

S

SUMMARY

S.1 PROJECT DESCRIPTION AND LOCATION

FHWA, in conjunction with NPS, proposes to close US Route 29 and VA Route 234 within the Manassas National Battlefield Park and to provide an alternative means of transportation for the traffic that is currently using those two routes within the Park. The closure is needed to enhance Park experience, improve historic preservation efforts, and allow for better Park operation and management. The Park experiences daily congestion within the center of the Park on both Routes 29 and 234, as well as heavy volumes of cut-through commuter traffic traversing some of the most sensitive historic resources in the Park. The project is located in Northern Virginia, as shown in **Figure S-1**.

S.1.1 Background

The Manassas National Battlefield Park (hereafter the Park or Battlefield Park) was established in 1940 by order of the Secretary of the Interior to preserve the scene of two major Civil War battles. The first major engagement of the Civil War, the First Battle of Manassas was fought on land that is now a part of the Park on July 21, 1861. A little over a year later, in August of 1862, the Second Battle of Manassas, a larger battle resulting in greater casualties, was also fought at the Park. The Park is one of 31 civil war sites in the National Park System and is visited by an average of 800,000 people every year.

The conflict between Park related activities and non-Park related cut-through traffic on US 29 and VA 234 has resulted in several problems including, disturbance to historic resources, Park interpretation conflicts, and serious impediments to public safety, traffic congestion and other concerns. Studies to relocate either Route 29 or 234 started in the late 1970s by the Virginia Department of Transportation (VDOT) as recognition of the conflict between the roads and the Park. In 1980 Congress passed the Manassas National Battlefield Park Amendments of 1980 partially in response to a relocation study for Route 234 which would allow for Route 234 to be relocated from the center of the Park to the western edge of the Park just to the east of Pageland Lane. However, this portion was never pursued by VDOT and Congress passed the Manassas National Battlefield Park Amendments of 1988 to address the continuing conflict between the roads and the Park. The 1988 Act requires that the Secretary of the Interior, in consultation with the Commonwealth of Virginia, the Federal Highway Administration (FHWA), and Prince William County conduct a study to consider and develop plans for closing the portions of US 29 and VA 234 that transect the Park and to provide alternative routes for traffic now traveling through the Park.

Although the study was scheduled for completion within one year after the enactment of the law in 1988, the funding was only recently made available. A Memorandum of Agreement (MOA) was executed between NPS, FHWA, and the Virginia Department of Transportation (VDOT) to address the legislative directive.

The MOA, signed on November 5, 1999, established the roles, responsibilities, and procedures under which work would be performed by each of the agencies for the preparation of an Environmental Impact Statement



(EIS), and also for the design and construction of the bypass, if one was selected for construction following the environmental process.

S.1.2 Project Termini

The proposed improvements would affect both Routes 29 and 234 within the boundaries of the Manassas National Battlefield Park. This study includes the closure of both routes within the Park and does not address the need to close one or the other route or phasing in improvements. The improvements would allow for the closure of over 4 miles of Route 29, basically from the bridge over Bull Run to Pageland Lane west of the Park and approximately 3 miles of Route 234 from the southern Park boundary to the area known as Sudley Springs north of the Park.

In studying alternatives, there are several major transportation investments that are being considered by the VDOT in the study area and appear in the No-Action network for this Draft EIS. These potential new transportation facilities that are currently adopted in regional plans include improvements to I-66, the Tri-County Parkway, and the Route 234 Bypass North Extension. These investments may help to meet the transportation needs of some of the commuters that currently use Routes 29 and 234 if they were to be closed within the Park and are being pursued independently of this project. As is discussed in the Secondary and Cumulative section of Chapter 4 of this Draft EIS, the impacts associated with those corridors could occur in advance of the alternatives considered in this study, and in that case, segments of the alternatives developed for this study would be co-located onto those corridors. However, FHWA has determined that in order to have independent utility from those investments, impacts for this study will include some of those potential co-located facilities to form true end-to-end alternatives. Therefore, impacts are presented in this Draft EIS for the entire relocation concept for each of the bypass alternatives. In several of the concepts, one bypass concept is able to provide movements for both Routes 29 and 234 and the impacts are summarized for the entire length of the concept.

S.2 PURPOSE AND NEED FOR ACTION

The purpose of the study for this study is to develop alternatives that will allow for the closure of the portions of US Route 29 and VA Route 234, which currently transect the Manassas National Battlefield Park (Manassas NBP or the Park), and to provide alternatives for the traffic currently traveling through the Park. As such, it is not the purpose of this project to provide additional capacity through Park boundaries, but rather to study whether or not relocating the existing capacity in another location or by another means would allow for the closure of the roads within the Park.

The project need is based on several elements. Historic preservation, Park interpretation and visitor experience, as well as Park management and operations are negatively affected by traffic congestion within the Park from non-Park related cut-through traffic. These heavy volumes of non-Park related traffic impede access to historic sites and create public safety conflicts. Continued growth in areas surrounding the park will only worsen traffic conditions and diminish historic preservation and Park experience, although the primary element of need for closure of the roads is a result of the existing traffic congestion.

The purpose and need for this study is supported by the Manassas National Battlefield Park Amendments of 1988, which directed the study of closure of both US 29 and VA 234 from their current locations within the Park and relocation elsewhere. In addition to purpose and need, several goals and objectives have been established for this project and include the following:

- Preserve the historic and cultural integrity of the Park and its' surrounding area.
- Accommodate existing traffic volumes now traveling through the Park.
- Separate Park and commuter traffic.
- Accommodate freight movements.
- Maintain or enhance transportation system linkage.
- Enhance multimodal access.
- Maintain access to the Park and to private in-holdings located within the Park.
- Coordinate the study process with other studies and agencies.
- Provide extensive opportunities for public involvement.

