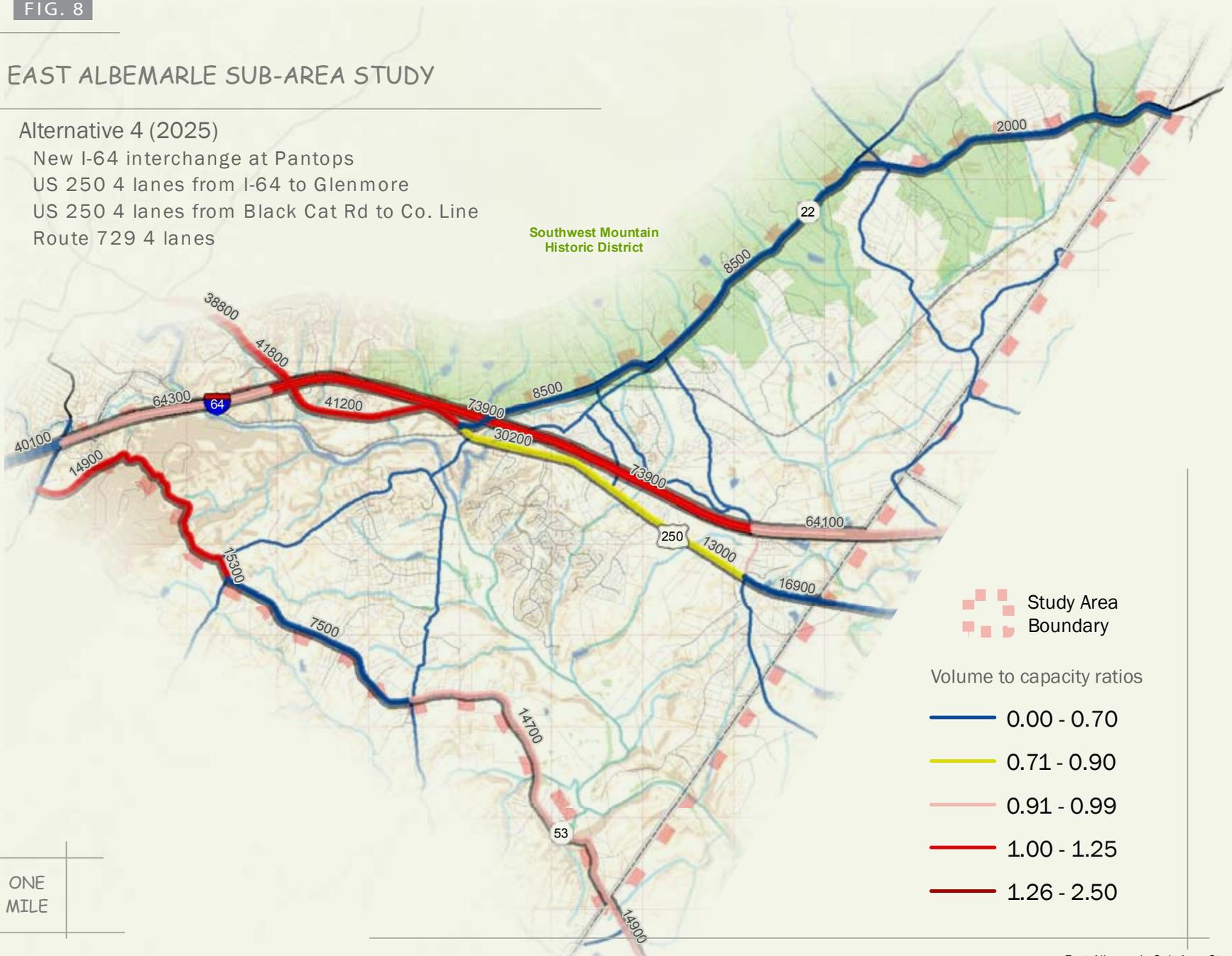
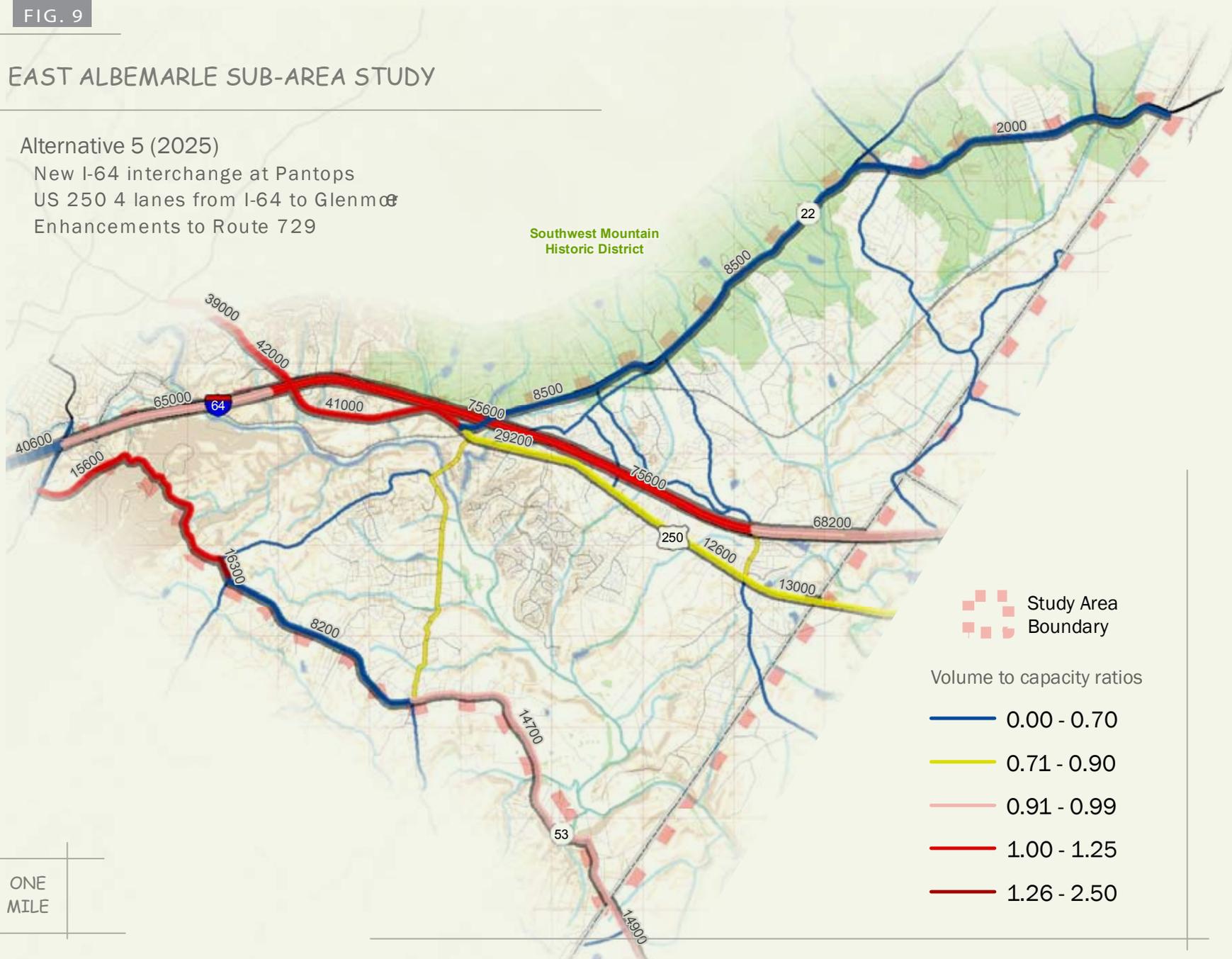


