

FINAL ENVIRONMENTAL IMPACT STATEMENT



HARRISONBURG Southeast Connector

**U.S. Department of Transportation
Federal Highway Administration
Virginia Department of Transportation**

**Cooperating Agencies:
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service**

HARRISONBURG SOUTHEAST CONNECTOR LOCATION STUDY

Rockingham County and City of Harrisonburg, Virginia

From: U.S. Route 11 To: U.S. Route 33

FINAL ENVIRONMENTAL IMPACT STATEMENT

Submitted Pursuant to: 42 U.S.C. 4332(2) (C)

By:

U.S. Department of Transportation, Federal Highway Administration

and

Virginia Department of Transportation

Cooperating Agencies:

U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service

10/17/07
Date of Approval

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10/18/07
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This condensed Final Environmental Impact Statement identifies the preferred alternative, presents new or changed information since approval of the Draft Environmental Impact Statement, summarizes public involvement, and responds to substantive comments on the Draft Environmental Impact Statement. The Draft Environmental Impact Statement is incorporated by reference. It presented analyses of alternatives to serve identified travel mobility and capacity needs between U.S. Route 11 and U.S. Route 33 in the area southeast of the City of Harrisonburg. Five Candidate Build Alternatives were evaluated in detail, along with the No-build Alternative. Also presented were the environmental consequences of the alternatives and the coordination efforts with agencies, organizations, and the public.

A federal agency may publish a notice in the Federal Register, pursuant to 23 USC 139(l), indicating that one or more federal agencies have taken final action on permits, licenses, or approvals for a transportation project. If such notice is published, claims seeking judicial review of those federal agency actions will be barred unless such claims are filed within 180 days after the date of publication of the notice, or within such shorter time period as is specified in the federal laws pursuant to which judicial review of the federal agency action is allowed. If no notice is published, then the periods of time that otherwise are provided by the federal laws governing such claims will apply.



SUMMARY

The federal Council on Environmental Quality regulations for implementing the National Environmental Policy Act (40 CFR 1500-1508) place heavy emphasis on reducing paperwork, avoiding unnecessary work, and producing documents that are useful to decisionmakers and the public. Section VI.B. of the Federal Highway Administration's Technical Advisory, "Guidance for Preparing and Processing Environmental and Section 4(f) Documents" (T 6640.8A), provides for preparation of a condensed Final Environmental Impact Statement (Final EIS) in cases where the bulk of information from the Draft EIS has not changed. The crux of the approach used in a condensed Final EIS is to briefly reference and summarize information from the Draft EIS that has not changed and to focus the Final EIS discussion on changes in the project, its setting, impacts, technical analysis, and mitigation that have occurred since the Draft EIS was circulated. In addition, the condensed Final EIS must identify the preferred alternative, explain the basis for its selection, describe coordination efforts, and include agency and public comments, and any required findings or determinations (40 CFR 1502.14(e) and 23 CFR 771.125(a)). This approach avoids repetition of material from the Draft EIS, and the format of this document is the same as the format of the Draft EIS. Additional copies of the Draft EIS are not being distributed to those parties that received a copy when it was distributed in April 2006. Copies of the Draft EIS are available for review from the Virginia Department of Transportation contact listed on the title sheet of this document and also at the following locations:

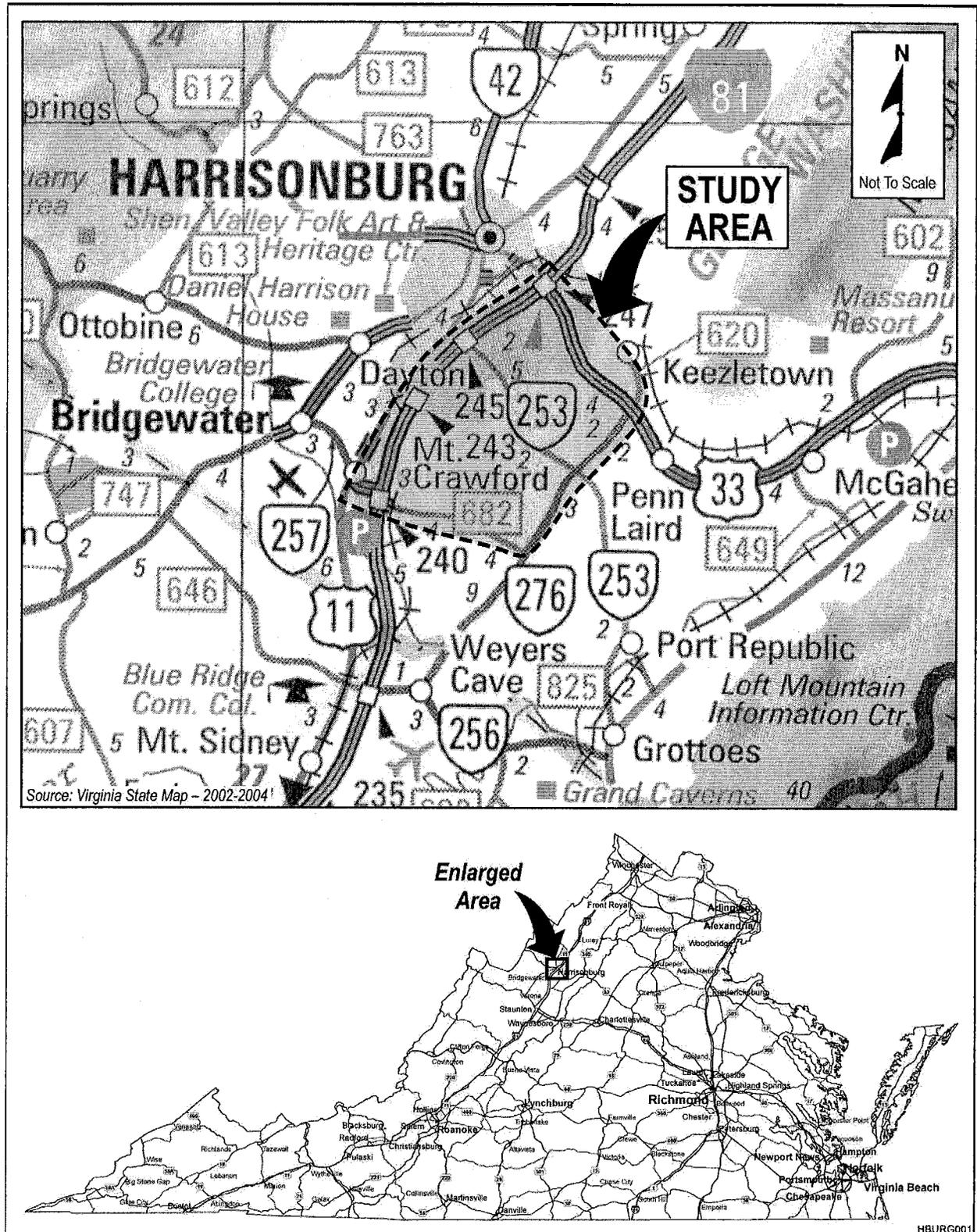
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S.1 PROJECT DESCRIPTION AND LOCATION

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), studied alternatives to meet transportation needs in the southeastern Harrisonburg metropolitan area between U.S. Route 11 and U.S. Route 33. **Figure S-1** shows the study area location and boundaries. This study arose out of a perceived need on the part of local officials and legislators for a connector road across the study area between I-81 and U.S. Route 33. Funding for a location study was included in the Virginia Transportation Act of 2000 by the Virginia General Assembly and in the Six-year Improvement Program by the Commonwealth Transportation Board.



Harrisonburg Southeast Connector
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STUDY AREA
Figure S-1

The study area boundaries encompass a portion of the City of Harrisonburg and a sector of Rockingham County southeast of the city limits that the county's government had designated in its Comprehensive Plan for development. Since completion of the Draft EIS, Rockingham County's Board of Supervisors approved revisions to the Comprehensive Plan that changed the urban growth boundary location and future land use designations for portions of the study area. The intent of the revisions was to pull the urban growth boundary closer to the City of Harrisonburg, thereby removing areas intended to continue as agricultural reserve and reflecting the Board's desire to moderate growth. The revisions are discussed further in Chapters 3 and 4.

S.2 PURPOSE AND NEED

Two principal transportation needs are being considered in this Harrisonburg Southeast Connector Location Study: east-west mobility and accommodation of increasing travel demand arising from existing and future development in the study area.

S.2.1 East-west Mobility

Direct east-west links across the study area to connect major activity centers and major highways are limited. If one envisions Routes 11 and 81 along the west side of the study area and Route 33 along the northeast side of the study area as the legs of an "A," the crossbar of the A is missing. Most existing roads across the study area are secondary roads that are narrow, winding, hilly, and discontinuous - some are dirt roads little more than one lane wide. Travel across the study area from Route 11 or I-81 to Route 33, as well as travel among activity centers in the study area, is hampered by low speeds (because of poor road geometry), stops at intersections, and turns due to discontinuities in the routes. As development continues in the study area, and as the volume of travel among activity centers and major roadways continues to grow, mobility will become increasingly deficient.

S.2.2 Accommodate Travel Demand

When the study began, Rockingham County's Comprehensive Plan designated most of the study area for residential, commercial, and industrial land uses, and proposed extensions of water and sewer services to serve that growth. Travel demand across the study area was projected to grow along with population growth and development. Since completion of the Draft EIS, the county has revised its comprehensive plan such that a smaller portion of the study area is now designated for future development and the urban growth boundary was shifted closer to the City of Harrisonburg. Nevertheless, a substantial portion of the study area still is identified for future development and travel demand still is expected to grow along with the development.

S.3 ALTERNATIVES

A wide range of alternatives was considered initially, based on the identified purpose and need, suggestions received from citizens, proposals included in other local and regional planning efforts, and the conditions and constraints of the study area. A screening process was used to identify the alternatives to consider in detail, based on purpose and need, citizen input, environmental concerns, and engineering issues. The alternatives considered in detail include the No-build Alternative and five Candidate Build Alternatives. Combinations of multiple Candidate Build Alternatives also have been considered. On November 6, 2006, the Commonwealth Transportation Board resolved that the location of the project be approved on the Candidate Build Alternative 4 alignment as presented at the Location Public Hearing, and on

the portion of Candidate Build Alternative 1 from I-81 to Route 276, henceforth referred to as Candidate Build Alternative 1 Modified. A more detailed description of the approved combination alternative (the Preferred Alternative) is provided in Section S.3.4.

S.3.1 No-build Alternative

The No-build Alternative was not a do-nothing alternative. Rather, it included all transportation improvements in the study area that were funded for construction in the Harrisonburg-Rockingham Metropolitan Planning Organization's *2030 Transportation Plan* (adopted August 18, 2005) and in VDOT's Six-year Improvement Program. They included the following:

- Friedens Church Road (Route 682). Reconstruction and realignment of Friedens Church Road to a standard two-lane rural roadway from the I-81 interchange to Route 995 (Koiner Ford Road). [Note: the Metropolitan Planning Organization has adopted revisions to the *Plan* to include additional improvement to Friedens Church Road, as embodied in CBA 1 Modified described in Section S.3.4.]
- Stone Spring Road - Erickson Avenue Connector and Stone Spring Extension (Route 726). This series of projects will create a continuous four-lane divided highway from existing Erickson Avenue on the west side of Harrisonburg to the intersection of Port Republic Road (Route 253) and Reservoir Street (Route 710) in Rockingham County on the east side of Harrisonburg. The city portion of the project includes bicycle and pedestrian facilities and reconstruction of the Pear Street railroad crossing.
- Port Republic Road (Route 253). In the city and the county, from Neff Avenue to Boyers Road (Route 704), widen Port Republic Road to four lanes. The city portion of the project will include pedestrian and bicycle facilities.
- East Market Street (Route 33) Improvements. Two projects to improve East Market Street, including six-lane widening from Cantrell Avenue to the existing six-lane section and bicycle, pedestrian, and turning lane enhancements from Cantrell Avenue to the eastern city limits.
- Country Club Road. Add a center left-turn lane to Country Club Road from Linda Lane to Vine Street.
- Transportation System Management (TSM). Conduct an access management study along Route 33 east and coordinate traffic signals along Route 33, Route 11, and Route 253.
- Transit Services. Extend Harrisonburg Transit service to Bridgewater, conduct a regional transit study, and fulfill transit capital needs for bus replacements, transit shelters, and bus maintenance facilities.

In addition, the No-build Alternative included transportation improvements proffered by Rockingham Memorial Hospital as part of the site approval process for its proposed relocation to a 254-acre site in the north central part of the study area.

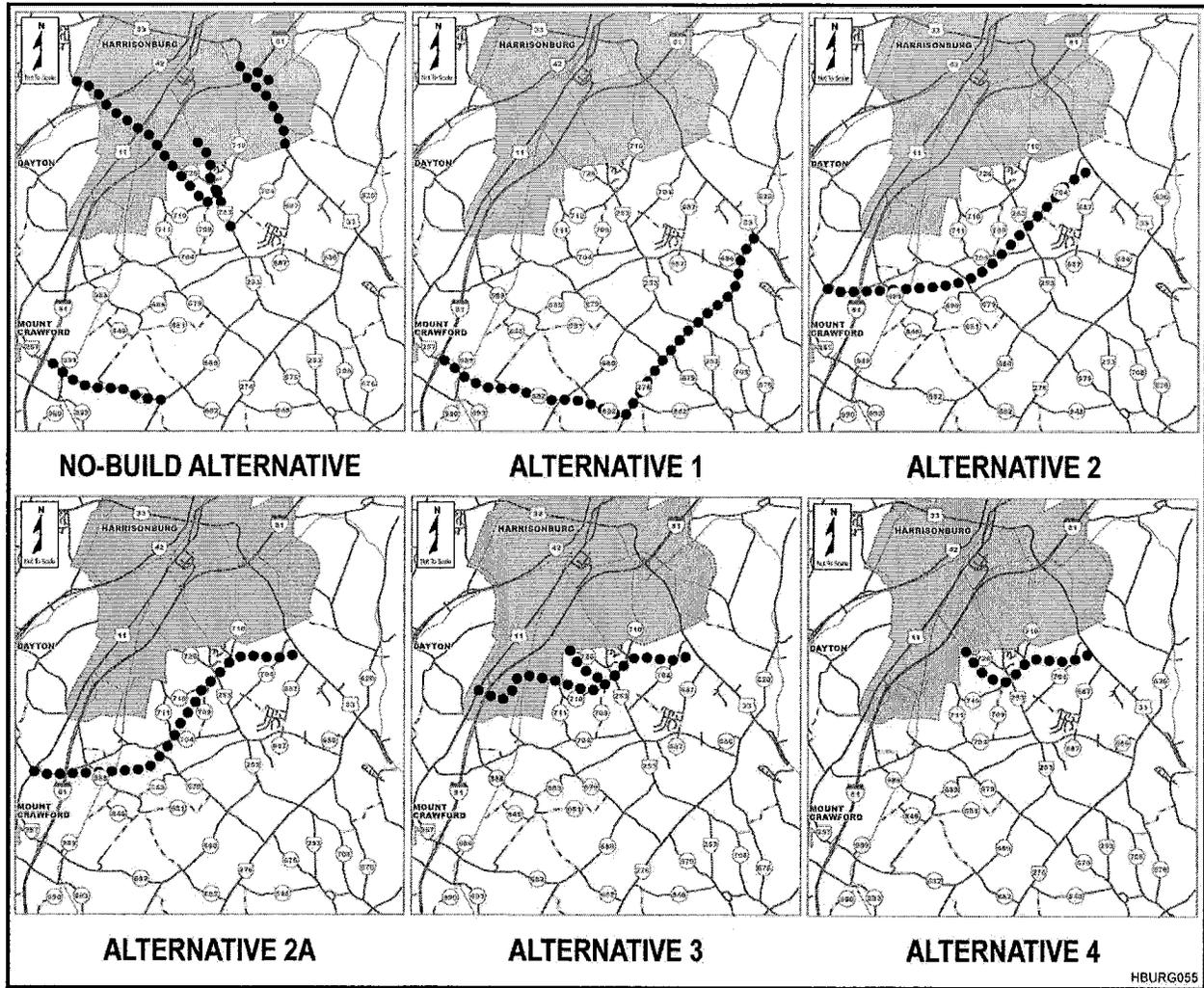
S.3.2 Candidate Build Alternatives

The Candidate Build Alternatives (CBA) are summarized in **Table S-1**. **Figure S-2** illustrates them. CBA 1 Modified has been added to the table and is illustrated in **Figure S-3**.

Summary

Table S-1
 GENERAL DESCRIPTION OF CANDIDATE BUILD ALTERNATIVES AND CBA 1 MODIFIED

	CBA 1	CBA 1 Mod	CBA 2	CBA 2A	CBA 3	CBA 4
General Location	Southern portion of study area, follows Rte 682 and Rte 276	Southern portion of study area, follows Rte 682	Middle portion of study area, Rte 704 vicinity	Middle portion of study area, Rte 704 vicinity	Northern portion of Study Area, Rte 710/704 vicinity	Northern portion of Study Area, Rte 726/ 710/ 704 vicinity
From	I-81 at Exit 240, Rtes 257 and 682	I-81 at Exit 240, Rtes 257 and 682	U.S. Route 11 south of Rte 704	U.S. Route 11 south of Rte 704	U.S. Rte 11 at Exit 243, I-81 interchange	Route 726 near the Harrisonburg city limits
To	U.S. Rte 33 at Rte 276	Route 276	U.S. Route 33 south of Rte 704	U.S. Route 33 south of Rte 704	U.S. Route 33 south of Rte 704	U.S. Route 33 south of Rte 704
Cross Section	4 lanes & median from I-81 to Rte 681; 2 lanes from Rte 681 to Rte 276; 2 lanes within existing right of way from Rte 682 to Rte 689; 4 lanes & median from Rte 689 to Rte 33	4 lanes & median from I-81 to Rte 681; 2 lanes from Rte 681 to Rte 276	4 lanes with median	4 lanes with median	4 lanes with median	4 lanes with median
Level of Access Control	Controlled access, except for short limited-access section on new location, access management plan	Controlled access, except for short limited-access section on new location, access management plan	Controlled access	Controlled access	Controlled access	Controlled access
Planning Corridor Width*	500 feet I-81 to Rte 276; 80 feet along Rte 276 from Rte 682 to Rte 689; 500 feet from Rte 689 to Rte 33	500 feet	500 feet	500 feet	500 feet	500 feet
Design Corridor Width*	240 feet I-81 to 681; 120 feet 681 to 276; 80 feet along 276 from 682 to 689; 240 feet from 689 to 33	240 feet I-81 to 681; 120 feet 681 to 276	240 feet Rte 11 to Rte 253; 120 feet from Rte 253 to Rte 33	240 feet	240 feet	240 feet
Length of Corridor	8.6 miles	3.9 miles	6.2 miles	6.5 miles	6.0 miles	3.1 miles
Right of Way Cost	\$55.4 million	\$53.5 million	\$67.5 million	\$46.3 million	\$58.9 million	\$17.6 million
(Planning Corridor; assumes worst case, that all land within the planning corridor would be acquired for right of way)						
Right of Way Cost	\$32.8 million	\$32.0 million	\$31.8 million	\$24.5 million	\$43.6 million	\$10.9 million
(Design Corridor; assumes more realistic scenario, that the design corridor width would be sufficient for construction)						
Engineering/ Construction Cost	\$49.6 million	\$29.3 million	\$60.9 million	\$63.4 million	\$80.4 million	\$31.7 million
Assumed to be the same for the Planning Corridor or the Design Corridor.						
* Environmental consequences of the alternatives were estimated based on "planning corridors" that are wide enough to encompass potential variations in actual alignments and design features and to illustrate the maximum potential impacts of the alternatives. However, a narrower "design corridor" for each alternative derived from generalized cross section templates that more closely represent what the actual "footprint" impacts may be was used to make more refined estimates of impacts.						



**Harrisonburg Southeast Connector
 Location Study**

**ALTERNATIVES
 Figure S-2**

S.3.3 Alternatives Eliminated from Detailed Consideration

Table S-2 lists alternatives eliminated from detailed consideration and reasons for their elimination.

