



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

## **PROPOSED HIGHWAY IMPROVEMENTS**

### **I-95 DEFENSE ACCESS ROADS RAMPS TO THE ENGINEER PROVING GROUND Fort Belvoir, Virginia**



## **ENVIRONMENTAL ASSESSMENT**

**AUGUST 2008**




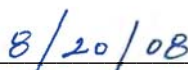
**I-95 DEFENSE ACCESS ROADS  
RAMPS TO ENGINEER PROVING GROUND**  
Fort Belvoir, Virginia • Fairfax County, Virginia

**ENVIRONMENTAL ASSESSMENT**

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

by  
U.S. Department of Transportation  
Federal Highway Administration  
Eastern Federal Lands Highway Division

  
Paul Nishimoto  
Planning and Programming Engineer

  
Date of Approval

COOPERATING AGENCIES

U.S. Army Garrison Fort Belvoir  
Virginia Department of Transportation

**CONTENTS****SECTION 1 - PURPOSE AND NEED**

1.1	Study Area	1
1.2	History	1
1.3	Purpose and Need	1
1.3.1	Needs – Existing Conditions	1
1.3.2	Needs – Future Conditions	3

**SECTION 2 - ALTERNATIVES**

2.1	Introduction	4
2.2	Alternatives Development and Screening	4
2.3	Alternatives Considered but Eliminated from Detailed Study	4
2.4	Alternatives Carried Forward	6
2.4.1	No-build Alternative	6
2.4.2	Preferred Alternative	6

**SECTION 3 - ENVIRONMENTAL CONSEQUENCES**

3.1	Overview of Environmental Issues	9
3.2	Land Use and Socioeconomics	12
3.3	Air Quality	12
3.4	Water Quality	13
3.5	Potential Hazardous Materials	15
3.6	Indirect Effects	15
3.7	Cumulative Effects	15

**SECTION 4 - COORDINATION AND COMMENTS**

4.1	Agency Coordination	17
4.2	Public Involvement	17

**SECTION 5 - REFERENCES**

1-6	References	18
-----	------------	----

**Figures**

1	Project Location	2
2	Preferred Alternative	7
3	Typical Cross Sections	8

**Tables**

1	Alternatives Eliminated from Detailed Study	5
2	Environmental Issues and Summary of Environmental Effects	9

## SECTION 1

### PURPOSE AND NEED

#### 1.1 STUDY AREA

In cooperation with the U.S. Army Garrison Fort Belvoir and the Virginia Department of Transportation (VDOT), the Federal Highway Administration (FHWA), Eastern Federal Lands Highway Division, is preparing plans for the construction of two access ramps from I-95 to the Engineer Proving Ground (EPG) at Fort Belvoir. The first involves expanding and extending the existing ramp from southbound I-95 to westbound Fairfax County Parkway to provide a connection to the EPG South Spine Road in the southeastern corner of the EPG tract. The second involves constructing a new connection between the South Spine Road on the eastern side of EPG and the existing flyover bridge that connects the high occupancy vehicle (HOV) lanes with the northbound I-95 conventional lanes. **FIGURE 1** shows the location of the project. The study area consists of lands surrounding these proposed project elements on which there are human or natural resources that could potentially be affected by the project. The study area also encompasses the existing southbound I-95 flyover to Backlick Road

#### 1.2 HISTORY

The 2005 Defense Base Closure and Realignment Act (BRAC) stipulated a number of realignment and closure actions for domestic military installations, some of which would involve relocating thousands of personnel to Fort Belvoir. Accordingly, the Army prepared an Environmental Impact Statement (EIS) to evaluate the environmental consequences of the relocations to Fort Belvoir and to select an alternative land use and development plan to accommodate the moves. As part of the implementation of the BRAC requirements, which is to be completed by the end of Fiscal Year 2011, the eastern portion of the 807-acre EPG was chosen as the site to which 8,500 employees of the National Geospatial-Intelligence Agency (NGA), currently located in Reston, Virginia and Bethesda, Maryland, will be relocated. In order to accommodate the additional traffic volumes and access/egress needs for these employees, improvements to the existing transportation infrastructure, such as the proposed I-95 ramps in this project, are needed. The ramps are to be provided through the Defense Access Roads (DAR) program, whereby FHWA works with the Department of Defense and state and local authorities to plan, design, and implement the project.