FIG. 9

# EAST ALBEMARLE SUB-AREA STUDY

## Alternative 5 (2025)

- New I-64 interchange at Pantops
- US 250 4 lanes from I-64 to Glenmora
- Enhancements to Route 729



## PROJECT RECOMMENDATIONS

Table 4 and Figure 10 depict project recommendations for the study area based on the results of the network analysis and a field review of existing conditions. Project recommendations include lane additions, intersection improvements, shoulder/safety enhancements and transit. Projects are identified for the near to mid term (one to 12 years) and the long term (12 to 20 years) and rated based on need (mobility or safety).

**TABLE 4** Eastern Albemarle Sub-area Study Project Recommendations

Project	Location	Description	Cost	Mobility Need	Safety Need	Description	Cost	Mobility Need	Safety Need
<i>Near to Mid Term (One to 12 years)</i>						<i>Longer Term (12 to 20 years)</i>			
A	Route 250 and Route 729	Optimize signal timing.	NA			Lengthen eastbound turn lane (widen bridge). Provide additional lane in front of Stone Robinson School. Construct northbound dual left.	\$850,000		
B	Route 250 and Glenmore Way	NA	NA	NA	NA	Signalization or roundabout. (Developer has proffered money for signal)	\$180,000/\$350,000		
C	Route 616 and Route 22	Add eastbound right taper lane at Route 616.	\$50,000			Add westbound left turn lane at Route 22; modify parking lot entrance at church.	\$400,000		
D	Route 616 and I-64	Add northbound left turn lane or roundabout at westbound ramps	\$450,000			Right turn lanes at ramps, free flow eastbound to southbound right turn lane, cloverleaf on-ramp for northbound to westbound movement.	\$2,500,000 (does not include bridge modifications if required)		
E	Route 616 and Route 250	Add westbound right turn lane.	\$120,000			Reconstruct intersection for turn lanes all approaches and replace signal, or reconstruct roundabout with channeled westbound to northbound right turn movement	\$750,000 for roundabout or \$1,000,000 for major intersection improvements and signal replacement		
F	Route 53 and Route 795	Realign Route 53 and add turn lanes or build roundabout per long term recommendation	\$850,000 for realignment and turn lanes, or \$750,000 for roundabout on existing			Signalization or roundabout.	If no roundabout, add \$180,000 for new signal		
G	Route 729 and Route 53	Add westbound right turn lane; eastbound right turn taper	\$90,000			Realign intersection; signalization or roundabout.	\$1,100,000		
H	Route 729 from Route 53 to Route 732	Flatten bad curve and fix ditch drop off condition at Gelletty Road	\$250,000			Safety enhancements - add shoulders. approximately 2.5 miles; fix curves	\$1,100,000		
I	Route 53 from Route 732 to Route 20	NA	NA	NA	NA	Safety enhancements - add shoulders at select locations within the approximate 2.9 miles length.	\$1,000,000		
J	Route 250 from Glenmore Way to I-64	NA	NA	NA	NA	Widen to four lanes with a median. Approximately 3 miles	\$12,000,000		
K	Spot Improvements on Route 53 - Well Court Area, curves inside county line, 2800 block near new bridge	Flatten bad curve and fix ditch drop off condition at Gelletty Road	NA	NA	NA	Flatten bad curves and fix ditch drop offs at locations with crash histories	\$1,500,000		
L	Route 616 at Woods Edge Road - blind curve with crash history	latten curve radius and re-work roadside slopes	\$250,000			NA	NA	NA	NA
M	Route 250 from Fluvanna Co. to Route 616	NA	NA	NA	NA	Monitor for widening (beyond 25 year horizon)	NA	NA	NA
N	Glenmore/Rivanna Village to Pantops and downtown	Park and ride lot at Rivanna Village	NA	NA	NA	New transit service; enhanced bus shelter	\$375,000 to \$500,000 capital; \$200,000 to \$400,000 annual operating		

(Costs above are shown in 2008 dollars.)