**Table S-2
 ALTERNATIVES ELIMINATED FROM DETAILED CONSIDERATION**

Alternative or Segment(s)	Basis for Elimination
Transportation System Management (TSM) Alternative	"TSM" generally means implementation of relatively low-cost actions to improve efficiency of existing transportation systems. Examples include traffic controls, signal synchronization, turn lanes, parking management, access management, operational modifications, flexible work hours, van pools, transit scheduling, bicycle and pedestrian improvements, modifying driver behavior with incentives, pricing, or restrictions. Although such actions are important elements in the overall transportation plan for any urbanized area, there are none that would meet the identified needs for this study because the magnitude of the mobility needs and travel demands cannot be met with such minor actions. However, the Harrisonburg-Rockingham Metropolitan Planning Organization's

Summary

	(HRMPO's) <i>2030 Transportation Plan</i> includes several TSM-type projects in the study area (e.g., signal synchronization and access management along Route 33) that will contribute to the overall efficiency of the system.
Mass Transit Alternative	The population and employment densities and travel behavior within the study area are such that mass transit alone would not satisfy the identified needs. Furthermore, transit services need adequate infrastructure (i.e., roads) to run on. Existing roads across the study area are not adequate to serve passenger vehicles, let alone the buses that would be needed to implement transit. Transit services do serve important roles in the overall regional transportation system, but mainly in the more urbanized portions of the region where the James Madison University (JMU) student population comprises a major portion of the ridership. HRMPO's <i>2030 Transportation Plan</i> includes several transit-related projects for the region.
HATS Alternative	This conceptual alignment depicted in the Harrisonburg Area Transportation Study (HATS, the regional transportation plan adopted by local governments prior to the current one) begins at the I-81/Route 257/Route 682 interchange and curves across the southeastern portion of the study area (generally on new location and closely paralleling the county's former urban growth boundary), and ends at the intersection of Routes 276 and 33. Investigations early in this study quickly showed that this alternative would have unjustifiable environmental consequences (e.g., major impacts to the Cross Keys Battlefield) and would require massive earthwork and landscape disturbance due to terrain crossed.
A number of preliminary alignment segments at various locations throughout the study area (see Chapter 2 of the Draft EIS for details)	These segments would not adequately serve the subject travel patterns, would have greater environmental impacts, were less feasible from an engineering perspective, and/or were not supported by citizens.

S.3.4 Preferred Alternative

The Preferred Alternative consists of a combination of CBA 4 and CBA 1 Modified, as shown on **Figure S-3**. CBA 4 is as described above in Table S-1 (see Section 2.5.5 of Draft EIS for full description). CBA 1 Modified consists of that portion of CBA 1 between I-81 and Route 276 with several other modifications. It is described as follows:

Beginning at the Bridgewater Route 257/682 interchange with I-81 (Exit 240) and ending at Route 276, CBA 1 Modified follows an alignment along existing Route 682 (Friedens Church Road), except for a short section on new location approximately 3,000 feet long that would bypass the corner at Friedens Church (intersection of Route 682 and Route 988). The section on new location near Friedens Church would have "limited access," that is, no direct access to adjoining properties. This alternative would involve widening the existing road to four lanes with a median and paved shoulders between I-81 and Route 681 (South Whitesel Church Road), a distance of approximately 1.25 miles. From Route 681 to approximately 1.4 miles east of Route 681, the existing road would be widened and upgraded to provide a two-lane highway with shoulders and 12-foot-wide lanes. The new-location section, consisting of two 12-foot-wide lanes with shoulders, would extend from that point to a point on Route 682 approximately 0.66 miles west of Route 276. From approximately 0.66 miles west of Route 276 to Route 276, the existing road again would be widened and upgraded to provide a two-lane highway with shoulders and 12-foot-wide lanes. Route 682 would remain classified as a secondary highway. Connections with all existing intersecting roads would be maintained. Additionally, possibilities will be investigated for an access management plan to help reduce long-term proliferation of access points into individual properties.

The basis for the Preferred Alternative includes the following factors:

- CBA 4 responds to travel needs in the northern portion of the study area by:
 - Enhancing east-west mobility across the northern portion of the study area.
 - Providing additional travel capacity in an area that has experienced considerable recent and continuing growth and development, including the new Rockingham Memorial Hospital currently under construction.
- CBA 4 is supported by City and County governments, citizens participating in the Location Public Hearing process, and agencies commenting on the Draft EIS.
- CBA 4 is included in HRMPO's Constrained Long Range Transportation Plan.
- The environmental consequences of CBA 4 are relatively low in comparison to those of other alternatives.
- A substantial portion of the right of way needed to implement CBA 4 has been proffered by landowners proposing substantial developments along the route, including the Rockingham Memorial Hospital at its relocation site (currently under construction).
- The Rockingham County Board of Supervisors, while endorsing CBA 4, "recogniz[ed] 'Alternative 1' [CBA 1] as the future next-step to be considered."
- While CBA 1 did not receive overwhelming support from the public, a number of citizens did observe that it was needed to meet longer-term travel needs and to improve travel across the southern portion of the study area. The biggest objections pertained to potential impacts to the Cross Keys Battlefield, notwithstanding the constraining of the proposed work to existing VDOT right of way.
- CBA 1 Modified, as described above, responds to battlefield concerns by eliminating the portion following existing Route 276 between Route 682 and U.S. Route 33, yet also responds to travel needs in the southern part of the study area by:
 - Enhancing east-west mobility across the southern portion of the study area by substantially upgrading a narrow secondary road that has no shoulders and eliminating a serious dogleg at Friedens Church by constructing a short section on new location.
 - Providing additional travel capacity along the proposed four-lane section to accommodate current and future travel demand within the area closest to I-81 identified in the local Comprehensive Plan for future development.
- HRMPO has adopted revisions to its Constrained Long Range Plan to include all of CBA 1 Modified.
- According to projections using the regional traffic model, there would be little difference between the estimated volumes of traffic along Route 276 through the Battlefield with or without the portion of CBA 1 along Route 276.

S.4 ENVIRONMENTAL CONSEQUENCES

Environmental consequences of the alternatives were estimated based on the planning corridors and design corridors identified in Table S-1. **Table S-3** presents the comparative environmental impacts of the alternatives. [Note: impacts for the No-build Alternative were calculated using

planning and design corridor widths similar to those used for the Candidate Build Alternatives.] Though not explicitly listed, the impacts of various possible combinations of alternatives can be computed by adding together the impacts of individual alternatives. The impacts of the Preferred Alternative, a combination of CBA 4 and CBA 1 Modified, are listed in the far right column.

**Table S-3
 SUMMARY OF IMPACTS**

Impact Category	Corridor	No-build	CBA 1	CBA 2	CBA 2A	CBA 3	CBA 4	CBA 4 + CBA 1 Mod
Land within corridor (acres)	Planning	410	314	373	386	357	182	414
	Design	129	131	146	190	178	93	167
Potential residential relocations	Planning	Not Available	51	93	57	60	19	63
	Design	Not Available	32	38	26	29	10	28
Potential business relocations	Planning	Not Available	2	2	2	14	0	1
	Design	Not Available	2	1	2	12	0	0
Potential farm displacements	Planning	Not Available	7	3	4	1	1	8
	Design	Not Available	6	2	3	0	1	7
Potential nonprofit organization relocations	Planning	Not Available	0	2	0	0	0	0
	Design	Not Available	0	0	0	0	0	0
Parks and recreation areas affected	Planning	0	0	0	0	0	0	0
	Design	0	0	0	0	0	0	0
Potential hazardous material sites	Planning	17	9	1	1	11	1	5
	Design	5	2	0	0	4	0	1
Prime farmland conversion (acres)	Planning	32	78	42	43	9	1	49
	Design	10	43	19	20	3	1	16
Statewide-important farmland conversion (acres)	Planning	99	129	136	145	54	2	110
	Design	29	39	67	71	23	2	31
Total farmland conversion (acres)	Planning	131	207	178	188	63	3	159
	Design	39	82	86	91	26	3	47
Agricultural and forestal district impacts (acres)	Planning	0	30.8	0	0	0	0	27
	Design	0	11.2	0	0	0	0	7
Violations of National Ambient Air Quality Standards	Planning	0	0	0	0	0	0	0
	Design	0	0	0	0	0	0	0
Number of sites impacted by noise*	Planning	0	6	70	29	30	9	11
	Design	0	6	70	29	30	9	11
Stream impacts (linear feet of stream channel)	Planning	1,803	5,313	3,101	3,950	7,698	1,445	2,558
	Design	757	2,516	1,655	2,215	4,646	980	1,381
Wetland impacts (acres)	Planning	0.07	0.04	1.05	1.41	1.36	0.60	0.64
	Design	0.03	0.00	0.43	0.48	0.84	0.08	0.08
Floodplain encroachments (acres)	Planning	20	3	15	18	25	0	2
	Design	8	2	6	8	12	0	1

Summary

**Table S-3
 SUMMARY OF IMPACTS**

Impact Category	Corridor	No-build	CBA 1	CBA 2	CBA 2A	CBA 3	CBA 4	CBA 4 + CBA 1 Mod
Forestland impacts (acres)	Planning	37	8.8	22.1	45.8	42.3	28.9	37.9
	Design	10	1.9	9.0	22.7	18.4	12.9	14.9
Federally listed threatened or endangered species affected	Planning	0	0	0	0	0	0	0
	Design	0	0	0	0	0	0	0
Historic properties potentially affected	Planning	0	2	0	0	0	0	1
	Design	0	2	0	0	0	0	1
Historic properties adversely affected	Planning	0	0	0	0	0	0	0
	Design	0	0	0	0	0	0	0

* Note: for purposes of the noise analysis, "No-build" refers only to not building the Candidate Build Alternatives, not to the entire No-build Alternative, which includes specific road projects from the regional long-range transportation plan, as described in detail in Chapter 2 of the Draft EIS.

S.5 TRANSPORTATION BENEFITS OF ALTERNATIVES

Each of the Candidate Build Alternatives and potential combinations of the alternatives would provide additional roadway capacity in the study area to support mobility demands and would support the transportation needs of existing and future development. The analysis of traffic utilization of the alternatives highlights the extent to which each would serve the study area's transportation needs. Alternatives 2A and 3 would be expected to carry the highest average daily traffic volumes in 2030, indicating that they would provide the highest degree of mobility for the study area. On an area-wide basis, Alternative 2A also would provide the highest degree of overall net relief to the study area's congested roadways, providing a substantial benefit to overall mobility. **Table S-4** summarizes the key advantages and disadvantages of each alternative from a traffic and transportation standpoint.

**Table S-4
 SUMMARY OF KEY TRANSPORTATION ADVANTAGES AND DISADVANTAGES**

CBA 1	<ul style="list-style-type: none"> • Low end in terms of regional traffic volume served. • Reduces traffic on congested regional facilities including I-81 & Route 33 (2,000-2,500 vehicles per day). • Also diverts traffic from the south end of Route 253 and Route 704 (1,500-2,500 vehicles per day).
CBA 2	<ul style="list-style-type: none"> • Average traffic served is in the middle of the range for all alternatives (16,200 vehicles per day). • Middle of the range in terms of net reduction of traffic on congested study area roadways. • Reduces traffic on I-81 and Route 33 (north of Route 704), Route 689, Route 682, and Route 276. • Increases traffic on Route 11 south of Route 704 (traffic accessing the new facility) and on Route 33 south of Route 704 (diverted from Route 689).
CBA 2A	<ul style="list-style-type: none"> • Highest average daily traffic volume served. • High in terms of providing relief to congested regional roadways. • Reduces traffic on I-81 & Route 33 (north of Route 704), 689, Route 682, and Route 276. • Increases traffic on Route 11 south of Route 704 (traffic accessing the new facility), on Route 33 south of Route 704 (diverted from Route 689), and on Route 253 and Route 710 for traffic getting to the new facility.

Table S-4
SUMMARY OF KEY TRANSPORTATION ADVANTAGES AND DISADVANTAGES

CBA 3	<ul style="list-style-type: none"> • High end in terms of regional traffic served. • Low in terms of reducing traffic on congested facilities. • Reduces traffic on Route 11 south of Route 704, Route 704, Route 11 and I-81 north of where this alternative ties in. • Increases traffic on I-81 south of the project tie-in and on Route 33 south of Route 704. • Substantial localized benefit for Route 33 near I-81.
CBA 4	<ul style="list-style-type: none"> • Mid-level in terms of average daily traffic volume served. • Benefits in terms of reducing traffic on other roadways is the most localized of all alternatives; traffic reductions on Neff Avenue, University Boulevard, East Market Street (Route 33), and I-81 north of Route 253.
Combination CBA 1 + 4	<ul style="list-style-type: none"> • Combination of close-in CBA 4 and CBA 1 at the edge of the study area results in decreased traffic on almost all other study area roadways. This is reflected in the high ranking in terms of net reduction in congested vehicle-miles in the study area.
Combination CBA 2 + 4	<ul style="list-style-type: none"> • Similar to Combination Alternative 1 + 4 in diverting traffic from most roadways in the study area. • As with CBA 2, this alternative would provide a high level of relief to I-81; traffic accessing the CBA 2 alignment, however, has the potential to increase congestion on Route 11 south of Route 704 and on Route 33 south of Route 704.
Combination CBA 1 + 2 + 4	<ul style="list-style-type: none"> • Similar to Combination Alternative 2 + 4, but the addition of the improvements to Routes 682 and 276 of CBA 1 would lessen the pressures on Route 11 south of Route 704 and on Route 33 south of Route 704 that the previous alternative could create.
Combination CBA 1 + 3	<ul style="list-style-type: none"> • CBA 3 alone is expected to increase traffic volumes on congested I-81 south of Exit 243. This Combination Alternative also would add volumes on congested I-81, but the increases would be lessened by providing the CBA 1 improvements on Routes 682 and 276.
Preferred Alternative Combination CBA 1 Modified + 4	<ul style="list-style-type: none"> • Combination of close-in CBA 4 and CBA 1 Modified at the edge of the study area results in decreased traffic on almost all other study area roadways.

S.6 OTHER MAJOR GOVERNMENTAL ACTIONS IN STUDY AREA

VDOT, in cooperation FHWA, has studied the 325-mile-long I-81 corridor, as described in a recently published Tier 1 Final Environmental Impact Statement and Record of Decision (available online at www.i-81.org). The study included evaluation of transportation needs along I-81, conceptual-level alternatives (including highway and rail) to meet those needs, and potential environmental consequences. For the section of I-81 through the Harrisonburg area, the study indicates that one or two additional lanes (depending on the section) in both directions is needed to provide additional capacity to meet travel demand. The study also identifies a section in Harrisonburg as a location where a corridor on new location may need to be evaluated because of the potential level of impacts associated with widening existing I-81 through a heavily developed area. Although the I-81 study includes portions of the same study area as this Harrisonburg Southeast Connector Location Study, the transportation needs being studied are entirely different and the two studies are separate and independent. Additionally, although a conceptual scheme of improvements has been identified, specific projects have not yet been established. Such projects will be addressed in Tier 2 environmental documents as appropriate.

S.7 AREAS OF CONTROVERSY

Some citizens have expressed the view that no new roads should be built within the study area because such new roads would stimulate new and unwanted development, take too much farmland, destroy historic properties, and degrade the rural ambiance. This view is in contrast to others that support the need for transportation facilities to keep pace with ongoing development that is both inevitable and in accordance with the planning and goals of local governments. Public comments generally confirm the principal elements of purpose and need that the study has identified, but also reflect an opinion that these needs not be met with an alternative that would have excessive impacts to the human and natural environments. Also, the public has demonstrated continued and strong support for the improvement of existing roads. These views have been taken into account in developing the Candidate Build Alternatives by:

- Consulting local planning documents to review development goals and policies of local governments.
- Following existing roads where practical without excessive disruption of existing communities.
- Eliminating alternatives on new location through any portion of the Cross Keys Battlefield.
- Minimizing alignments on new location through the portions of the study area that are farther from Harrisonburg.
- Using a reduced two-lane cross section on portions of CBA 1 through areas that are most environmentally sensitive.

These views have further been taken into account in the identification of the Preferred Alternative.

S.8 ISSUES LISTED AS UNRESOLVED IN DRAFT EIS

S.8.1 Selection of Alternative

The Draft EIS indicated that after the Location Public Hearing had been held and comments had been reviewed, the Commonwealth Transportation Board (CTB) would identify a Preferred Alternative. On November 16, 2006, the CTB approved CBA 4 and CBA 1 Modified. Responses to substantive comments on the Draft EIS and documentation of the preferred alternative are presented in this Final EIS. FHWA's alternative selection decision will be documented in a Record of Decision (ROD).

S.8.2 Archaeological Investigations

The Draft EIS indicated that upon identification of a Preferred Alternative, detailed archaeological studies would be undertaken to identify all archaeological sites on or eligible for the National Register of Historic Places within the area of potential effects (APE) for the Preferred Alternative. This work has been completed and is described in Chapter 4.

S.8.3 Funding

The Draft EIS indicated that funding had been identified only for those portions of the Candidate Build Alternatives that overlapped elements of the No-build Alternative for which funding was programmed in HRMPO's *2030 Transportation Plan* and VDOT's Six-year Improvement Program. Funding has now been identified for at least preliminary engineering on all portions of the Preferred Alternative.

S.8.4 HRMPO Action

The Draft EIS indicated that should any Candidate Build Alternative except CBA 4 be selected by CTB for implementation, HRMPO would need to amend the “2030 [Financially] Constrained Long Range Plan” portion of the adopted *2030 Transportation Plan* to include the Preferred Alternative before FHWA could finalize the Record of Decision for this study. HRMPO has taken the necessary action to amend the *Plan* to include the Preferred Alternative.

S.9 OTHER FEDERAL ACTIONS AND PERMITS REQUIRED

Federal and state laws require several permits before construction can proceed. They include:

- Authorizations from the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act for discharges of fill material into waters of the United States, including wetlands.
- Authorizations from the Virginia Department of Environmental Quality pursuant to Sections 401 (Virginia Water Protection Permit) and 402 of the Clean Water Act for discharges into waters of the United States.
- Authorizations from the Virginia Marine Resources Commission pursuant to Virginia Water Law for encroachments on subaqueous state-owned stream bottoms.

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PURPOSE AND NEED

1.1 STUDY AREA AND PROJECT HISTORY

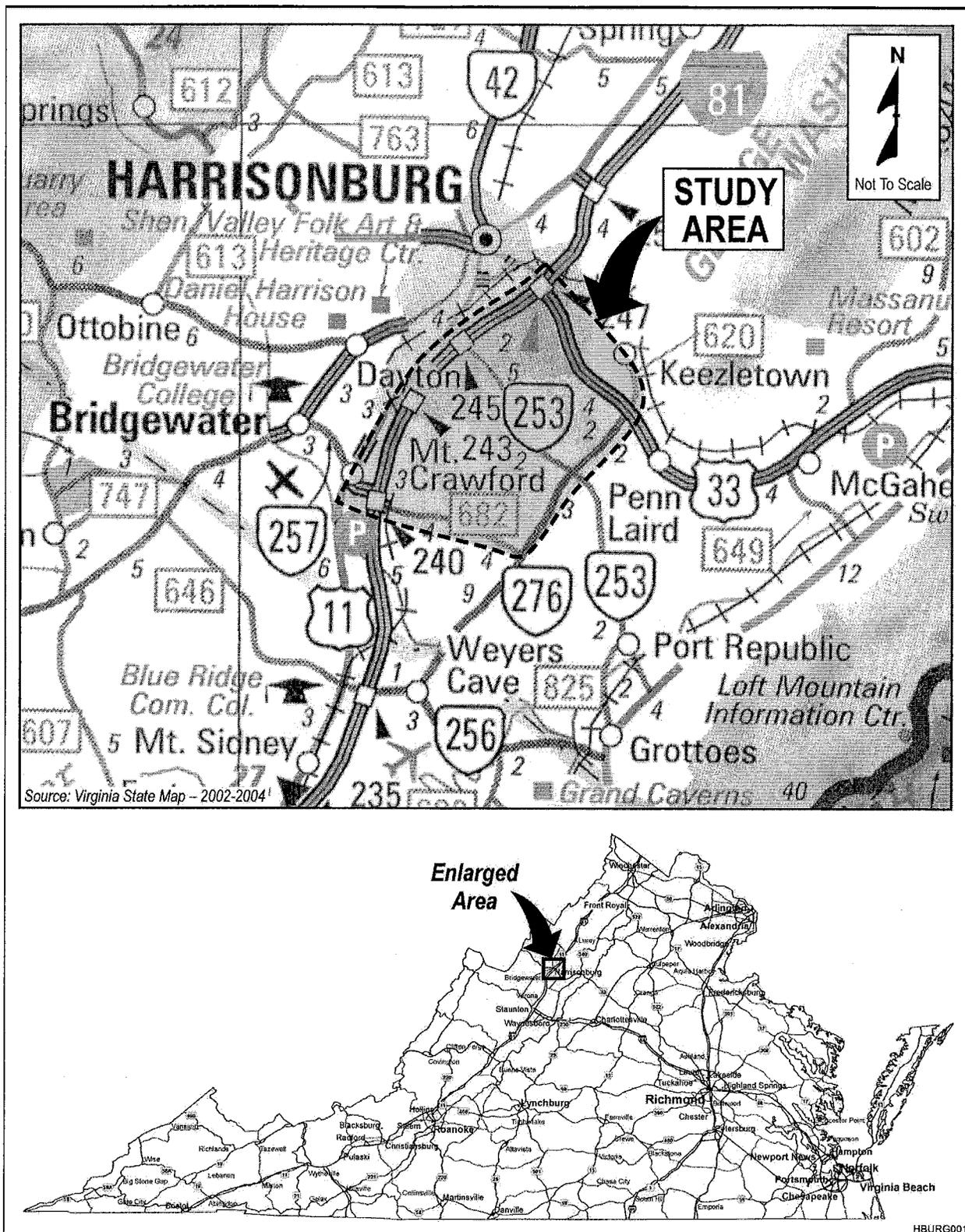
As described in Sections 1.1 and 1.2 of the Draft EIS, the Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), studied transportation problems and potential solutions in the southeastern Harrisonburg metropolitan area between U.S. Route 11 and U.S. Route 33. **Figure 1-1** shows the study area location and boundaries. The study arose out of a perceived need for a connector road across the study area between I-81 and U.S. Route 33. A conceptual alignment for such a connector road was contained in the regional transportation plan, known as the Harrisonburg Area Transportation Study (HATS), developed in the 1990s and adopted by city and county governments. [That plan has since been replaced by HRMPO's *2030 Transportation Plan*.] Funding for a location study was included in the Virginia Transportation Act of 2000 by the Virginia General Assembly and in the Six-year Improvement Program by the Commonwealth Transportation Board.

