Executive Summary

Federal Highway Administration

Administrative Action – Environmental Impact Statement (EIS)

( X ) Draft EIS    ( ) Final  ( X) Draft Section 4(f) Attached

Contacts

The following persons may be contacted for additional information concerning this document:

Mr. Patrick Tyndall                       Mr. David Kinard, P.E.
Program Manager                          Program Manager
Federal Highway Administration           S.C. Department of Transportation
1835 Assembly Street, Suite 1270         P.O. Box 191
Columbia, SC 29201                       Columbia, SC 29202-0191
(803) 253-3887                           (803) 737-1963

ES.1 Description of the Project

The South Carolina Department of Transportation (SCDOT), in association with the Federal Highway Administration (FHWA) and Charleston County, has developed this Draft Environmental Impact Statement (DEIS) to address the environmental impacts of the proposed construction of approximately seven miles of new roadway, from the existing endpoint of I-526 at U.S. 17 (Savannah Highway) to the James Island Connector at Folly Road. The location of this project is in Charleston County and includes James Island, Johns Island and West Ashley (see Figure ES-1, page ES-4).

Two typical sections were developed for the reasonable alternatives of this project, an interstate facility and a parkway facility.

The interstate facility has:

• Four lanes, divided with a concrete barrier median;
• Fully controlled-access;
• Right of way width of 250 feet; and
• A posted speed of 55 mph.
The parkway facility has:

- Four-lanes, but is divided by a 15-foot center median;
- Limited access on James Island with at-grade intersections and two at-grade, T-intersections on Johns Island provided by two connector roads to River Road;
- A posted speed of 35 to 45 mph; and
- A multi-use path for its entire length.

In order to streamline reviews, provide a more comprehensive environmental analysis, and reduce the overall time needed to complete the project, FHWA and the U.S. Army Corps of Engineers (USACE) have agreed to merge the National Environmental Policy Act (NEPA) and Section 404 permitting process. The result is a coordinated NEPA environmental document fulfilling NEPA requirements for FHWA and Section 404(b)(1) guidelines for the USACE.

**ES.2 History of the Mark Clark Expressway**

Since the early 1970s, the original plan for the Mark Clark Expressway proposed a “Charleston Inner Belt Freeway” from Mount Pleasant to James Island, which included a connection between West Ashley, Johns Island and James Island. Since the project was last studied for environmental impacts in 1995, changes have occurred within the study area; because of this, SCDOT and FHWA determined that a new EIS was necessary to address the environmental impacts of the proposed construction of the remaining section of I-526. In addition, a new study would allow new alternatives to be considered and evaluated. The original plan did not affect the alternatives considered, the studies completed or the outcome of this DEIS. See the timeline of the Mark Clark Expressway project on the left.

**ES.3 Project Need and Purpose**

The needs for the Mark Clark Expressway project are to address capacity, safety and regional mobility. Forecasts of population growth suggest future transportation demand will continue to burden the roads and transportation links in the area resulting in increased congestion and crashes. Currently, studies from the Charleston Area Transportation Study (CHATS) Travel Demand Model show that traffic volumes on over half (55 percent) of the main thoroughfares in the West Ashley, Johns Island and James Island area exceed the capacity of the facility during AM and PM peak hours. The result is congestion and delays. In addition, many of these thoroughfares serve as the primary link between the study area and other parts of the Charleston metropolitan area.

The purpose of the Mark Clark Expressway project is to increase the capacity of the regional transportation system, improve safety, and enhance mobility to and from the West.
Ashley, Johns Island and James Island areas of the Charleston metropolitan area.

**ES.4 Area of Study for the Proposed Project**

The project team has conducted ongoing reassessment and modification of the area of study for the Mark Clark Expressway project in order to provide the most effective level of analysis for the appropriate stage of the project development process.

At the beginning of the project, the “scoping area” was established, within which the project team developed a broad range of preliminary alternatives that could potentially improve traffic conditions in the region. The scoping area encompassed the areas west of downtown Charleston, the Charleston peninsula and areas along I-526 from West Ashley to I-26.