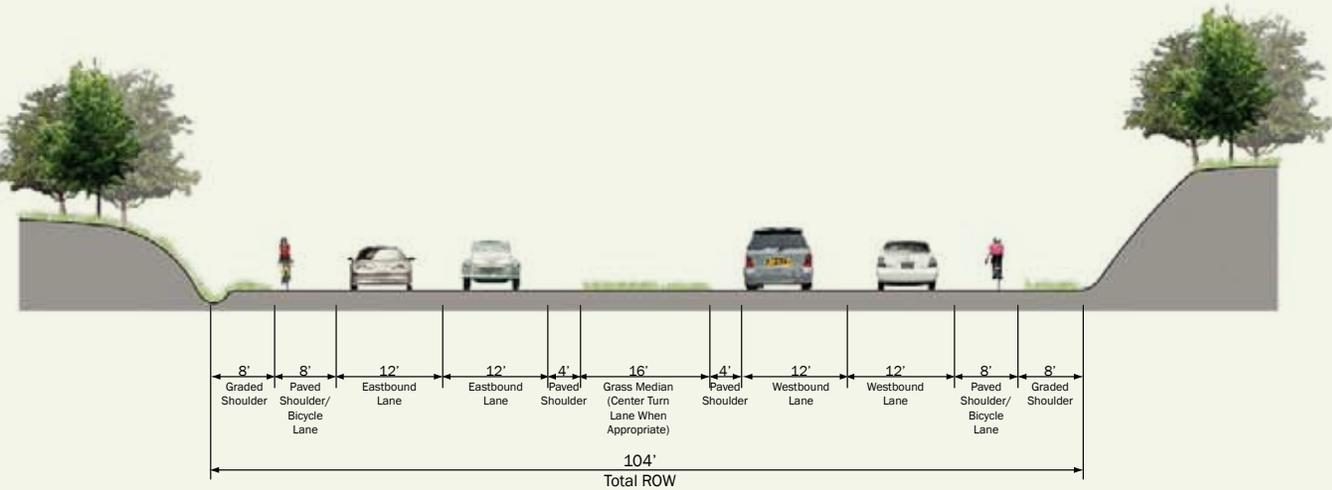
# ROUTE 250 FROM 729 TO GLENMORE

Route 250 will ultimately need to be widened to four lanes from Rivanna Village to I-64 to accommodate burgeoning travel demand from both Glenmore/Rivanna Village and Fluvanna/Louisa Counties. Two different typical sections were developed for this segment of Route 250: a high speed design for rural areas (Figure 11A) and a lower speed, context-sensitive design (Figure 11B) for the segment of US 250 near Route 22 which includes activities in close proximity to each other and the road and has more limited right of way.

FIG. 11A

**PROPOSED TYPICAL SECTION FOR US 250**

Improved ROW



Existing Condition



# ROUTE 250 FROM 729 TO 22

FIG. 11B



## TRANSIT

Transit service is recommended for possible implementation over the long term. The Rivanna Village/Glenmore area is the only part of the study area with the critical mass to support fixed route transit. Unfortunately, the area is too far from I-64 access to tie into proposed premium transit service from Zion Crossroads. Transit service from Rivanna Village could tie into the Pantops area. Several options have been considered for connecting to Route 10 in Pantops, and three possible are outlined in Table 5 below, including costs estimates and service assumptions for each.



TABLE 5 Transit Route Options

Transit Route Options	Description	Cost Estimates	Headway	Service Hours	Vehicles Req.	Route Length	Travel Time (round trip)
Option 1	Interline with Route 10, Glenmore to Pantops, Route 10 into downtown	Capital - \$305,000; Operating - \$220,000 per year	30 min.	12	1	8.5 mi.	26 min.
Option 2	Merge with Route 10, Glenmore to Pantops to downtown, Route 10 becomes a local Pantops circulator	Capital - \$575,000; Operating - \$400,000 per year.	30 min.	12	2	13.0 mi.	45 min.
Option 3	Standalone Route, Glenmore to Pantops to downtown, Parallel to Route 10	Capital - \$305,000; Operating - \$200,000 per year	60 min.	12	1	13.0 mi.	45 min.

## INTERSECTIONS

Within the study network, seven intersections were identified for detailed analysis of traffic operations, safety, and capacity needs for both the existing and future conditions. The intersections were selected based on coordination with the County, VDOT, the Albemarle Police, and per engineering judgment. The goal of the study effort was to identify short, mid, and long term recommendations for specific improvements that will improve safety and keep the intersections operating satisfactorily in the near and long term. Each intersection planning study is summarized within one annotated graphic included as Figures 12-18 on the following pages.