1.2 PURPOSE AND NEED

Section 1.3 of the Draft EIS described the transportation needs to be addressed in the study, namely, to serve east-west mobility needs and existing and future travel demand in the study area. These needs were attributed to the lack of adequate east-west travel routes connecting principal arterial routes and major activity centers, and to the increasing traffic volumes generated by existing and forecasted development in the study area.

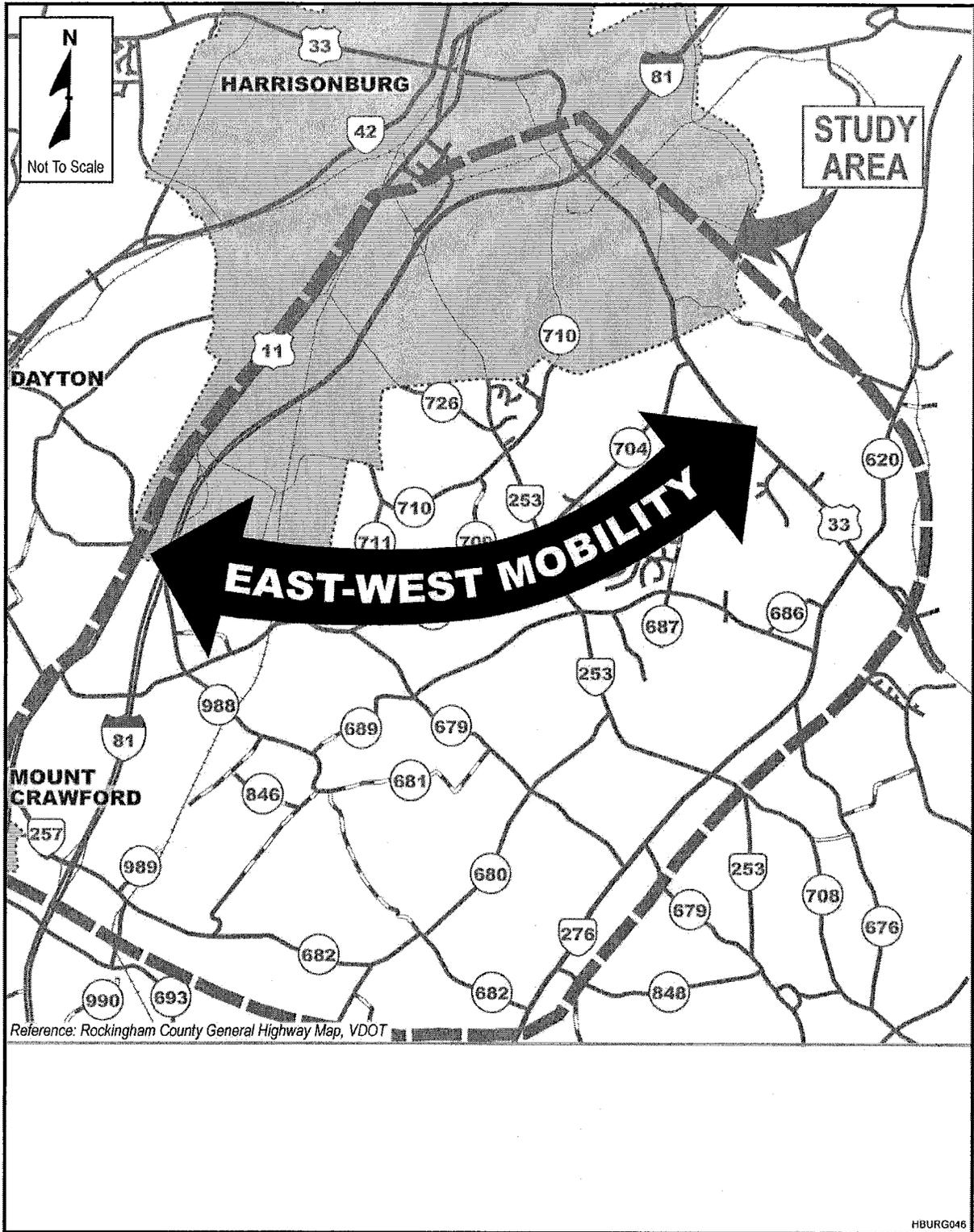
Mobility is the ability to travel freely from place to place. It implies relatively unimpeded movement over relatively direct links in the transportation system. Direct east-west links across the study area to connect major activity centers and major highways are limited. **Figure 1-2** illustrates the generalized east-west travel pattern being addressed in this study. If one envisions Routes 11 and 81 along the west side of the study area and Route 33 along the northeast side of the study area as the legs of an "A," the crossbar of the A is missing. Most existing roads across the study area are secondary roads that are narrow, winding, hilly, and discontinuous.

When the study began, Rockingham County's Comprehensive Plan designated most of the study area for residential, commercial, and industrial land uses, and proposed extensions of water and sewer services to serve that growth. Travel demand across the study area was projected to grow along with population growth and development. Since completion of the Draft EIS, the county has revised its Comprehensive Plan such that a smaller portion of the study area is now designated for future development and the urban growth boundary was shifted closer to the City of Harrisonburg. Nevertheless, a substantial portion of the study area still is identified for future development and travel demand still is expected to grow along with the development.



Harrisonburg Southeast Connector
Location Study

STUDY AREA
Figure 1-1



Harrisonburg Southeast Connector
Location Study

EAST-WEST MOBILITY
Figure 1-2

ALTERNATIVES

2.1 INTRODUCTION

Chapter 2 of the Draft EIS presented the range of alternatives evaluated for the study, the process used to identify and screen the alternatives, and comparative discussions of the alternatives that were carried forward for detailed evaluation. The No-action, or No-build, Alternative was retained for study consistent with National Environmental Policy Act (NEPA) regulations and to serve as a baseline for alternatives comparison. A wide range of other alternatives was considered initially, based on the identified purpose and need, suggestions received from citizens, proposals included in other local and regional planning efforts, and the conditions and constraints of the study area. A screening process was used to identify the alternatives to consider in detail, based on purpose and need, citizen input, environmental concerns, and engineering issues. Thus, the range of alternatives considered in detail in the Draft EIS included the No-build Alternative and five Candidate Build Alternatives. Potential combinations of multiple Candidate Build Alternatives also were addressed.

2.2 ALTERNATIVES DEVELOPMENT AND SCREENING

Section 2.2 of the Draft EIS described the step-by-step process used to identify and screen alternatives.

2.3 ALTERNATIVES ELIMINATED FROM DETAILED STUDY

Section 2.3 of the Draft EIS listed alternatives that were eliminated from further consideration and the basis for eliminating them. These alternatives were not carried forward in the NEPA process for detailed study.

- Transportation System Management (TSM) Alternative.
- Mass Transit Alternative.
- HATS Alternative.¹
- A number of possible alignment segments.

¹ The HATS alignment was a conceptual alignment developed as part of a prior regional transportation plan and never was intended as an actual proposed location for the highway. Nevertheless, the alignment was interpreted by some as the planned location for a major highway and it generated intense opposition from many in the community.

2.4 NO-BUILD ALTERNATIVE

Section 2.4 of the Draft EIS described the No-build Alternative, which is not a do-nothing alternative, but, rather, assumed all transportation improvements in the study area that were funded for construction in the Harrisonburg-Rockingham Metropolitan Planning Organization's (HRMPO's) *2030 Transportation Plan* (adopted August 18, 2005) and in VDOT's Six-year Improvement Program. While the No-build Alternative contains elements that would partially meet the needs addressed in this study (e.g., the Route 726 reconstruction and realignment between U.S. Route 11 and Route 253, road work proffered as part of the Rockingham Memorial Hospital relocation, and a widening of Route 682 between I-81 and Route 995), these improvements did not go far enough to satisfy the identified needs.

2.5 BUILD ALTERNATIVES CARRIED FORWARD

Section 2.5 of the Draft EIS described the five Candidate Build Alternatives (CBAs) retained for detailed evaluation.

2.6 COMBINATION ALTERNATIVES

Section 2.6 of the Draft EIS discussed possible combinations of the alternatives. This was because traffic analyses using the regional transportation model indicated that the Candidate Build Alternatives would provide varying levels of transportation benefits. For example, alternatives closer to the City of Harrisonburg (CBA 3 and CBA 4) would add needed capacity in those areas but would not provide the same level of travel benefits to areas farther from Harrisonburg. Conversely CBA 1 would better serve the outlying southern portion of the study area while providing fewer travel benefits in areas close to Harrisonburg. CBA 2 and CBA 2A would best serve the central portion of the study area. In general, the combination alternatives would provide benefits throughout the study area.

2.7 TRAFFIC BENEFITS AND IMPACTS OF ALTERNATIVES

Section 2.7 of the Draft EIS discussed the relative traffic benefits and impacts of the alternatives. The discussion included several measures of the effectiveness of the alternatives in meeting purpose and need, including average daily traffic volumes, levels of service, the extent to which each alternative would divert traffic from congested roads and thereby improve overall traffic operations in the study area, and weighted averages of daily volumes and daily vehicle-miles.

2.8 PREFERRED ALTERNATIVE

The Preferred Alternative consists of a combination of CBA 4 and CBA 1 Modified, as shown on Figure S-3 in the Summary of this Final EIS. CBA 4 is as described in the Draft EIS. CBA 1 Modified consists of that portion of CBA 1 between I-81 and Route 276 with several other modifications. It is described as follows:

Beginning at the Bridgewater Route 257/682 interchange with I-81 (Exit 240) and ending at Route 276, CBA 1 Modified follows an alignment along existing Route 682 (Friedens Church Road), except for a short section on new location approximately 3,000 feet long that would bypass the corner at Friedens Church (intersection of Route 682 and Route 988). The section on new location near Friedens Church would have "limited access," that is, no direct access to adjoining properties. This alternative would involve widening the existing road to four lanes

with a median and paved shoulders between I-81 and Route 681 (South Whitesel Church Road), a distance of approximately 1.25 miles. From Route 681 to approximately 1.4 miles east of Route 681, the existing road would be widened and upgraded to provide a two-lane highway with shoulders and 12-foot-wide lanes. The new-location section, consisting of two 12-foot-wide lanes with shoulders, would extend from that point to a point on Route 682 approximately 0.66 miles west of Route 276. From approximately 0.66 miles west of Route 276 to Route 276, the existing road again would be widened and upgraded to provide a two-lane highway with shoulders and 12-foot-wide lanes. Route 682 would remain classified as a secondary highway. Connections with all existing intersecting roads would be maintained. Additionally, possibilities will be investigated for an access management plan to help reduce long-term proliferation of access points into individual properties.

The basis for the Preferred Alternative includes the following factors:

- CBA 4 responds to travel needs in the northern portion of the study area by:
 - Enhancing east-west mobility across the northern portion of the study area.
 - Providing additional travel capacity in an area that has experienced considerable recent and continuing growth and development, including the new Rockingham Memorial Hospital currently under construction.
- CBA 4 is supported by City and County governments, citizens participating in the Location Public Hearing process, and agencies commenting on the Draft EIS.
- CBA 4 is included in HRMPO's Constrained Long Range Transportation Plan.
- The environmental consequences of CBA 4 are relatively low in comparison to those of other alternatives.
- A substantial portion of the right of way needed to implement CBA 4 has been proffered by landowners proposing substantial developments along the route, including the Rockingham Memorial Hospital at its relocation site (currently under construction).
- The Rockingham County Board of Supervisors, while endorsing CBA 4, "recogniz[ed] 'Alternative 1' [CBA 1] as the future next-step to be considered."
- CBA 1 Modified, as described above, responds to concerns about Battlefield impacts by eliminating the portion of CBA 1 following existing Route 276 between Route 682 and U.S. Route 33, yet also responds to travel needs in the southern part of the study area by:
 - Enhancing east-west mobility across the southern portion of the study area by substantially upgrading a narrow secondary road (Route 682) that has no shoulders and eliminating a serious dogleg at Friedens Church by constructing a short section on new location.
 - Providing additional travel capacity along the proposed four-lane section to accommodate current and future travel demand within the area closest to I-81 identified in the local Comprehensive Plan for future development.
- HRMPO has adopted revisions to its Constrained Long Range Plan to include all of CBA 1 Modified.

In summary, the Preferred Alternative on balance best meets the identified purpose and need while minimizing adverse environmental impacts and responding to public and agency input.

AFFECTED ENVIRONMENT

3.1 ISSUES IDENTIFICATION

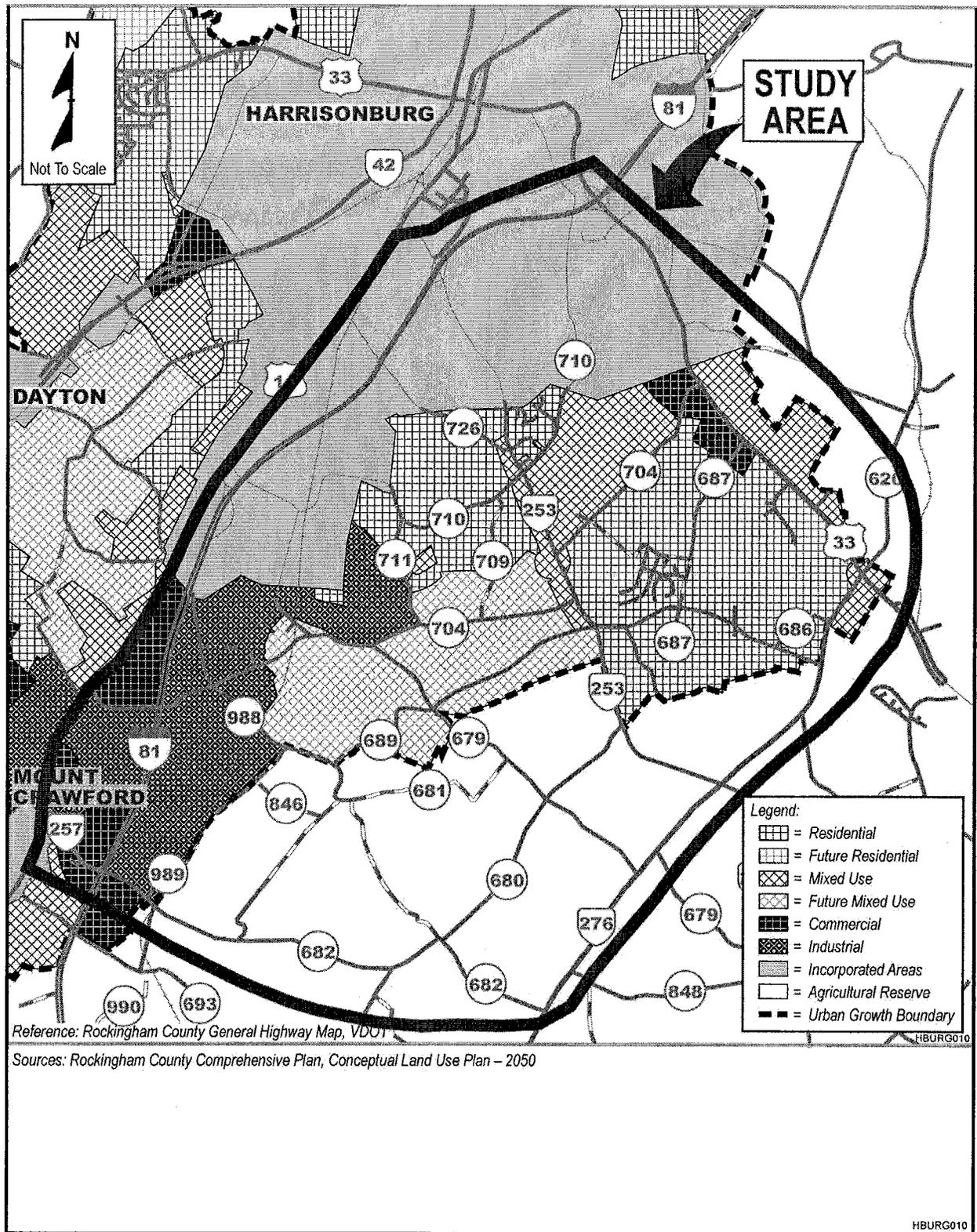
Chapter 3 of the Draft EIS characterized the environment potentially affected by the alternatives that were described in Chapter 2. Table 3-1 in the Draft EIS listed environmental issues and summarized their relevance to the study. Sections of the Draft EIS following the table provided additional information on principal issues. For this Final EIS, only new information regarding those issues is presented, such as information regarding Rockingham County's update to its Comprehensive Plan and information pertaining to the archaeological survey and historic properties.

3.2 LAND USE AND SOCIOECONOMICS

Figure 3-1 illustrates existing land use as presented in the Draft EIS. Section 3.2 of the Draft EIS described how the Rockingham County Board of Supervisors in 2004 adopted a new comprehensive plan, entitled *Comprehensive Plan for 2020 and Beyond*, and how the Harrisonburg City Council adopted its comprehensive plan, entitled *Comprehensive Plan 2004 Update*, also in 2004. These comprehensive plans laid out the respective local governments' long-term visions, goals, and strategies for land uses, infrastructure, and community and economic development. As part of an ongoing review process and examination of continued applicability of elements of the comprehensive plan, revisions to the county's plan have been made, including shifting the urban growth boundary closer to the City of Harrisonburg and redesignating lands formerly shown as future development to agricultural reserve. The purpose of the revisions was to support the Board of Supervisors' desire to moderate growth and to alleviate a conflict between the county's preservation goals for designated agricultural reserve lands and urban growth plans. **Figure 3-2** illustrates the county's revised year 2050 land use plan. The effect of the revisions is that much of the land in the study area that was projected as being developed in the future now is slated to remain in agricultural uses.

3.3 HISTORIC PROPERTIES

Historic properties are archaeological sites and historic buildings, structures, objects, and districts that are listed in, or eligible for listing in, the National Register of Historic Places (NRHP). The NRHP was established by the National Historic Preservation Act. Section 106 of the Act requires federal agencies to consider the effects of their actions on historic properties. Section 3.3 of the Draft EIS provided information on historic properties known to be in the study area before development of the project alternatives.



Harrisonburg Southeast Connector
 Location Study

FUTURE LAND USE
 Figure 3-2

Once the set of Candidate Build Alternatives was established, surveys were conducted along each alternative to identify any previously unrecorded historic architectural properties, as discussed in Section 4.15 of the Draft EIS. An archaeological assessment also was prepared; however, detailed surveys for archaeological resources were deferred until identification of the Preferred Alternative. Those surveys have now been completed, with one archaeological site being identified within the area of potential effects. The reader is directed to Chapter 4 for a discussion of historic properties as they relate to the Preferred Alternative.

ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

In the Draft EIS, this chapter presented the direct, indirect, and cumulative effects of the alternatives, which included a No-build Alternative and five Candidate Build Alternatives (CBA) (1, 2, 2A, 3, and 4), as discussed in Chapter 2 of the Draft EIS. Impacts analyses were based on “planning corridors” 500 feet wide, except along most of Route 276 (Cross Keys Road) where the planning corridor was constrained to the existing 80-foot-wide right of way (to minimize effects on the Cross Keys Battlefield). The 500-foot-wide corridors were wide enough to encompass potential variations in actual alignments and design features during the design phase of any build alternative selected, and also served to illustrate the maximum potential impacts of the alternatives. However, estimates of impacts using a narrower “design corridor” for each CBA also were provided for illustrative purposes. These were derived from generalized cross section templates that more closely represent what the actual impacts of a realistic design could be. In most instances, the design corridor was 240 feet wide, but narrowed to 80 feet on a portion of CBA 1 along Route 276, and to 120 feet for the portion of CBA 1 between Route 681 and Route 276 and the portion of CBA 2 between Route 253 and Route 33. Sections 4.2 through 4.16 of the Draft EIS presented the direct effects of the CBAs. Section 4.17 discussed indirect effects and Section 4.18 discussed cumulative effects. In this Final EIS, the discussion is focused on the Preferred Alternative. Material from the Draft EIS that remained unchanged is incorporated by reference.

4.2 LAND USE

Section 4.2 of the Draft EIS presented information on the amount of land within the planning and design corridors of each alternative. Table S-3 in the Summary of this Final EIS includes those numbers.