As the project progressed and the needs for the project for traffic improvements were further focused on the Johns Island, James Island and West Ashley areas, the area of study was reduced to ensure that the study team could emphasize these areas in the project development process. The “scoping area” was condensed to a smaller “study area”. The study area encompasses the majority of the existing roadway network in West Ashley, Johns Island and James Island that may be affected by the proposed Mark Clark Expressway project.

Once the alternatives which best met the needs for the project were identified, the Reasonable Alternatives, the area of study was again evaluated to ensure the most effective level of analysis. The “refined study area” is an area focused on the footprint of the alternatives and the area immediately adjacent to them. For a map of these three areas, see Figure ES-1.

**ES.5 Alternatives Considered**

The alternative development process included several steps. The project team evaluated alternatives based on how well they address the needs and purpose for the project as well as their social, economic and environmental impacts. The following criteria were established for developing the alternatives:

- Avoid environmentally sensitive areas defined on the features map to the extent possible (i.e. wetlands, historic sites);
- Utilize areas with limited or no development to the greatest extent possible (as identified by the aerial photography);
- Utilize existing right of way or individual parcels defined by Charleston County to the greatest extent possible (staying within one tract or parcel rather than affecting multiple parcels); and
- Identify optimum locations to cross the Stono River.

Using these four criteria and input from the Public Scoping Meeting held on April 10, 2008, the project team developed thirteen new location alternatives. Additionally, the four alternatives from the 1995 Draft Supplemental EIS and the No-build, mass transit and transportation systems management (TSM) alternatives were included for a total of 20 preliminary alternatives.
These preliminary alternatives were presented to the public in a series of Public Information Meetings on November 13, 18 and 20, 2008 and one Stakeholders Meeting on December 4, 2008. Based on comments received from the public, agencies and project stakeholders during the comment period, an additional 19 alternatives were developed to be evaluated in the Range of Alternatives, for a total of 39 alternatives.

These 39 alternatives then went through a Preliminary Alternatives Analysis process for the Mark Clark Expressway project. The criteria and units of measurement for this analysis were:

- Ability to reduce congestion on existing roads as measured through changes in vehicle hours of travel and delay;
- Ability to improve system linkage and regional mobility as measured in changes in vehicle miles of travel, hours of travel, delay and travel time between districts;
- Ability to increase safety on existing roads as measured in crash rates and fatality rates as seen in changes in the volume to capacity (V/C) ratio on roadway segments;
- Potential relocations, as measured in the number of residences, businesses, churches and other buildings to be relocated; and,
- Potential wetland impacts, as measured in acres to be filled.

Based on the Preliminary Alternative Analysis of the 39 alternatives, six new location alternatives were found to meet the need and purpose for the project and determined to be “Reasonable Alternatives.” In addition to the six new location alternatives, mass transit, TSM and the No-build Alternative were studied in further detail in this DEIS. The project team presented the proposed Reasonable Alternatives and the other alternatives to be considered in the DEIS to the resource and regulatory agencies and public for their input and review during a second series of public information meetings held in the Spring of 2009. An additional new location alternative was developed by the project team as a result of public comments. Based on further analysis, it was determined that neither mass transit nor TSM met the need and purpose for the project and therefore, were not considered reasonable alternatives.

**ES.6 Impacts to the Environment**

Environmental consequences resulting from construction of the proposed action are grouped into the natural and human environment (refer to Table ES.1).

**Land Use**

Land uses include single-family residential, multiple family residential, commercial, industrial and natural areas. The two main land use types within the study area are natural areas and residential areas, making up 33 percent and 40 percent of the total land in the study area, respectively. Agricultural and commercial land uses are approximately nine percent each. Industrial land use made up one percent of land in the study area; special purpose land uses, such as churches, government, and green spaces, were also calculated at one percent. The majority of the study area is located within the Urban Growth Boundary (UGB). This assists in limiting and directing growth for the area. The overall goal of the boundary is to promote infill and redevelopment in order to control urban sprawl. Table ES.1 summarizes the land uses that would be impacted for each of the Reasonable Alternatives. The No-build Alternative would not convert any existing land uses in the refined study area.