FIG.12

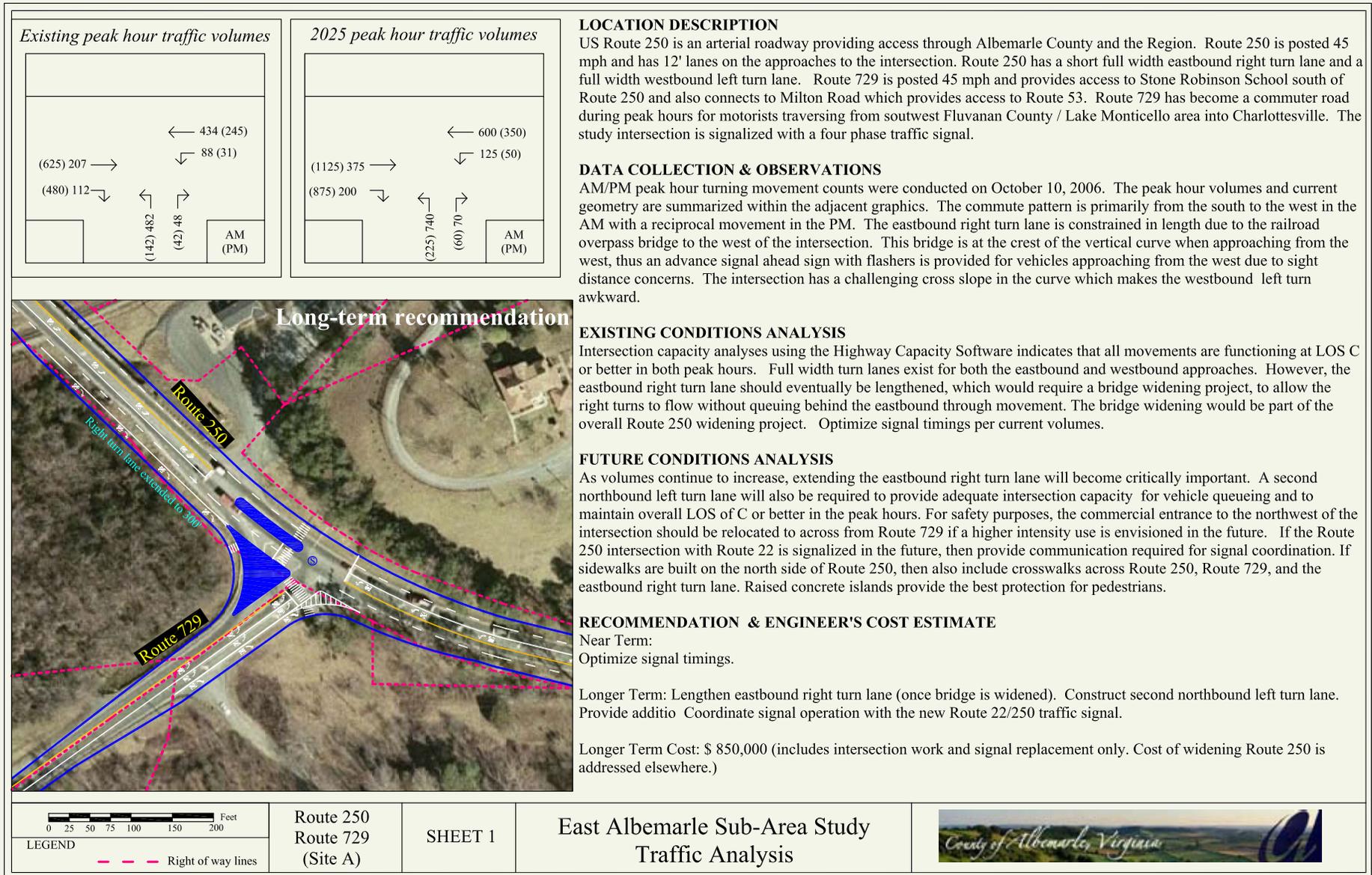
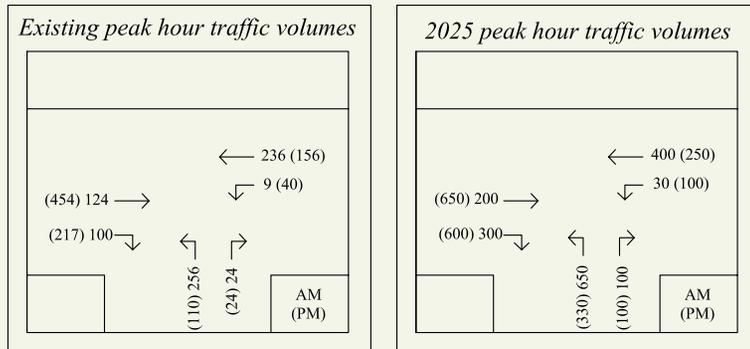


FIG. 13



**LOCATION DESCRIPTION**

US Route 250 is an arterial roadway providing access through Albemarle County and the Region. Route 250 is posted 55 mph and has 12' lanes on the approaches to the intersection. Route 250 has a full width eastbound right turn lane and westbound left turn lane. Glenmore Way is a divided roadway providing access to residential development south of Route 250. The intersection was constructed to new design standards which includes features such as shoulders and standard lane widths. Large lot residential development abuts the intersection on each of the three sides. Glenmore Way is STOP controlled.

**DATA COLLECTION & OBSERVATIONS**

AM/PM peak hour turning movement counts were conducted on October 26, 2006. The peak hour volumes and current geometry are shown in the adjacent graphics. The commute pattern is primarily from the south to the west in the AM with a reciprocal movement in the PM. Overall, there is not a capacity problem at this intersection presently and the volumes do not meet any of the warrants for signalization. However, pending future development could result in additional traffic volumes that would reach levels required to meet the warrants for signalization.

**EXISTING CONDITIONS ANALYSIS**

Signalization is not yet warranted per existing traffic volumes. Intersection capacity analyses using the Highway Capacity Software indicates that all movements are functioning at LOS C or better in both peak hours. Full width turn lanes exist for both the eastbound and westbound approaches.

**FUTURE CONDITIONS ANALYSIS**

Under the future year scenario, this location will need to be monitored for potential signalization or construction of a roundabout. It is anticipated that in the future Route 250 will be widened to 4 lanes to the west of Glenmore Way. Without improvement, multiple movements will function at LOS E and F in the peak hours. With improvements all movements will function at LOS C or better.

**RECOMMENDATION & ENGINEER'S COST ESTIMATE**

Near Term:

None required.

Longer Term:

Monitor for signalization or construct roundabout.

Longer Term Cost: \$ 180,000 for signal, \$ 350,000 for roundabout



SHEET 2

LEGEND

--- Right of way lines

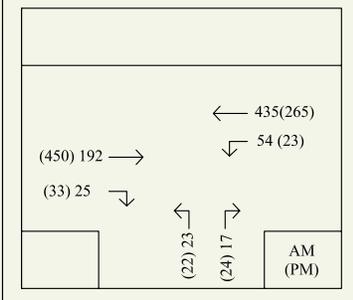
Route 250 & Glenmore Way  
(Site B)