The city’s Comprehensive Plan designates the entire city portion of the study area for urban uses. Since completion of the Draft EIS, Rockingham County’s Board of Supervisors approved revisions to the county’s Comprehensive Plan that changed the urban growth boundary location and future land use designations for portions of the study area. The intent of the revisions was to pull the urban growth boundary closer to the City of Harrisonburg, thereby removing areas intended to continue as agricultural reserve¹ and reflecting the Board’s desire to moderate

¹ As defined in the Comprehensive Plan, “The Agricultural Reserve is planned for agricultural uses and uses that support agriculture as a viable way of life and economic enterprise.”

growth. The county's policy is to not extend public water and sewer facilities into Agricultural Reserve areas. The county's revised Comprehensive Plan still designates the northern county portion of the study area and areas along I-81 and U.S. Route 33 for urban uses.

The Preferred Alternative is consistent with the city's Comprehensive Plan and the county's revised Comprehensive Plan. CBA 4 will provide additional travel capacity to serve an area that has experienced considerable recent and continuing growth and development, including the new Rockingham Memorial Hospital that is under construction. For most of its length, CBA 1 Modified would consist of a two-lane widening of an existing secondary road, which would not increase travel capacity that might contribute to pressures for unwanted development. Rather, it would improve mobility across the southern portion of the study area by substantially upgrading a narrow secondary road that has no shoulders and eliminating a serious dogleg at Friedens Church by constructing a short section on new location. While the proposed four-lane section on the western end of CBA 1 Modified would increase travel capacity, this increase is consistent with expected increases in development and associated traffic volume in the proximity of I-81. Together, these improvements would serve the needs of the general traveling public as well as ongoing agri-business activities along the corridor.

The Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO) has adopted revisions to the *2030 Transportation Plan* for elements of CBA 1 Modified that were not in the financially constrained long-range plan at the time of Draft EIS development. Thus, the Preferred Alternative is consistent with HRMPO's constrained long-range plan.

4.3 SOCIOECONOMICS

Section 4.3 of the Draft EIS presented estimates of the numbers of homes, businesses, farms, and nonprofit organizations that are within the corridors for each alternative, and that could potentially be displaced or relocated. Table S-3 in the Summary of this Final EIS includes those numbers. VDOT will develop a detailed relocation plan upon completion of a more in-depth design to ensure that orderly relocation of all displacees can be accomplished in a satisfactory manner. The acquisition of right of way and the relocation of displacees will be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Assurance is given that relocation resources would be available to all residential, business, farm, and nonprofit displacees without discrimination.

Section 4.3 of the Draft EIS also discussed changes to neighborhoods, travel patterns, and accessibility; effects on community facilities; and effects on "environmental justice" populations. There have been no changes in those elements of the project or its impacts.

4.4 PARKS AND RECREATION AREAS

As discussed in the Draft EIS, no land from any existing publicly owned public parks or recreation areas would be used by any of the alternatives.

4.5 HAZARDOUS MATERIALS

Section 4.5 of the Draft EIS presented information on the numbers of hazardous materials sites within the planning and design corridors of each alternative. Table S-3 in the Summary of this Final EIS includes those numbers.

4.6 FARMLAND

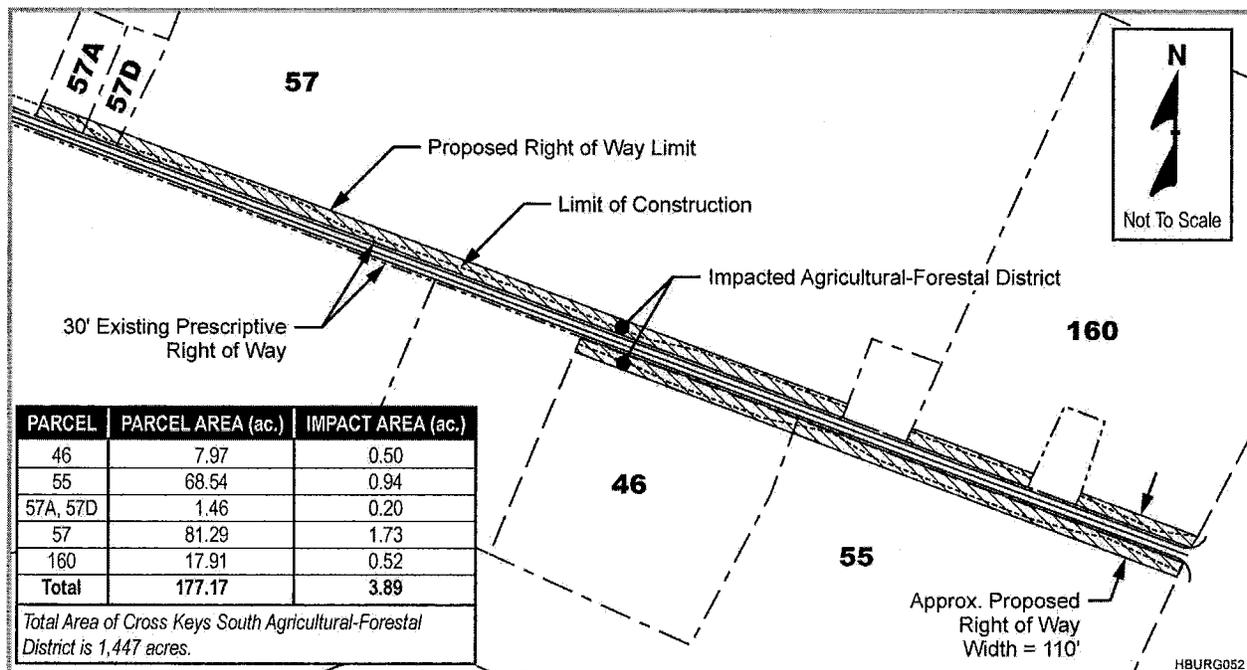
4.6.1 Farmland Conversions

Section 4.6.1 of the Draft EIS described efforts to coordinate with the Natural Resources Conservation Service regarding prime farmland soils and/or the presence and location of any unique farmlands, or farmlands of statewide or local importance for Farmland Protection Policy Act (FPPA) compliance. The potential impacts to prime farmland and farmland of statewide importance also were discussed. Table S-3 in the Summary of this Final EIS provides the numbers of acres of impacts for each alternative.

4.6.2 Agricultural and Forestal Districts

As reported in Section 4.6.2 of the Draft EIS, there are four Agricultural and Forestal Districts in or adjacent to the study area. Table S-3 in the Summary of this Final EIS provides the numbers of acres of impacts for each alternative, based on the planning and design corridors used to estimate reported impacts. Only one Agricultural and Forestal District, Cross Keys South, is in the vicinity of the Preferred Alternative.

The Draft EIS reported that there were 30.8 acres of Cross Keys South Agricultural and Forestal District land within the planning corridor (500 feet wide) for CBA 1, and 11.2 acres within the narrower design corridor (120 feet wide) for CBA 1. A more-refined estimate has now been made of the impact to the District from CBA 1 Modified, using available preliminary topographic information and road design software to estimate approximate construction limits and potential right of way limits. **Figure 4-1** shows the results of that effort.



Harrisonburg Southeast Connector
Location Study

CROSS KEYS SOUTH AGRICULTURAL-
FORESTAL DISTRICT INVOLVEMENT

Figure 4-1

The reader should not construe the drawing to represent the actual project design in that area, or the impact numbers as the final actual impact. Rather, the drawing illustrates that the actual impact (less than 4 acres based on this preliminary estimate) will be relatively minor in comparison to the sizes of parcels comprising the District and the size of the whole District. At such time as the project is designed, VDOT will make further efforts to minimize the impacts to District lands and will take all necessary steps to comply with procedural requirements pursuant to the Virginia Agricultural and Forestal Districts Act to convert District lands to highway right of way.

4.7 AIR QUALITY

As reported in the Draft EIS, none of the alternatives would have substantial adverse effects on air quality and none would cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS).

In addition to the criteria air pollutants for which there are NAAQS, EPA is also responsible for controlling and developing regulations for air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries). Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

EPA is the lead federal agency for administering the Clean Air Act and has certain responsibilities for addressing the health effects of MSATs. EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17229, March 29, 2001). This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary at that time to further control MSATs. Nevertheless, EPA issued additional regulations on February 26, 2007 (72 FR 8428, Final Rule, Control of Hazardous Air Pollutants From Mobile Sources) adopting further controls on gasoline, passenger vehicles, and portable fuel containers to “significantly reduce emissions of benzene and other hazardous air pollutants”.

FHWA projects that between 2000 and 2020, even with a 64 percent increase in vehicle miles traveled (VMT), EPA’s control programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent.

While it is generally expected that MSAT emissions will decrease over time, available technical tools do not enable prediction of project-specific health impacts of emission changes associated with the alternatives addressed in this study. Due to these limitations, the following discussion is

included in accordance with Council on Environmental Quality regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

1. Emissions. The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model—emission factors are projected based on a typical trip of 7.5 miles—and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter (PM), the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis. These deficiencies compromise the capability of MOBILE6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

2. Dispersion. The tools to predict how MSATs disperse also are limited. EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Cooperative Highway Research Program (NCHRP) is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

3. Exposure Levels and Health Effects. Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude reaching meaningful conclusions about project-specific

health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Credible Scientific Evidence Relevant to Evaluating Impacts of MSATs

Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

4.8 NOISE

Section 4.8 of the Draft EIS presented information on noise impacts of the alternatives, including the numbers of sites that would experience noise impacts. Table S-3 in the Summary of this Final EIS includes those numbers.

4.8.1 CBA 1 Modified

Of 43 noise-sensitive properties evaluated for CBA 1 Modified, two would incur substantial increase impacts under design-year 2030 build conditions with noise levels increasing 10 or more dBA over existing levels. No properties would incur noise impacts under design year 2030 build conditions due to noise levels approaching or exceeding the NAC impact criterion of 66 dBA. Noise abatement measures do not appear feasible due to access constraints.

4.8.2 CBA 4

The traffic noise impact analysis for CBA 4 evaluated 37 noise-sensitive properties. The results indicate that five properties would incur substantial-increase impacts under design-year 2030 build conditions with noise levels increasing 10 or more dBA over existing noise levels. Four properties would incur noise impacts under design-year 2030 build conditions with noise levels approaching or exceeding the NAC impact criterion of 66 dBA. Noise abatement measures do not appear feasible due to access constraints.

4.9 VISUAL QUALITY AND AESTHETICS

Section 4.9 of the Draft EIS discussed visual resources of the study area and potential visual impacts.

4.10 GEOLOGY AND GROUNDWATER

Section 4.10 of the Draft EIS discussed potential impacts to karst terrain and groundwater resources. There have been no changes warranting additional discussion of these topics in this Final EIS.

4.11 SURFACE WATERS, INCLUDING WETLANDS

4.11.1 Surface Waters

As discussed in Section 4.11.1 of the Draft EIS, each of the five Candidate Build Alternatives would involve stream crossings. **Table 4-1** lists the lengths of streams within the planning and design corridors for the Preferred Alternative.

Table 4-1
STREAM IMPACTS

Site Number	Description	Drainage Area (sq. mi.)	Length within Planning Corridor (feet)	Length within Design Corridor (feet)
CBA 1 Modified				
1	Pleasant Run, perennial stream, crosses Route 682 perpendicularly; 3' - 8' wide; 0.5' - 2' deep; silt/sand/gravel/cobble substrate	7.5	581	262
2	Intermittent tributary of Pleasant Run, parallels south side of Route 682 between confluence with Pleasant Run and crossing of Route 682, crosses Route 682 perpendicularly and runs alongside north side of road to headwaters; 1' - 3' wide; 0' - 1' deep; silt substrate	0.4 (0.07 above Rte 682 crossing)	3,285	1,320
3	Intermittent tributary of North River, crosses new-location portion of corridor at approx. 40° angle; 1' - 3' wide; 0.1' - 1' deep; silt/sand/gravel/cobble substrate	0.8	647	134
Total CBA 1 Modified			4,513	1,716
CBA 4				
24	Intermittent tributary of Blacks Run, crossing of CBA 4 varies from near perpendicular to near parallel; 1' - 2' wide; 0' - 0.4' deep; silt substrate	0.2	890	716
15	Intermittent tributary of Congers Creek, crosses CBA 4 at approx. 15° angle from perpendicular; 2' - 3' wide; 0' - 0.5' deep; silt substrate	0.3	555	264
Total CBA 4			1,445	980

As noted in the Draft EIS, at this stage of project development, detailed hydraulic studies have not been done to conclusively determine the sizes and types of drainage structures that would be needed. However, pipe culverts likely would be VDOT's preferred method of carrying the smallest streams under the roadway. Box culverts may be more appropriate at several of the

larger crossings. If pipe or box culverts are used, they would be countersunk to provide for low flow conditions and so that natural bottoms could reestablish inside the culverts. A bridge may be used at the largest stream crossing, at Pleasant Run. Any unavoidable stream relocations will be performed using natural stream design, which means that the channel should mimic the dimension, pattern, and profile of a representative reference stream reach.

At this preliminary stage of development, sufficient design has not been developed to determine the precise locations of stormwater management facilities such as detention ponds. However, all practicable efforts will be made to ensure that such facilities would not be located in streams. Any requests for authorization under the requisite federal and state water quality permits to place these facilities or portions of them in streams would be accompanied by an analysis of why alternative upland sites are not practicable.

Compensation for stream impacts may be provided as part of the permit conditions for any authorizations issued by the U.S. Army Corps of Engineers and the Virginia Department of Environmental Quality. Because these agencies determine the compensation requirements for stream impacts on a case-by-case basis, the quantitative requirements for the Preferred Alternative would be negotiated with them as part of the permit application process. Compensation may involve enhancement or restoration to stream and riparian areas, use of credits from an approved stream mitigation bank, or payments to the Virginia Wetlands Restoration Trust Fund.

Minor long-term water quality effects could occur as a result of increases in impervious pavement surfaces, increases in traffic volumes, and consequent increases in pollutants washed from the road surface into receiving streams. Pollutants would include grease, oil, metals, nutrients, nitrogen, deicing salts, roadside vegetation management chemicals, and suspended solids. Because none of the receiving streams are elements of local public water supplies, the potential for human health effects from roadway runoff is minimal. Moreover, temporary and permanent stormwater management measures, including detention basins, vegetative controls, and other measures, would be implemented to minimize potential degradation of water quality. These measures would reduce or detain discharge volumes and remove pollutants. The requirements and special conditions of any required permits for work in and around surface waters would be incorporated into construction contract documents. The construction contractor would be required to comply with those conditions and with pollution control measures specified in VDOT's *Road and Bridge Specifications*.

4.11.2 Wetlands

As discussed in the Draft EIS, wetlands along the alternatives are small in size and scattered in distribution; most are limited to narrow and disjunct bands of emergent vegetation [common species include New York ironweed (*Vernonia noveboracensis*), swamp aster (*Aster puniceus*), fox sedge (*Carex vulpinoidea*), pale sedge (*Carex lurida*), soft rush (*Juncus effusus*) and a variety of bulrushes (*Scirpus spp.*)] or shrubs along the banks of streams [mainly common alder (*Alnus serrulata*) and shrub-sized black willow (*Salix nigra*) and sycamore (*Platanus occidentalis*)]. The Cowardin² classifications for these wetlands are: palustrine emergent (PEM) systems with

² Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Fish and Wildlife Service FWS/OBS - 79/31. 131 pp. A hierarchical system for classifying waters and wetlands based on hydrological and ecological characteristics, widely used by state and federal agencies

persistent vegetation and palustrine scrub-shrub (PSS) systems with broad-leaved deciduous vegetation, both with temporary (A) or seasonal (C) flooding regimes. Their locations generally coincide with stream locations. The Preferred Alternative would impact less than one acre of wetlands. The types of wetlands affected are not unique to the project area. The functions of these wetlands include groundwater discharge, sediment/toxicant retention, nutrient removal, sediment stabilization, and wildlife habitat.

At this preliminary stage of development, sufficient design has not been developed to determine the precise locations of stormwater management facilities such as detention ponds. However, all practicable efforts will be made to ensure that such facilities would not be located in wetlands. Any requests for authorization under the requisite federal and state water quality permits to place these facilities in wetlands would be accompanied by an analysis of why alternative upland sites are not practicable.

All available measures to avoid and minimize impacts to wetlands would be implemented where feasible. For unavoidable wetland losses, VDOT will develop compensatory mitigation in cooperation with the federal and state water quality permitting agencies. Such compensation would account for lost wetland types and functions and could include construction of replacement wetlands onsite or offsite, enhancement of existing wetlands, use of credits from an approved wetlands mitigation bank, or payments to the Virginia Wetlands Restoration Trust Fund.

Wetlands Finding. Based upon the above considerations, it has been determined, in accordance with Executive Order 11990, *Protection of Wetlands*, that there is no practicable alternative to construction in wetlands. To the extent possible during this NEPA planning process, the locations of wetlands have been taken into account in developing the alternatives and practicable measures to minimize harm to wetlands have been identified. During the design and permitting process, further measures to avoid and minimize impacts to wetlands, along with compensatory mitigation, will be considered in detail.

4.12 FLOODPLAINS

Section 4.12 of the Draft EIS described impacts to 100-year floodplains, the boundaries of which were obtained from the National Flood Insurance Maps (FIRM) prepared by the Federal Emergency Management Agency (FEMA). The tabulation of impacts is included in Table S-3 in the Summary of this Final EIS. The floodplain encroachments of the Preferred Alternative would not be “significant encroachments” (as defined in 23 CFR 650.105(q)) because:

- They would pose no significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or that provides a community's only evacuation route.
- They would not pose significant flooding risks.
- They would not have significant adverse impacts on natural and beneficial floodplain values.

Therefore, the project is consistent with Executive Order 11988, *Floodplain Management*, which prohibits federal support of incompatible floodplain development unless there is no practical

in mapping and evaluating water resources and adopted by the Federal Geographic Data Committee as a Data Classification Standard.

alternative, and no Floodplain Finding in accordance with Executive Order 11988 is required. There have been no other changes warranting additional discussion of this topic in this Final EIS.

4.13 WILDLIFE AND HABITAT

4.13.1 Aquatic Habitat

As discussed in Section 4.13.1 of the Draft EIS, placement of culverts to carry streams under any of the alternatives would result in minor losses of stream-bottom habitat and the resident benthic (bottom-dwelling) organisms. Table S-3 in the Summary of this Final EIS provides stream impacts in linear feet by alternative.

4.13.2 Terrestrial Habitat

As discussed in Section 4.13.2 of the Draft EIS, terrestrial habitat within the study area already has been extensively fragmented by agricultural activities, residential development, powerlines, and roads. As a result, most remaining forested areas consist of “islands” on hilltops that are too steep to farm. Such areas also generally are too steep for roads, resulting in relatively low forestland impacts for all the alternatives. Table S-3 in the Summary of this Final EIS reports the numbers of acres of forest impacted by the alternatives. Although pasture land, cropland, and residential land have habitat values for a number of wildlife species, the losses of these areas to highway right of way would not constitute severe losses of available habitat or wildlife populations. Segments of alternatives that would be on new location would marginally increase the fragmentation of habitat. Most of these segments pass through areas of open unforested lands.

4.13.3 Migratory Birds

As discussed in Section 4.13.3 of the Draft EIS, the effects of the alternatives on forestland would be minimal, and, consequently, the effects on forest-dwelling migratory birds would be minimal as well. Some migratory birds, such as meadowlarks and several species of sparrows, require grassland habitats for courtship, nesting, foraging, rearing young, and roosting or resting. Grasslands are plentiful in and around the study area and include agricultural lands, old fields, pastures, orchards, parks, golf courses, and cut-over forests. Each of the alternatives would impact grassland habitats to the extent of the highway right of way acreages across pastures or croplands and similar areas. These acreages are relatively small in comparison to the total acreage in the study area.

4.13.4 Invasive Species

Section 4.13.4 of the Draft EIS discussed invasive species issues. There have been no changes warranting additional discussion of this topic.

4.14 THREATENED AND ENDANGERED SPECIES

As reported in the Draft EIS, the U.S. Fish and Wildlife Service concluded that none of the alternatives are “likely to affect federally listed or proposed species or adversely modify critical habitat. Therefore, no Biological Assessment or further Section 7 consultation is required with the Service.” However, in Draft EIS review comments received from the Virginia Department of Game and Inland Fisheries (VDGIF), that agency indicated that the state-listed threatened loggerhead shrike (*Lanius ludovicianus*) has been documented in the project vicinity and requested a habitat assessment for this species throughout the project site. This bird inhabits

open country with scattered trees and shrubs. Typical breeding habitat includes closely grazed pastures with fencerows of trees and shrubs. Red cedars and hawthorns often are used as nest trees. Staff biologists from VDOT and VDGIF conducted an assessment of potential loggerhead shrike breeding habitat along the Preferred Alternative in March 2007 and identified the areas shown on **Figure 4-2** as potential breeding habitat. As recommended by the staff biologists, a survey for breeding shrikes will be conducted along the project corridor in the designated areas if construction is to be conducted during the breeding season (April 1 – July 31).