1 Charleston County Comprehensive Plan
Table ES.1
Land Uses to be Converted by the Reasonable Alternatives

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Acres within Corridor to be Converted</th>
<th>Commercial</th>
<th>Agricultural</th>
<th>Special Purpose</th>
<th>Undevelopable land</th>
<th>Vacant residential</th>
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</table>

Source: Charleston County Tax Parcel Data (GIS)

Environmental Justice
Upon completing the environmental justice analysis, the project team determined there are no disproportionately high and adverse human health or environmental impacts on minorities and/or low income populations with any of the new location alternatives. Impacts from any alternative would be similar for all groups regardless of demographic or socioeconomic characteristics of the community.

Relocations
Relocations occur when a new location alternative directly impacts a home or business. All of the Reasonable Alternatives for the Mark Clark Expressway project would directly impact homes and businesses in the refined study area. The residential relocations of each new location alternative consist of single-family homes, multi-unit property relocations, and single-family home rentals. Commercial relocations consist of mostly small businesses in the refined study area, however, there are a few larger businesses. The retail/service businesses are typical of those in most communities and similar in size of those in the refined study area.

The No-build Alternative would not require any relocations.

Alternative A has a total of 29 relocations. This alternative would require five commercial relocations and 24 residential relocations.

Alternative B has the most relocations of all new location alternatives. Alternative B has a total of 72 relocations. This alternative would require 10 commercial relocations and 60 residential relocations. Alternative B would require the relocation of two churches within the refined study area, Johns Island House of Prayer and Church of God of Prophecy.
Alternative C would require a total of 53 relocations. This alternative would require the most commercial relocations (11) of all of the alternatives. There would be 42 residential relocations.

Alternative D would require a total of 51 relocations. This alternative would require 11 commercial relocations and 39 residential relocations. One church (Church of God of Prophecy) would be relocated.

Alternative E would require a total of 50 relocations. This alternative would require 11 commercial relocations and 38 residential relocations. One church (Church of God of Prophecy) would be relocated.

Alternative F would require a total of 35 relocations. This alternative would require six commercial relocations and 28 residential relocations. One church (the former Bethel AME) would be relocated.

Alternative G would have the fewest relocations of all of the new location alternatives, a total of 26 relocations, of which four would be commercial and 22 would be residential.

**Recreation**

There are seven public parks and recreational facilities in the refined study area. Although there is a private wildlife refuge in the refined study area, the Dill Sanctuary, no publicly-owned wildlife/waterfowl refuges are located in the direct impact area.

All of the Reasonable Alternatives would require right of way acquisition to bridge over the West Ashley Greenway, which would cause a direct use of the property. Impacts to the trail during construction activities would be temporary in nature and not adverse since the qualities of this resource would not be diminished. Access to the Greenway would be maintained throughout the construction of the project.

Right of way would be required for portions of the James Island County Park for Alternatives A, B, D, E and G. Alternatives A and B would not impact park amenities. Alternatives D and E would impact the group/primitive campground. Alternative G would impact the climbing wall and bouldering cave.

Alternatives C and F would avoid the James Island County Park, a Section 6(f) resource; therefore, no impacts are anticipated by these alternatives. Alternatives A, B, D, E and G would convert land from the James Island County Park to a non-recreational purpose. Mitigation for the land converted could consist of locating compensatory acreage, the purchase and enhancement of which would be coordinated with Charleston County Parks and Recreation Commission (CCPRC) through a Memorandum of Agreement prior to issuance of the Final EIS (FEIS) for this project.

**Historic and Archaeological Resources**

The historical resources in the study area consist of houses, an elementary school, Civil War earthworks and prehistoric and historic archaeological sites. The proposed project may have an effect (impact) on historic properties if it alters characteristics of the property that qualify the property for inclusion in the National Register of Historic Places (NRHP). These effects may be visual, audible, use, setting or atmospheric. The assessment of the effects of the Reasonable Alternatives on historic and archaeological resources has been made in coordination with the State Historic Preservation Office (SHPO) and is summarized in Table ES.2. The No-build Alternative would not impact any historic or archaeological resources.
The majority of the archaeological sites listed as potentially eligible are previously recorded resources that have not been evaluated for eligibility to the NRHP. A formal evaluation will take place for these resources during field testing of the recommended preferred alternative corridor prior to the FEIS.

