



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
<b>Executive Summary</b>	<b>S-1</b>
<b>S.1 Federal Highway Administration</b>	<b>S-1</b>
<b>S.2 Who Can I Contact For More Information?</b>	<b>S-1</b>
<b>S.3 What Is The Project and What Is Its Purpose?</b>	<b>S-1</b>
<b>S.4 What Other Government Actions Are Being Planned?</b>	<b>S-2</b>
<b>S.5 What Alternatives Were Considered?</b>	<b>S-2</b>
<b>S.6 What Would Be The Major Environmental Impacts?</b>	<b>S-3</b>
<b>S.7 Are There Any Areas Of Controversy?</b>	<b>S-3</b>
<b>S.8 What Are The Unresolved Issues?</b>	<b>S-4</b>
<b>S.9 What Other Government Actions Would Be Required?</b>	<b>S-4</b>
<b>S.10 What Environmental Commitments Have Been Made?</b>	<b>S-6</b>
<b>Chapter 1 Purpose and Need For Action</b>	<b>1-1</b>
<b>1.1 What is the I-73 project?</b>	<b>1-1</b>
1.1.1 Where is the project located?	1-2
1.1.2 What would the I-73 facility be like?	1-2
1.1.3 Why was the project initiated?	1-6
1.1.4 Who is responsible for this project?	1-7
<b>1.2 Why study impacts to the environment?</b>	<b>1-8</b>
1.2.1 What type of impacts will be evaluated?	1-8
1.2.2 How are impacts evaluated?	1-9
1.2.2.1 How does FHWA evaluate impacts?	1-9
1.2.2.2 How does USACE evaluate impacts?	1-10
1.2.2.3 How does SCDHEC and SCDHEC-OCRM evaluate impacts?	1-10
<b>1.3 What is the purpose of the project?</b>	<b>1-10</b>
<b>1.4 Why do we need the project?</b>	<b>1-10</b>
1.4.1 Primary Needs	1-11
1.4.2 Secondary Needs	1-11
<b>1.5 What is system linkage?</b>	<b>1-11</b>
<b>1.6 How could this project affect economic development?</b>	<b>1-12</b>
1.6.1 Who lives in Dillon, Horry, and Marion Counties, and what population characteristics shape these counties?	1-12
1.6.2 What are some of the social and housing characteristics of Dillon, Horry, and Marion Counties?	1-14
1.6.3 What are the employment characteristics in Dillon, Horry, and Marion Counties?	1-16



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
1.6.3.1 What job training opportunities are available in the three counties?	1-16
1.6.3.2 How has employment changed in the three counties?	1-16
1.6.3.3 What are the employment characteristics for the three counties?	1-17
1.6.4 What are the unemployment rates and poverty levels in Dillon, Horry and Marion Counties?	1-17
1.6.5 How would this project benefit the recruitment of new businesses to the three-county area?	1-20
1.6.6 Would this project benefit travel and tourism in the three-county area?	1-20
<b>1.7 How would this project affect hurricane evacuation?</b>	<b>1-21</b>
<b>1.8 Would the project relieve local traffic congestion?</b>	<b>1-24</b>
<b>1.9 How would the project incorporate multimodal planning?</b>	<b>1-25</b>
<b>1.10 Could I-73 be a toll road?</b>	<b>1-26</b>
<b>1.11 How would the road be constructed?</b>	<b>1-30</b>
<b>1.12 Summary</b>	<b>1-31</b>
<b>Chapter 2 Development of Alternatives</b>	<b>2-1</b>
<b>2.1 How were the Potential Alternatives Evaluated?</b>	<b>2-1</b>
<b>2.2 What is the Agency Coordination Team?</b>	<b>2-1</b>
<b>2.3 What are the conditions of the No-build Alternative?</b>	<b>2-2</b>
<b>2.4 How were the preliminary Build Alternatives developed?</b>	<b>2-4</b>
2.4.1 How was the public involved in developing the preliminary Build Alternatives?	2-8
2.4.2 How were the 141 preliminary Build Alternatives evaluated?	2-8
<b>2.5 How were the reasonable Build Alternatives developed?</b>	<b>2-10</b>
2.5.1 How was the public involved in developing the reasonable Build Alternatives?	2-11
2.5.2 What modifications were made to the reasonable Build Alternatives based on input?	2-13
2.5.3 Were any new segments developed based on public comments?	2-14
2.5.4 How were preliminary interchange locations designated?	2-14
2.5.5 How were the modifications of the reasonable Build Alternative evaluated?	2-18
<b>2.6 How were the six reasonable Build Alternatives evaluated further?</b>	<b>2-18</b>