S.3 ALTERNATIVES

A wide range of improvement alternatives was considered for this project. The alternatives were identified and evaluated through an iterative screening process in cooperation with citizens, localities, and state and federal agencies. Except for the No-Action Alternative, alternatives deemed not reasonably capable of meeting the identified needs for the project were eliminated from further consideration. While required by National Environmental Policy Act regulations, the No-Action Alternative was also studied in detail because it serves as a baseline for comparing the other alternatives. Alternatives that were deemed too disruptive in comparison to the transportation benefits they would provide and when compared with other remaining alternatives were also eliminated from further consideration. Thus, the range of alternatives considered in detail are the No-Action Alternative, Candidate Build Alternatives A – D all located to the north of the Park and Candidate Build Alternative G which is located within the southern edge of the Park boundaries along I-66 and also includes a relocation for Route 234 west of the Park. All of the northern alternatives would provide movements for both Route 29 and Route 234 in one consolidated corridor.

S.3.1 Alternatives Development

The intent of the alternatives development process is to develop a full range of alternatives that best serve the project's purpose and need, narrow the options to a set of Candidate Build Alternatives, and then analyze these Candidate Build Alternatives in the DEIS in order to identify a Preferred Alternative. The process used for the identification of alternatives was an iterative one that included several levels of analysis. As the number of alternatives decreased, the level of detail included increased, as concepts were refined. There were two primary alternative development steps – identification of Preliminary Concepts and refinement of those concepts into Candidate Build Alternatives.

The first step in the alternatives analysis process was to develop a master list of initial concepts from previous studies. The initial set of concepts came from the Virginia Department of Transportation's (VDOT) three studies of transportation improvements in the study area: the *I-66 Major Investment Study*, the *Route 29 Corridor Development Study*, and the *Route 234 Bypass Study*. Although these studies were not developed to meet the specific purpose and need included in this Draft EIS, each study identified and evaluated a number of routes, or strategies, for relocating either Route 29 or Route 234 from within the boundaries of the Manassas National Battlefield Park.

The routes included in these previous studies were used as a starting point for the development of concepts that meet this project's purpose and need. Several general principles guided the identification of the Preliminary

Concepts. First, concepts that did not allow for the closure of Routes 234 and 29 within the Park were not evaluated. Several concepts that involved making improvements within the Park to better manage traffic were suggested, such as widening the routes, implementing traffic calming techniques, or restricting certain types of traffic like truck traffic. These concepts were not evaluated due to their inconsistency with the fundamental purpose of the study, which is to develop alternatives that would allow for closure of both Routes 29 and 234. Second, concepts were developed that allowed for closure of both Routes 29 and 234. In order to meet the legislative intent for this study, concepts were not developed that focused on one route versus the other. Thus, concepts were developed in conjunction with each other to provide for all movements on Routes 29 and 234. Third, all concepts developed allowed for system continuity for Routes 29 and 234. Concepts that did not allow for a continuous route were not considered.

The initial concepts were screened against several criteria, including the elements of need and goals established as part of the purpose and need evaluation. The initial concepts were also screened for fatal flaws at a very general level and environmental resources within a 1,500-foot wide corridor were identified as part of the screening process. The initial concepts were refined into four categories: the No-Action Alternative, the Transit Concept, the Transportation System Management (TSM) Concept, and several Roadway Relocation Concepts. These were defined as the Preliminary Concepts.

The Preliminary Concepts were presented to the public at a workshop in December of 2002 with information on purpose and need and existing conditions. Through the public involvement process and coordination with local jurisdictions, the Preliminary Concepts were refined and put through a second level of screening. Several changes were made to the concepts and a new concept was added.

During the refinement of the Preliminary Concepts, a new segment was developed to minimize impacts to private property and residential development northeast of the Park. This concept would require land from within the Park and would connect to the existing Route 234 Business north of the Park, but would still benefit the Park by allowing for the closure of potentially 7 miles of Routes 29 and 234. The legislation adopting this study specifies that concepts be developed “in and in the vicinity of” the Park and a request was made by local and elected officials to consider concepts that might be located within the actual boundaries of the Park as a method to minimize impacts to privately owned land and adjacent properties.

The second level of screening was conducted for all of the refined Preliminary Concepts and impacts were calculated using 1,500-foot bands. Screening considerations at this stage included preliminary traffic impacts, environmental considerations, and engineering complexity. The environmental considerations included natural resource impacts, such as stream crossings and floodplain encroachments, social impacts, such as potential for displacement and parkland impacts, and cultural impacts on the Manassas National Battlefield Park and the Davis Tract, among others.

Upon completion of the second level of screening, the most promising Preliminary Concepts formed the basis for development of the set of Candidate Build Alternatives. An iterative process for translating these concepts into alternatives involved detailed mapping and field verification of environmental resources, conceptual design drawings, increasingly detailed preliminary design drawings of road and intersection configurations, and further consultations with the public and local and state agencies. The next step in the process was the development of 250-foot corridors based on the engineering of centerlines for the proposed alternatives. At this stage, the numbered Preliminary Concepts were combined to make end-to-end Candidate Build Alternatives A-F, as well

as the No-Action and TSM Concept. A third level of environmental screening was conducted to identify resources within the 250-foot corridors that resulted in the elimination of Candidate Build Alternative F.

Translating the general 250-foot Candidate Build Alternatives into specific physical improvements involved consideration of engineering, traffic, and environmental considerations. Engineering considerations included geometric design standards for horizontal and vertical alignments, widths of travel lanes and shoulders, cut and fill slopes, stormwater and drainage elements, and cost. Traffic considerations included volumes, speeds, lane capacities, and intersection turning movements. Environmental considerations included potential effects on residential areas, parks, businesses, noise levels, water quality, wetlands, visual quality, vegetation, and cultural resources in and around the Park.

The development of alternatives was coordinated with federal, state, and local agencies, citizens, interest groups, civic organizations, and businesses. FHWA and NPS encouraged agency and public participation in the study process and project newsletters and public workshops were held at every stage of the screening process. Four newsletters were prepared that went to the project mailing list as well as to all federal, state, and local agencies involved in the NEPA agency coordination process. Four public workshops were also held to present the results of the alternatives development process. All decisions made by the Study Team were coordinated with VDOT and Prince William County, as required in the legislation mandating this study.