**Hazardous Materials**

An assessment was performed to identify hazardous material and waste sites that are adjacent to or within the right of way of each new location alternative. Twelve hazardous materials sites were identified within the refined study area. Alternatives A, B, C and E would impact ten sites, Alternative D would impact eleven sites and Alternatives F and G would impact eight sites.

It is SCDOT’s practice to avoid the acquisition of underground storage tanks and other hazardous materials, if possible. If avoidance is not a viable alternative, tanks and other hazardous materials will be tested and removed and/or treated in accordance with U.S. Environmental Protection Agency (EPA) and S.C. Department of Health and Environmental Control (SCDHEC) requirements. Cost of necessary remedial actions would be considered during the right of way appraisal and acquisition process.

Should previously unknown contamination be discovered as the project moves forward, the contamination (contaminated soil and/or groundwater within the right of way) would be removed and properly disposed of prior to the initiation of construction activities at that site.

**Noise**

A noise analysis was performed for the refined study area and completed in accordance to FHWA’s 23 CFR 772.15 Procedures for Abatement of Highway Traffic Noise and Construction Noise. The traffic forecast volumes for the proposed alternatives including major roadways within the refined study area were taken from the Updated
The CHATS Travel Demand Model. The model was used to forecast the 2035 No-build traffic and 2035 Build traffic for each of the alternatives. The model provided a breakdown of traffic volumes by vehicle types and included directional splits for both the existing major roadways and the proposed alternatives.

For the 2035 No-build Scenario, noise levels would approach or exceed the Noise Abatement Criteria (NAC) for 110 receivers representing seven apartment buildings, 44 residences, 43 businesses, two churches, six hotels, four shopping centers, one vacant business and three vacant residences. Noise levels for the No-build ranged from 38.8 to 77.6 dBA.

For Alternative A, 2035 noise levels would approach or exceed the NAC for 180 receivers, representing 4 apartment buildings, 114 residential structures, 43 businesses, two churches, six hotels, four shopping centers, one townhouse, one vacant business and five vacant residences. Noise levels for Alternative A ranged from 43.2 to 77.3 dBA.

For Alternative B, 2035 noise levels would approach or exceed the NAC for 191 receivers, representing five apartment buildings and one townhouse, 132 residential structures, 40 businesses, one church, six hotels, four shopping centers and two vacant residential structures. Noise levels for Alternative B ranged from 42.8 to 77.4 dBA.

For Alternative C, 2035 noise levels would approach or exceed the NAC for 208 receivers, representing 10 apartment structures, one townhouse, 136 residential structures, 43 businesses, two churches, six hotels, four shopping centers, one vacant business and five vacant residential structures. Noise levels for Alternative C ranged from 41.8 to 77.5 dBA.

For Alternative D, 2035 noise levels would approach or exceed the NAC for 180 receivers, representing four apartment structures, one townhouse, 122 residential structures, 40 businesses, one church, six hotels, four shopping centers and two vacant residential structures. Noise levels for Alternative D ranged from 42.5 to 77.4 dBA.

For Alternative E, 2035 noise levels would approach or exceed the NAC for 174 receivers, representing four apartment structures, one townhouse, 117 residential structures, 40 businesses, one church, six hotels, four shopping centers and one vacant residential structure. Noise levels for Alternative E ranged from 40.3 to 77.3 dBA.

For Alternative F, 2035 noise levels would approach or exceed the NAC for 142 receivers, representing 10 apartment structures, 72 residential structures, 42 businesses, two churches, six hotels, four shopping centers and five vacant residential structures. Noise levels for Alternative F ranged from 39.2 to 76.7 dBA.