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>	
<b>2.7</b>	<b>How were the eight reasonable Build Alternatives evaluated to designate the Preferred Alternative?</b>	<b>2-21</b>
	2.7.1 How would the reasonable Build Alternatives meet the primary needs of the project?	2-22
	2.7.1.1 How do the reasonable Build Alternatives meet the primary need of system linkage?	2-22
	2.7.1.2 How do the reasonable Build Alternatives meet the primary need of economic development?	2-42
	2.7.2 How would the alternatives meet the secondary needs of the project?	2-46
	2.7.2.1 How would the alternatives meet the secondary need of hurricane evacuation?	2-46
	2.7.2.2 How would the alternatives relieve local traffic congestion?	2-46
	2.7.2.3 How would the alternatives incorporate multimodal planning?	2-48
	2.7.3 How were the alternatives compared in terms of human and environmental impacts?	2-48
	2.7.4 How would the Build Alternative compared in terms of human and environmental impacts?	2-58
	2.7.4.1 Alternative 1	2-59
	2.7.4.2 Alternative 2	2-62
	2.7.4.3 Alternative 3 (Preferred)	2-63
	2.7.4.4 Alternative 4	2-64
	2.7.4.5 Alternative 5	2-65
	2.7.4.6 Alternative 6	2-66
	2.7.4.7 Alternative 7	2-67
	2.7.4.8 Alternative 8	2-68
	2.7.5 Which alternative was designated as the Preferred Alternative?	2-70
<b>2.8</b>	<b>What happened after the designation of the Preferred Alternative?</b>	<b>2-71</b>
	2.8.1 How was the public involved after the designation of the Preferred Alternative?	2-71
	2.8.2 What modifications were made to the Preferred Alternative based on input?	2-72
	2.8.3 What is the estimated cost of the Preferred Alternative?	2-82



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
<b>Chapter 3 Existing Conditions and Environmental Consequences of the Preferred Alternative</b>	<b>3-1</b>
<b>3.1 Land Use</b>	<b>3-1</b>
3.1.1 What is the existing land use in the project study area?	3-1
3.1.2 What is the agricultural land use in the project study area?	3-2
3.1.3 How many natural land areas are in the project study area?	3-2
3.1.4 What is the residential land use like in the project study area?	3-2
3.1.5 What is the commercial land use like in the project study area?	3-4
3.1.5.1 Hotel/Motel	3-5
3.1.5.2 Industrial	3-5
3.1.5.3 Institutional	3-6
3.1.5.4 Public & Semi-Public	3-6
3.1.6 Do the affected counties have plans for development and future growth?	3-7
3.1.6.1 Comprehensive Plans	3-7
3.1.6.2 Zoning	3-8
3.1.6.3 Future land use trends and key indicators	3-9
3.1.7 How is land use expected to change in the project study area?	3-10
3.1.8 How would the No-build Alternative affect land development?	3-10
3.1.8.1 Dillon County	3-12
3.1.8.2 Horry County	3-12
3.1.8.3 Marion County	3-12
3.1.9 How would the Preferred Alternative impact development in the three-county area?	3-14
3.1.9.1 Land used for right-of-way would no longer be available for development	3-14
3.1.9.2 Development that was expected with the No-build Alternative would shift toward the Preferred Alternative	3-14
3.1.9.3 Additional new development in the three-county area with the Preferred Alternative	3-14
3.1.10 How were land use impacts resulting from the Preferred Alternative determined?	3-15
3.1.10.1 Proximity to an I-73 Interchange	3-15



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
3.1.10.2 Proximity to an Existing Urban Area	3-15
3.1.10.3 Proximity to I-95 or the Grand Strand	3-15
3.1.10.4 Availability of Water, Wastewater, and Land	3-15
3.1.10.5 TAZs in Eastern Horry County Held Constant	3-16
3.1.11 What land use impacts are anticipated from the Preferred Alternative?	3-17
3.1.11.1 Dillon County	3-18
3.1.11.2 Horry County	3-19
3.1.11.3 Marion County	3-21
3.1.12 What other factors influence growth and development?	3-21
3.1.12.1 Infrastructure for Interstate Industrial Parks	3-21
3.1.12.2 Future Development in Marion County	3-22
3.1.13 Summary	3-22
<b>3.2 Communities</b>	<b>3-23</b>
3.2.1 What are the socioeconomic conditions of the project study area?	3-23
3.2.2 What is a community impact assessment?	3-23
3.2.3 How were communities identified within the CIA study area?	3-24
3.2.4 What are the characteristics of Dillon County and how would it be impacted by the Preferred Alternative?	3-24
3.2.5 What are the characteristics of cities and towns located within Dillon County and how would they be impacted by the Preferred Alternative?	3-29
3.2.5.1 City of Dillon	3-29
3.2.5.2 Latta	3-33
3.2.6 What are the characteristics of Horry County and how would it be impacted by the Preferred Alternative?	3-36
3.2.7 What towns and communities are located within Horry County and how would they be impacted by the Preferred Alternative?	3-40
3.2.7.1 Aynor	3-40
3.2.7.2 Bakers Chapel	3-42
3.2.7.3 Cool Spring	3-45
3.2.7.4 Dog Bluff	3-47
3.2.7.5 Galivants Ferry	3-49
3.2.7.6 Joiner	3-51