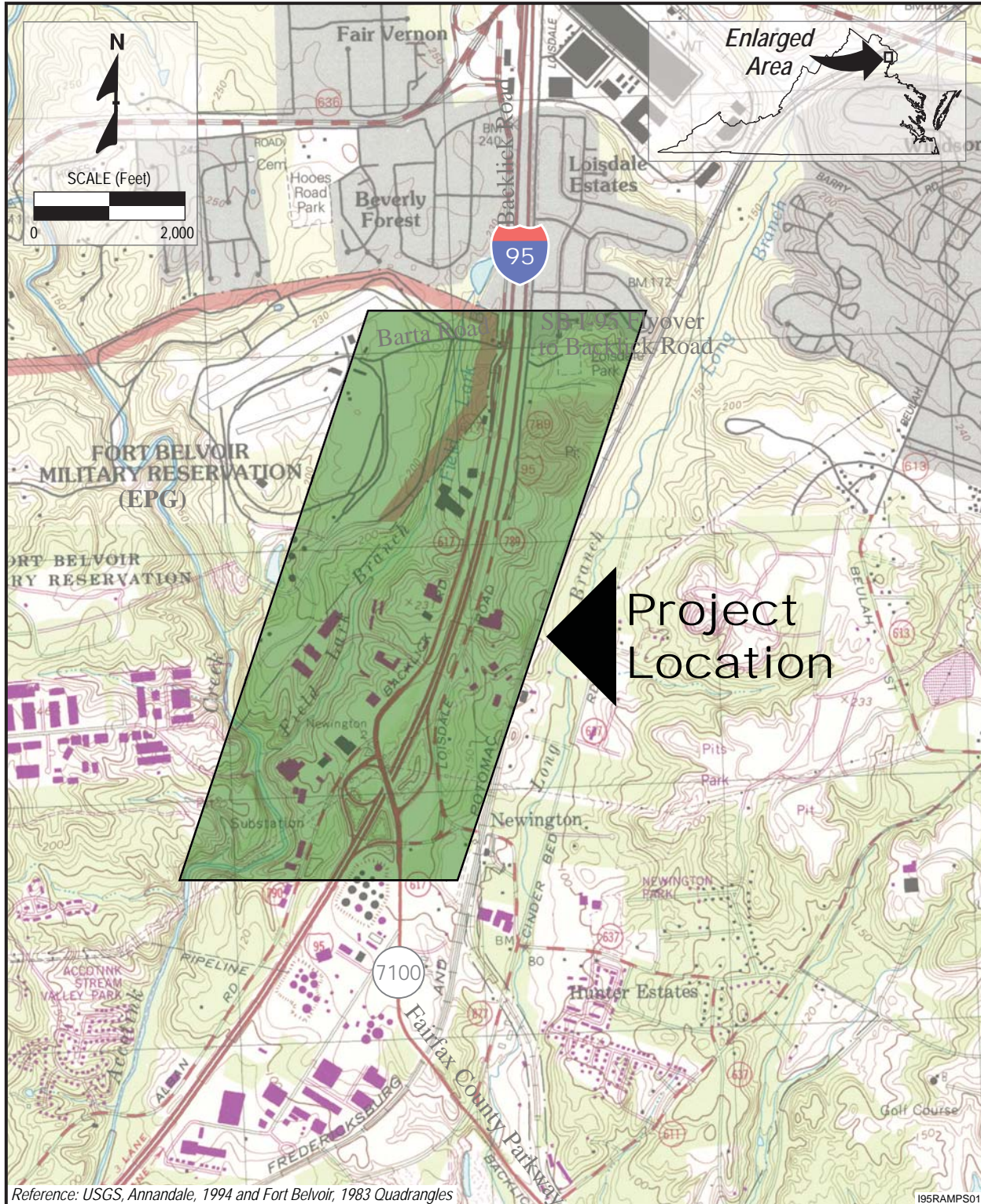
#### 1.3 PURPOSE AND NEED

The purpose of the proposed project is to improve access to and egress from the EPG site to accommodate vehicle travel resulting from the BRAC-mandated relocation of some 8,500 employees to the eastern part of the site. The existing road network and future planned improvements to the network would not provide sufficient capacity to adequately handle the additional traffic or efficient routing to provide the most direct and efficient access and egress.

##### 1.3.1 NEEDS – EXISTING CONDITIONS

The existing local road network surrounding EPG provides few access points into the EPG site. Prior to the BRAC proposal to relocate thousands of employees to the site, little access was needed to the little-used property. Most of the Army activities had been relocated in prior years to other parts of Fort Belvoir or other

**FIGURE 1 - Project Location**



facilities in other states. Existing access to EPG on the east side is via the Barta Road entrance off of the four-lane Backlick Road (Route 617), which parallels the west side of I-95. Connections to Backlick Road from I-95 include a flyover bridge connecting southbound I-95 to southbound Backlick Road; however, the touchdown point on Backlick Road is beyond the EPG entrance road. Another connection to Backlick Road is provided via the Fairfax County Parkway interchange and Fullerton Road; however, travelers from the north exiting I-95 to the Fairfax County Parkway do so approximately a mile south of the Barta Road entrance road to EPG, requiring a “doubling back” for a mile to reach the entrance.

Another connection to Backlick Road is provided via the Old Keene Mill Road (Route 644) interchange with I-95, approximately 1.5 miles to the north. Finally, a connection to Backlick Road for HOV traffic is available via an interchange at the Franconia-Springfield Parkway (Route 7900), approximately 0.9 miles to the north. Another entry point to EPG is Cissna Road off of Rolling Road (Route 638) on the west side of the property. Reaching this entry from I-95 requires circuitous travel along local secondary roads. Currently, there is no direct access to the site from the I-95 HOV lanes.

### **1.3.2 NEEDS – FUTURE CONDITIONS**

In addition to the current network described above, other road improvements assumed to be in place by the design year (2030) include the Fairfax County Parkway completion through EPG between Fullerton Road and Franconia-Springfield Parkway/Rolling Road. Construction of the Fairfax County Parkway would replace the existing at-grade intersection of the Parkway and Fullerton Road with a grade separation with no connection of the two roads. Access to Fullerton Road would ultimately be provided via a new interchange with Boudinot Drive.

Implementation of the BRAC Act of 2005 requires locating approximately 8,500 employees of the NGA into the eastern portion of the EPG site in the morning and out in the afternoon. The influx of these employees to the EPG site will generate an estimated a.m. peak-hour traffic volume increase of 2,700 vehicles that would otherwise overwhelm the existing access points and local roads leading to them. Specifically, the single-lane exit ramp from southbound I-95 to westbound Fairfax County Parkway creates a weaving section with vehicles that would exit to Boudinot Drive. During the a.m. peak-hour, the demand on the weave on the Fairfax County Parkway between the I-95 ramp terminus and the beginning of the Boudinot Drive ramp would cause congestion and ramp spillback, which would affect the southbound I-95 mainline. In the p.m. peak-hour, an estimated 1,000 vehicles exiting EPG via Fairfax County Parkway and headed to northbound I-95 would have to negotiate three weave sections: 1) eastbound Parkway between Boudinot Drive on-ramp and southbound I-95 off-ramp; 2) eastbound Parkway between southbound I-95 off-ramp and northbound I-95 off-ramp; and, 3) I-95 northbound between eastbound Parkway-to-northbound-I-95-ramp and northbound-I-95-to-westbound-Parkway-ramp. The congestion caused by these multiple weaving movements would impact the eastbound Parkway traffic flow and the northbound I-95 traffic flow.

I-95 northbound HOV traffic destined for EPG in the a.m. would be able to exit at the Franconia-Springfield Parkway, turn left on the overpass to the Backlick Road exit, then travel south on Backlick Road to access EPG via Barta Road. The reverse flow would be required in the p.m. This route is somewhat circuitous as the Franconia-Springfield Parkway connection is approximately 0.9 miles north of the Barta Road entrance to EPG.

## SECTION 2

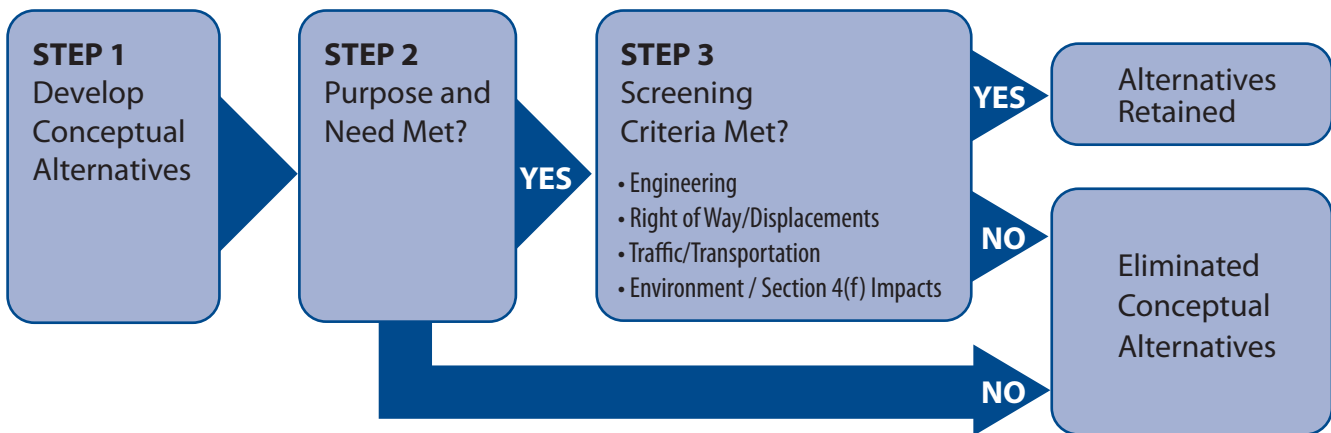
### ALTERNATIVES

#### 2.1 INTRODUCTION

This section discusses the range of alternatives considered, the process used to identify and screen the alternatives, alternatives considered and eliminated from further consideration, and alternatives carried forward for detailed study. The No-Build Alternative was retained and it serves as a baseline for alternatives comparison. A Preferred Alternative has been identified and several other build alternatives have been considered.