For Alternative G, 2035 noise levels would approach or exceed the NAC for 134 receivers, representing eight apartment structures, 66 residential structures, 43 businesses, one church, six hotels, four shopping centers, one vacant business and five vacant residential structures. Noise levels for Alternative G ranged from 39.2 to 76.7 dBA.

**Air Quality**

The project is located in an area that is below the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants; therefore, since the project is located in an attainment area, it is not subject to transportation conformity.

This project was also evaluated using the new NAAQS standards for ozone. Using data from sites monitoring for ozone
this area would remain in attainment for ozone even under the new standard of 0.075 ppm. Additionally, Charleston County remains in attainment for fine particulate matter (PM2.5). No further action is required as Charleston County is in attainment with NAAQS.

This DEIS includes a basic analysis of the likely Mobile Source Air Toxic (MSAT) emission impacts of the proposed project. Under all build alternatives in the design year of 2035, it is expected there would be reduced MSAT emissions in the immediate area of the project due to the reduced vehicle miles of travel (VMTs) relative to the No-build Alternative and to the EPA’s MSAT reduction programs.

**Farmlands, Food and Fiber Production**
The refined study area is comprised of prime farmland soils and soils of statewide importance. Together they account for 43 percent of the land. However, except for a few larger parcels of land on Johns Island, either the land with these soils is occupied by development or the parcels are too small to accommodate agricultural production. No unique farmland soil types exist in the refined study area.

The No-build Alternative would have no effect on farming operations since existing conditions would remain unchanged. Construction of any of the new location alternatives would result in the direct conversion of farmland to a transportation facility. No farmlands, besides those acquired for right of way, should be rendered un-farmable.

**Biotic Communities**
Eleven natural habitats or biotic communities have been identified within the refined study area. These community types include Low Salt Marsh, High Salt Marsh, Brackish Marsh, Freshwater Marsh, Maritime Forest, Mixed Hardwood Forest, Mixed Pine-Hardwood Forest, Pine Forest, Open Freshwater, Open Saltwater and Man-Dominated.

**Wetlands**
Wetland impacts could include the temporary and permanent clearing of vegetation, and the placement of structures and fill material into jurisdictional areas. Only clean fill material would be used to fill wetlands for the construction of the roadbed, causeways and bridge abutments. Vegetation to be cleared from the wetlands would be permanent in areas where structures are proposed, and would be temporary along the roadsides and in areas where the sediment and erosion control silt fencing is placed. Areas of temporary impact would be seeded with native upland plant species to stabilize newly created uplands slopes and with wetland plant species in areas that are to remain wetland.

Some wetland areas may be permanently altered to a different wetland type to meet the maintenance requirements of the proposed roadways, culverts and bridges. The bridging of forested wetlands may necessitate the permanent removal of tree species from the wetland, because trees growing under (or near) a bridge could potentially cause damage to the structure. Altering a forested wetland to an emergent wetland would change the available wildlife habitat, but would still provide many of the wetland functions that benefit the environment.

Alternative A would require fill in approximately 5.41 acres of critical area saltwater wetlands and 11.70 acres of freshwater wetlands for a total of approximately 17.11 acres of fill.

Alternative B would require fill in approximately 2.68 acres of critical area saltwater wetlands and 26.71 acres of freshwater wetlands for a total of approximately 29.39 acres of fill.
Alternative C would require fill in approximately 4.55 acres of critical area saltwater wetlands and 12.66 acres of freshwater wetlands for a total of approximately 17.21 acres of fill.

Alternative D would require fill in approximately 5.58 acres of critical area saltwater wetlands and 21.32 acres of freshwater wetlands for a total of approximately 26.90 acres of fill.

Alternative E would require fill in approximately 5.56 acres of critical area saltwater wetlands and 18.49 acres of freshwater wetlands for a total of approximately 24.05 acres of fill.

Alternative F would require fill in approximately 0.98 acre of critical area saltwater wetlands and 14.87 acres of freshwater wetlands for a total of approximately 15.85 acres of fill.

Alternative G would require fill in approximately 3.32 acres of critical area saltwater wetlands and 14.11 acres of freshwater wetlands for a total of approximately 17.43 acres of fill.