S.3.2 Alternatives Considered and Eliminated

As a result of the alternatives refinement and screening, several concepts and alternatives were eliminated from further consideration and were not carried forward in the environmental process as reasonable alternatives. Reasons for elimination varied; only the best performing concepts were retained at each stage of the screening process. The concepts dropped from further study and the reasons behind their elimination are summarized below.

There were several initial concepts developed in the first stages of the project that were eliminated in the first screening before they were developed as full concepts. These initial concepts were screened against the elements of purpose and need and for potential fatal flaws.

Route 234 Alternative A and B-4 (From Route 234 FEIS). These concepts were analyzed as a potential relocation for Route 234 from within the Park boundaries and were not selected by VDOT in their studies as the preferred location. The concepts would connect I-66 east of the current Route 234 Bypass to a point on Route 234 Business east of Catharpin. These concepts were re-evaluated for the purposes of this study and eliminated because they would not provide a connection to the section of the Route 234 Bypass already constructed and would impact sensitive park resources within the Park as they are located well within Park boundaries along a power line easement that has since been relocated.

Route 234 Alternative B and A-1 (From Route 234 FEIS). This concept would connect to I-66 approximately one-half mile west of Alternative A's I-66 interchange location at the existing Route 234 Bypass location. On the north end, this alternative would parallel Pageland Lane (Route 705) on the west side to just south of Artemus Road (Route 704), then curve to the west and generally follow along the north side of Catharpin Creek to intersect US Route 15 just north of James Long District Park. This concept was eliminated due to its lack of connection back to existing Route 234 northwest of the Park and potential impacts to residential and community facilities that have been constructed since this alternative was analyzed by VDOT.

Long South Bypass. This concept was located south of the Park and I-66 and used Bull Run Post Office Road right-of-way and a new alignment along the edge of Ben Lomond Regional Park and Bull Run Regional Park, as well as portions of Lomond Drive and the Route 234 Bypass. This concept was dropped due to potential impacts to several developed residential areas.

Short South Bypass. This concept was located south of the Park and I-66 and used Bull Run Post Office Road right-of-way, Coppermine Drive, Williamson Boulevard, Coverstone Drive, and Route 234 Bypass along with some new segments on a new location between these existing roads. This concept was dropped due to potential impacts to several developed residential areas.

Extended Long South Bypass. This concept was similar to the South Bypass concept except it would extend farther to the west of the existing Route 234 Bypass location and include more new roadway construction. This concept was dropped due to the potential for high residential impacts to developed areas south of I-66 and due to its significant physical distance from the Park, making it unlikely to provide meaningful travel options for those people currently using Routes 29 and 234.

Several Preliminary Concepts were eliminated from consideration after a second level of screening. In some cases, the concepts were re-designed to minimize impacts and in some instances only certain segments of the concepts were eliminated.

Mass Transit. Although the Mass Transit Concept was eliminated as a stand-alone alternative during the screening of the preliminary concepts, elements of mass transit will be considered as part of the development of transportation corridors and the concept of additional transit on I-66 will be encouraged. The Mass Transit Concept did not address several of the elements of need for this relocation study and was therefore eliminated. An investment in transit without any additional capacity or alternate locations for Route 29 and 234 would result in discontinuous routes, which is one of the primary elements of need. In addition, a “best case” estimate of transit ridership indicates that the transit concept would not provide adequate travel demand to replace the capacity lost by closure of both Routes 29 and 234. Finally, the transit concept was eliminated because it would not provide meaningful access to the quarries that generate much of the truck traffic on Routes 29 and 234 and would not provide relocated access to the private in-holdings within the Park.

Segment of Concept 2 within Fairfax National Estates. Concept 2 was shifted to the south to avoid residential displacements, noise, and visual impacts to the residential area known as Fairfax National Estates that is located north of the Park. The original concept used the right-of-way of a private access route, Sudley Road, as the primary route for the relocation concept. Sudley Road also served as the primary neighborhood access road and locating the concept in this location would bisect the neighborhood and result in substantially more displacements than other reasonable alternatives. Concept 2 did proceed into the next step in the process after being relocated to the south of Fairfax National Estates.

Segment of Concept 2 East of the Davis Tract. A segment of Concept 2 was originally developed along the boundary of the Manassas National Battlefield Park just to the east of the Davis Tract, a Virginia Outdoors Foundation easement acquired for historic preservation. During the development of preliminary concepts, a connection between Concepts 5 and 2 was developed to eliminate the need for this segment of Concept 2 and minimize cultural resource impacts in this location.

Concept 2B. Concept 2B followed the edge of the Park to the north and west and, after crossing Pageland Lane, continued west and followed the boundary of Conway Robinson Memorial State Forest to Route 29. Concept 2B also included use of a portion of Route 29 to the east to connect into the existing Route 23 Bypass Interchange with I-66. This concept was dropped from further consideration due to excessive impacts to resources in the area, particularly Conway Robinson Memorial State Forest and residences within the Heritage Hunt neighborhood. In addition, the circuitous connection back to the Route 234 Bypass resulted in lower travel demand when compared to other concepts.

Concept 2C. This concept is the same as Concept 2B except that, instead of following the boundaries of Conway Robinson Memorial State Forest back to Route 29, Concept 2C continues to head southwest from the northwest corner of Conway Robinson Memorial State Forest, crosses I-66 west of the Gainesville interchange, and connects to Route 29 north of Lake Manassas. This concept was eliminated due to its disproportionate residential displacements within the Heritage Hunt neighborhood as well as impacts to Conway Robinson Memorial State Forest.