#### 2.2 ALTERNATIVES DEVELOPMENT AND SCREENING

The flowchart below illustrates the steps in the Alternatives development and screening process. This process involved identifying a range of Alternatives initially and then narrowing the options to the Preferred Alternative for detailed consideration. Among the criteria used in evaluating potential Alternatives were the existing and programmed future road networks, the proposed location of the NGA facilities and potential access points, travel patterns, levels of service for existing versus proposed conditions for future years, facility security considerations, right of way considerations, and environmental constraints.



#### 2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Through the Alternatives screening, several concepts and alternatives were eliminated from further consideration and were not carried forward for detailed study. **TABLE 1** lists the eliminated Alternatives and reasons for their elimination.

**Table 1 - Alternatives Eliminated from Detailed Study**

Alternative	Basis for Elimination
<p><b>Transportation System Management (TSM) Alternative</b></p>	<p>“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 they would not adequately facilitate access into the EPG site for the thousands of additional employees slated to work there. Notwithstanding, the Army, has already committed to several TSM/TMP measures as part of the mitigation to be provided for the BRAC actions, will appoint a transportation demand management coordinator, and will develop a transportation management plan to promote various vehicle trip reduction strategies (e.g., ridesharing, parking management, and use of alternative travel modes).</p>
<p><b>Mass Transit Alternative</b></p>	<p>Mass transit alone would not satisfy the identified purpose and need for the same reasons that the TSM Alternative would not. However, the development plans for the EPG site do include a transportation management program to reduce single-occupant vehicle demand. Elements of the program include providing parking for only 60% of the new employees, shuttle bus service to the Franconia-Springfield Transportation Center (located approximately two miles east of EPG) linking to Metrorail and Virginia Railway Express, and promotion of ridesharing with reserved parking for carpools.</p>
<p><b>Connection with existing flyover ramp from southbound I-95 to Backlick Road</b></p>	<p>This alternative would require complete reconstruction of the flyover bridge to add an additional lane and also to reconfigure the varying curvature and superelevation to accommodate an exit into EPG as well as the connection to Backlick Road. Additionally, with the relatively short distance between this flyover ramp and the Old Keene Mill Road interchange and the associated weaving movements, traffic operations on I-95 would be negatively affected. Queues resulting from the operational problems would back up into the I-95/I-395/I-495 interchange and into the local Springfield area. Further, this alternative poses constructability problems.</p>



## 2.4 ALTERNATIVES CARRIED FORWARD

### 2.4.1 No-build Alternative

Under the No-build Alternative, no additional roadway connections would be constructed to EPG. However, it is assumed that all other projects programmed for construction in the Constrained Long-Range Plan (CLRP), such as the remaining section of the Fairfax County Parkway, would be constructed as planned. Selecting the No-build Alternative to address the purpose and need of this project would not displace any families, businesses, farms, or nonprofit organizations, and would not significantly affect any natural, ecological, cultural, or scenic resources. However, this alternative would not satisfy the identified transportation needs, because it would not provide the needed additional transportation access and capacity.

### 2.4.2 Preferred Alternative

The Preferred Alternative consists of two new ramps as shown on **FIGURE 2**. **FIGURE 3** shows typical cross sections.

**Ramp 1. Connection via ramp from southbound I-95 to westbound Fairfax County Parkway with direct access into EPG connecting to South Spine Road within.** The existing off-ramp would be widened and modified to provide an additional lane, which then would divide to a direct access into EPG near the proposed electrical substation. The barrier separation to be provided would force EPG-destined traffic into a dedicated lane into EPG, thus eliminating potential weaving conflicts with traffic continuing on to the westbound Fairfax County Parkway and the Boudinot Drive interchange. Design variations of this element include options to pass west or east of the electrical substation to be constructed by the Army on EPG to support the BRAC construction (the eastern option would generally follow a construction access road to be used during construction of the substation and other facilities). Bridge options at Fullerton Road include carrying the Parkway and Ramp 1 either over or under the existing roadway. The final design will be coordinated with the on-going Fairfax County Parkway Extension project.

**Ramp 2. New connection between South Spine Road along east side of EPG to existing HOV/HOT-to-northbound I-95 flyover ramp.** The existing flyover ramp is not in use in the p.m. because the traffic on the reversible HOV/HOT lanes is flowing southbound. Thus the proposed connection would facilitate egress from EPG to the northbound general-purpose I-95 lanes. Moreover, the connection also would provide access to EPG in the a.m. for northbound HOV/HOT traffic and egress from EPG in the p.m. for southbound HOV/HOT traffic. This ramp would consist of a single reversible lane.

Compared to the No-build Alternative, the proposed project would improve the level of service<sup>1</sup> on the southbound-I-95-to-westbound-Parkway ramp in the a.m. peak-hour from "F" to "C" in the design year. In the p.m. peak-hour, the level of service on the eastbound-Parkway-to-northbound-I-95 ramp would improve from level of service "F" to "E." The proposed project would provide two new access points into the portion of the EPG site into which the NGA is moving, thus facilitating the ingress and egress of some 8,500 employees to be assigned to the site. Moreover, the project would provide a direct connection into the site for HOV/HOT traffic.

#### FOOTNOTE

1. Level of service is a measure used by traffic engineers to indicate operational conditions within a traffic stream and perception of those conditions by motorists in terms of speed, freedom to maneuver, traffic flow interruption, etc. The levels of service are designated A through F, with A representing a high level of service and F representing a poor level of service.