**Streams**

All of the Reasonable Alternatives would require two crossings of the Stono River. In addition to the river crossings, stream crossings were evaluated for the Reasonable Alternatives to determine potential impacts to streams based on preliminary bridge locations and lengths.

Alternative A would result in three unbridged stream crossings and nine bridged crossings. The three unbridged crossings would result in potential fill impacts of approximately 574 linear feet (0.74 acre) of stream.

Alternative B would result in six unbridged stream crossings and six bridged crossings. The six unbridged crossings would result in potential fill impacts of approximately 1,095 linear feet (1.06 acres) of stream.

Alternative C would result in three unbridged stream crossings and nine bridged crossings. The three unbridged crossings would result in potential fill impacts of approximately 874 linear feet (0.68 acre) of stream.

Alternative D would result in seven unbridged stream crossings and fourteen bridged crossings. The seven unbridged crossings would result in potential fill impacts of approximately 1,601 linear feet (0.91 acre) of stream.

Alternative E would result in six unbridged stream crossings and eleven bridged crossings. The six unbridged crossings would result in potential fill impacts of approximately 1,600 linear feet (0.89 acre) of stream.

Alternative F would result in two unbridged stream crossings and eleven bridged crossings. The two unbridged crossings would result in potential fill impacts of approximately 409 linear feet (0.41 acre) of stream.

Alternative G would result in five unbridged stream crossings and fourteen bridged crossings. The nine unbridged crossings would result in potential fill impacts of approximately 939 linear feet (0.55 acre) of stream.
Floodplains
The refined study area has flood hazard zones with the Zone AE, Zone VE, and Zone X designations. Approximately 80 percent or more of the refined study area is located within FEMA designated 100-year floodplains. The majority of the area designated as FEMA floodplain consists of tidal wetlands associated with the Stono River and marina facilities located along the Stono River. Other area uses of FEMA designated floodplain include the nearby residential areas.

The majority of the proposed new location alternative corridors would be located within FEMA designated floodplains and floodplain impacts would be potentially considerable. Based on preliminary bridge locations/lengths, Alternative D appears to have the greatest impact to floodplains, crossing 187.05 acres of floodplains within the project corridor, while Alternative F would have the least amount of impact to floodplains with just over 105 acres.

Alternative A would cross 149.39 acres of floodplains.
Alternative B would cross 126.07 acres of floodplains.
Alternative C would cross 139.38 acres of floodplains.
Alternative D would cross 187.05 acres of floodplains.
Alternative E would cross 164.07 acres of floodplains.
Alternative F would cross 105.62 acres of floodplains.
Alternative G would cross 132.13 acres of floodplains.

Water Quality and Water Resources
The refined study area water resources include both surface waters and groundwater. Surface waters include the Stono River, Elliot Cut, James Island Creek and Pennys Creek as well as wetlands that are located within the refined study area. There are five groundwater aquifers that are located in the vicinity of the study area. As identified from the shallowest to the deepest, these aquifers are the Surficial aquifer system; the Santee/Black Mingo aquifer; the Black Creek aquifer; the Middendorf aquifer and the Cape Fear aquifer.

It is not likely that the proposed project would impact the groundwater within the Santee/Black Mingo aquifer, the Black Creek aquifer, the Middendorf aquifer or the Cape Fear aquifer. Both point source and non-point source pollution could potentially impact the surface water resources within the study area as a result of the clearing of vegetation, land grading, and other road construction activities. Increased erosion and sedimentation, altered drainage patterns, increased surface water temperatures and decreased clarity could result from these construction activities. Post-construction impacts in the area of the proposed new roadway could result from the increased opportunity for petroleum discharges, the use of herbicides/pesticides along the roadside, mowing and maintaining the roadsides and roadway striping and resurfacing.
**Endangered, Threatened, and other Listed Species**

A search of the U.S. Fish and Wildlife Service (USFWS) Threatened and Endangered Species System database\(^2\) provided existing information concerning the potential occurrence of threatened and endangered species, federal species of concern and candidate species within Charleston County. As of March 2009, this database identified 17 federally threatened or endangered species that are known to occur or have formerly occurred in Charleston County (USFWS, 2009). The South Carolina Department of Natural Resources (SCDNR) Rare, Threatened, and Endangered Species Inventory database (last updated January 17, 2006) was also reviewed for information regarding protected species listed in Charleston County with state threatened or endangered status. As of January 17, 2006, sixteen species of concern are currently listed in Charleston County, including nine that are also federally protected (SCDNR, 2006).