Concept 3A (North of I-66). This concept consisted of a new Route 29 located on new alignment running parallel to I-66 on the north side. This concept was dropped due to lack of travel demand usage and traffic operation concerns when compared to the other remaining alternatives and was originally tested as a two-lane concept. However, after the decision was made to use the four-lane configuration, this concept was reviewed at the request of the public and localities and was found to have improved demand. Thus, it was refined and added to the set of Candidate Build Alternatives as Candidate Build Alternative G.

Concept 3B. This concept was a result of public comments from the December 2002 Public Workshop and coordination with Prince William and Fauquier Counties. It is an extension of Concept 3A that continues improvements on I-66 to a point between Turner Road and Beverly Road. From this point, a new roadway on new location would connect I-66 to Route 29 near the Vint Hill Road intersection. This concept was eliminated because it did not meet several of the elements of purpose and need since it was located at such a long distance from the Park and did not match the origins and destinations of travelers now using Routes 29 and 234 within the Park. In addition, due to the length of the proposed improvements on I-66 and on the portion of new roadway, this concept had greater impacts to environmental resources than other more reasonable alternatives. As part of the analysis of this concept, it was acknowledged that the construction of a new link to I-66 west of Buckland could divert traffic from within the historic community, but that such a proposal should be pursued relative to other goals and objectives than this Draft EIS.

Concept 5 (Including Design Options 5A, 5B and 5C). All of the concepts for the Long North Bypass were eliminated except for a portion of what was designed to connect from Concept 5 to Concept 2 as well as the segment known as 5D that avoided impacts to the Davis Tract. Concepts 5A and 5B were dropped due to the limited traffic benefits that would result in comparison to the cost and environmental impacts, including displacements, floodplain, and stream impacts, associated with the length of the concept. In addition, both concepts increased traffic on Route 15, which is not consistent with long-term goals for that scenic corridor. Concept 5C was eliminated due to a high potential for displacements along the Catharpin Road corridor and limited traffic benefits to commuters currently using Routes 29 and 234.

Several of the Candidate Build Alternatives were eliminated in consultation with local and state agencies. These included alternatives that involved co-locating Route 29 onto I-66. In addition, several options were

developed for some of the Candidate Build Alternatives as part of the detailed engineering design. Some of these options were eliminated subsequently as well.

Transportation System Management. The TSM Concept included minor system improvements to maximize the existing transportation system's ability to handle traffic and would co-locate US 29 traffic onto I-66. Other specific improvements considered for this alternative include intersection improvements on existing Route 234 at Pageland Lane and Gum Springs Road, and shoulder and site distance improvements along Pageland Lane.

The TSM concept was eliminated because it failed to provide a viable option for traffic now traveling through the Park on either US 29 or VA 234. In addition, VDOT expressed concerns that co-locating traffic onto I-66 under any scenario would cause backups at the locations where the new lanes would merge with I-66 traffic, creating several choke points. Additionally, none of the local comprehensive plans currently support co-location of US 29 onto I-66 and, according to VDOT; the full capacity of the I-66 right-of-way is already planned for improvement based on demand within the I-66 corridor.

Candidate Build Alternative E. Under this alternative, traffic now traveling on US 29 would be co-located onto I-66 with an additional two lanes (one in each direction) between Centreville and Gainesville. This alternative provided a north/south route for VA 234 traffic on the western edge of the Park, parallel to Pageland Lane. Three design options were provided between the portion located approximately 1 mile north of US 29 and the existing VA 234 near the Sudley Park Site.

This alternative was eliminated for several reasons, although it was replaced with a similar alternative (Candidate Build Alternative G) also located within the I-66 corridor. Two scenarios were developed for co-locating US 29 onto I-66 under Alternative E: an "interim scenario" based on the existing facility and an "ultimate build out scenario" based on a potential future cross-section of I-66 being studied by VDOT in the *I-66 Multimodal Transportation and Environmental Study (I-66 MTES)*.

VDOT expressed concerns that co-locating traffic onto I-66 under any scenario would cause backups at the locations where the new lanes would merge with I-66 traffic, creating several choke points. Thus, for I-66 to perform properly, VDOT estimates that the two lanes would need to continue to the Capital Beltway. Additionally, none of the local comprehensive plans currently support co-location of US 29 onto I-66 and, according to VDOT; the full capacity of the I-66 right-of-way is already planned for improvement based on demand within the I-66 corridor.

Candidate Build Alternative F. Under this alternative, traffic now traveling on US 29 would be co-located onto an improved Balls Ford Road and included two alternative connections to existing US 29 east of the Park. This alternative provided a north/south route for VA 234 traffic on the western edge of the Park, parallel to Pageland Lane. Three design options were provided between the portion located approximately 1 mile north of US 29 and the existing VA 234 near the Sudley Park Site.

This alternative was eliminated primarily due a disproportionately high number of displacements in comparison with other alternatives, as well as engineering difficulties and traffic operations problems.

Design Options West of Pageland Lane. Three design options that were included in Candidate Build Alternatives B, D, E, and F and presented at the Public Workshop on July 16, 2003 were eliminated and

replaced with one primary alternative alignment. The three design options were based on the Preliminary Concept 1 to handle north-south traffic. The options were eliminated because two options crossed Pageland Lane at three locations and would result in community disruption to residences in the area. The other design option that followed a power line easement was eliminated due to environmental impacts, particularly a high number of stream crossings.

S.3.3 No-Action Alternative

A No-Action Alternative was developed to serve as the baseline against which all other alternatives will be compared. The No-Action Alternative provides no improvements or relocation of Route 29 or Route 234 except for periodic maintenance of the roadways along the existing corridors and Routes 29 and 234 would remain open in the Park. However, other planned improvements to the regional roadway and transit network, as outlined in The Long-Range Transportation Plan for the National Capital Region, were assumed to be in place by the design year (2025) for the purposes of traffic forecasting, including the extension of the Route 234 North Bypass. It should be noted that the No-Action Alternative would be inconsistent with the legislative mandate that implemented this study.