4.15 HISTORIC PROPERTIES

The project will have no adverse effect on historic properties. As discussed in Section 4.15 of the Draft EIS, “Historic property” means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. (36 CFR 800.16(l)(1)).

4.15.1 Historic Architectural Properties

Section 4.15.1 of the Draft EIS identified and showed the locations of historic architectural properties within the study area. **Table 4-2** lists the properties within the area of potential effects of the Preferred Alternative.

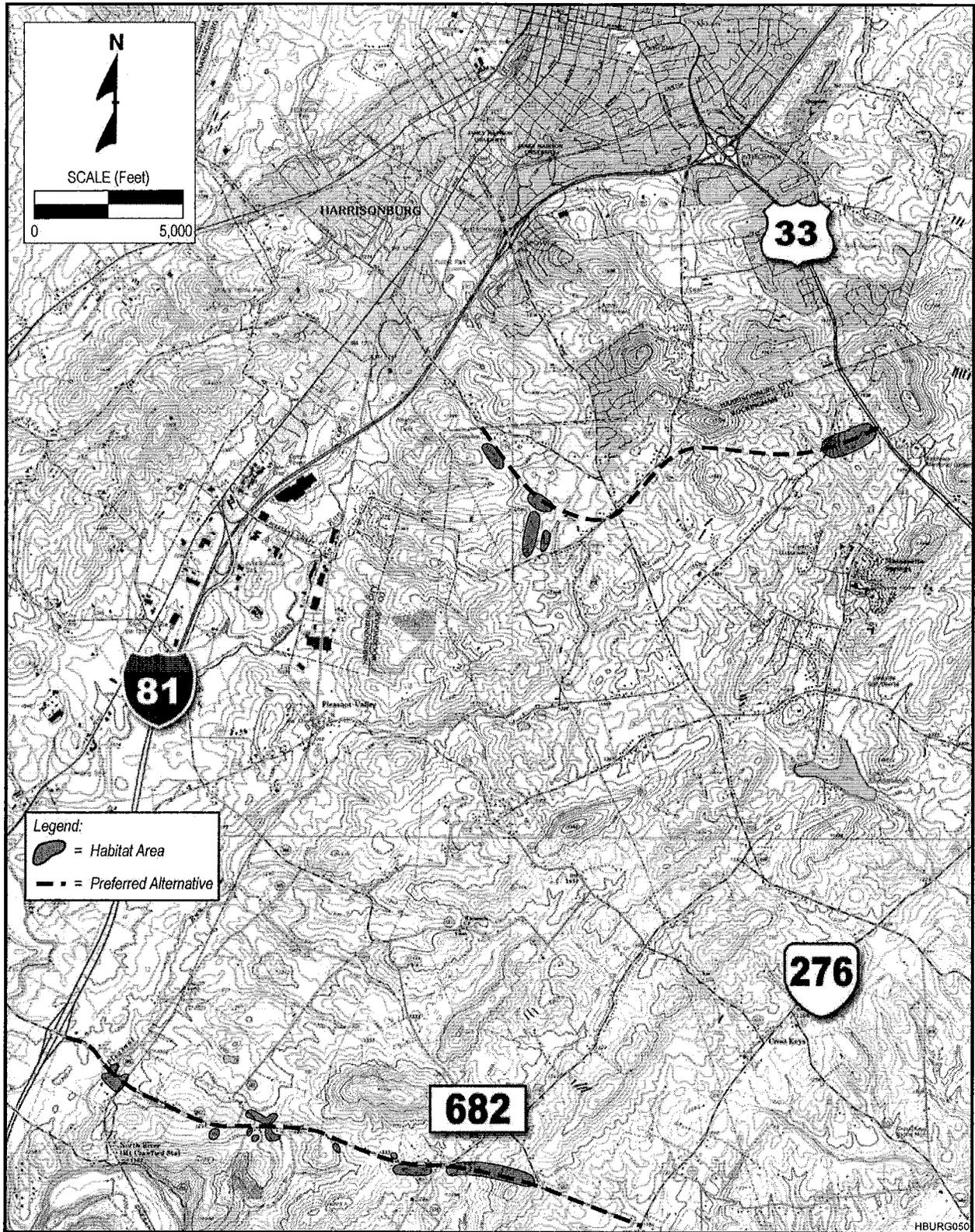
Table 4-2
NRHP-LISTED OR ELIGIBLE HISTORIC PROPERTIES

VDHR File #	Resource Name & Location	Description	NRHP Status & Criteria
CBA 1 Modified			
082-5298	Flory Farm, 3550 Friedens Church Road	Ca. 1854 house, late nineteenth century additions, outbuildings, and millrace	Eligible, A & C
082-0102	Friedens Church	Ca. 1819 church	Eligible, A & C
CBA 4			
115-5055	Argubright Barn	Ca. 1850 barn	Eligible, A & C

Effects. Effects of the Preferred Alternative on historic properties were evaluated by VDOT staff meeting the Secretary of the Interior’s professional qualifications standards for architectural history (48 FR 44739) by applying the definition of effect and the criteria of adverse effect as stated in the regulations implementing Section 106 of the National Historic Preservation Act. These regulations define an effect as an “alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register” [36 CFR 800.16(i)]. The effect is adverse when the alteration of a qualifying characteristic occurs in a “manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association” (36 CFR 800.5(a)). The effects of the Preferred Alternative on historic architectural properties have been coordinated with the State Historic Preservation Officer as follows.

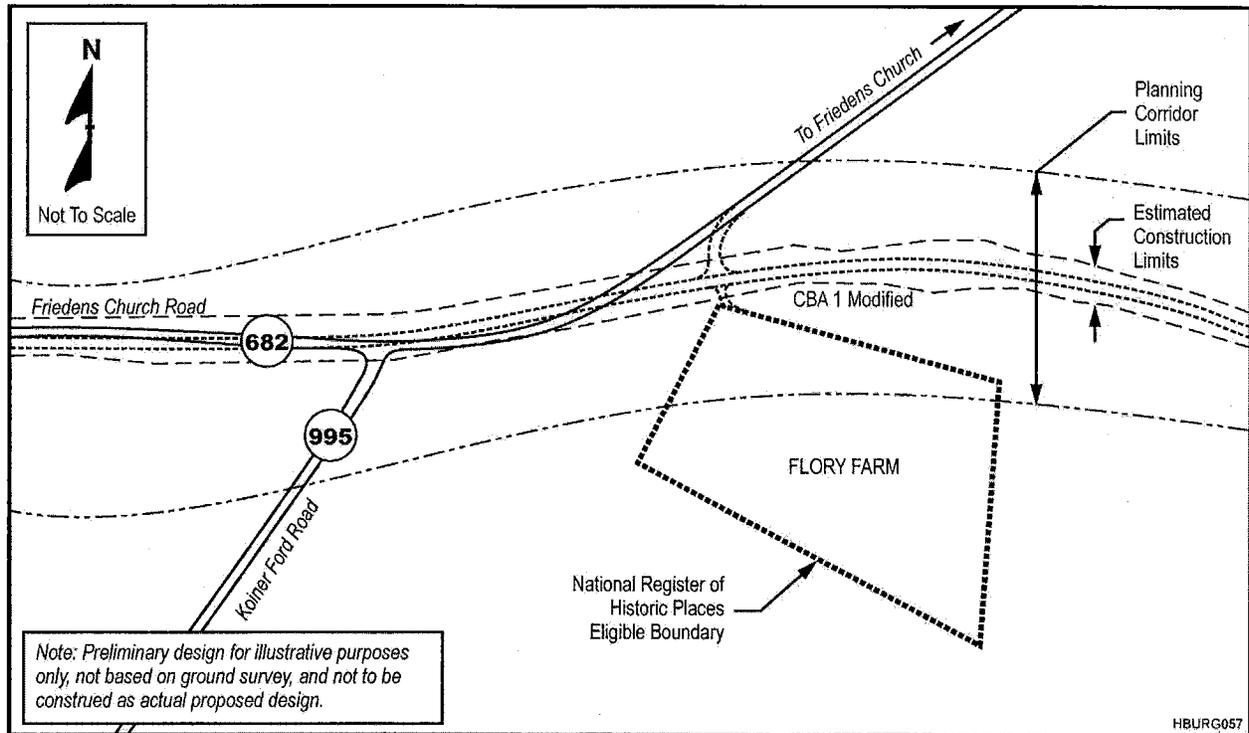
CBA 1 Modified.

082-5298, Flory Farm: Though within the planning and design corridors for CBA 1 Modified (see **Figure 4-3**), encroachment on the resource can be avoided by designing the alternative to pass north of the site while staying within the planning corridor. The reconstructed roadway may



Harrisonburg Southeast Connector
Location Study

LOGGERHEAD SHRIKE HABITAT
Figure 4-2



**Harrisonburg Southeast Connector
Location Study**

**AVOIDANCE OF FLORY FARM
HISTORIC PROPERTY**

Figure 4-3

be visible from the resource, but would not alter any character-defining features qualifying the resource for the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. **No adverse effect.**

082-0102, Friedens Church: CBA 1 Modified would avoid the resource. The alignment would move a considerable distance away from the current alignment of Route 682. CBA 1 Modified would not be within the viewshed of the church and would not alter any character-defining features qualifying the resource for the National Register. **No effect.**

CBA 4.

115-5055, Argubright Barn: CBA 4 would avoid the resource. Located out of the resource's viewshed, the alternative would not alter any character-defining features qualifying the resource for the National Register. **No effect.**

4.15.2 Archaeology

An archaeological survey was conducted within the APE of the Preferred Alternative.³ The survey included visual inspection of the ground surface and digging test pits by shovel at regularly spaced intervals, with additional shovel testing in locations where archaeological

³ Because the alternatives under consideration consisted of corridors covering large land areas, field archaeological surveys were conducted after the identification of a preferred alternative, as provided for in 36 CFR 800.

artifacts or features were discovered, in order to identify archaeological sites. For any identified sites, the approximate horizontal and vertical boundaries were estimated, artifacts were defined as to type and time period, and a recommendation of potential for National Register eligibility was developed. The findings were documented in a report and coordinated with VDHR.

One previously unknown multi-component site (VDHR #44RM0479) was identified within the APE for CBA 1 Modified. It is located on the Flory Farm property (VDHR #082-5298) noted above and the historic features of the site likely contribute to the understanding and significance of that property. However, the prehistoric component of the site lacks integrity and does not contribute to the significance of the property. Site 44RM0479 was recommended as potentially eligible for inclusion on the NRHP under Criterion D for its potential to yield contributing information concerning the organization and use of an early to mid-nineteenth century family farm. VDHR concurred that the site is eligible for the NRHP. CBA 1 Modified can be designed to avoid the site, and therefore will have **no effect** on it.

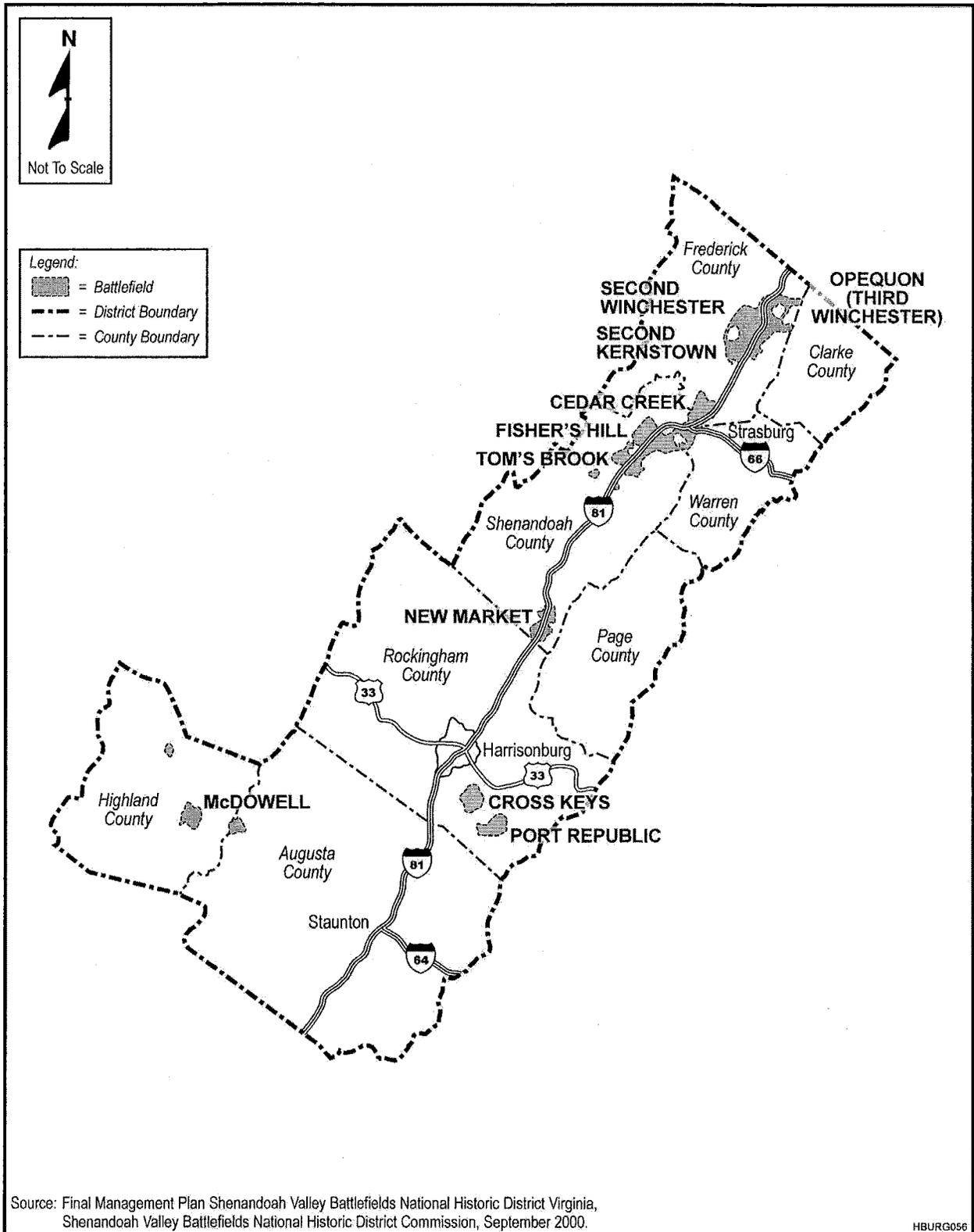
4.15.3 Cross Keys Battlefield

Section 4.15.3 of the Draft EIS discussed the Cross Keys Battlefield and potential effects on it. The Preferred Alternative involves no construction through or close to the Battlefield. The Preferred Alternative is not expected to have any indirect impacts on the Battlefield, either by stimulating unwanted development within the Battlefield or by substantially increasing traffic volumes traveling existing Route 276 through the Battlefield. Therefore, the Preferred Alternative will have **no effect** on the Battlefield.

The Cross Keys Battlefield also is an element of the Shenandoah Valley Battlefields National Historic District established by Congress in the Shenandoah Valley Battlefields National Historic District and Commission Act of 1996. As requested by VDHR, **Figure 4-4** has been added to this Final EIS to illustrate the location and boundaries of the District. The eight-county District contains 10 Civil War battlefields mapped by the National Park Service. The Act created a planning process for the oversight and preservation of battlefields included in the District. The Shenandoah Valley Battlefields National Historic District is an entity established by Congress and is not the same as a historic district established under the criteria used to determine eligibility for the National Register of Historic Places under the National Historic Preservation Act. For purposes of Section 106, effects only on the National Register-eligible boundaries of the Cross Keys Battlefield are of concern for any of the alternatives. No other National Register-eligible battlefields within the Shenandoah Valley Battlefields National Historic District are in the vicinity of the study area.

The Preferred Alternative will have no impact on resources for which the District was created. Coordination with the Shenandoah Valley Battlefields Foundation was begun shortly after initiation of the Harrisonburg Southeast Connector Location Study. A copy of the *Cross Keys Battlefield Boundary Review* report was provided to the Foundation for review and comment. The Foundation concurred with the findings of the report and the recommended National Register-eligible boundaries for the Battlefield. The Foundation is a consulting party for purposes of Section 106.

The Civil War Preservation Trust also has been consulted and also was provided a copy of the *Cross Keys Battlefield Boundary Review* report. The Trust concurred with the recommended National Register-eligible boundaries and expressed its chief concern as the integrity of the Cross Keys Battlefield. The Trust also is a consulting party under Section 106.



Harrisonburg Southeast Connector
Location Study

SHENANDOAH VALLEY BATTLEFIELDS
NATIONAL HISTORIC DISTRICT

Figure 4-4

4.16 CONSTRUCTION IMPACTS

Section 4.16 of the Draft EIS discussed construction impacts, short-term effects resulting from the process of building a project. Such impacts on land use, access, wildlife, habitat, water quality, air quality, and noise were included.

4.17 INDIRECT EFFECTS

Section 4.17 of the Draft EIS discussed indirect effects that could occur later in time and farther in distance than direct effects. Changes to Rockingham County's Comprehensive Plan have reduced the amount of land within the study area designated for future development and redesignated some lands as Agricultural Reserve. However, CBA 4, part of the Preferred Alternative, still lies squarely within an area designated for urban uses. Much of CBA 1 Modified, the other part of the Preferred Alternative, lies outside the designated urban growth boundary. However, its alignment mostly follows an existing road and no new access to undeveloped lands would be provided. Conversions of Agricultural Reserve lands to other uses require specific action of the county's Board of Supervisors. Therefore CBA 1 Modified is not expected to result in substantial indirect effects.

4.18 CUMULATIVE EFFECTS

Section 4.18 of the Draft EIS discussed cumulative effects, which can result from the incremental impacts of an alternative when added to other past, present, and reasonably foreseeable future actions that affect the same resources. With the reduction in designated development area associated with recent revisions to the county's Comprehensive Plan, the overall foreseeable cumulative impacts in the study area should be lessened. There have been no other changes that would warrant additional discussion of this topic.

4.19 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Section 4.19 of the Draft EIS discussed this topic and no additional discussion is warranted.

4.20 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Section 4.20 of the Draft EIS discussed this topic and no additional discussion is warranted.

LIST OF PREPARERS

The Virginia Department of Transportation, in close coordination with the Federal Highway Administration, prepared this Environmental Impact Statement and supporting technical studies. Key individuals included the following:

FEDERAL HIGHWAY ADMINISTRATION, VIRGINIA DIVISION

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Christopher Collins	M.S. and B.S. Biology; 13 years experience environmental studies.	EIS review.
Tom Woods	A.S., Civil Engineering; 37 years experience highway planning and design, project management.	Preliminary engineering, alternatives development.
Amy Wells, E.I.T.	B.S., Civil Engineering; 7 years experience preliminary design and location studies.	Preliminary engineering, alternatives development, design criteria and typical sections, cost estimates.
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Joseph Springer	Masters coursework, Urban Planning; B.A., English & Art History; 21 years experience traffic modeling and transportation planning and analysis.	Traffic modeling and analysis, traffic data for air and noise analyses, purpose and needs data and documentation, travel patterns and transportation impacts assessments.
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Bruce Barnett, P.E.	B.S., Civil Engineering; 15 years experience transportation planning, engineering, and design.	Alternatives development and assessment, engineering issues analysis, EIS and supporting documentation.
Michele Fall, A.I.C.P.	M.S. Environmental Engineering; B.S. Biology; 12 years experience environmental analysis and documentation.	Affected environment description, secondary and cumulative impacts analysis, natural resources impacts assessment, EIS and supporting documentation.
Stephen Walter	M.S., B.S., Environmental Science; 30 years experience environmental planning / NEPA studies.	Quality Control.
Kevin Chrisman	B.S., Advertising Design; 16 years experience illustration and graphics design.	Illustrations and computer graphics.
Sung Kim	A.S., Computer Science/Civil Engineering; 10 years experience digital mapping and analysis.	Impacts computations, mapping, and graphics.
Erich Kutsche	B.A., Geography; 5 years experience digital mapping and analysis.	Impact computations, mapping, graphics, socioeconomics and land use data.

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Bill Hall	B.A., History; 8 years experience historic properties identification, evaluation, and documentation.	Historic properties identification, evaluation, and documentation.
Susan Bamann, Ph.D., RPA	Ph.D., Anthropology; 14 years experience archaeological resources work.	Archaeological assessment and documentation.
Dennis Gosser	M.A., Anthropology (Archaeology); Ph.D. Candidate; 14 years experience directing archaeological identification, evaluation, and documentation.	Archaeological survey and report.

DISTRIBUTION OF ENVIRONMENTAL IMPACT STATEMENT

Copies of the Draft EIS were sent to the agencies, organizations, and individuals listed below. This Final Environmental Impact Statement also is being sent to them.