Nesting habitat for protected species has been identified proximal to the preliminary construction corridors of proposed Alternatives A and B. These two corridors cross the northern boundary of Dill Sanctuary, in the vicinity of documented nesting populations of wood storks, a state and federally-protected endangered species. The selection of the Alternative A or Alternative B alignment would potentially impact these nesting populations of wood stork.

**Summary of Environmental Impacts**

Impacts to the human environment and communities include relocations, impacts to community facilities and noise. Alternative B has the highest number of relocations at 72 and Alternative G has the lowest at 26. Alternatives D and E both impact, either directly or by proximity, 16 communities, whereas Alternative F impacts 10 and Alternative G impacts eight. Within these communities, Alternatives B, D, E, and F impact a cemetery and a church (Alternative B impacts two churches). Each of the alternatives impact parks and recreational facilities, and historical properties including the James Island County Park, West Ashley Greenway, the historical Murray-LaSaine Elementary School, and two historic districts, Dill and Fenwick Hall. The alternatives would impact between 137 (Alternative G) to 208 (Alternative C) noise receivers of a residential or commercial nature. Between eight (Alternatives F and G) and 11 (Alternative D) hazardous material sites would be impacted.

Impacts to the natural environment include wetland impacts, which ranged from 28.18 impacted acres for Alternative B to 14 impacted acres for Alternative F. The number of unbridged stream crossings varied from two for Alternative F to seven for Alternative D. Impacts to floodplains ranged from 187.05 acres with Alternative D to 105.62 with Alternative F. Alternatives A and B were found to be in proximity to nesting habitat of wood storks, a state and federally-protected endangered species.

**ES.7 Recommended Preferred Alternative**

Each of the Reasonable Alternatives satisfies the need and purpose for the project. However, taking into consideration the benefits and impacts of each alternative, SCDOT recommended Alternative G as the Recommended Preferred Alternative (see Figure ES.2). Alternative G has the lowest cost ($489 million in 2009), the lowest number of relocations (26), the lowest number of impacted noise receivers (137) and the lowest number of hazardous materials sites (8). In addition, Alternative G would not impact a protected species.

The alternatives described in this document, plus the Recommended Preferred Alternative, and the results of the field investigations of these alternatives will be presented to the public at two Public Hearings to be held in the Summer of 2010. After the Public Hearing, comments from the public, agencies and stakeholders will be considered and further field work will be conducted for consideration in further refinement and design of the alignment of the Recommended Preferred Alternative.

**ES.8 Required Government Actions**


The following types of actions have been, or will be, needed for the proposed project:

- FEIS preparation, review and approval by SCDOT and FHWA;
- Section 7 (Endangered Species Act of 1973, as amended) compliance;
- Section 402 (Clean Water Act of 1972, as amended) National Pollutant Discharge Elimination System permit;
- Compliance with the South Carolina Stormwater Management and Sediment Reduction Act (1991);
- Section 404 Department of the Army wetland and stream impact permit;
- Coastal Zone Management Act Consistency Determination and Critical Area permit from the SCDHEC-Office of Coastal Resource Management;
- Section 9 of the Rivers and Harbors Act of 1899 coordination with the USCG; and,
- Section 10 of the Rivers and Harbors Act of 1899 compliance.