S.3.4 Build Alternatives

At the conclusion of the alternatives development and screening process, five Candidate Build Alternatives and the No-Action Alternative were retained for detailed evaluation. More detailed mapping of these alternatives is provided in Chapter 4 of this Draft EIS. In each build alternative, the roadways would be closed within the Park to commuter traffic and these relocation routes would be re-designated as Routes 234 and 29.



Candidate Build Alternative A

This concept begins either on an independent alignment to the west of the Luck Stone quarry on Route 29 or would be co-located on the Tri-County Parkway west of the quarry and then travel to the north of Fields of Dreams and the Fairfax National Golf Course, cross Bull Run and head south along the western boundary of the Davis Tract and along Stony Ridge. The alternative is on new location to the east of Pageland Lane and then is located within the western edge of the Park where it would connect to Route 29 and I-66 at the Route 234 Bypass.

Candidate Build Alternative B

This alternative is on the same location as Candidate Build Alternative A to a point in Sudley Springs where it would connect to Business Route 234 northwest of the Park. A section of existing Route 234 would be improved under this alternative to a point just east of the Sudley Park site in Prince William County. The alternative then would be co-located with a planned segment of the Route 234 North Bypass Extension that is located to the west of Sudley Mountain Estates. This alternative then is located to the east of Pageland Lane within the Park boundaries on a similar alignment as Alternative A.





Candidate Build Alternative C

East of the Park, this alternative is similar to Candidate Build Alternatives A and B and could be co-located with the Tri-County Parkway as discussed below. Unlike the previous alternatives, this alternative bisects the northeast corner of the Park and crosses Bull Run in three locations. This alternative is located to the south of the Field of Dreams and proceeds between Bull Run and the Fairfax National Golf Course. After the alternative crosses Bull Run into Prince William County, it travels to the south avoiding the Bull Run Overlook neighborhood, and it is on the same alignment as Alternative A.

Candidate Build Alternative D

This alternative is comprised of Concept 1, Concept 2, and Concept 2D. This alternative is a combination of Candidate Build Alternative C that crosses within the Park boundary and below the Field of Dreams and Candidate Build Alternative B that upgrades a portion of existing Route 234 northwest of the Park and is co-located on the Route 234 Bypass North Extension, as discussed below.



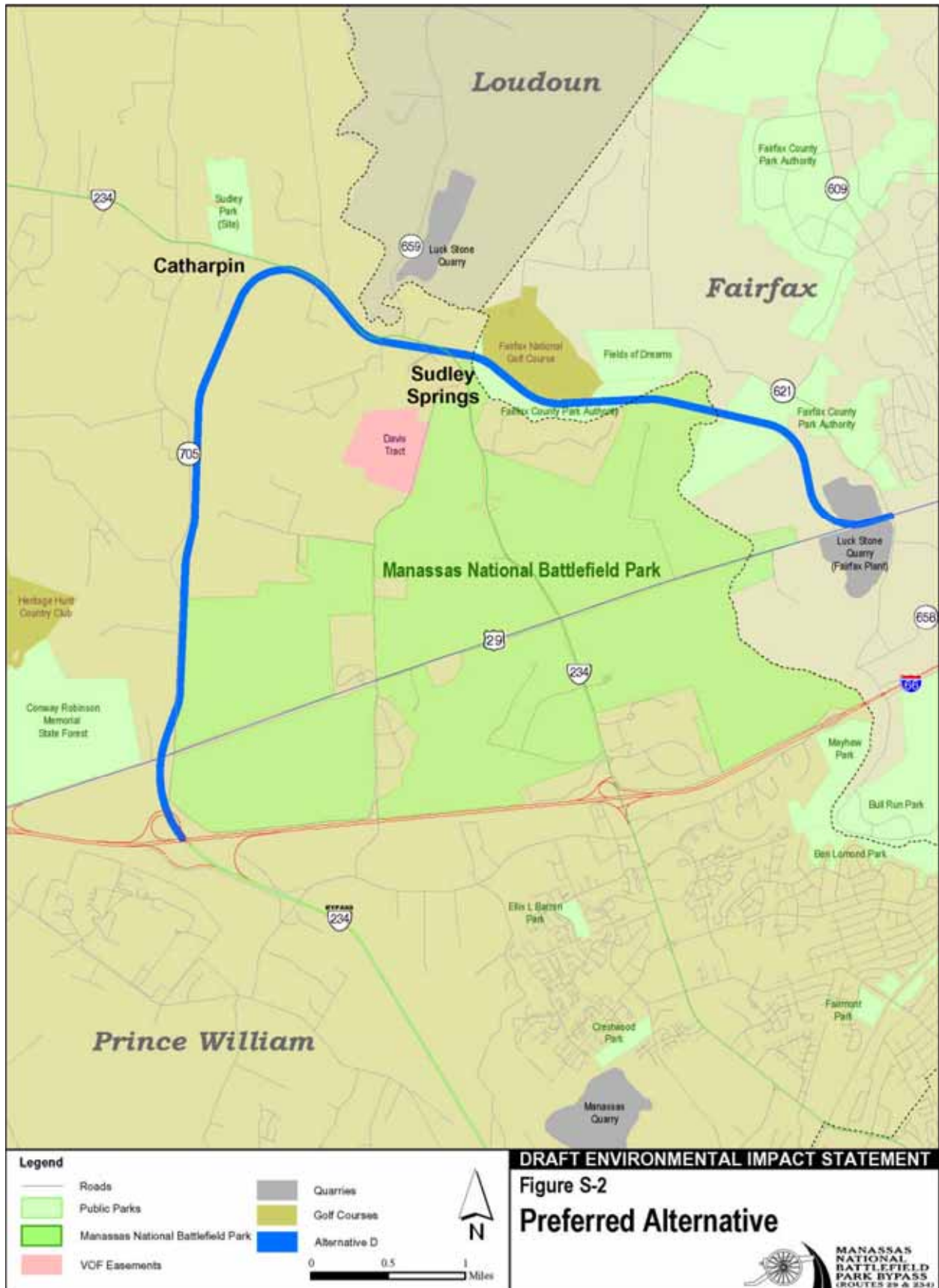
Candidate Build Alternative G

This alternative includes Concept 1 and Concept 3A, and would consist of a facility parallel to I-66 between Centreville and Gainesville. It would begin along the east side of the Luck Stone quarry on Route 29, travel southwest and cross Bull Run close to I-66 where it would be located just to the north of I-66. It would continue to parallel I-66 until reaching the east side of the Battlevue Business Park near the existing Route 234 interchange where it would run along an improved Battlevue Parkway and cross existing Route 234 where the intersection exists today. This