East Albemarle Sub-Area Study  
Traffic Analysis

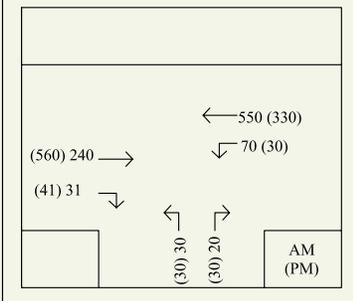


FIG. 14

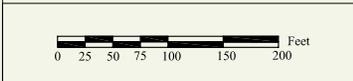
**Existing peak hour traffic volumes**



**2025 peak hour traffic volumes**



**LEGEND**  
 - - - Right of way lines

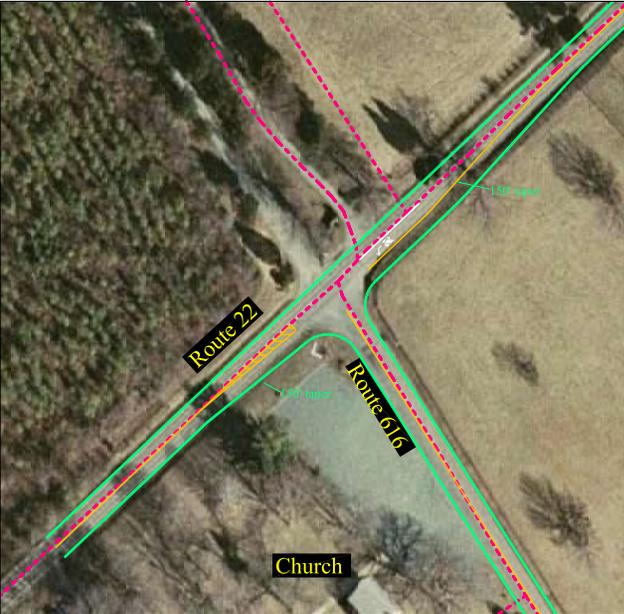


**LOCATION DESCRIPTION**

Route 616, Black Cat Road, is a 45 mph roadway with 11' lanes. Route 616 provides access from Route 22 south to I-64 and points south, Route 616 provides access to Route 600, a collector facility for Lake Monticello, and also Route 15 south of Zion Crossroads. Route 616 is STOP controlled at Route 22. Route 22 is a two lane rural arterial roadway with 11' lanes that traverses between Route 250 to the north and east into Louisa where it joins to Route 33. Adjacent development to the intersection includes South Plains Presbyterian Church (est. 1819) in the southeast quadrant, a large estate / farm on the northeast quadrant, and a large farm on the west side of Route 22. Route 22 is in an up-grade running to the northeast with the crest of a hill approximately 500 feet from Route 616. The intersection corner radii are "tight" with ditches immediately adjacent.

**DATA COLLECTION & OBSERVATIONS**

AM/PM peak hour turning movement counts were conducted on December 12, 2006. The peak hour volumes and current geometry are summarized in the adjacent graphics. The commute pattern is primarily from the northeast in the AM with a reciprocal movement in the PM. The turning movements are relatively light with the exception of the westbound left turn movement onto Route 616 in the AM peak hour.



**EXISTING CONDITIONS ANALYSIS**

Intersection capacity analyses using the Highway Capacity Software indicate that all movement are currently at LOS C or better. Per the VDOT turn lane warrants, a right turn taper from Route 22 is warranted and a left turn lane from Route 22 is warranted. Skid marks to the northeast of the intersections were observed which potentially indicate need for a westbound left turn lane to reduce queuing on that side of the crest vertical curve, and need for additional advance intersection signage. In the near term, additional advance intersection signage is recommended for the westbound approach and construction of a right turn taper onto Route 616 should be considered.

**FUTURE CONDITIONS ANALYSIS**

Under the future year scenario, this intersection should be widened for a minimal westbound left turn lane onto Route 616. In addition, consideration should be given to providing improved access management through parking entrance enhancements at the Church in the southeast quadrant. The future year LOS will continue to be C or better for all movements, however addition of the right turn will improve overall safety for the northbound approach.

**RECOMMENDATION & ENGINEER'S COST ESTIMATE**

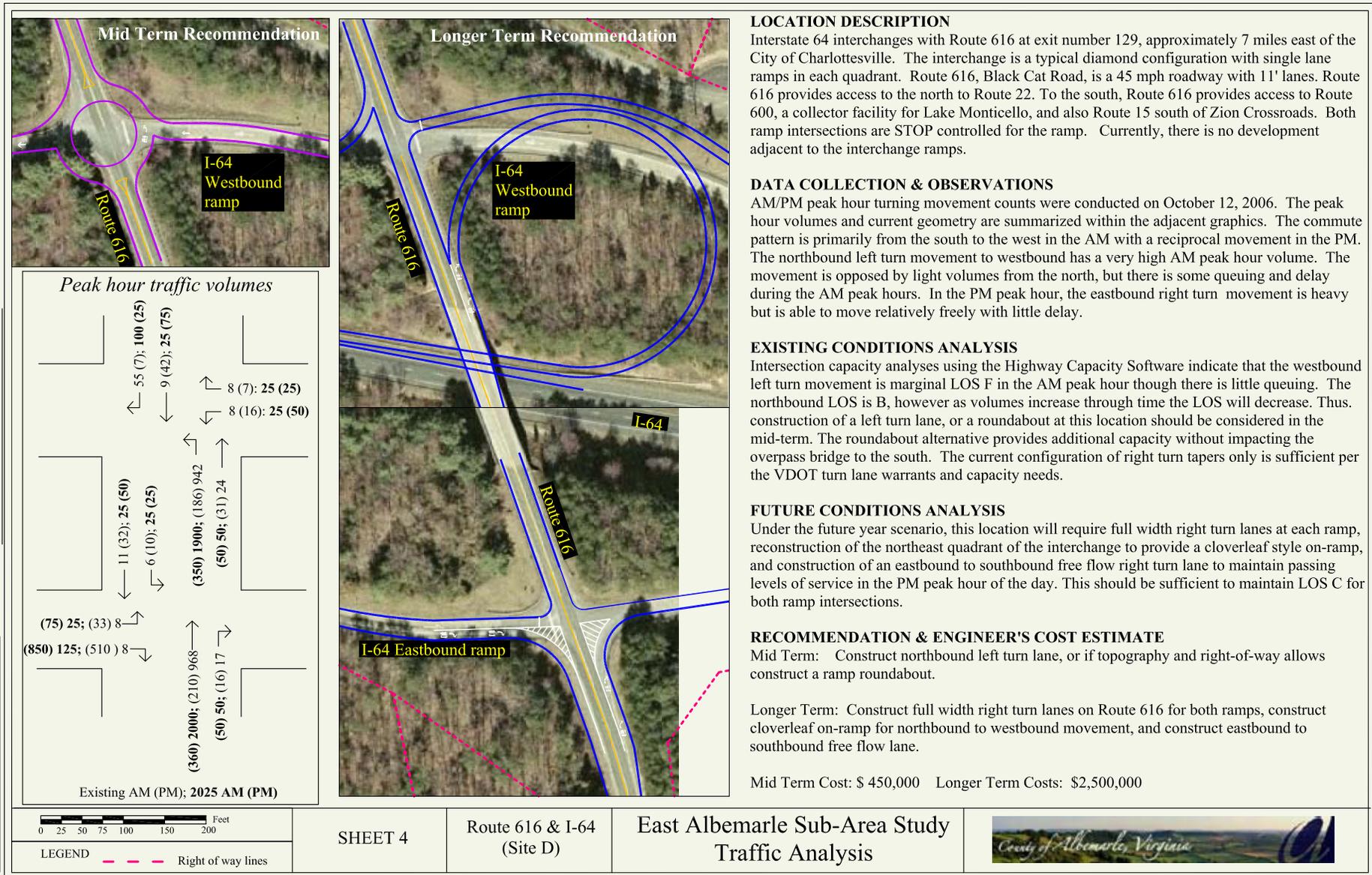
Near Term:  
 Construct eastbound right turn taper.