**FIGURE 2 - Preferred Alternatives**



**LEGEND**

**RAMP 1**

A—A Ramp Roadway Section to South Spine Road

B—B Ramp Roadway Section from SB I-95 Lanes

**RAMP 2**

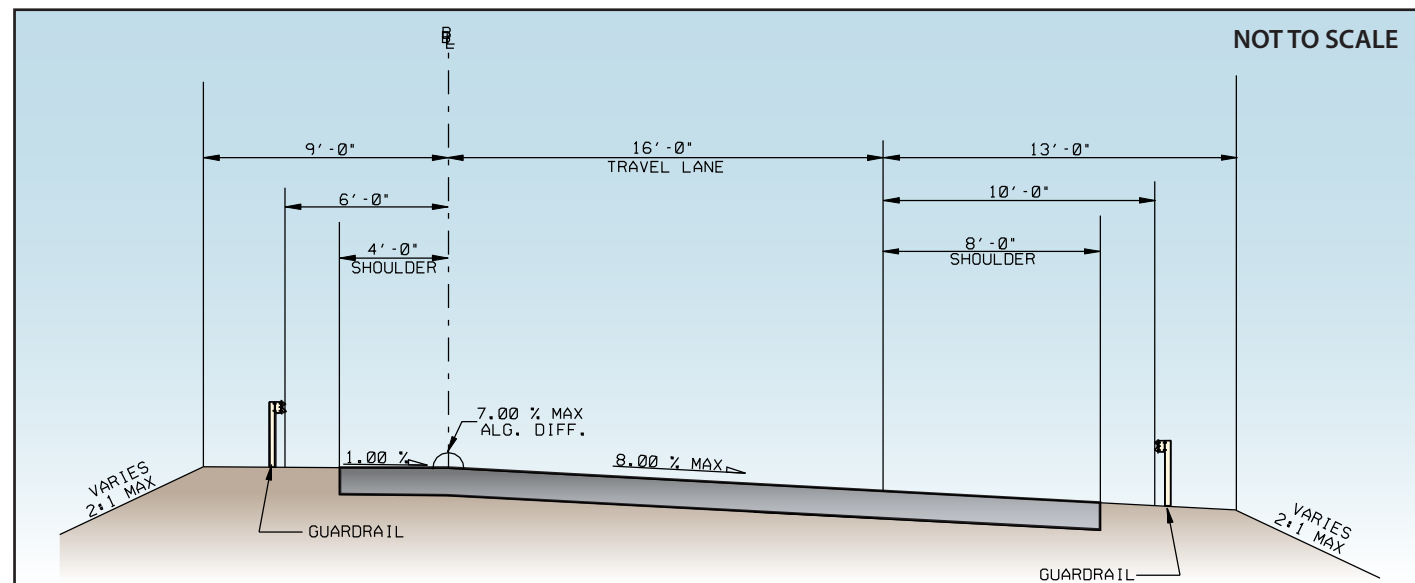
C—C Ramp Structure over I-95

D—D Ramp Roadway Section

  
**NOT TO SCALE**

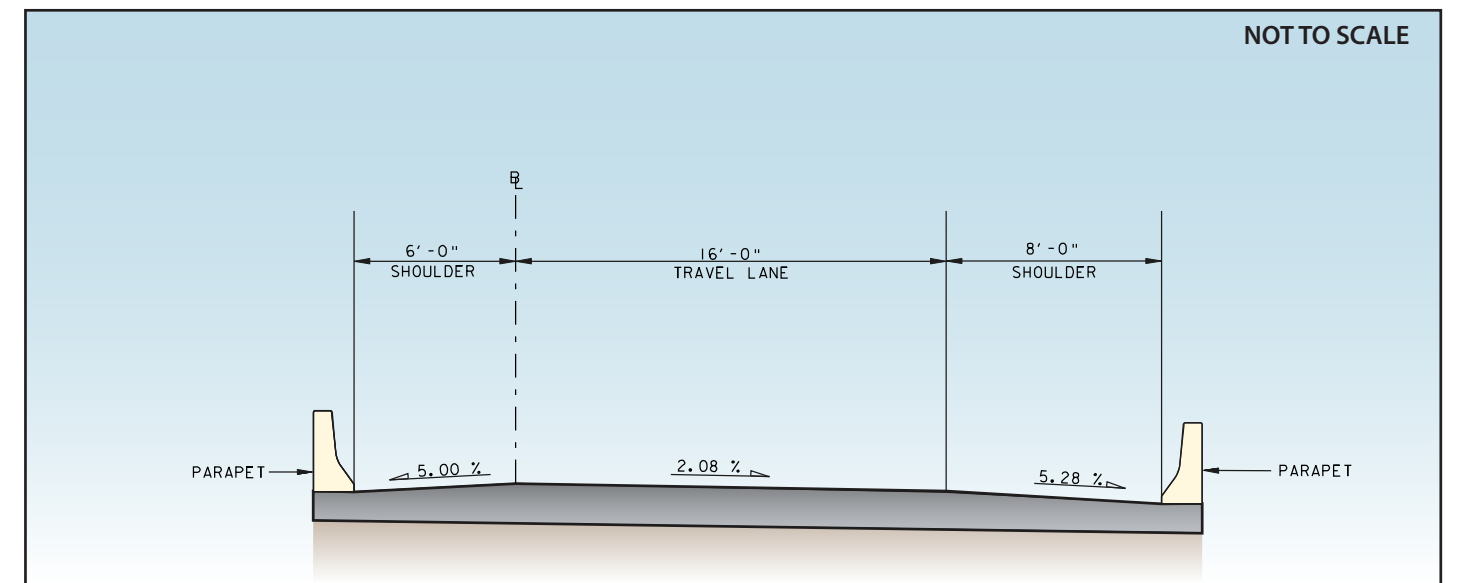
**FIGURE 3 - Typical Cross Sections**

**A-A. RAMP ROADWAY SECTION TO SOUTH SPINE ROAD**



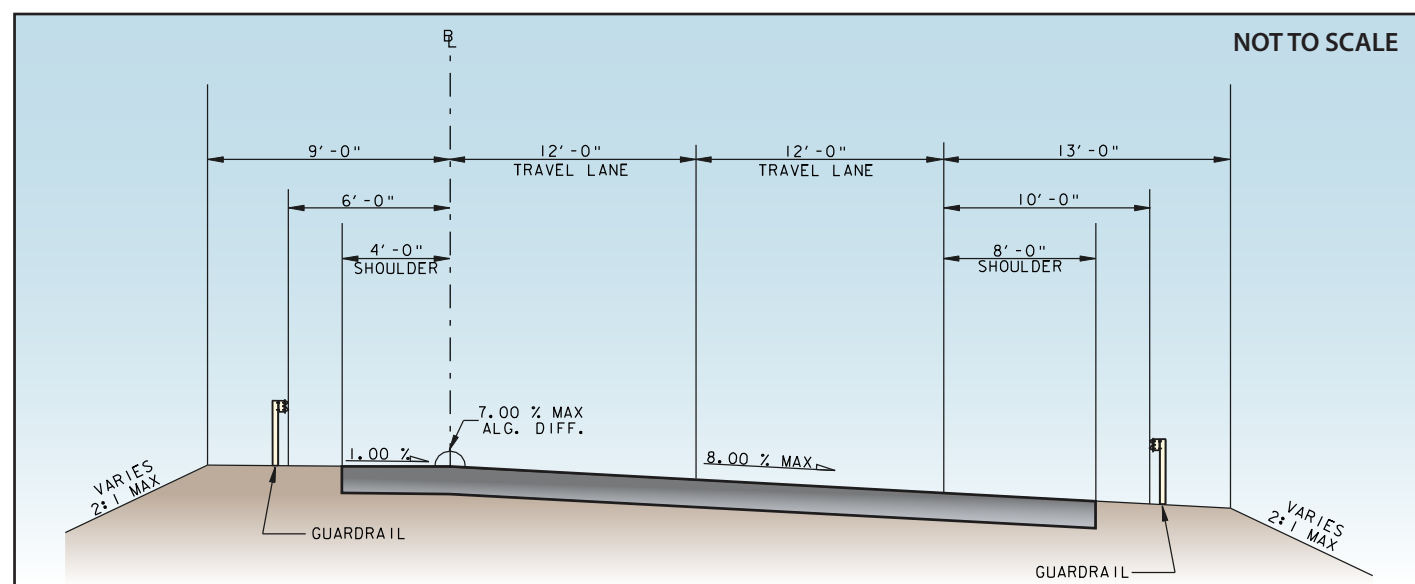
Ramp 1 at Fairfax County Parkway

**C-C. RAMP STRUCTURE OVER I-95**



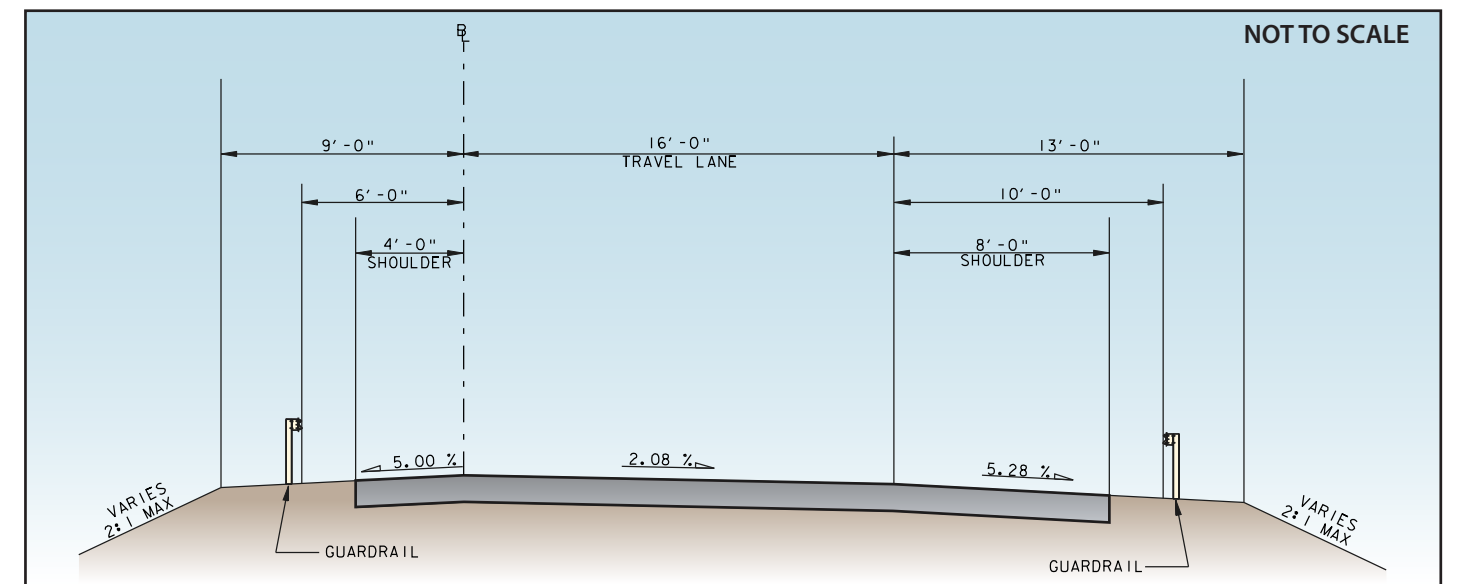
Ramp 2 to EPG from HOV Flyover Ramp

**B-B. RAMP ROADWAY SECTION FROM SB I-95 LANES**



Ramp 1 at Fairfax County Parkway

**D-D. RAMP ROADWAY SECTION**



Ramp 2 to EPG from HOV Flyover Ramp

## SECTION 3

### ENVIRONMENTAL CONSEQUENCES

#### 3.1 OVERVIEW OF ENVIRONMENTAL ISSUES

Table 2 summarizes environmental issues and their relevance to the project. Issues requiring further discussion are addressed following the table.

**Table 2. Environmental Issues and Summary of Environmental Effects**

Resource/Issue	Remarks
<b>Agriculture and Prime Farmland</b>	No agricultural activities or prime farmland exist in the project vicinity.
<b>Air Quality</b>	Project is in nonattainment area for ozone and PM2.5. Project is slated for conformity analysis for 2008 Constrained Long-range Plan and Transportation Improvement Program
<b>Biological Resources</b>	Due to surrounding highways and commercial/industrial development, terrestrial wildlife habitat areas are small and fragmented. Aquatic habitat is limited to Field Lark Branch. Therefore, impacts to terrestrial and aquatic wildlife habitats would be small. No federally listed threatened or endangered species would be affected. While a single occurrence of small whorled pogonia ( <i>Isotria medeoloides</i> ), a federally listed threatened species, has been found previously on EPG land well away from the project site, a survey of the project area found no additional occurrences of this species. <i>(See WSSI's Small whorled Pogonia Habitat Evaluation and Search)</i>
<b>Invasive Species</b>	In accordance with Executive Order 13112, Invasive Species, the potential for the establishment of invasive terrestrial or aquatic animal or plant species during construction of the proposed project will be minimized by following provisions in FHWA/VDOT's Specifications. These provisions require prompt seeding of disturbed areas with seeds that are tested in accordance with FHWA/VDOT's standards and specifications to ensure that seed mixes are free of noxious species and that disturbed areas are quickly revegetated with approved vegetation, thereby minimizing introduction of invasive species..