alternative would then travel parallel to I-66 until the approach with the existing Route 234 Bypass interchange. At the existing Route 234 Bypass interchange options to connect to the interchange or to Route 29 via fly-over ramps and/or an intersection have been developed. A design option has also been developed east of the Park that would be co-located with the Tri-County Parkway. This alternative also includes a corridor along the proposed Route 234 North Bypass Extension to provide Route 234 movements.

S.3.5 Preferred Alternative

The Preferred Alternative for this Draft EIS is Candidate Build Alternative D, shown in **Figure S-2**. Alternative D, because it is located partially within the Park boundaries in the northeast corner, minimizes impacts to residential areas such as Fairfax National Estates, Bull Run Overlook, and Sudley Mountain Estates. Alternatives A and B have greater community impacts to residential areas. Excluding Alternatives A and B, Alternative D has the lowest acreage required from within the Amended Historic District. Alternative D also has lower cumulative effects than other alternatives because it co-locates more specifically with planned



improvements along Route 234 and the Tri-County Parkway, and many of the impacts associated with Alternative D may be part of these initiatives. Alternative D also has the least impact on visual resources in the study area because it requires less structure in the sensitive area of Sudley Springs.

Although Alternative D has been identified as the Preferred Alternative, revisions to the Preferred Alternative may be incorporated following the public review period and coordination efforts with federal, state and local agencies for this Draft EIS. In addition, measures to minimize impacts will be incorporated into the design phase of this project.

S.4 ENVIRONMENTAL CONSEQUENCES

The following briefly describes the principal environmental effects of the proposed project. **Table S-1** is a matrix showing the comparative effects of the alternatives. More detailed analyses are presented in Chapter 4 of this Draft EIS. In many cases, the impact numbers presented are the worse-case totals, since some of the mitigation measures and more detailed analyses required to minimize harm are conducted following the release of this Draft EIS and during the design phase of the project.

TABLE S-1: COMPARATIVE SUMMARY OF PROJECT EFFECTS BY ALTERNATIVE

Issue/Resource	No-Action	A	B	C	D	G
Provides alternate route for Route 29?	No	Yes	Yes	Yes	Yes	Yes
Provides alternate route for Route 234?	No	Yes	Yes	Yes	Yes	Yes
Improves Park visitor safety and experience	No	Yes	Yes	Yes	Yes	Yes
Improves internal Park mobility and access to Park sites.	No	Yes	Yes	Yes	Yes	Yes
Consistent with Park's GMP goals and objectives.	No	Yes	Yes	Yes	Yes	Yes
Noise Impacts (dwellings)	0	27	34	19	29	22
Homes Displaced	0	6	13	5	13	11
Businesses Displaced	0	1	1	1	1	2
Schools Displaced	0	0	0	0	0	0
Churches Displaced	0	0	0	0	0	0
Other Community Facilities Displaced	0	0	0	0	0	1
Air Quality (CO in excess of NAAQS)	No	No	No	No	No	No
Public Parks Impacted	0	3	3	3	3	1
Fairfax County Park Authority (acres)	0	8.5	8.6	20.5	20.5	0.0
MNBP - Park Owned Land Required	0	11.2	11.2	19.2	20.6	42.3
MNBP - Park Land Gained from Road Closures ²	0	76.2	76.2	76.2	76.2	76.2
MNBP - Historic District Impacts (acres)	0	59.9	31.6	80.2	54.0	59.3
Archaeological Resources: Prehistoric	0	3	3	4	4	0
Archaeological Resources: Historical	0	1	4	3	5	4

TABLE S-1: COMPARATIVE SUMMARY OF PROJECT EFFECTS BY ALTERNATIVE

Issue/Resource	No-Action	A	B	C	D	G
Architectural Resources	0	12	16	13	17	13
Rural Historic Landscapes	0	2	2	2	2	1
Civil War Resources: Archaeological Areas ²	0	5	4	6	5	6
Civil War Resources: Architectural Resources ²	0	4	4	4	4	6
Civil War Resources- Civil War Landscapes ²	14	8	8	9	9	8
Acreage of Wetlands Within LOD Boundaries	0	11.6	11.7	5.1	7.0	5.5
Approximate Compensation Acreage Required	0	17.4	16.7	8.5	10.1	8.3
NPS (Director's Order 77-1) Wetlands (acres)	0	4.5	4.5	5.4	5.3	7.7
Total Length of Stream Likely Impacted (Linear Feet)	0	3,272	3,330	1,840	2,606	2,163
Acres of 100-year Floodplain within Corridor	0	18.6	17.2	29.3	30.8	10.2
Disproportionate Environmental Justice Impacts	No	No	No	No	No	No
Right of Way Required (acres)	0	185.4	195.8	178.4	190.6	202.8
Potential Hazardous Material Sites	0	8	4	7	5	4
Farmland (acres)	0	40.8	54.3	46.2	57.1	43.5
Major Stream Crossings	0	2	1	4	3	1
Threatened and Endangered Species	No	No	No	No	No	Yes
Length: (Miles)	0	7.9	9.0	7.4	8.6	10.3
Construction Cost (\$ million)	0	235.2	252.2	236.0	255.4	306.8
Right of Way Cost (\$ million)	0	7.5	10.3	5.9	10.1	15.4
Total Cost (\$ million) ³	0	242.7	262.5	241.9	265.5	322.2

Notes:

¹"MNBP Land gained From Road Closures" is based on the assumption that the portions of Routes 29 and 234 located within the Park boundaries would be converted to Park ownership for Park use and restricted to through traffic.