Longer Term:  
 Construct a minimal full width left turn lane for westbound Route 22. Also, modify the Church parking lot access to provide one or two channellized entrances.

Near Term Cost: \$50,000    Longer Term Cost: \$400,000

<p>East Albemarle Sub-Area Study          Traffic Analysis</p>	<p>SHEET 3</p>	<p>Route 616          Route 22          (Site C)</p>	
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FIG. 15



**LOCATION DESCRIPTION**

Interstate 64 interchanges with Route 616 at exit number 129, approximately 7 miles east of the City of Charlottesville. The interchange is a typical diamond configuration with single lane ramps in each quadrant. Route 616, Black Cat Road, is a 45 mph roadway with 11' lanes. Route 616 provides access to the north to Route 22. To the south, Route 616 provides access to Route 600, a collector facility for Lake Monticello, and also Route 15 south of Zion Crossroads. Both ramp intersections are STOP controlled for the ramp. Currently, there is no development adjacent to the interchange ramps.

**DATA COLLECTION & OBSERVATIONS**

AM/PM peak hour turning movement counts were conducted on October 12, 2006. The peak hour volumes and current geometry are summarized within the adjacent graphics. The commute pattern is primarily from the south to the west in the AM with a reciprocal movement in the PM. The northbound left turn movement to westbound has a very high AM peak hour volume. The movement is opposed by light volumes from the north, but there is some queuing and delay during the AM peak hours. In the PM peak hour, the eastbound right turn movement is heavy but is able to move relatively freely with little delay.

**EXISTING CONDITIONS ANALYSIS**

Intersection capacity analyses using the Highway Capacity Software indicate that the westbound left turn movement is marginal LOS F in the AM peak hour though there is little queuing. The northbound LOS is B, however as volumes increase through time the LOS will decrease. Thus, construction of a left turn lane, or a roundabout at this location should be considered in the mid-term. The roundabout alternative provides additional capacity without impacting the overpass bridge to the south. The current configuration of right turn tapers only is sufficient per the VDOT turn lane warrants and capacity needs.

**FUTURE CONDITIONS ANALYSIS**

Under the future year scenario, this location will require full width right turn lanes at each ramp, reconstruction of the northeast quadrant of the interchange to provide a cloverleaf style on-ramp, and construction of an eastbound to southbound free flow right turn lane to maintain passing levels of service in the PM peak hour of the day. This should be sufficient to maintain LOS C for both ramp intersections.

**RECOMMENDATION & ENGINEER'S COST ESTIMATE**

Mid Term: Construct northbound left turn lane, or if topography and right-of-way allows construct a ramp roundabout.

Longer Term: Construct full width right turn lanes on Route 616 for both ramps, construct cloverleaf on-ramp for northbound to westbound movement, and construct eastbound to southbound free flow lane.