**ES.9 Environmental Commitments**

The project team will seek to reduce or control the negative effects of the project. This will include the development of measures to compensate for environmental damage through replacement or restoration of resources where possible. Environmental commitments will be further developed and refined after the Public Hearing on this DEIS and will be included in the Final Environmental Impact Statement (FEIS). As of now, the following environmental commitments have been identified for the project:

- Wetland and stream crossings of the Recommended Preferred Alternative will be further reviewed and the design of the Recommended Preferred Alternative will be reevaluated to reduce potential wetland impacts.
- Detailed hydraulic and hydrologic studies for each bridge crossing will be performed to determine the
correct sizing of bridges and culverts. Bridges would be designed in an attempt to span the entire channel to be crossed, and avoid impacts to the waterway itself.

- Best management practices (BMPs) in accordance with local, state, and federal guidelines will be incorporated during the design and construction of the project to minimize impacts to water quality, particularly for storm water runoff collection and treatment and sediment and erosion impacts.
- Field surveys for archaeological resources will be conducted for the Recommended Preferred Alternative.
- In the event that previously unknown cultural resources are discovered during construction, the resources will be handled according to 36 CFR 800.11 in coordination with the State Historic Preservation Office and appropriate Tribal Historic Preservation Office.
- Relocations will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources will available to all relocatees without discrimination.

**ES.10 Comparison of Impacts for the Reasonable Alternatives**

The following matrix summarized the benefits and impacts of the Reasonable Alternatives. Table ES.3 Part 1 provides a comparison of how well each of the Reasonable Alternatives meet the needs defined for the proposed project. Table ES.3 Part 2 provides a comparison of the impacts that each of the Reasonable Alternatives would have on the human and natural environments.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Ability to reduce congestion on existing roads</td>
<td>Yes/No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Vehicle Miles of traffic (less than the No-build)</td>
<td>Miles, Average Daily</td>
<td>5,025,367</td>
<td>25,271</td>
<td>163,878</td>
<td>28,912</td>
<td>55,673</td>
<td>55,401</td>
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<td>Vehicle Hours of traffic (less than the No-build)</td>
<td>Hours, Average Daily</td>
<td>127,420</td>
<td>6,284</td>
<td>9,314</td>
<td>6,976</td>
<td>8,176</td>
<td>7,372</td>
<td>8,866</td>
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<td>Delay (less than the No-build)</td>
<td>Hours, Average Daily</td>
<td>23,024</td>
<td>4,294</td>
<td>4,627</td>
<td>4,580</td>
<td>5,550</td>
<td>5,085</td>
<td>5,433</td>
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<td>Ability to increase safety on existing roads</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Number of Segments Improved</td>
<td>Number of Segments</td>
<td>0</td>
<td>19</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>17</td>
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<tr>
<td>Ability to improve regional mobility and system linkage</td>
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<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>West Ashley Trip Reduction (less than the No-build)</td>
<td>Average Trip length Minutes, Average Daily</td>
<td>21.4</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.7</td>
<td>0.7</td>
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<td>Johns Island Trip Reduction (less than the No-build)</td>
<td>Average Trip length Minutes, Average Daily</td>
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<td>4.1</td>
<td>5.2</td>
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<td>4.9</td>
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<td>James Island Trip Reduction (less than the No-build)</td>
<td>Average Trip length Minutes, Average Daily</td>
<td>21.7</td>
<td>0.6</td>
<td>0.5</td>
<td>0.9</td>
<td>0.9</td>
<td>0.8</td>
<td>1.1</td>
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*No-build totals against which reasonable alternatives differences are measured.*
### Reasonable Alternatives Matrix - Part 2

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<td><strong>Total Length</strong></td>
<td>Miles</td>
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<td><strong>Spans/Connections</strong></td>
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<td>0</td>
<td>6.4</td>
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<td><strong>Lengths of Bridges</strong></td>
<td>Miles</td>
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<td>6.8</td>
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<td>6.3</td>
<td>5.7</td>
<td>6.4</td>
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<td><strong>Construction Cost (Year 2009)</strong></td>
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<td>$620</td>
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<td><strong>Environmental Justice</strong></td>
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<td><strong>Community Impacts - Direct</strong></td>
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<td>Yes</td>
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<td><strong>Total Relocations</strong></td>
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*Number of block groups above Charleston County average for minority and low income populations*