²All cultural resources identified in this table are NRHP-listed, NRHP-eligible or presently unevaluated. These numbers represent the number of resources within the APE and not necessarily those that are impacted.

³Cost estimates are in 2004 dollars. Mitigation, enhancements, right away assessment increases, or design changes may alter these figures.

S.4.1 Land Use

Any of the Candidate Build Alternatives will require the acquisition of lands within Fairfax and Prince William County, as well as within the Manassas National Battlefield Park. The existing land uses would be converted to highway use. Alternative G would have the largest impact at 202.8 acres converted. The least amount of land would be converted for Alternative C at 178.4 acres. The primary land use category converted would be Undeveloped / Rural land, with Alternative B having the greatest effect of 154.4 acres of land converted. Alternatives A has the greatest effect on Residential land at 34.2 acres and Alternatives D and G have the least

impact at 13.5 and 13.0 acres, respectively. The only acreage impact to Commercial land is associated with Alternative G. No new right-of-way would be required for the No-Action Alternative.

S.4.2 Socioeconomics

Each build alternative would result in displacements to homes or businesses. The number of residences displaced would range from 6 to 13 with Alternative B and D resulting in the most displacements. 7 residential displacements would occur along Pageland lane for any alternatives utilizing the planned extension of the Route 234 Bypass. None of the alternatives is anticipated to displace any non-profit organizations, schools, or churches. Alternative G would result in the most business displacements with 2.

Impacts of the build alternatives on community cohesion would include the taking of land and homes along the edges of neighborhoods. Access to or from some residences and neighborhoods would be reconfigured in some areas. Alternatives A and B would bisect and therefore result in a negative impact to community cohesion in the Bull Run Overlook Ct. neighborhood. A new access road would be constructed in the neighborhood to reduce the number of displacements. New neighborhood access roads would also be constructed to maintain access to some residences along the Pageland Lane corridor. No non-motorist facilities such as pedestrian or bicycle paths will be lost. To the degree that any roadway improvements attract trips away from local roads, quality of life in communities will improve due to a decrease in cut-through traffic.

One population under the aegis of the Presidential Executive Order 12898 on environmental justice (EJ) was identified in the project area. However, there is no evidence that such populations would be subjected to disproportionately high and adverse environmental effects.

The candidate build alternatives will have positive impacts on highway and traffic safety. Although the project would generate tax losses to Prince William and Fairfax Counties, these losses would be offset to some degree by tax gains from added employment and materials sales during construction, and by time and shipment cost savings associated with improved mobility.

S.4.3 Air Quality

None of the alternatives would be expected to interfere with the attainment or maintenance of National Ambient Air Quality Standards (NAAQS). An analysis of carbon monoxide concentrations at selected sites along the alternatives showed no exceedances of the NAAQS for carbon monoxide under any scenario. The project area is designated by the U.S. Environmental Protection Agency as "severe nonattainment" for ozone, and transportation control measures are in the State Implementation Plan (SIP) to further progress toward attaining the NAAQS for ozone. The Federal Highway Administration will not be able to complete the Final EIS for the project until the scope of the project is reflected in the financially constrained long-range regional transportation plan and a conformity analysis demonstrates conformity with the SIP. The temporary air quality impacts from construction are not expected to be significant.

S.4.4 Noise

None of the candidate build alternatives will create extensive noise impact. Alternatives B and D will cause noise impacts to the most properties. Alternatives A and C will both create less noise impacts than Alternatives B or D primarily as a result of this separation from the Route 234 Bypass corridor. Alternative G will produce the least noise impact.

Alternative B would impact 34 residential properties, the Fairfax National Golf Course, and the Union Ridge Equestrian Center. Alternative D would impact 29 residential properties, the golf course, and equestrian center.

The majority of the impacted residential properties are located on Pageland Lane. Other impacted properties are located on Sudley Road, Bull Run Post Office Road, Lee Highway, Sunrise Hill Road (Alternative D only), and Peaceful Meadow Lane (Alternative B only).

Alternative A would impact 27 residential properties, the Fairfax National Golf Course, and the Union Ridge Equestrian Center. Alternative C would impact 19 residential properties, the golf course, and equestrian center. Most of the properties impacted with Alternative A are located on Pageland Lane or Bull Run Post Office Road, while with Alternative C, most are located on Pageland Lane. Other impacted properties are located on Bluebird Lane, Goldfinch Drive, Lee Highway, Peaceful Meadows Lane (Alternative A only), and Sunrise Hill Road (Alternative C only).

Alternative G would impact 22 residential properties. The majority of impacted properties are located along the Pageland Lane corridor. Two properties on Bull Run Post Office Road (BRPO) south of Route 29 and one on Route 29 (Lee Highway) would also be affected. Noise levels will also approach or exceed 67 dBA in the office park located east of Sudley Road and north of I-66 as a result of Alternative G. However, there are no apparent exterior noise-sensitive activity areas at the office park.

The No-Action alternative would result in noise impacts to the Sudley United Methodist Church. No impact is predicted at the church with any of the build alternatives.

S.4.5 Visual Quality and Aesthetics

The primary visual effect of the proposed improvements results from the clearing and construction of the highway corridor in areas that are currently undisturbed or changing the visual character within specific areas. There are four primary viewing areas analyzed: the park sector that includes most of the Park, the I-66 sector, the residential sector which includes neighborhoods along the alternatives, and the commercial sector along I-66 that will experience effects. Within the Park sector, Alternative G has the most effect on areas of high viewer sensitivity, impacts from views associated with the alternative, and impact on scenic thoroughfares. The lowest effects to the Park sector would be Alternative B. Alternative G is also the only alternative that will have effects on the visual character of the I-66 sector and the commercial sector, although the overall degree of visual change will be of low impact, and the increased visibility of Alternative G would not be incompatible with the more urbanized surrounding of that alternative along I-66 and in the commercial area. In the residential sector, Alternative C has the greatest effect and Alternative G has the least effect, since it is located primarily within the Park. These impacts are calculated without landscape treatments and buffering that will be incorporated in the design phase of the project. Vegetative buffers would be reestablished by landscaping or by allowing indigenous species to regenerate naturally.