Mid Term Cost: \$ 450,000 Longer Term Costs: \$2,500,000

FIG. 16

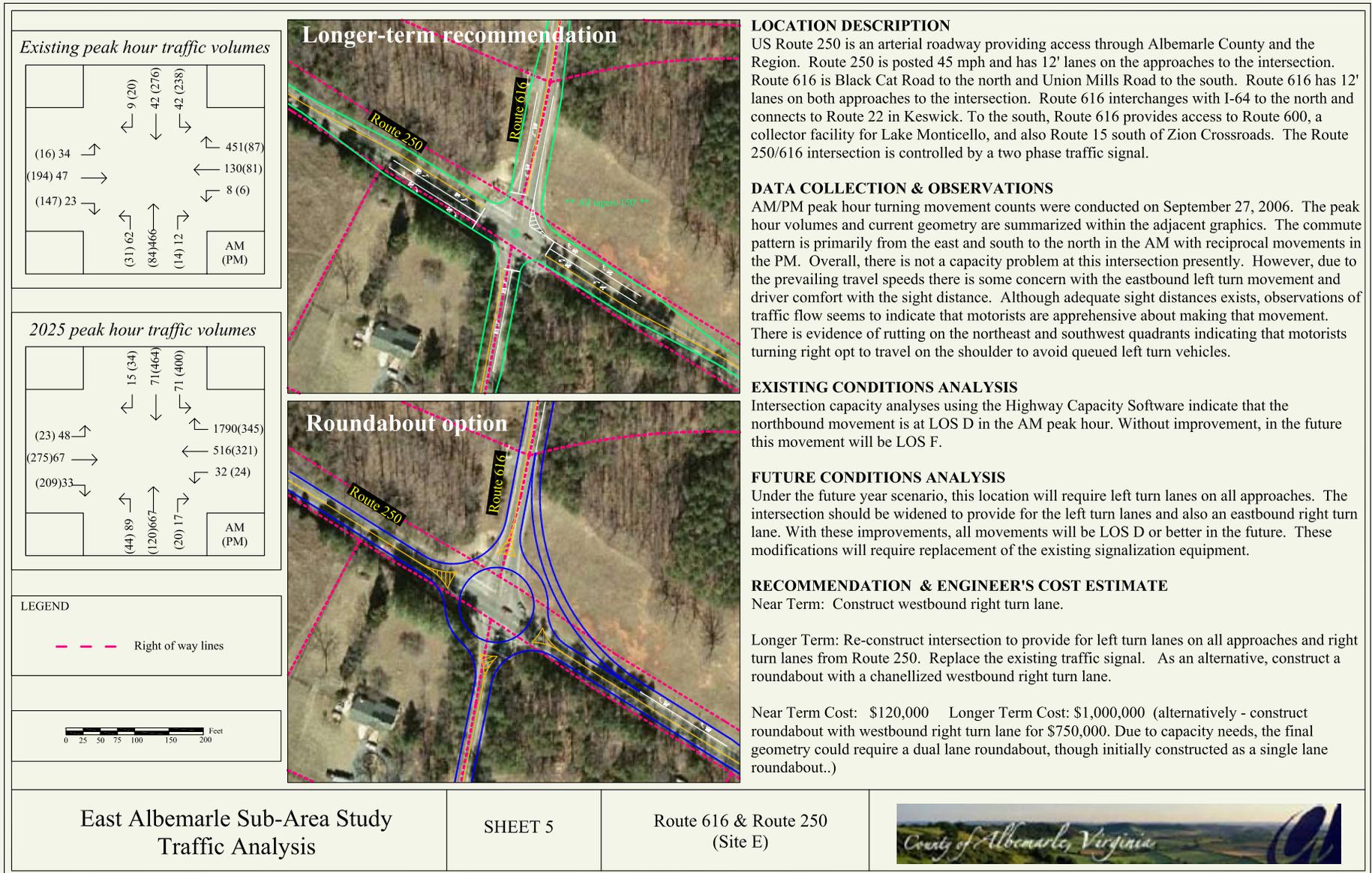
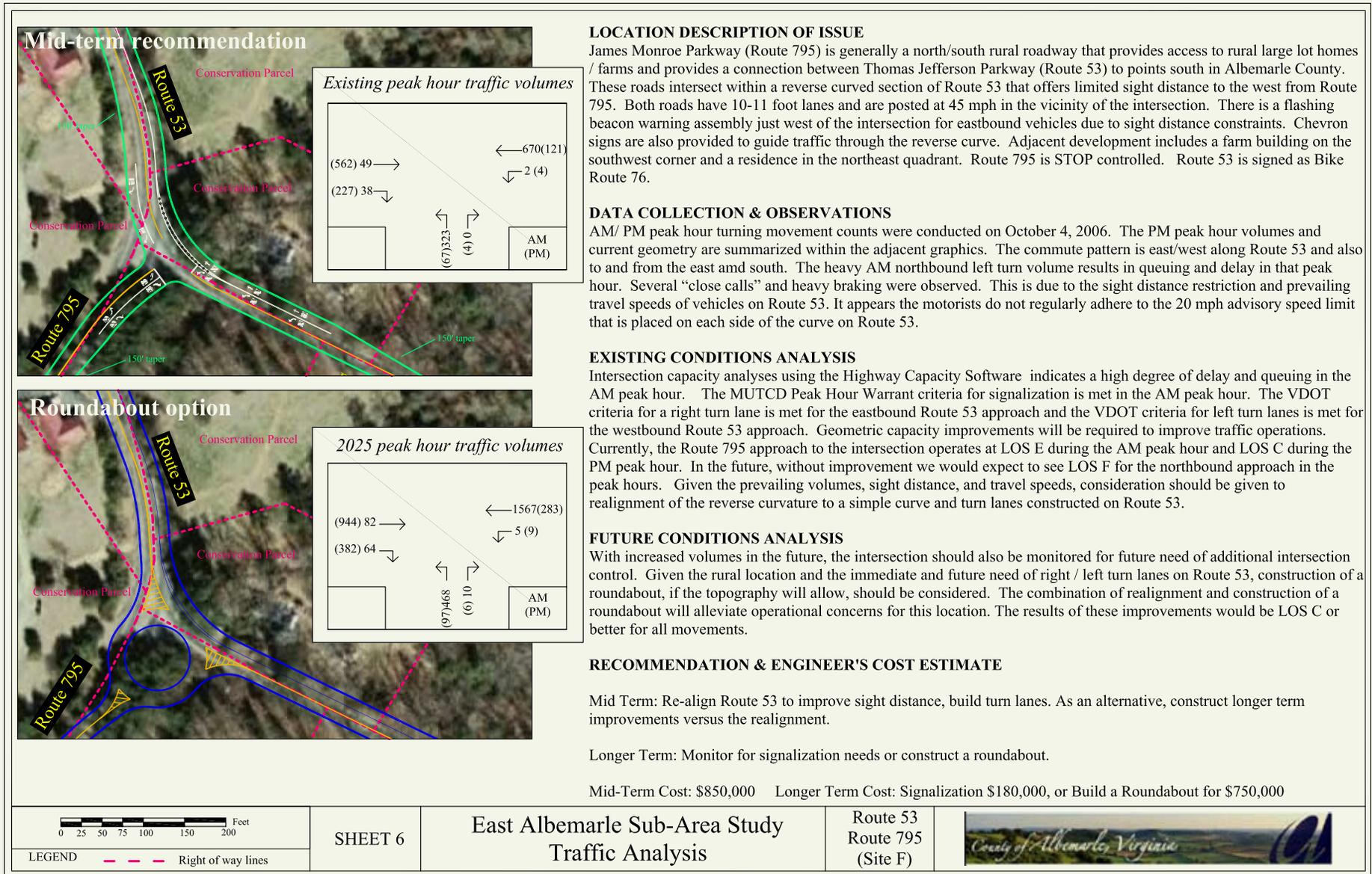


FIG. 17



**LOCATION DESCRIPTION OF ISSUE**

James Monroe Parkway (Route 795) is generally a north/south rural roadway that provides access to rural large lot homes / farms and provides a connection between Thomas Jefferson Parkway (Route 53) to points south in Albemarle County. These roads intersect within a reverse curved section of Route 53 that offers limited sight distance to the west from Route 795. Both roads have 10-11 foot lanes and are posted at 45 mph in the vicinity of the intersection. There is a flashing beacon warning assembly just west of the intersection for eastbound vehicles due to sight distance constraints. Chevron signs are also provided to guide traffic through the reverse curve. Adjacent development includes a farm building on the southwest corner and a residence in the northeast quadrant. Route 795 is STOP controlled. Route 53 is signed as Bike Route 76.