6.1 FEDERAL AGENCIES

- Advisory Council on Historic Preservation - Eastern Office of Planning and Review
- Federal Emergency Management Agency
- U.S. Army Corps of Engineers - Norfolk District
- U.S. Department of Agriculture - Natural Resources Conservation Service
- U.S. Department of Commerce, National Oceanic & Atmospheric Administration
 - National Marine Fisheries Service
- U.S. Department of Interior
 - Office of Environmental Policy and Compliance
 - Fish and Wildlife Service
- U.S. Environmental Protection Agency

6.2 COMMONWEALTH OF VIRGINIA AGENCIES

- Virginia Department of Agriculture and Consumer Services
- Virginia Department of Conservation and Recreation
 - Division of Natural Heritage
 - Karst Protection Coordinator
- Virginia Department of Environmental Quality
- Virginia Department of Forestry
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Health
- Virginia Department of Historic Resources
- Virginia Marine Resources Commission
- Virginia Department of Emergency Services
- Virginia Department of Rail and Public Transportation

6.3 ROCKINGHAM COUNTY AGENCIES AND OFFICIALS

- Rockingham County Administrator
- Rockingham County Planning and Community Development Department
- Rockingham County Recreation and Facilities Department
- Rockingham County Public Works Department
- Rockingham County Health Department
- Rockingham County Public Schools Superintendent
- Members, Rockingham County Board of Supervisors

6.4 CITY OF HARRISONBURG AGENCIES AND OFFICIALS

- Harrisonburg City Manager
- Harrisonburg Department of Planning and Community Development
- Harrisonburg Department of Parks and Recreation
- Harrisonburg Public Works Department
- Harrisonburg City Public Schools Superintendent
- Harrisonburg/Rockingham Joint LEPC
- Members, Harrisonburg City Council

6.5 OTHER LOCAL GOVERNMENTS AND AGENCIES

- Bridgewater Town Manager
- Dayton Town Manager
- Mount Crawford Zoning Administrator
- Central Shenandoah Planning District Commission/HRMPO

6.6 ORGANIZATIONS AND INDIVIDUALS

- Shenandoah Valley Battlefields Foundation
- Civil War Preservation Trust
- Harrisonburg-Rockingham Historical Society
- Community Alliance for Preservation
- James Madison University
- Massanetta Springs Camp and Conference Center
- Harrisonburg-Rockingham Chamber of Commerce
- Bruce A. Wiggins, Ph.D., Professor, Department of Biology, James Madison University

COORDINATION AND COMMENTS

As described in Chapter 7 of the Draft EIS, in accordance with 40 CFR 1501.7, an early and open process was implemented for determining the scope of issues to be addressed in the study and for identifying the key issues and concerns related to the study. Throughout the study, the Virginia Department of Transportation (VDOT) has coordinated extensively with local, state, and federal agencies, and conducted an inclusive public involvement program. A Notice of Intent to Prepare an Environmental Impact Statement was published by the Federal Highway Administration (FHWA) in the Federal Register on May 7, 2004 (Vol. 69 No. 89 page 25655). Local, state, and federal agencies were contacted early in the study and asked to identify issues of concern and to provide information about environmental resources within the study area. The public was notified about the study and given opportunities to provide comments about transportation needs, potential alternatives, and environmental concerns. The agency and public comments received in response to these coordination efforts were instrumental in defining the scope of the Environmental Impact Statement (EIS). A Notice of Availability of the Draft EIS was published in the Federal Register on April 7, 2006 (Vol. 71 No. 67 page 17847; comment period expired May 26, 2006). Information about the study as well as documentation developed during the study has been available for review on the project web site (<http://www.virginiadot.org/projects/SEConnector.asp>).

7.1 AGENCY COORDINATION

Agency coordination included the following:

- State Environmental Review Process (Section 7.1.1 of Draft EIS).
- A formal agency scoping meeting (Section 7.1.2 of Draft EIS).
- Letters to agencies and organizations likely to have an interest in the study (Section 7.1.3 of Draft EIS).
- Three meetings with federal “partnering” agencies (Section 7.1.4 of Draft EIS).
- Coordination with the Metropolitan Planning Organization (Section 7.1.5 of Draft EIS).
- Other agency coordination during the course of the study as needed (Section 7.1.6 of Draft EIS).
- Distribution of the Draft EIS to agencies and individuals with jurisdiction, expertise, or interest in the issues involved in the study (as listed in Chapter 6).

7.2 PUBLIC INVOLVEMENT

Public involvement included the following:

- A public scoping meeting held July 22, 2004 (Section 7.2.1 of Draft EIS).
- A citizen information meeting held March 24, 2005 (Section 7.2.2 of Draft EIS).
- Input from several interest groups (Section 7.2.3 of Draft EIS).
- Availability of the Draft EIS for review and comment before, during, and after the Location Public Hearing.

7.3 LOCATION PUBLIC HEARING

7.3.1 Description of Hearing

A Location Public Hearing was held on May 11, 2006 from 4:00 p.m. to 7:00 p.m. at Spotswood High School located at 368 Blazer Drive in Penn Laird in Rockingham County. The purpose of the hearing was to provide citizens an opportunity to informally review and discuss with VDOT and FHWA representatives the results of the location study. Maps, drawings, the Draft EIS, and other reports and data pertaining to the study were available for review at the hearing. In compliance with Section 106 of the National Historic Preservation Act and 36 CFR Part 800, information concerning the potential effects on properties listed in or eligible for listing in the National Register of Historic Places was available at the hearing.

Citizens could drop in at any time during the hearing to discuss the study and their concerns. Attendees received informational brochures describing the location study, its purpose, and its findings. Attendees also received preprinted comment sheets designed to elicit input on key decisionmaking considerations, alternatives preferences, reasons for those preferences, suggestions for other alternatives, and any additional comments or concerns. Citizens were invited to provide their comments by any of several avenues:

- The preprinted comment sheets provided at the hearing, upon which citizens could write their comments and then either deposit the sheets in a box at the hearing or mail them later to the preprinted address on the sheet.
- Persons wishing to speak privately could record their comments at the oral recording station.
- Letters could be sent to the designated addresses at VDOT.
- E-mails could be sent to an address specifically established to receive electronic comments.

The attendance sign-in sheets show that at least 183 people attended the hearing. Some people did not sign the attendance sheets.

7.3.2 Summary of Comments

Comments were received from 143 individuals or groups either at the public hearing or during the comment period following the hearing. Some people submitted the same comments by more than one method. Many simply expressed support or opposition for one Candidate Build Alternative or another. It was clear from the comments that potential impacts to farmland and historic properties, particularly the Cross Keys Battlefield were the key concerns. As suggested by one commenter, oral comments taken during the public hearing on April 19, 2006 at Turner Ashby High School in Bridgewater for the I-81 Tier 1 Draft Environmental Impact Statement

also were reviewed for comments relating to the Harrisonburg Southeast Connector Location Study.

Among those who participated in the hearing and identified elements that should be considered in selecting an alternative or alternatives, many respondents placed avoidance of impacts to natural and human resources ahead of meeting travel needs, costs, and other factors. Of particular concern were potential impacts to the Cross Keys Battlefield and farmland remaining in the study area.

Among those who participated in the hearing, there is strong support for CBA 4 and the No-build Alternative. Many respondents who expressed a preference for CBA 4 or the No-build Alternative also expressed opposition to CBA 1. These positions typically are based on concerns about meeting more immediate needs closer to Harrisonburg and the proposed relocated hospital with available highway funds, selecting an alternative that was consistent with the Metropolitan Planning Organization’s financially constrained long-range transportation plan [some of the alternatives would require amendments to the plan and identification of substantial new funding to implement], avoiding impacts to Cross Keys Battlefield and other historic properties, avoiding impacts to farmland, and avoiding instigation of unwanted sprawl development.

Support for CBA 3 ranked third among the alternatives presented at the hearing. This alternative also encompasses CBA 4. Support for this alternative typically was based on many of the same reasons given for supporting CBA 4 and the fact that it provides a connection to I-81.

Support for CBA 1 ranked fourth among the alternatives presented at the hearing. While a number of individuals believed it would be needed in the long term, fewer thought it was warranted at present.

CBA 2 and CBA 2A received the least support from respondents. While some thought they would meet needs for the long term across the study area, others believed the impacts to farmland and homes could not be justified.

7.3.3 Substantive Public Comments

The following substantive¹ public comments were received:

1.	Comment: Build a 4-lane, limited access route from Mt. Crawford exit to somewhere near the Lawyer Road-US 33 intersection.
	Response: Such an alternative was considered early in the study, but was eliminated due to its impacts to the Cross Keys Battlefield, farmland, and other resources, along with engineering considerations with respect to the terrain that would be crossed.
2.	Comment: Add 5 th and 6 th lanes to US 33 from Harrisonburg to Massanutten exit.
	Response: Does not address purpose and need.
3.	Comment: Improvements to the intersections of Stone Spring Road with South Main Street and Pear Street with South High Street would enhance traffic flow with no new roads being built.
	Response: The mentioned improvements already are included in HRMPO’s constrained long range plan.

¹ A comment was considered “substantive” if it provided specific information or criticisms, or raised specific questions or issues not previously considered regarding study methodology, analysis, results, or conclusions.

4.	Comment: Widening Friedens Church Road would take south/east traffic out of the city.
	Response: CBA 1 Modified, part of the Preferred Alternative, would include widening of existing Friedens Church Road.
5.	Comment: Include on CBA 4 a road to connect Stone Spring Road with Erickson and improve Erickson.
	Response: The mentioned improvements already are part of HRMPO's constrained long-range plan, but are outside the study area for this study.
6.	Comment: Widen Port Republic Road, with turn lanes or medians, beyond Boyers Road.
	Response: Does not meet purpose and need.
7.	Comment: Widen Stone Spring Road (Route 726) from city limits to Route 253.
	Response: This option was considered during alternatives development, but was eliminated because of the advantages of realigning Stone Spring Road to connect with Route 253 near the Reservoir Street intersection.
8.	Comment: Build 4 lanes elevated above I-81 to reduce congestion.
	Response: Does not meet purpose and need.
9.	Comment: Post and enforce lower speed limits.
	Response: VDOT and FHWA do not enforce speed limits.
10.	Comment: Continue Stone Spring Road improvements all the way to US 33.
	Response: CBA 4, part of the Preferred Alternative, would connect a realignment of Stone Spring Road with Route 33.
11.	Comment: Why do the proposed alternatives have to be located so close to already highly populated areas?
	Response: Populated areas are where most of the travel demand is.
12.	Comment: More bike lanes, sidewalks, public transportation, and driving alternatives should be implemented.
	Response: The Preferred Alternative provides for bicycle and pedestrian travel. In the case of CBA 4, sidewalks and bike lanes would be provided. On CBA 1 Modified, bicyclists could use the proposed paved shoulder. Public transit could use the road facilities to be provided by the Preferred Alternative.
13.	Comment: All CBAs connect to US 33 too close to Harrisonburg. Connection to the bypass should be made further east to divert traffic around the city.
	Response: Traffic forecasts using the regional travel model showed greater usage of potential alignments connecting with Route 33 closer to Harrisonburg, where much of the development exists or is proposed. Alignments connecting to Route 33 farther from Harrisonburg were problematic due to impacts to the Cross Keys Battlefield.
14.	Comment: The new hospital will increase traffic around its new location. This needs to be taken into consideration when selecting and planning for the construction of the preferred alternative(s).
	Response: The new hospital and the traffic it would generate were taken into account in the traffic forecast modeling. CBA 4, part of the Preferred Alternative, would serve traffic generated by the hospital.
15.	Comment: There is a high volume of traffic associated with the landfill that is not addressed by current alternatives.

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	Response: The regional travel forecasting model incorporates traffic generated by the landfill.
16.	Comment: Traffic models do not account for rising fuel prices that lead to less traffic and less need for new roads.
	Response: Fuel prices are not among the variables used in traffic forecasting models. First, it is impossible to predict future fuel prices, and speculating on them would not contribute to informed decisionmaking. Further, fuel prices and motorist reactions to such prices have tended to change the types of vehicles that people drive more so than the amount of driving that they do. Finally, while changes in fuel prices may produce short-term changes in overall travel, such short-term changes tend to level out over the long-term.
17.	Comment: CBA 1 appears to be a repackaging of the HATS plan proposed by Sen. Kevin Miller a few years ago and was rejected. Why is it being proposed again?
	Response: The HATS plan alignment, which was almost entirely on new location, was eliminated from further consideration, as discussed in Chapter 2 of the Draft EIS. In contrast, CBA 1 mostly follows existing roads and has far less environmental impact than the HATS alignment would have. Notwithstanding, only part of CBA 1 (CBA 1 Modified) was incorporated in the Preferred Alternative.
18.	Comment: Future estimates of daily traffic between Elkton, Bridgewater/Mt. Crawford, and Harrisonburg are not taken into consideration in the DEIS.
	Response: All of the traffic movements mentioned in the comment were taken into account in the traffic forecast modeling.
19.	Comment: Earthwork in areas of shale could contaminate groundwater supplies.
	Response: Potential impacts to groundwater were discussed in Draft EIS Section 4.10.
20.	Comment: The study area is composed of highly erodable soils. Earthwork could also increase erosion and contaminate surface waters.
	Response: Erosion and sedimentation impacts and mitigation measures were discussed in Draft EIS Section 4.16.3.
21.	Comment: Many historic items included in the Harrisonburg Southeast Connector Study are not included here. These include: Massanetta Springs Historic District, Taylor Springs, Pleasant Valley Historic District, the Argubright Barn, the Freed Slaves Cemetery and Church, etc. These should also be included in the impact analysis.
	Response: All the historic properties mentioned except for the Freed Slaves Cemetery and Church were discussed in the Draft EIS. None would be affected by the Preferred Alternative. The Freed Slaves Cemetery and Church is not within the area of potential effects for any of the alternatives and therefore was not identified.
22.	Comment: A large Old Order Mennonite community in the project area uses bicycles for transportation and would be severely impacted by the construction of a limited access by-pass. Their faith, however, precludes them from participating in government decisions such as this. The transportation needs of this minority community should also be considered.
	Response: None of the alternatives considered constitute a limited access bypass and all had design provisions to accommodate bicyclists.
23.	Comment: The southeast connector project does not stand alone but is potentially the first phase of a circumferential road around Harrisonburg.
	Response: As described in the Draft EIS Purpose and Need chapter, the Harrisonburg Southeast Connector Location Study addresses transportation needs across the study area between U.S. Route 11 and U.S. Route 33. The proposed project has logical termini, independent utility, represents a usable facility and a reasonable expenditure even if no

	<p>additional transportation improvements in the area are made, and does not restrict consideration of alternatives for any other reasonably foreseeable transportation improvements.</p>
24.	<p>Comment: Though VDOT intends the Southeast Connector DEIS and the I-81 DEIS to address different transportation needs, the projects that may result from these studies affect the same area of Rockingham County and raise similar concerns about various environmental issues. Therefore, we request that any comments on the I-81 DEIS that refer in any way to a loop road, beltway, bypass, connector, or similar term be considered as comments for the Southeast Connector DEIS.</p> <p>Response: Comments received on the I-81 DEIS have been reviewed for any comments relative to the Harrisonburg Southeast Connector Location Study and have been addressed as appropriate.</p>
25.	<p>Comment: A review of transcripts from the July 2000 public meetings shows a handful of supporters for this project [the so-called loop road around Harrisonburg] and literally hundreds opposed.</p> <p>Response: The referenced public meetings were held at the beginning of a different prior study for a different project that was subsequently terminated. However, the transcripts of those meetings were reviewed for any information relevant to the present study.</p>
26.	<p>Comment: The transportation section of the County's comprehensive plan is an unreliable reference since it was endorsed by the Board of Supervisors under the false impression that local funding could be at risk.</p> <p>Response: The Comprehensive Plan is an official local government document, the transportation section of the plan was but one of several references reviewed during the development of alternatives for insight into possible alignment options.</p>
27.	<p>Comment: Numerous references are made in the DEIS to the Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO) Vision Plan that does not prioritize potential projects. Using the Vision Plan to bolster the standing of any alternatives of the Southeast Connector DEIS would be a flagrant misrepresentation of the Vision Plan.</p> <p>Response: According to HRMPO, "The Vision Plan is the list of transportation improvements that are needed to address regional deficiencies as identified by the MPO members, the public, and other parties (such as universities, goods movement interests, and transit-dependent populations)." As such, it reflects the collective community wisdom regarding the types and locations of projects needed throughout the region, regardless of the ability to fund those projects with available monies. The Vision Plan was developed through an extended study process involving technical studies, testing of alternatives, local government input, and solicitation of public opinion through a series of public meetings. As HRMPO is the organization responsible for identifying and prioritizing transportation improvements throughout the region, and as the <i>2030 Transportation Plan</i> (of which the Vision Plan is an element) developed by that organization is the chief blueprint for transportation development in the region, it is valid to note whether any alternative or portion of an alternative in the current study is consistent with elements of the Vision Plan.</p>
28.	<p>Comment: The definition of east-west mobility in the purpose and need is flawed; what folks really want is to be able to travel through the City of Harrisonburg across I-81 more easily.</p> <p>Response: Section 1.2 of the Draft EIS notes that this study had its origins in a perceived need on the part of local officials and legislators for a connector road across the study area between I-81 and U.S. Route 33. The purpose and need was part of the discussion at the Public Scoping Meeting held in July 2004, at which the east-west mobility concept was presented substantially as presented in the Draft EIS. While some may indeed desire to travel across I-81 more easily, as suggested by the commenter, that is a different purpose and need than that of the current study.</p>

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29.	<p>Comment: Maps of CBA 1 show a curious attempt to shoehorn a major road project into a historic site. The map shows four lanes narrowing to two lanes and back to 4 lanes again. The four-lane sections at the west and east ends of CBA 1 do not address east-west mobility needs through the city.</p> <p>Response: There was no attempt to “shoehorn a major road” into a historic site [it is assumed that the commenter is referring to the Cross Keys Battlefield]. Rather, the study team was cognizant of the sensitivity of the Battlefield, which is why: 1) All alternatives on any location other than along existing Route 276 that would impact the Battlefield were eliminated from further consideration; and, 2) The section of CBA 1 through the Battlefield was constrained to the existing VDOT right of way in order to avoid the use of any Battlefield lands outside VDOT’s right of way, thus minimizing impacts to the Battlefield. East-west mobility needs through the city were not part of the purpose and need for the project. Notwithstanding, CBA 1 is not the Preferred Alternative. Therefore, there would be no road construction on Route 276 through the Battlefield.</p>
30.	<p>Comment: The DEIS implies on p.4-39, that the center sections of CBA 1 would not impact the Battlefield: “Although the visual character of Cross Keys Road would be altered by the addition of shoulder...there would be no adverse effect on the Battlefield”. The DEIS treats this issue as though there is no difference between a rural two-lane road and what would essentially be four-lanes of pavement.</p> <p>Response: The quoted statement acknowledges the change in visual character associated with the addition of paved shoulders, but concludes that the change would not amount to an “adverse effect” (in the Section 106, National Historic Preservation Act, context of that term) on the Battlefield. Since the portion of CBA 1 through the battlefield is not part of the Preferred Alternative, there will be no road modifications and no associated visual impacts within the Battlefield.</p>
31.	<p>Comment: The DEIS proposes to reclassify sections of Route 682 as a primary highway. It is inconsistent with preservation goals to designate a primary highway to dead end into a battlefield. One can’t just pretend that there will be no additional development pressure as a significant amount of additional traffic is funneled past this historic landmark.</p> <p>Response: Under the Preferred Alternative, Route 682 will remain a secondary road.</p>
32.	<p>Comment: CBA 1 is not compatible with the goals of Rockingham County’s Comprehensive Plan. Specifically:</p> <ul style="list-style-type: none"> a) P. 2-14. The County will refrain from constructing new roads and major improvements to existing roads that would significantly adversely impact the battlefields. b) P. 2-75. Strategy 12.1.4, “Encourage VDOT and land developers to design new roads and road improvements so as to preserve significant historic features, structures, and sites...” c) P. 2-76. Strategy 12.2.1, “continue to plan and zone the battlefield area for agricultural use.” d) P. 2-76. Strategy 12.2.3, “Refrain from constructing new roads and major improvements to existing roads that would significantly adversely impact the battlefields.” e) P. 2-81. Strategy 3.1.9, “Encourage the continued formation of Agricultural and Forestal Districts.” <p>Response: The Preferred Alternative would not adversely affect the Battlefield; in fact, it would not impact the Battlefield at all. The Preferred Alternative will not use any land from any significant historic site and will not destroy any significant historic features or structures. The Preferred Alternative has no effect on the county’s continuing to plan and zone the Battlefield area for agricultural use. The Preferred Alternative has no effect on the continued formation of Agricultural and Forestal Districts by landowners and the county.</p>