S.4.6 Parks and Recreation Areas

All of the northern candidate build alternatives would require land from three publicly owned parks and recreation areas, including two sites that have been recently purchased by the Fairfax County Park Authority (FCPA). All northern alternatives require about 8.5 acres of land from a future FCPA site located just east of the Park along Bull Run Post Office Road. Alternative G avoids this site. Alternatives C and D require acreage from within a future FCPA site located just south of the Fairfax National Golf Course. Alternatives A, B and G avoid this site. Alternative G would require the greatest land from within the Battlefield Park at 42.3 acres. The least impact to Park-owned lands would occur for Alternatives A and B at 11.2 acres, as they were designed to avoid the Park. All alternatives have similar impacts to a portion of the western edge of the Park, as allowed

by Congress in amendments adopted in 1980 as part of the evaluation of relocating Route 234. Although the No-Action alternative would not require any use from public parks, it would have negative effects on the Battlefield Park if the roads are allowed to remain open.

S.4.7 Cultural Resources

Each build alternative would result in adverse effects to cultural resources and historic landscapes. Most of the cultural resources occur within the recently Amended Manassas National Battlefield Park Historic District boundaries, which has been recommended for adoption (as revised). Alternative C has the most effect on land within the Historic District at 80.2 acres and Alternative B has the least at 31.6 acres.

Impacts to known NRHP-eligible or potentially eligible resources consist of physical disturbance and visual and audio intrusions and range from 20 archaeological and architectural resources affected with Alternative A to 30 such resources affected with Alternative D. Six high probability areas containing numerous unrecorded Civil War battlefield-associated archaeological resources will be impacted by Alternative C and G; Alternative B would affect the fewest probability areas at four. Two possible rural historic landscapes may be impacted in all build alternatives except Alternative G. Nine Civil War landscapes would be affected with Alternatives C and D with the least effect for Alternatives A, B and G with only eight Civil War landscapes impacted.

S.4.8 Natural Resources

Some natural resources within the study area would be displaced by implementation of any build alternative. Direct stream impacts would range from 4,572 feet to 6,200 feet. The number of major stream crossings would range from 1 to 4 streams, with Alternative C crossing the most streams. No substantial effects on water quality are expected. Although the increase in impervious surface, combined with increases in traffic volumes, would result in elevated stormwater runoff volumes and pollutant outputs, stormwater management measures should offset any deleterious effects. In addition, compensatory mitigation for unavoidable stream impacts will be provided as determined appropriate in consultation with the permitting agencies, the U.S. Army Corps of Engineers and the Virginia Department of Environmental Quality.

Wetlands displacements would range from 9.3 to 38.8 acres. Alternative C would result in the greatest displacement, while Alternative B would result in the least. Compensatory mitigation for unavoidable wetland displacements will be provided as determined appropriate in consultation with the permitting agencies.

There are four 100-year floodplains within the study area. Each of the build alternatives would further encroach upon these floodplains. Encroachments on the noted floodplains range from 10.2 to 30.8 acres, with Alternative G having the least impacts.

Alternative G would impact a potential site for Small Whorled Pogonia, a federal or state listed threatened and endangered species. No other alternatives would impact any threatened or endangered species. All of the alternatives would impact potential habitat sites for freshwater mussels.

S.4.9 Hazardous Materials

The locations of potential hazardous materials sites throughout the study area were identified early in the project process in an effort to avoid impacts. Each of the alternatives will necessarily involve acquisition of potential hazardous material sites such as gas stations or other businesses that handle petroleum products or other hazardous materials, wastes or substances. Impacts to sites of potential concern range from 4 to 8 sites. No Superfund sites are located within the project area.

S.4.10 Secondary and Cumulative Effects

There will be little effect on induced, or secondary, effects caused by any of the alternatives, because there will be limited access to the facility and much of the land along the proposed improvements have development constraints (such as those sections located within the Park or along Bull Run) or are located in areas zoned for low-density rural residential development. The mobility effects of the project are expected to be only a minimal factor in future development decisions, because the travel time analysis indicates that travel along any of the alternatives will take the same amount of time as the current travel time along existing routes. Thus, the alternatives would not substantially improve access to undeveloped land and secondary effects are anticipated to be minimal.

Cumulative effects are anticipated due to the potential of other major investments in the study area and the potential co-location segments. Specifically, the presence of the Tri-County Parkway and the Route 234 Bypass North Extension would allow for some potential co-location with this project. Alternatives B and D are expected to have the lowest cumulative effect because they have the greatest co-location potential. The construction of Alternatives A and C would cause greater cumulative effects on water resources and cultural resources because of their location along Stony Ridge, which can not co-locate with the other potential facilities.

S.5 OTHER FEDERAL ACTIONS AND PERMITS REQUIRED

Since the Preferred Alternative, as well as all of the Candidate Build Alternatives, requires the use of lands from publicly owned public parks or recreation areas, or other lands protected under 49 USC 303(c) (i.e., Section 4(f) lands), the Federal Highway Administration must make a finding pursuant to 23 CFR 771.135(a) that there is no feasible and prudent alternative to the use of such properties and that the proposed action includes all possible planning to minimize harm to the properties resulting from such use.

Federal and state laws require various environmental 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.
- More detailed analysis in conjunction with the Virginia Department of Historic Resources will be needed in order to complete the Section 106 process for cultural resources.

In addition, the National Park Service and the Virginia Department of Transportation, through the Commonwealth Transportation Board, will be asked to authorize the necessary easements or land transfers to facilitate closure of Routes 29 and 234 and potential takings in other areas of the Park, and in doing so, comply with its own National Environmental Policy Act procedures for the action.