**Table 2. Environmental Issues and Summary of Environmental Effects**

Resource/Issue	Remarks
<p><b>Cultural Resources</b></p>	<p>There are three previously recorded archaeological sites in the project vicinity (44FX821, 44FX822, and 44FX823); however no further work was recommended for these sites at the time of recordation and they are considered not eligible for the National Register of Historic Places (NRHP). A comprehensive archaeological survey conducted on the EPG property in 1993 concluded that there are no archaeological properties present at EPG. All other lands crossed by the proposed ramps are disturbed lands occupied by existing road or commercial development and would not be expected to contain intact archaeological deposits. For the very limited untested areas, a testing plan has been proposed by FHWA and approved by VDHR. There are no recorded historic architectural properties in the vicinity of the project.</p>
<p><b>Geology, Soils, and Groundwater</b></p>	<p>Soils present in the project vicinity have high erodibility. An erosion and sediment control plan and a stormwater management plan will be implemented as part of the project. Minor effects on groundwater might occur; however, there are no significant groundwater aquifers or water supplies used for human consumption in the project area.</p>
<p><b>Hazardous Materials Sites</b></p>	<p>Issues related to two previous spill sites and unexploded ordinance will be resolved in compliance with federal and state regulations prior to construction.</p>
<p><b>Environmental Justice Populations</b></p>	<p>No low-income or minority populations exist in project vicinity.</p>
<p><b>Land Use and Socioeconomics</b></p>	<p>No long-term impacts to surrounding land uses. One business, a building supply firm, would be displaced. No residences, nonprofit organizations, or community facilities, such as hospitals, parks, places of worship, day care centers, schools, government offices such as post offices, police and fire stations, cultural centers, or special service providers would be displaced or impacted. Project would result in improvements to fire/rescue and police response capability and improved access to EPG for the thousands of employees slated to work there.</p>

**Table 2. Environmental Issues and Summary of Environmental Effects**

Resource/Issue	Remarks
<b>Noise</b>	No noise impacts are anticipated. Existing development in proximity to the project consists entirely of commercial and industrial uses adjacent to existing roadways where there are no areas of frequent human use that would be affected by noise from the highway elements proposed for the project. Further, there are no locations where highway traffic noise would substantially impair any existing or planned land use activity. Based on other recent noise analyses in the area (e.g., I-95 4th Lane Widening), existing noise levels range from approximately 66 to 72 dBA within 800 to 300 feet from I-95. Future noise levels would be similar. The frequent human use of areas such as parking lots at commercial sites is generally transitory in nature and these areas would not be considered to be “impacted” by any noise generated by traffic on the proposed ramps. Finally, any noise generated by traffic on the proposed ramps would be far overshadowed by noise from traffic on nearby major existing roads, primarily I-95, because the traffic volumes on the ramps are small by comparison.
<b>Recreational Resources</b>	No land would be used from any publicly owned public parks or recreational facilities, nor would any such facilities be otherwise affected by the project.
<b>Water Resources</b>	Urbanization already has degraded water resources in the area and increased runoff quantities. Approximately 45 linear feet of stream channel would be displaced by the project. No wetlands or FEMA-designated 100-year floodplains would be crossed by the project. Stormwater management ponds would be constructed as part of the project to minimize long-term effects to surface water resources and water quality.
<b>Navigable Waterways, Scenic Rivers/ Scenic Byways</b>	None present in project area.
<b>Visual Character</b>	Proposed project is in an urbanized area with few visual attractions.
<b>Indirect &amp; Cumulative Effects</b>	No significant secondary or cumulative effects identified.

## 3.2 LAND USE AND SOCIOECONOMICS

### Land Use

The proposed project lies within Fairfax County's Springfield Planning District in an area designated as the I-95 Corridor Industrial Area, which is recommended by the County to retain an overall industrial orientation for future development. The area is characterized by a predominance of industrial, warehouse, fuel storage, vehicle repair, wholesale and commercial retail, "flex-space," and office uses. Land use along the western edge of the study area is dominated by the U.S. Army's Fort Belvoir Engineer Proving Ground (EPG). During the 1940s and 1950s, EPG was used as a testing facility for military engineering equipment. Engineering activities have ceased or have been relocated to other sites. Most of the land within EPG is undeveloped, but the eastern portion is slated as the site to which NGA will be relocated. Existing roadways such as I-95, Backlick Road, Fullerton Road, and Fairfax County Parkway also occupy large portions of the study area.

Most of the Fairfax County Parkway ramp portion of the project can be constructed within existing VDOT right of way or EPG US Government property. However, construction of the connector from the existing HOV flyover bridge to the South Spine Road will require crossing and acquisition of an industrial parcel containing a lumber yard/building supply business. The parcel contains approximately 3 acres.

### Community Effects and Accessibility

The proposed project would not disrupt any community or planned development. At the time of preparation of this document, no organized opposition to the project has occurred and none is expected. According to Fairfax County officials, the project is consistent with community goals and proposed land use. No existing neighborhoods would be split and community cohesion should not be materially affected.

Accessibility to EPG would be improved by the proposed project and the project as a whole is expected to improve mobility and connectivity among surrounding land uses and transportation facilities. Fire, police, and rescue emergency services are all expected to benefit from the improved transportation facilities.

### Displacements and Relocations

It is estimated that the project would displace 1 business: a millwork and building supplies firm at 7622 Backlick Road. The number of employees affected is estimated at approximately six. A detailed relocation plan will be developed to ensure that orderly relocation of the affected business can be accomplished in a satisfactory manner. The acquisition of right of way and the relocation of displacees would be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended. Assurance is given that relocation resources would be available to all displacees without discrimination.

### Utilities

Utilities within the proposed right of way include telecommunication lines, powerlines, sanitary sewer lines, gas lines, and petroleum pipelines. These will be adjusted as necessary to accommodate the proposed construction, and no substantial disruptions of utility services are expected.

## 3.3 AIR QUALITY

The project does not currently come from a conforming Transportation Improvement Program (TIP) or CLRP, and until it does FHWA cannot complete final NEPA documentation. However, based on previous air quality studies for other projects in the vicinity, the proposed project is not expected to be a major source of

air pollution. The project is located in a region that is designated nonattainment for ozone. Measures to reduce ozone concentrations for the region are discussed in the State Implementation Plan (SIP) rather than at a project-specific level. The project also is in a nonattainment area for small particulate matter (PM<sub>2.5</sub>). The project is not a “project of air quality concern” as outlined in 40 CFR 93.123 (b)(1)(i),(ii),(iii) or (iv). Clean Air Act and 40 CFR 93.116 requirements for PM<sub>2.5</sub> are met without a hot-spot analysis, since such projects have been found to not be of air quality concern under 40 CFR 93.123(b)(1). With regard to Mobile Source Air Toxics, in light of FHWA’s February 3, 2006 Interim Guidance on Mobile Source Air Toxics Analysis in NEPA documents, the project is not expected to be a major generator of mobile source air toxics. Accordingly, no substantial health-related effects are expected to arise from MSAT emissions from traffic on the completed project. The project is slated to be included in the Air Quality Conformity Assessment for the 2008 Financially Constrained Long-Range Transportation Plan for the National Capital Region being developed by the Transportation Planning Board. It is anticipated that the project will be found in conformance with the SIP and it would not be expected to interfere with attainment or maintenance of the National Ambient Air Quality Standards (NAAQS). The temporary air quality effects from construction are not expected to be significant because construction activities will be performed in accordance with FHWA/VDOT Specifications, which are approved as conforming to the SIP and require compliance with all applicable local, state, and federal regulations pertaining to air quality.