33.	<p>Comment: CBA 2 and 2A do not meet the east-west mobility needs through the city and instead bisect a large swath of prime farmland in Rockingham County's Agricultural Reserve.</p> <p>Response: East-west mobility through the city is not part of the project purpose and need. The impacts of CBA 2 and 2A on farmland were documented in the Draft EIS. Neither of these are the Preferred Alternative.</p>
34.	<p>Comment: According to Rockingham County's Comprehensive Plan pages 2-11 to 2-12, "Rockingham County considers agriculture both an essential way of life and a significant sector in its economy. One of the primary goals of the Comprehensive Plan is to preserve the agricultural industry and economy. The Agricultural Reserve is planned for agricultural uses and uses to support agriculture as a viable way of life and economic enterprise.</p> <p>"Infrastructure. The Agricultural Reserve is designated not only to support the agricultural economy, but also to retain the rural character and scenic beauty of Rockingham County that so many citizens value and which is also a primary goal of the Comprehensive Plan...In order to maintain a rural environment, infrastructure such as roads and utilities, should remain rural in character, function and intensity. Thus...roads should be designed, built and expanded only in concert with the policies of the Comprehensive Plan, so as to limit impacts on the Agricultural Reserve area."</p> <p>CBA 2 and 2A are not "rural in character, function and intensity". Farmland divided by a road will be converted to developed uses when the remaining tracts are too small to farm or inaccessible from the remaining farm. Thus a road project through the Agricultural Reserve will affect significantly more farmland than that actually paved over.</p> <p>Response: The impacts of CBA 2 and 2A on farmland were documented in the Draft EIS, as was the fact that all of the area traversed by these alternatives was designated for future development in the county's Comprehensive Plan in effect at the time of DEIS preparation. Even with the recent revisions to the Comprehensive Plan, both alternatives still are within the urban growth boundary as depicted on the Conceptual Land Use Plan - 2050. Neither CBA 2 nor 2A are the Preferred Alternative.</p>
35.	<p>Comment: The statement on page 4-44 of the DEIS that "None of the alternatives would be a substantial causal factor in ongoing conversions of farmland to other uses in the study area," is backed up by neither data nor common sense.</p> <p>Response: Section 4.17, Indirect Effects, discusses at length the expected causal factors of development in the study area, namely, the county's designation of most of the study area for future development in the comprehensive plan, the county's plans to extend water and sewer services throughout the study area, the attractiveness of land in the study area for development due to its proximity to Harrisonburg, economic conditions, and other factors. While transportation can be one factor in individual landowners' decisions to develop or not, other factors generally play larger overall roles. Now, with the changes the county has made to its comprehensive plan, reducing the extent of the designated development area and drawing the urban growth boundary closer to the city, the transportation argument may carry more weight. However, the Preferred Alternative consists of a combination of CBA 4, which remains squarely within the designated urban area, and CBA 1 Modified, which consists of a reduced version of a two-lane upgrade of an existing road along with a short four-lane section near the I-81 interchange. Thus CBA 4 is in an area where development already is planned and expected, and in fact already is occurring at a rapid pace in the absence of the new road. CBA 1 Modified follows an existing road (except for one short section to straighten a sharp turn), along which much of the land is designated by the county as "agricultural reserve." A change in use of lands so designated requires specific action by the county Board of Supervisors. Thus conversions of farmland to other uses in the vicinity of the Preferred Alternative are fully within the control of local government and landowners and cannot be substantially attributed to the Preferred Alternative.</p>
36.	<p>Comment: Both CBA 2 and 2A terminate at US 11 at the intersection of Route 704 or Oakwood. Currently, Oakwood skirts farming and residential areas before terminating at Route 42 in</p>

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	<p>Bridgewater. These alternatives would encourage increased traffic outside the study area where Oakwood crosses Cooks Creek at the one-lane bridge in a low-lying area subject to fog. A major traffic safety issue will be set up by the incompatible connection of Oakwood with CBA 2 or 2A.</p> <p>Response: Neither CBA 2 nor 2A are the Preferred Alternative.</p>
37.	<p>Comment: The alignment of CBA 3 makes it amenable to use as part of an additional I-81 corridor, it has significantly greater potential to spark incompatible development pressures in and near the Civil War Battlefields, agricultural/forestral districts, and areas that Rockingham County has not designated for development. Yet the DEIS does not account for this induced development. In addition, this option does not address east-west mobility through Harrisonburg.</p> <p>Response: CBA 3 is not near the Cross Keys Battlefield, nor is it near any agricultural/forestral districts or areas that Rockingham County has not designated for development. Hence, there is no basis on which to expect induced development in such areas due to CBA 3. East-west mobility through Harrisonburg was not part of the project purpose and need. Notwithstanding, CBA 3 is not the Preferred Alternative.</p>
38.	<p>Comment: Rockingham County's Comprehensive Plan, p.2-17 Strategy 1.5.4, "encourage[s] compact and efficient land and road development patterns..." CBA 4 is the option closest to Harrisonburg and existing development and traffic destinations such as the retail area near the mall and the future hospital location.</p> <p>CBA 4 is the only option that would meet local east/west traffic needs by creating a Stone Spring extension to make it easier to drive east or west across Harrisonburg. CBA 4 also is the shortest, cheapest, and least disruptive option for farms, residences, and businesses. And it is the only option consistent with the local Metropolitan Planning Organization (MPO) long-range transportation plan, which makes it the only alternative eligible for federal funding.</p> <p>Response: Some of the items mentioned by the commenter form the basis for CBA 4 being part of the Preferred Alternative. CBA 1 Modified is also now part of the MPO's long-range plan.</p>
39.	<p>Comment: The Cumulative Impacts section entitled "VDOT Projects" does not mention I-81 even though there is an ongoing DEIS process for this major transportation facility which has significant potential effects on the Southeast Connector Study Area.</p> <p>Response: The projects listed in the referenced section are all included in HRMPO's financially constrained Long-range Transportation Plan and/or VDOT's Six-year Improvement Program for construction and are therefore "reasonably foreseeable." At this time, there is no reasonably foreseeable project near Harrisonburg arising out of the I-81 study that can be analyzed as part of the cumulative effects assessment. The Tier I EIS for I-81 was a Tier 1 Draft EIS, which looked at the entire I-81 corridor through Virginia at a conceptual level and did not address specific projects. While the Tier 1 Final EIS indicates that 1 or 2 additional lanes (depending on the section) in each direction are needed through the Harrisonburg area, there is insufficient project specificity, nor is there any construction funding identified for the advancement of such projects, to warrant inclusion in the cumulative effects assessment.</p>

7.4 AGENCY COMMENTS

Comments from agencies on the Draft EIS are listed below, along with a response to each comment. Copies of the correspondence are included at the end of this chapter so the reader can refer to the original text if desired.

Date	Agency Comments and Responses
4/28/06	Virginia Marine Resources Commission, letter to Earl Robb of VDOT
1.	<p>Comment: At this time, VMRC is not exerting jurisdiction over the Harrisonburg Southeast Connector Location Study.</p> <p>Response: No response needed.</p>

5/09/06 Virginia Department of Historic Resources, letter to Earl Robb of VDOT

1. **Comment:** The Shenandoah Valley Battlefields National Historic District boundaries are not specified on Figure 4-31 or elsewhere in the Draft EIS. The map should be annotated and effects on the District acknowledged.

Response: A map has been added as requested. The Preferred Alternative will have no effect on the District.

2. **Comment:** The Virginia Outdoors Foundation (which holds easements within the battlefield) and the National Park Service National Heritage Program should be granted consulting party status.

Response: Because the Preferred Alternative will have no effect on the Cross Keys Battlefield, and no effect on the Shenandoah Battlefields National Historic District, there is now no need to invite the mentioned agencies as consulting parties under Section 106.

3. **Comment:** CBA 4 has the least potential impact to significant historic properties and should be adopted as the preferred alternative. CBA 1 has the greatest impact to significant historic properties and should not be selected.

Response: The Preferred Alternative is a combination of CBA 4 and a portion of CBA 1, CBA 1 Modified, which will not directly impact historic properties.

5/17/06 Virginia Department of Game and Inland Fisheries, email to Chris Collins of VDOT

1. **Comment:** The state-listed threatened loggerhead shrike has been documented in the project vicinity; a habitat assessment should be performed for this species throughout the project site. If appropriate habitat is found, a qualified biologist should conduct surveys to determine presence/absence of nesting shrikes. If shrikes are observed, initial land disturbance/clearing should be restricted from April 1 through July 31.

Response: VDOT and VDGIF staff biologists conducted an assessment of potential loggerhead shrike breeding habitat for the Preferred Alternative and identified areas of suitable habitat, as discussed in Chapter 4 of this document (Section 4.14).

2. **Comment:** In-stream activities should: be conducted during low or no-flow conditions, using non-erodible cofferdams to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures. Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, stream crossings constructed via clear-span bridges are preferred. However, if this is not possible, countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms is recommended. Installation of floodplain culverts to carry bankfull discharges is also recommended.

Response: All of the above will be implemented if identified as appropriate during the design and water quality permitting process.

3. **Comment:** Impacts to undisturbed forest, wetlands, and streams should be avoided and minimized to the fullest extent possible.

Response: Comment noted.

4. **Comment 4:** Stormwater controls should be designed to replicate and maintain the hydrographic conditions of the site prior to the change in the landscape.

Response: Stormwater management measures will be designed and incorporated into the project in accordance with applicable requirements.

5/22/06 U.S. Department of Defense, Department of the Army, Corps of Engineers, Norfolk District, letter to Roberto Fonseca-Martinez of FHWA

1. **Comment:** Based on the least overall impacts to streams and wetlands, CBA 4 should be adopted as the preferred alternative.

Response: The Preferred Alternative includes CBA 4.

2. **Comment:** If another CBA is selected, the Final EIS should document any factors that serve as a basis for determining that CBA 4 is not practicable.

Response: The Preferred Alternative includes a combination of CBA 4 and CBA 1 Modified, the basis for which is documented in the Summary and Chapter 2 of this Final EIS.

3. **Comment 3:** In addition to the combinations of alternatives listed on page 2-19, ALL potential combinations should be discussed every time the individual alternatives are discussed.

Response: Addressing every possible combination of the alternatives in every topic area would make the discussion unwieldy and the document unnecessarily cumbersome.

4. **Comment:** Bridges are preferred over pipes, culverts, fill, and other structures. Channel relocations should be avoided through alignment shifts, bridging, reducing the width of the median, or other means. For unavoidable channel relocations, natural stream design based on a representative reference reach should be used. All box culverts and pipes should be countersunk, including temporary pipes placed during construction (which is not mentioned as a minimization measure on page 4-40). The Final EIS should address each of these avoidance and minimization measures and whether they are feasible at proposed channel relocation sites.

Response: During project design, each of the noted avoidance and minimization measures will be implemented where feasible and practicable. At this stage of project development, there is insufficient design information to make definitive determinations of the exact locations and extent of channel relocations.

5. **Comment 5:** The Final EIS should assess not only the visual impact on the Battlefield of a wider road and shoulder for CBA 1, but the visual and noise effects of increasing the number of vehicles of the road.

Response: CBA 1 is not the Preferred Alternative. Hence, there will no physical changes to the roadway geometry through the Battlefield, and therefore no visual impacts that could result from such changes. Under the Preferred Alternative, the forecasted year 2030 average daily traffic volumes on sections of Route 276 through the Battlefield are estimated to be approximately 3% to 5% less than the volumes under the No-build Alternative. Hence, no visual impacts due to traffic volume changes through the Battlefield are expected either. Noise effects of vehicles on the road are included in the noise analysis as presented in the Draft EIS.

6. **Comment:** The Draft EIS does not give information on what the traffic on Route 276 would be like if another alternative is selected (e.g., would another alternative increase traffic on Route 276, thus impacting the Cross Keys Battlefield?).

Response: A traffic review of CBA 1 Modified compared to CBA 1 showed little or no difference in forecasted volumes along Route 276 through the Cross Keys Battlefield. Implementation of CBA 4 as part of the Preferred Alternative would not increase traffic flows through the Battlefield. None of the other alternatives are part of the Preferred Alternative.

7. **Comment:** The Corps authorizes FHWA as the lead federal agency on the project and to conduct Section 106 coordination on its behalf.

Response: Comment noted.

8. **Comment:** The text associated with Table 4-11 states that wetland “types” are listed in the table but they are not. Types should either be added to the table or the text should be removed.

Response: Text removed.

9. **Comment:** Specify units in Table 4-16.

Response: Missing units are as follows: Land used for highway right of way, acres; Potential hazardous material sites, number of sites.

10. **Comment:** A question on the Preliminary EIS has not yet been addressed: In section 2.7.1, in the traffic analysis, it is stated that for over-capacity conditions VDOT/FHWA used a 1.0 multiplier and for under-capacity conditions, the factor was 0.1. For near-capacity, VDOT used a factor of 0.7. Why did VDOT/FHWA not use and even split between 1.0 and 0.1 for the near capacity factor (i.e., 0.5, 0.55, or 0.6)? These factors affect the data in Table 2-5.

Response: The weighting factors were estimated based on the range of volume to capacity ratios included in each condition (under, near, and over-capacity) as well as analyses of congestion (as determined by Highway Capacity Manual level of service definitions) versus volume to capacity ratios. Mirroring the relationship between traffic volumes and congestion, the factors highlight the fact that an additional vehicle on an under-capacity roadway has a much smaller effect on roadway congestion than it would on an over-capacity roadway, and that the effect of an additional vehicle on a near-capacity roadway is closer to that which would be experienced on an over-capacity roadway than an under-capacity roadway. The factored changes in vehicle-miles then were summed for all roadway segments in the study area, resulting in a net factored change in vehicle-miles across the study area. This methodology, using best professional engineering judgment, allows for the effects of congestion to be accounted for in an overall weighting of expected shifts in traffic within the study area.

5/24/06 United States Environmental Protection Agency, Region III, letter to John Simkins of FHWA

1. **Comment:** The Final EIS should address the issues of location-specific induced development and induced growth outside of the study area and describe conditions or practices that would mitigate these issues. Specifically, CBA 1 lies outside of the current boundary of the county’s urban growth boundary and may induce development in these areas.

Response: Section 4.17, Indirect Effects, of the Draft EIS discusses at length the expected causal factors of development in the study area, namely, the county’s designation of most of the study area for future development in the comprehensive plan, the county’s plans to extend water and sewer services throughout the study area, the attractiveness of land in the study area for development due to its proximity to Harrisonburg, economic conditions, and other factors. While transportation can be one factor in individual landowners’ decisions to develop or not, other factors generally play larger overall roles. Now, with the changes the county has made to its comprehensive plan, reducing the extent of the designated development area and drawing the urban growth boundary closer to the city, the transportation argument may carry more weight. However, the Preferred Alternative consists of a combination of CBA 4, which remains squarely within the designated urban area, and CBA 1 Modified, which consists of a reduced version of a two-lane upgrade of an existing road along with a short four-lane section near the I-81 interchange. Thus CBA 4 is in an area where development already is planned and expected, and in fact already is occurring at a rapid pace in the absence of the new road. CBA 1 Modified follows an existing road (except for one short section to straighten a sharp turn), along which much of the land is designated by the county as “agricultural reserve.” A change in use of lands so designated requires specific action by the county Board of Supervisors. Thus conversions of farmland to other uses in the vicinity of the Preferred Alternative, as well as outside the study area, are fully within the control of local government and landowners and cannot be substantially attributed to the Preferred Alternative.

Coordination and Comments

2. **Comment:** Only VDOT projects are listed in the Cumulative Effects Analysis. The Final EIS should contain a more comprehensive listing and discussion of all reasonably foreseeable projects, public and private, in the study area.

Response: Section 4.18.1 of the Draft EIS lists identifiable private projects in the study area. Section 4.18.2 of the Draft EIS lists identifiable city and county projects in the study area. The discussion of cumulative effects in Section 4.18.4 of the Draft EIS encompasses all identifiable reasonably foreseeable public and private projects in the study area.

3. **Comment:** The Final EIS should address the impacts to the Battlefield's integrity and interpretability from increased traffic, particularly in light of the proposal to close existing roads in the Manassas National Battlefield Park due to traffic impacts. The Final EIS should also include specific measures to mitigate the impact of increased traffic.

Response: CBA 1 through the Battlefield is not the Preferred Alternative. Under the Preferred Alternative, the forecasted year 2030 average daily traffic volumes on sections of Route 276 through the Battlefield are estimated to be approximately 3% to 5% less than the volumes under the No-build Alternative. Hence, there are no anticipated impacts to the Battlefield's integrity or interpretability from traffic attributable to the project. Accordingly, there also is no need for specific measures to mitigate such impacts.

4. **Comment:** CBA 1 may have more effects, adverse or otherwise, on historic structures than other CBAs. A final determination by the State Historic Preservation Officer to this effect should be included in the Final EIS and made prior to the selection of a preferred alternative.

Response: Coordination with the State Historic Preservation Officer for identification and evaluation of historic properties and effects on them has been ongoing throughout the study. The Preferred Alternative will have no adverse effect on historic properties.

5. **Comment:** The Final EIS should provide a more robust description of the Massanetta Springs Historic District, commensurate with that provided for the Cross Keys Battlefield.

Response: This historic district will not be affected by any alternative, including the Preferred Alternative. Detailed information about the Massanetta Springs Camp and Conference Center is available at its website: <http://www.massanettasprings.org>.

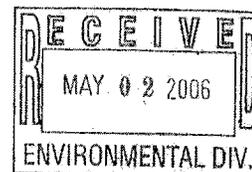
5/26/06 Virginia Department of Conservation and Recreation, letter to Earl Robb of VDOT

1. **Comment:** No State Natural Area Preserves under DCR's jurisdiction are in the project area. According to DCR records, no State Threatened or Endangered Species will be impacted by the project. As records are continually updated, contact DCR for an update if a significant amount of time passes.

Response: Comment noted.

2. **Comment:** If any karst features (caves, open fissure, sinkholes) are encountered during construction, please notify the Department's Karst Protection Coordinator.

Response: The requested notification will be made as appropriate.



COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Marine Resources Commission

2600 Washington Avenue
Third Floor
Newport News, Virginia 23607

William A. Pruitt
Commissioner

April 28, 2006

Mr. Earl T. Robb
Environmental Administrator
Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219

**Re: Harrisonburg Southeast
Connector Locations Study**

Dear Mr. Robb:

This is in reference to your Draft Environmental Impact Statement dated March 22, 2006 requesting comment regarding the Harrisonburg Southeast Connector Locations Study in Rockingham County and City of Harrisonburg, Virginia.

Please be advised that the Marine Resources Commission, pursuant to Section 28.2-1204 of the Code of Virginia, has jurisdiction over any encroachments in, on, or over any State-owned rivers, streams, or creeks in the Commonwealth. Accordingly, if any portion of the subject project involves any encroachments channelward of ordinary high water along natural rivers and streams, a permit may be required from our agency.

The Virginia Marine Resources Commission does not typically exert its jurisdiction over projects impacting non-tidal streams with a drainage area of less than five square miles, or an average stream flow of less than five cubic feet per second. At this time we are not exerting jurisdiction over the Harrisonburg Southeast Connector Locations Study.

An Agency of the Natural Resources Secretariat

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD

Mr. Robb
April 28, 2006
Page 2

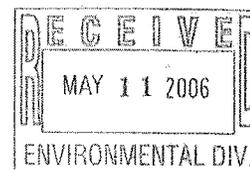
Should you have any questions regarding this matter, please feel free to call me at
(747) 247-8027.

Sincerely,



Elizabeth Gallup
Environmental Engineer

EG/lcm
HM



COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.virginia.gov

May 9, 2006

Mr. Earl T. Robb
Virginia Department of Transportation
1401 East Broad Street
Richmond, Virginia 23219-2000

Re: Draft Environmental Impact Statement (DEIS) Harrisonburg Southeast Connector
Rockingham County
VDOT Project # R000-082-101, PE101; PPMS 55638
DHR File # 2004-0188

Dear Mr. Robb:

We have received your request for our review and comment on the Draft Environmental Impact Statement (DEIS) for the Harrisonburg Southeast Connector located in Rockingham County. The DEIS identifies five Candidate Build Alternatives (CBAs) and the No Build Alternative. During the identification process, the Virginia Department of Transportation (VDOT), in consultation with the Department of Historic Resources (DHR), determined that within the project study area there are two historic properties currently listed in the National Register of Historic Places (Massanetta Springs Historic District and Kyle's Mill House), thirteen resources eligible for listing in the National Register (including the Cross Keys Battlefield), and three properties although not individually eligible for listing do contribute to the Cross Keys Battlefield.

In addition to the historic resources listed above, Congress has designated the Shenandoah Valley Battlefields National Historic District a National Heritage Area. Congress has established only 27 National Heritage Areas around the country in which conservation, interpretation, and other activities are managed by partnerships among federal, state, and local governments and the private sector. The National Park Service provides technical assistance as well as financial assistance to the National Heritage Areas. The DEIS states that the Cross Keys Battlefield is the only feature of the National Heritage Area that is located within the study area (page 3-9).