**DATA COLLECTION & OBSERVATIONS**

AM/ PM peak hour turning movement counts were conducted on October 4, 2006. The PM peak hour volumes and current geometry are summarized within the adjacent graphics. The commute pattern is east/west along Route 53 and also to and from the east and south. The heavy AM northbound left turn volume results in queuing and delay in that peak hour. Several "close calls" and heavy braking were observed. This is due to the sight distance restriction and prevailing travel speeds of vehicles on Route 53. It appears the motorists do not regularly adhere to the 20 mph advisory speed limit that is placed on each side of the curve on Route 53.

**EXISTING CONDITIONS ANALYSIS**

Intersection capacity analyses using the Highway Capacity Software indicates a high degree of delay and queuing in the AM peak hour. The MUTCD Peak Hour Warrant criteria for signalization is met in the AM peak hour. The VDOT criteria for a right turn lane is met for the eastbound Route 53 approach and the VDOT criteria for left turn lanes is met for the westbound Route 53 approach. Geometric capacity improvements will be required to improve traffic operations. Currently, the Route 795 approach to the intersection operates at LOS E during the AM peak hour and LOS C during the PM peak hour. In the future, without improvement we would expect to see LOS F for the northbound approach in the peak hours. Given the prevailing volumes, sight distance, and travel speeds, consideration should be given to realignment of the reverse curvature to a simple curve and turn lanes constructed on Route 53.

**FUTURE CONDITIONS ANALYSIS**

With increased volumes in the future, the intersection should also be monitored for future need of additional intersection control. Given the rural location and the immediate and future need of right / left turn lanes on Route 53, construction of a roundabout, if the topography will allow, should be considered. The combination of realignment and construction of a roundabout will alleviate operational concerns for this location. The results of these improvements would be LOS C or better for all movements.

**RECOMMENDATION & ENGINEER'S COST ESTIMATE**

Mid Term: Re-align Route 53 to improve sight distance, build turn lanes. As an alternative, construct longer term improvements versus the realignment.

Longer Term: Monitor for signalization needs or construct a roundabout.

Mid-Term Cost: \$850,000 Longer Term Cost: Signalization \$180,000, or Build a Roundabout for \$750,000

FIG. 18



**LOCATION DESCRIPTION**

Milton Road (Route 729) is a north/south roadway rural roadway that provides access to rural large lot homes / farms and provides a connection between US 250 and Thomas Jefferson Parkway (Route 53). These two roads intersect approximately 100 feet east of the intersection of Buck Island Road with Route 53, which results in an offset intersection. The three intersecting roads are all two lane rural cross sections with no shoulders. Route 729 has 9' lanes and is posted at 35 mph, Route 53 has 10' lanes and is posted at 45 mph, and Buck Island Road has 11' lanes and is posted at 45 mph in the vicinity of the intersection. Adjacent development includes a church with a graveyard in the southeast corner, a residence in the northwest corner, and the other two corners are undeveloped. Route 729 and Buck Island Road are both controlled by STOP signs.

**DATA COLLECTION & OBSERVATIONS**

AM/PM peak hour turning movement counts were conducted on September 28th, 2006. The peak hour volumes and current geometry are summarized within the adjacent graphics. The commute pattern is east/west along Route 53 and also east to north between Route 53 and Route 729. The heavy PM southbound to eastbound movement results in queuing and congestion. It was observed that the cross movement between Route 729 and Buck Island Road results in short periods of gridlock and delay in all directions. This is due to the double movement of a right turn to a left turn. Also, it was observed that the left turns from Route 53 onto Route 729 in the AM peak hour causes delay and queuing in both the northbound and eastbound directions. This is a common problem with high volume offset intersections.

**EXISTING CONDITIONS ANALYSIS**

Intersection capacity analyses using the Highway Capacity Software indicate a high degree of delay and queuing in the peak hours. The MUTCD Peak Hour Warrant criteria for signalization is met in the PM peak hour. The VDOT criteria for a right turn lane is met for the westbound approach on Route 53. The warranting criteria for a right turn taper is met for the eastbound approach on Route 53. Currently, the southbound approach on Route 729 operates at LOS B during the AM peak hour. In the PM peak hour the LOS is C. With the future volumes, the intersections would experience more queuing, delay and intersection gridlock with movements having LOS F.

**FUTURE CONDITIONS ANALYSIS**

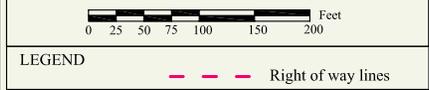
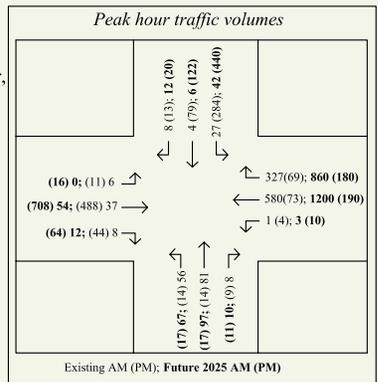
Under the future year scenario, this location should be monitored for the potential need for signalization or construction of a roundabout. Sight distance and topography appear to be conducive for either alternative. As part of this improvement, the intersection should be re-aligned to a "plus" configuration or a roundabout. With these improvements, the intersection movements would function at LOS D or better in the peak hours. If signalized, the westbound queue in the morning would approach 900 feet given the high westbound volume. In the PM peak hour, the eastbound queue would exceed 350'. A properly designed roundabout will help to alleviate the queueing in the peak hours of the day.

**RECOMMENDATION & ENGINEER'S COST ESTIMATE**

Near Term: Construct westbound right turn lane and eastbound right turn taper

Longer Term: Realign intersection to form a "plus" configuration. Construct an eastbound left turn lane, additional southbound lane, monitor for signalization needs, or consider construction of a roundabout.

Cost: \$ 90,000 Near-term, \$ 1,100,000 Longer term



East Albemarle Sub-Area Study  
Traffic Analysis

SHEET 7

Route 729 & Route 53  
(Site G)