### 3.4 WATER QUALITY

#### Groundwater

Minor long-term groundwater quality impacts could result from contaminated stormwater runoff from the completed highway. Pollutant loads also can be expected to increase in proportion to the additional impervious surface and increased traffic volumes. Despite the increased pollutant loadings, no violation of water quality standards are expected to result from the project because:

- The vegetated side slopes and other stormwater management provisions to be established along the project should minimize any potential water quality degradation attributable to normal highway runoff.
- Fort Belvoir and the commercial land uses in the project area receive their potable water from the Fairfax County Water Authority (FCWA), which does not draw on local groundwater resources.
- During construction, contractors will be required to adhere to provisions in FHWA Specifications that prohibit contractors from discharging pollutants such as chemicals, lubricants, paints, and other harmful materials onto the ground.

#### Surface Water

The project lies within the Accotink Creek watershed, which encompasses more than 50 square miles (roughly 13 miles long by 4 miles wide) and extends from the City of Fairfax to Gunston Cove at the Potomac River. More than half of the watershed is covered by residential, commercial, or industrial development. Approximately 38% remains forested. Approximately 2.4% is open water or wetlands. The watershed also is dissected by many major and minor highways, including I-95, the Capital Beltway, the Fairfax County Parkway, several U.S. and state primary routes, and numerous local streets. Approximately 38 square miles (75%) of the watershed lie upstream of the project.

Streams in the watershed can be characterized as degraded, with most having poor habitat and biological



conditions. Measures of benthic macroinvertebrate community health are low, with species being those adapted to degraded conditions. Most of the small tributaries are highly incised, and a pattern of stream widening has been observed due to increased flows from surrounding developments. The ongoing erosion and sloughing of banks results in unstable benthic habitat, with unstable sediment bars, tree falls, and log-jams. Imperviousness exceeds 25% throughout much of the watershed. A dam roughly midway within the mainstem of Accotink Creek holds Lake Accotink (not within the project area), which imposes some hydrologic control and somewhat moderates the effects of high flow volumes in the mainstem. The dam also constitutes a barrier to migration of aquatic species. Fairfax County has established stream valley parks along portions of Accotink Creek beyond the limits of the project to preserve riparian habitat, help protect water quality, and, in some instances, provide trails for public recreation.

The proposed project would cross Field Lark Branch, a small tributary that joins Accotink Creek to the south of the project. Roughly 45 linear feet of stream bottom in Field Lark Branch would be displaced by the installation of culverts to carry the stream under the road. The culverts would be countersunk below the stream bottom profile to enable reestablishment of natural stream bottom inside the culverts. Temporary siltation likely would occur during construction. Long-term water quality effects that might be attributable to operation and maintenance of the roadway could include incremental increases in pollutant loads in highway runoff, such as particulates, metals, oil and grease, nutrients, and other substances. However, temporary and permanent stormwater management measures, including vegetative controls, detention basins, and filtration systems would be implemented on this project to minimize potential short-term and long-term effects on water quality. These measures would reduce or detain stormwater discharge volumes and remove pollutants. The project design would incorporate erosion and sediment control measures as required in FHWA Specifications. 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 will be required to comply with pollution control measures specified in VDOT's Road and Bridge Specifications.

### **Wetlands**

Wetlands in the immediate project vicinity are limited to a few small (less than 0.1 acre) palustrine forested (PFO) wetland swales associated with Field Lark Branch. None of these designated wetlands will be directly impacted by the proposed project.

### **Mitigation**

In accordance with regulatory and permitting programs, compensation for unavoidable stream impacts will be provided as part of the proposed project. Such compensation could be accomplished in a variety of ways. The most desirable would be to construct stream restoration at or near the site of impact. Should adequate compensation not be practicable onsite, other opportunities within the Accotink Creek watershed will be explored. Such opportunities could include uneconomic remnants of privately owned land along streams. Specific identification of such sites would be done in concert with permitting activities. Should no suitable sites be identified, purchase of credits at an existing mitigation bank with a service area encompassing the project would be pursued. As a last resort, should it not prove practicable to provide adequate compensation in any of the above methods, payment to the Trust Fund will be provided.

### 3.5 POTENTIAL HAZARDOUS MATERIALS

Two properties (Central Motors and Newington Associates), located on the west side of Fullerton Road, contain petroleum-contaminated soil and groundwater. The adjoining properties are both crossed by the proposed Ramp 1 alignment. Central Motors is a dealership of heavy-duty and light-duty trucks whose property contained leaking underground storage tanks (UST). The tanks were removed in 1992; however, the Virginia Department of Environmental Quality (VDEQ) documented the presence of free product in monitoring wells drilled in 1993. A subsurface investigation was conducted at the site in January 2002 (M. Miller Associates, 2002) to obtain soil and groundwater samples within the proposed right of way. Petroleum hydrocarbons (diesel and gasoline) and benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds were identified within and downgradient (to the southeast) of the former UST site. A more recent subsurface investigation (M. Miller Associates, 2008) indicated former USTs were also located along the northern edge of the Central Motors building. The Newington Associates site, which is located immediately north of Central Motors, contains a one-story building which houses several automotive repair businesses. Basin pits associated with three possible USTs (which appear to have been removed) were identified along the south wall of the building. Measurable levels of petroleum hydrocarbons were identified at the southwest corner of the building.

Both sites are actively undergoing groundwater remediation. Construction of the proposed project would cross a portion of both properties. Prior to commencing construction, all contaminated soil and groundwater remediation will be completed in compliance with all applicable Federal and State hazardous materials regulations.

### 3.6 INDIRECT EFFECTS

Indirect effects are those that are caused by the proposed action, but occur later in time or farther in distance than the direct impacts discussed elsewhere in this document. Indirect effects of highway projects in general sometimes can include growth-inducing effects and other effects related to induced changes in patterns of land use, population density or growth rate, and related effects on air, water, natural systems, or the human environment.

The indirect effects of this project would involve increases in traffic volumes on some local roads and decreases in volumes on others. Because most surrounding neighborhoods already are built to allowable densities, and because there is little vacant land (other than EPG land) suitable for building in the immediate surrounding area, no substantial development or redevelopment attributable to the project in the surrounding area outside the EPG is anticipated. The largest tract of undeveloped land potentially subject to indirect development effects is the EPG land, for which several redevelopment scenarios have been suggested in the past by business interests, local government, and the Army. However, it can be assumed that such development, if it does occur, would do so regardless of whether the proposed project is constructed, because there is existing access to the property from local roads. Furthermore, the BRAC-related development for NGA on the site is the result of Congressional authorization and is not caused by the proposed project.