Administrative Services
10 Courthouse Avenue
Petersburg, VA 23803
Tel: (804) 863-1624
Fax: (804) 862-6196

Capital Region Office
2801 Kensington Ave.
Richmond, VA 23221
Tel: (804) 367-2323
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Tidewater Region Office
14415 Old Courthouse Way, 2nd Floor
Newport News, VA 23608
Tel: (757) 886-2807
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Roanoke Region Office
1030 Penmar Ave., SE
Roanoke, VA 24013
Tel: (540) 857-7585
Fax: (540) 857-7588

Winchester Region Office
107 N. Kent Street, Suite 203
Winchester, VA 22601
Tel: (540) 722-3427
Fax: (540) 722-7535

Page 2
May 9, 2006
Mr. Earl T. Robb

However, the Shenandoah Valley Battlefields National Historic District boundaries are not specified on Figure 4-31 or elsewhere in the report, and the effects on the District should be acknowledged. We recommend annotating on the mapping of future DEIS documents the boundary of the Shenandoah Valley Battlefields National Historic District. In addition the DEIS does not mention that the Shenandoah Valley Battlefields Foundation (SVBF) and the Virginia Outdoors Foundation (VOF) hold preservation easements on the Cross Keys Battlefield. As such, we believe that these organizations, in addition to the National Park Service National Heritage Program and the Civil War Preservation Trust, should be granted consulting party status.

With regard to the proposed corridor alternatives, of the five CBAs considered in the DEIS, we believe that CBA 4 has the least potential to affect significant historic properties. There is only one identified NR-eligible property, the Argubright Barn, located within this study corridor. Further, it does not appear that CBA 4 will directly impact the Argubright Barn. By contrast, CBA 1 appears to have the greatest potential to directly and indirectly affect significant historic properties. There are ten identified historic properties within the CBA 1 study corridor including the Kyle's Mill House, an individually listed resource in the National Register. Additionally, CBA 1 traverses the Cross Keys Battlefield and will likely substantially impact this important historic landscape. Heritage tourism is vitally important to the economy of the communities along the I-81 corridor. For these reasons we urge VDOT to adopt CBA 4 as its preferred alternative.

If you have any questions regarding our comments, please contact me at (804) 367-2323, Ext. 114.

Sincerely,



Marc Holma, Architectural Historian
Office of Review and Compliance

Cc: Ms Kitty Houston, VDOT
Mr. Christopher Collins, VDOT
Mr. Jim Lighthizer, Civil War Preservation Trust
Mr. Howard Kittell, Shenandoah Valley Battlefields Foundation
Mr. Bob Lee, Virginia Outdoors Foundation

From: [ProjectReview.Richmond_PO.DGIF@gif.virginia.gov]
VIRGINIA DEPARTMENT OF GAME AND INLAND FISHERIES
Sent: Wednesday, May 17, 2006 10:56 AM
To: Collins, C. G. 'Chris'
Subject: ESSLog# 22260_Harrisonburg Southeast Connector Location Study

Chris,

We have reviewed the location study for the subject project and offer the following comments and recommendations.

According to our records, ST loggerhead shrike has been documented in the vicinity of the project. This species is known to inhabit open country with scattered trees and shrubs. Typical breeding habitat includes closely grazed pastures with fencerows of shrubs and trees. Red cedars and hawthornes are often used as nest trees. We often find this species to inhabit agricultural areas. It appears that this type of habitat is found in and around the project site. Therefore, we recommend that a habitat assessment be performed for this species throughout this project site. If appropriate habitat is found, we recommend that a qualified biologist conduct surveys to determine the presence or absence of nesting shrikes. If shrikes are observed, we recommend that all initial land disturbance/vegetation clearing activities follow a time of year restriction of April 1 through July 31 of any year. We recommend the following survey protocol:

The surveys should be conducted between April 1 and July 31. At least 2 (preferably 3) surveys should be conducted at least 4 days apart. Weather conditions should be dry with a wind of less than 10 mph. Surveys should be completed between dawn and 10 am. The entire impact area that contains suitable nesting habitat for the species should be surveyed. During the surveys, the biologist should traverse the entire area slowly on foot, investigating potential sightings or vocalizations of loggerhead shrikes where detected. All conspicuous places (utility lines, fence wires, outer branches of shrubs and saplings) should be checked for perched shrikes. A large site may best be covered by walking a series of parallel lines located approximately 220 feet apart. The biologist should stop periodically (every 5 minutes or so) to listen and watch for shrikes for 5 minutes before resuming walking. All potential nesting trees and shrubs should be inspected. The location of any shrikes encountered should be recorded on a map of the area. Please forward survey results to Amy Martin, Environmental Services Biologist, at 4010 West Broad Street, Richmond, VA 23230.

As mentioned in your study report, it is possible that other listed species, such as Madison Cave isopod, Indiana bat, Virginia big-eared bat, brook floater and upland sandpiper may inhabit areas within the study area, but we do not currently document this species in the study area. Assuming VDOT agrees upon any recommendations (i.e. time of year restriction) we may recommend regarding impacts upon ST loggerhead shrike, we do not anticipate significant adverse impacts upon listed wildlife resources under our jurisdiction as a result of this project.

We prefer transportation project alternatives that utilize existing roadways, utility easements, and currently disturbed areas as much as possible to reduce wildlife and natural resource impacts. According to the information provided, the alternatives appear to be very similar with respect to impacts upon the environment.

We recommend conducting any in-stream activities during low or no-flow conditions, using non-erodible cofferdams to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures. Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, we prefer stream crossings to be constructed via clear-span bridges. However, if this is not possible, we recommend countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms. We also recommend the installation of floodplain culverts to carry bankfull discharges.

We recommend that the applicant avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable. Avoidance and minimization of impact may include relocating stream channels as opposed to filling or channelizing as well as using, and incorporating into the development plan, a natural stream channel design and wooded buffers. We recommend maintaining undisturbed wooded buffers of at least 100 feet in width around all on-site wetlands and on both sides of all perennial and intermittent streams. We recommend maintaining wooded lots to the fullest extent possible. We generally do not support proposals to mitigate wetland impacts through the construction of stormwater management ponds, nor do we support the creation of in-stream stormwater management ponds. We are willing to assist the applicant in developing a plan that includes open-space, wildlife habitat, and natural stream channels which retain their wooded buffers.

We recommend that the stormwater controls for this project be designed to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales. Bioretention areas (also called rain gardens) and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes.

We will make specific recommendations regarding ways to reduce impacts upon wildlife and other natural resources once an alternative has been chosen and there are specific plans to review.

Amy Martin
amy.martin@dgif.virginia.gov
Virginia Department of Game and Inland Fisheries

05/26/2006 13:21 FAX 8047753356

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002/009



DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

May 22, 2006

Eastern Virginia Regulatory Section
03-6812-15

Mr. Roberto Fonseca-Martinez
Division Administrator
Federal Highway Administration
Post Office Box 10249
400 N. 8th Street, Room 750
Richmond, Virginia 23240

Dear Mr. Fonseca-Martinez:

This letter provides the comments of the Norfolk District Corps of Engineers on the Draft Environmental Impact Statement (DEIS) prepared for the Harrisonburg Southeast Connector Location Study in Virginia (R000-082-101, PE101). The Federal Highway Administration (FHWA) and the Virginia Department of Transportation (VDOT) are preparing the EIS, and the Corps of Engineers is a cooperating agency. We provided comments on the preliminary DEIS in emails to your consultants in November 2005 and January 2006.

Our primary concern in considering the effects of the project is the potential for impacts to waters of the United States, including streams and wetlands. Generally speaking, the impacts of the proposed alternatives to wetlands are not substantial, with projected impacts of less than one acre for each of the alternatives based on the design footprint width (240 feet). However, Alternative 1 will not impact wetlands, and Alternative 4 will impact less than a tenth of an acre, whereas Alternative 3 will impact 0.84 acres, and Alternatives 2 and 2A will each impact about one-half acre. Alternative 1 will have greater stream impacts (2,516 linear feet) than Alternative 2 (1,655 linear feet) or 2A (2,215 linear feet). Alternative 4 will have impact substantially less stream impacts than the others at 980 linear feet, and Alternative 3 substantially more at 4,646 linear feet.

Based on the above, Alternative 4 appears to be the environmentally preferable alternative. Its project cost is also substantially less than the others. We recognize that the reason it costs less and has less impact to aquatic resources is that it is only half the length of the other alternatives, but presumably it addresses the stated Purpose and Need since it was carried forward into the DEIS. If an alternative with greater impacts is selected, the Final EA should document any factors that serve as a basis for determining that Alternative 4 is not practicable.

The document states on page 2-19 that, "theoretically, all five alternatives could be implemented." It goes on to evaluate various combination alternatives (1+4, 2+4, 1+2+4, and 1+3). In any study, all of the alternatives could theoretically be added together, but there would have to be sufficient justification in terms of benefits related to the purpose and need versus financial costs and impacts to resources. If the project proponents are seriously considering combining alternatives, then all the potential combinations should have been discussed every time the individual

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alternatives were discussed. For example, Table S-3, which summarizes the impacts of the alternatives, should have included all of the combination alternatives so that the reader could readily see the comparative effects. If any combination alternative is selected, the Final EA should document why an individual alternative is not sufficient to meet the purpose and need. If a combination of alternatives is selected, we recommend that the combination include Alternative 4, since it has the least impact to aquatic resources, and not include Alternative 3, since it has the most impact to aquatic resources.

Bridges are preferred over pipes, culverts, fill, and other structures. Channel relocations should be avoided through alignment shifts, bridging, reducing the width of the median, or other means. For unavoidable channel relocations, we concur that natural stream design based on a representative reference reach should be used. We also concur that all box culverts and pipes should be countersunk, including any temporary pipes placed during construction (which is not mentioned as a minimization measure for construction impacts on page 4-40). The DEIS should address each of these avoidance and minimization measures and whether they are feasible at proposed channel relocation sites.

Potential impacts to the Cross Keys Battlefield are of concern, not only because of Section 106 requirements, but also because of the concerns of the public as documented in the DEIS. We concur with the decision to constrain the planning and design corridor for Alternative 1 to the existing 80-foot-wide right-of-way on Route 276 to minimize effects. Under the discussion of effects to archaeological resources in Section 4.15.2, it is noted that the potential for such effects is high under Alternative 1 due to the fact that it passes through the Cross Keys Battlefield Historic District. It is noted in Section 4.15.3 that although there will be visual effects to the battlefield, no character-defining features qualifying it for the National Register would be altered. That may be true, but the document should assess not only the visual effects of the wider road and shoulders, but also the visual and noise effects of increasing the number of vehicles on the road. According to the DEIS, current traffic on Rt. 276 is 3000 to 6000 vehicles per day, and that number is projected to be 9,300 to 14,000 under the 2030 No Build. If Alternative 1 is selected, the 2030 traffic projection is 11,000 to 15,700 vehicles per day. The document does not give information on what the traffic on Rt. 276 will be if another alternative is selected, i.e., construction of another alternative will reduce the traffic on Rt. 276 when compared to the No Build. The decision-makers should consider both the higher potential for Civil War-related archaeological resources and the effects of increased traffic on Rt. 276 when comparing Alternative 1 to the other alternatives, and the Final EIS should address these potential effects.

Many projects proposed by VDOT and funded by Federal-Aid Highway Funds managed FHWA require permits from the Corps of Engineers. These projects are subject to compliance with Section 106 of the National Historic Preservation Act of 1966.

According to 36 CFR 800.2(a) (2):

"...If more than one Federal agency is involved in an undertaking, some or all [of] the agencies may designate a lead Federal agency, which shall identify the appropriate official to serve as the agency official who shall act on their behalf, fulfilling their collective

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responsibilities under section 106. Those Federal agencies that do not designate a lead Federal agency remain individually responsible for their compliance with this part."

Pursuant to the above provision, the FHWA (Virginia Division) is hereby designated as the lead federal agency to fulfill the collective Federal responsibilities under Section 106 for the Harrisonburg Southeast Connector Location Study in Virginia (R000-082-101,PE101), which FHWA has determined may have an adverse effect on historic resources.

The Corps authorizes FHWA to conduct Section 106 coordination on its behalf. The Memorandum of Agreement prepared by FHWA under 36 CFR 800.6 should include the following clause in the introductory text:

"WHEREAS, pursuant to Section 10 and/or Section 404 of the Clean Water Act, a Department of the Army permit will likely be required from the Corps of Engineers for this project, and the Corps has designated FHWA as the lead federal agency to fulfill federal responsibilities under Section 106; and"

There are a couple of minor errors that should be corrected in the Final EIS. Table 4-11 shows total acres of wetlands within each alternative. The text above that table states that it shows "amounts and types of wetlands," but it does not show types. We requested in our preliminary comments that the types be included, and in the FEIS they should either be included, or the text should remove the statement that the types of wetlands are shown in that table. Table 4-16 shows the effects of foreseeable VDOT projects as part of the cumulative effects discussion. The table shows numbers ranging from 0.03 up to 1,803 for various categories of impacts, but it does not say what the numbers represent. Presumably the numbers are in acres, but the table should specify.

We had one question in our preliminary comments that does not appear to be addressed in the DEIS and we still have the same question. In Section 2.7.1, in the traffic analysis, it is stated that for over-capacity conditions you used a 1.0 multiplier and for under-capacity conditions, the factor was 0.1. For near-capacity, you used a factor of 0.7. Why did you not use an even split between 1.0 and 0.1 for the near capacity factor, i.e. 0.5 or 0.6 (0.55 would be an even split)? These factors affect the data in Table 2-5 on page 2-24.

As a cooperating agency, we appreciate the opportunity to comment on the DEIS. Please contact Alice Allen-Grimes at 757-201-7219 if you have any questions concerning our comments.

Sincerely,

Nicholas L. Konchuba
Nicholas L. Konchuba
Chief, Eastern Virginia
Regulatory Section

05/28/2006 13:23 FAX 8047753356

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005/009

Copies Furnished:

Virginia Department of Transportation, Richmond
Environmental Protection Agency, Reston
U. S. Fish and Wildlife Service, Gloucester
National Marine Fisheries Service, Oxford
Virginia Department of Environmental Quality/Water Division, Richmond
Virginia Department of Historic Resources, Richmond

06/01/2006 15:53 FAX 8047753356

FEDERAL HWY ADMIN

002/005



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

May 24, 2006

John Simkins
Environmental Protection Specialist
Federal Highway Administration
400 North 8th St.
Richmond, VA 23240-0249

Subject: Harrisonburg Southeast Connector Location Study, Transportation Improvements from US Route 11 to US Route 33, Funding and US Army COE Section 404 Permit, City of Harrisonburg, Rockingham County, VA CEQ# 20060119

Dear Mr. Simkins:

In accordance with the National Environmental Policy Act (NEPA), Section 309 of the Clean Air Act and Section 404 of the Clean Water Act, the Environmental Protection Agency (EPA) offers the following comments regarding the Harrisonburg Southeast Connector Study Draft Environmental Impact Statement (DEIS) located in the city of Harrisonburg and Rockingham County, Virginia. The DEIS was prepared by the Virginia Department of Transportation (VDOT) and the Federal Highway Administration (FHWA).

The Harrisonburg Southeast Connector (HSC) is a proposed new roadway, with segments on existing roads and on new location, which would connect Interstate 81 south of Harrisonburg with Rt. 33 east of Harrisonburg. The purpose of the project is to address projected growth in east-west travel movements in Rockingham County. Several previous locally sponsored transportation studies have identified numerous alternative alignments and concepts to address the east-west mobility need. After screening these and other alternatives, ten Candidate Build Alternatives (CBAs) were carried forward for detailed study including the no-build and four combination alternatives. The CBAs range from three to eight miles in length. A preferred alternative was not identified by VDOT in the DEIS.

The environmental consequences of the HSC include residential and business relocations, impacts to agricultural and forestal districts, loss of farmland and potential impacts to historic resources. Relative to other projects, small wetland (0-0.8ac) and modest stream impacts (750-4600 linear feet) are anticipated.

The key issues identified in the DEIS are potential impacts to historic resources and the potential for induced growth in the study area. Direct impacts to historic resources are principally related to CBA 1, however CBA's 2A and 3 may also have indirect effects on historic structures. There is a concern that the HSC may induce growth in what is now a largely rural area of woodlots and farms. The induced growth question is mitigated somewhat because the study area is largely contained within the county identified urban growth boundary and the majority is zoned residential, so growth is anticipated in the study area even without the HSC. Moreover, the county intends to focus growth in this area to help preserve outlying rural areas and farmland. The question of the location of new growth, depending on which CBA is selected, remains a concern as it relates to environmental or cultural impacts. For example the selection of the outlying CBA 1 may induce growth outside the study area or contribute to the conversion of unprotected civil war battlefield parcels to residential development. The FEIS should address the

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issues of location specific induced development and induced growth outside the study area. The FEIS should describe conditions or practices that would mitigate these issues.

Cumulative effects are enumerated in the DEIS however only VDOT projects are included in the list, so the overall potential for cumulative effects is not fully documented. The FEIS should contain a more complete listing and discussion of all reasonably foreseeable projects, public and private, in the study area.

While the DEIS did not identify a preferred alternative, it points out that a combination of CBAs, all of which include CBA 1, may be best overall from a traffic standpoint. EPA is concerned about this because CBA 1 has the greatest potential impacts to historic resources including the Cross Keys Battlefield Historic District. The Cross Keys Battlefield was the site of the June 8, 1862 civil war battle that resulted in a confederate victory and freed up Stonewall Jackson to leave the Shenandoah Valley to join Robert E. Lee in the defense of Richmond. The Cross Keys Battlefield is an important element of the Shenandoah Valley Battlefields National Historic District established by Congress in 1996 to establish a planning process for the preservation and interpretation of the civil war battlefields in the district.

CBA 1 will utilize an existing rural road that passes through the Cross Keys Battlefield Historic District. EPA is concerned that CBA 1 will significantly increase traffic volumes in the Cross Keys Battlefield, including levels greater than the no-build condition. The FEIS should address the impacts to the battlefield's integrity and interpretability from increased traffic, particularly in light of the proposal to close existing roads in the Manassas National Battlefield due to traffic impacts. The FEIS should also include specific measures to mitigate the impact of increased traffic.

In addition to potential impacts to the Cross Keys Battlefield, more historic properties are located in proximity to CBA 1 than any other CBA. CBA 1 may have affects, adverse or otherwise, on these structures. A final determination of this effect by the State Historic Preservation Officer should be included in the FEIS and made prior to the selection of an alternative.

The FEIS should provide a more robust description of the Massanetta Springs Historic District, commensurate with that provided for the Cross Keys Battlefield.

In summary, while the impacts of the HSC appear to be relatively small as compared to other highway projects, EPA is concerned that CBA 1 has the potential degrade the quality of the Cross Keys Battlefield and has the potential to affect the most historic resources in the study area. CBA 1 also has the potential to induce growth outside the urban growth boundary established by Rockingham County. In addition, the DEIS is lacking certain data as described above. Consequently we rate the HSC with Environmental Concerns (EC) and the document (2) insufficient information. A copy of EPA's EIS rating system is attached.

Should you have any questions or comments about our comments please contact me at 215-814-3367, or Mr. Peter Stokely the project principle reviewer at 703-648-4292.

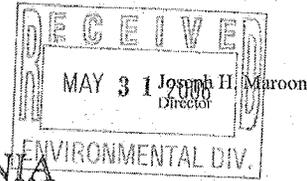
Sincerely,



William Arguto
NEPA Team Leader

Enclosure

L. Preston Bryant, Jr.
Secretary of Natural Resources



COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

217 Governor Street
Richmond, Virginia 23219-2010
(804) 786-7951 FAX (804) 371-2674

May 26, 2006

Earl T. Robb
State Environmental Administrator
Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219

Re: Harrisonburg Southeast Connector Location Study - #R000-082-101, PE101; PPMS #55638

Dear Mr. Robb:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

This project either overlies or is adjacent to a karst landscape characterized by sinkholes, caves, disappearing streams, and large springs. If any karst features (caves, open fissures, sinkholes) are encountered during construction, please notify Wil Orndoff, DCR Karst Protection Coordinator, (540-831-4056, Wil.Orndoff@dcr.virginia.gov) for documentation and possible further investigation. Discharge of runoff to sinkholes or sinking streams, filling of sinkholes, and alteration of cave entrances can lead to surface collapse, flooding, erosion and sedimentation, groundwater contamination, and degradation of subterranean habitat for natural heritage resources. If the project involves filling or "improvement" of sinkholes or cave openings, DCR would like detailed location information and copies of the design specifications. In cases where sinkhole improvement is for stormwater discharge, copies of VDOT Form EQ-120 will suffice.

Our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

Any absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks additional natural heritage resources. New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

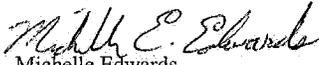
The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain

*State Parks • Soil and Water Conservation • Natural Heritage • Outdoor Recreation Planning
Chesapeake Bay Local Assistance • Dam Safety and Floodplain Management • Land Conservation*

information not documented in this letter. Their database may be accessed from http://www.dgif.virginia.gov/wildlife/info_map/index.html , or contact Shirl Dressler at (804) 367-6913.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,


Michelle Edwards
Locality Liaison

Cc: Wil Orndoff, DCR-Karst

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Not To Scale

HARRISONBURG

DAYTON

MOUNT CRAWFORD

CBA 1 Modified

CBA 4

33

42

81

11

710

726

704

687

710

709

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704

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MOUNT CRAWFORD

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CBA 1 Modified

276

679

682

682

848