### 3.7 CUMULATIVE EFFECTS

Cumulative effects are the incremental effects of the action when added to other past, present, and reasonably foreseeable future actions. Other public and private developments have occurred, or are currently under

construction in the geographic area surrounding the project. In addition, several new public and private developments are reasonably expected to occur in the future. After centuries of human disturbances, water quality in the streams crossed by the project has been somewhat degraded from pristine conditions, to the extent that VDEQ has designated certain surface waters within and downstream of the project area as “impaired waters.” For example, VDEQ has designated Accotink Creek as impaired due to its stressed benthic invertebrate community. The specific sources of the stress are unknown, but probably can be attributed in part to ongoing urbanization and suburbanization in the watershed. The water quality impairment is being offset to some extent by Fairfax County’s Environmental Quality Corridors program and other initiatives to buffer streams from the effects of future development. The establishment of stream valley parks (such as Accotink Stream Valley Park) is a good example of these initiatives. Much of the area at the mouth of Accotink Creek is protected within the Accotink Bay Wildlife Refuge on Fort Belvoir lands. The Fairfax County Land Use Plan calls for nearly all of the Accotink Creek stream valley within EPG to be designated an environmental quality corridor, thus buffering the stream from the effects of nearby future development.

The project is consistent with the Constrained Long Range Plan and, as such, its effects on regional ozone concentrations, when cumulatively considered as part of the regional air quality conformity process, along with all other proposed regionally significant highway and mass transit improvements, would not exceed the emissions budget for ozone that has been established by the Virginia Department of Environmental Quality.

With regard to social, economic, and community effects, over the past 60 years, the character of land within the watershed has changed from rural and agricultural to urbanized metropolitan area. The county now is largely developed, and includes a mixture of low-density to high-density residential, commercial, industrial, and public land uses. With the exception of the EPG land, areas surrounding the project reflect this overall character of the county, with development including a diverse mixture of single-family homes, townhouses, strip shopping centers, motels, and stand-alone businesses of all types. Some of these areas will continue to evolve as businesses come and go and infill residential development continues. The future development envisioned by the County on portions of EPG land will complement surrounding developed land uses, expand the local tax base, and enhance social, economic, and community opportunities.

The business displacement of this project constitutes only a tiny fraction of the continuing change that already is occurring in the regional business community in response to normal forces of change typical for such a dynamic region. When considered in the context of the larger region containing thousands of businesses, along with an active real estate market and business conditions that are providing new choices and opportunities every day, the single displacement is even less substantial. Further, the relocation program would be scheduled so that the business would be given sufficient time to acquire replacement business facilities; and it would not be required to move until such a replacement meeting its needs is found.

In conclusion, notwithstanding the dramatic changes in the landscape that have occurred over time due to human settlement in the area, the intensity of the incremental impacts of the project on human and natural resources, when viewed in the context of other past, present, and reasonably foreseeable future impacts from other sources, would be relatively small and are not expected to rise to a level that would cause significant cumulative impacts.

## SECTION 4

### COORDINATION AND COMMENTS

#### 4.1 AGENCY COORDINATION

In the process of preparing this document, the federal, state, regional, and local agencies listed below were consulted to obtain pertinent information and to identify key issues regarding potential environmental impacts.

Advisory Council on Historic Preservation	Virginia Department of Rail and Public Transportation
Federal Emergency Management Agency	Virginia Department of Transportation
Federal Highway Administration, Virginia Division	Virginia Council on Indians
National Marine Fisheries Service	Virginia Outdoors Foundation
National Park Service	Metropolitan Washington Council of Governments
U.S. Army Corps of Engineers	Northern Virginia Planning District Commission
U.S. Army Garrison Fort Belvoir	Northern Virginia Regional Commission
U.S. Department of Agriculture, Natural Resources Conservation Service	Northern Virginia Regional Park Authority
U.S. Department of Health and Human Services	Northern Virginia Soil and Water Conservation District, Department of Conservation and Recreation
U.S. Environmental Protection Agency	Northern Virginia Transportation Commission
U.S. Fish and Wildlife Service	Fairfax County, Office of the County Executive
Virginia Department of Agriculture and Consumer Services	Fairfax County Department of Community and Recreation Services
Virginia Department of Conservation and Recreation	Fairfax County Department of Health
Virginia Department of Environmental Quality - Air, Water, and Waste Divisions	Fairfax County Department of Planning and Zoning
Virginia Department of Forestry	Fairfax County Department of Public Works and Environmental Services
Virginia Department of Game and Inland Fisheries	Fairfax County Department of Transportation
Virginia Department of Historic Resources	Fairfax County, Economic Development Authority
Virginia Department of Housing and Community Development	Fairfax County Park Authority
Virginia Institute of Marine Science	Fairfax County Planning Commission
Virginia Marine Resources Commission	Fairfax County Public Schools Superintendent

#### 4.2 PUBLIC INVOLVEMENT

A public information meeting was held on June 11, 2008 between the hours of 5:00 p.m. and 8:00 p.m. in the Greater Springfield Volunteer Fire Department meeting hall in Springfield, Virginia. The purpose of this meeting was to provide the public with information regarding this project's scope, purpose and need, the proposed project concept, and the study process.

A public hearing also will be held for this project. The purpose of the hearing will be to present the alternatives and the findings of the Environmental Assessment, to provide a discussion forum between the public and FHWA representatives, and to obtain input and comments from the community. The Environmental Assessment will be made available for public inspection prior to and at the hearing.

## SECTION 5

### REFERENCES

1. *Phase II Environmental Site Assessment Report – Proposed Boudinot Drive Extension, Fairfax County, Virginia.* Prepared for Virginia Department of Transportation. November 18, 2004. Marshall Miller & Associates, Inc.
2. *Subsurface Investigation Report Addendum – Proposed Fairfax County Parkway Extension, Fairfax County, Virginia.* Prepared for Virginia Department of Transportation. June 19, 2008. Marshall Miller & Associates, Inc.
3. *Fairfax County Parkway Interchange Modification Report.* Draft. March 2008. U.S. Army Corps of Engineers, Baltimore District
4. *Fairfax County Parkway (Route 7100) – Environmental Assessment and Finding of No Significant Impact.* June 23, 2004. Virginia Department of Transportation
5. *Waters of the U.S. (Including Wetlands) Delineation and Resource Protection Area Evaluation – Proposed Fairfax County Parkway and Defense Access Road Ramps Study Area.* Prepared for Federal Highway Administration. August 11, 2008. Wetland Studies and Solutions, Inc.
6. *Small Whorled Pogonia Habitat Evaluation and Search, Proposed Fairfax County Parkway and Defense Access Road (DAR) Ramps, Fairfax County, Virginia.* Prepared for Federal Highway Administration. August 11, 2008. Wetland Studies and Solutions, Inc.



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

**FEDERAL HIGHWAY ADMINISTRATION**

**Eastern Federal Lands Highway Division**

**21400 Ridgetop Circle  
Sterling, Virginia 20166**