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
3.2.7.7 Ketchuptown	3-54
3.2.7.8 Methodist Rehobeth	3-56
3.2.7.9 Poplar Hill	3-58
3.2.8 What are the characteristics of Marion County and how would it be impacted by the Preferred Alternative?	3-61
3.2.9 What are the characteristics of cities and towns located within Marion County and how would they be impacted by the Preferred Alternative?	3-63
3.2.9.1 City of Marion	3-63
3.2.9.2 Mullins	3-66
3.2.10 What neighborhoods and rural communities are located within Marion County and how would they be impacted by the Preferred Alternative?	3-69
3.2.10.1 Gapway	3-69
3.2.10.2 Pecan Pointe	3-71
3.2.10.3 Spring Branch	3-73
3.2.10.4 Temperance Hill	3-75
3.2.10.5 Zion	3-78
3.2.11 What are the overall impacts to cities, towns, and communities in the project study area?	3-80
3.2.12 How many residences and businesses would be relocated within the project study area, and how will relocations be addressed?	3-80
3.2.13 What considerations have been evaluated relating to pedestrians and bicyclists?	3-84
<b>3.3 Environmental Justice</b>	<b>3-86</b>
3.3.1 What is Environmental Justice?	3-86
3.3.2 How were minority and low-income populations identified in the Community Impact Assessment study area?	3-87
3.3.3 Are there any minority populations in the CIA study area?	3-89
3.3.4 Are there any low-income populations in the CIA study area?	3-90
3.3.5 How were potential environmental justice impacts evaluated?	3-91
3.3.6 Are there any minority and low-income populations impacted by the Preferred Alternative?	3-91
3.3.7 What other methods were used to consider Environmental Justice populations in the CIA study area?	3-91



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
3.3.7.1 Residential and Business Relocations	3-93
3.3.7.2 Community Cohesion	3-94
3.3.7.3 Economic Impacts	3-95
3.3.7.4 Access and Mobility	3-95
3.3.7.5 Noise	3-95
3.3.7.6 Visual and Aesthetic Character	3-96
3.3.7.7 Parks and Community Facilities	3-96
3.3.8 What efforts have been made to ensure full and fair participation of environmental justice populations in the transportation decision-making process?	3-96
3.3.9 Summary	3-97
<b>3.4 Section 4(f) Resources</b>	<b>3-97</b>
3.4.1 What are Section 4(f) properties?	3-97
3.4.2 What parks, recreational facilities, and wildlife/waterfowl refuges are found in the project study area?	3-98
3.4.3 Would any Section 4(f) Resources be impacted by the Preferred Alternative?	3-98
<b>3.5 Section 6(f) Resources</b>	<b>3-100</b>
3.5.1 What are Section 6(f) Resources?	3-100
3.5.2 Would any Section 6(f) Resources be impacted by the Preferred Alternative?	3-100
<b>3.6 Historic Resources</b>	<b>3-100</b>
3.6.1 What are historic resources?	3-100
3.6.2 How was the historic resources survey conducted?	3-101
3.6.3 What aboveground historic resources were found during the survey?	3-101
3.6.4 What archaeological resources are located within the historic resources study area?	3-102
3.6.5 What would be the potential impacts to historic resources?	3-103
<b>3.7 Hazardous Materials and Waste Sites</b>	<b>3-104</b>
3.7.1 What are hazardous materials/wastes?	3-104
3.7.2 Are there any hazardous materials/waste sites located within the project study area?	3-104
3.7.3 Would the Preferred Alternative impact any known potentially hazardous material/waste sites?	3-104
<b>3.8 Noise</b>	<b>3-107</b>
3.8.1 What is noise?	3-107
3.8.2 How are noise impacts estimated?	3-108



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
3.8.3 How was background noise determined in the project study area?	3-108
3.8.4 How was TNM tested to ensure accuracy?	3-109
3.8.5 What happens when noise impacts occur?	3-109
3.8.6 What are the anticipated noise impacts from the Preferred Alternative?	3-111
3.8.7 How could noise impacts be mitigated?	3-114
3.8.7.1 No-build Alternative	3-114
3.8.7.2 Highway Alignment	3-114
3.8.7.3 Traffic System Management Measures	3-115
3.8.7.4 Noise Barriers	3-115
<b>3.9 Air Quality</b>	<b>3-116</b>
3.9.1 How is air quality measured?	3-116
3.9.2 What are the potential air quality issues associated with a transportation project?	3-118
3.9.2.1 Unavailable Information for Project Specific MSAT Analysis	3-121
3.9.2.2 Information that is Unavailable or Incomplete	3-121
3.9.2.3 Emissions	3-121
3.9.2.4 Dispersion	3-121
3.9.2.5 Exposure Levels and Health Effects	3-122
3.9.2.6 Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs	3-122
3.9.2.7 Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impact on the Environment, and Evaluation of impacts based upon theoretical approaches or research methods generally accepted in the scientific community.	3-124
3.9.3 What potential air quality impacts would the Preferred Alternative have?	3-124
3.9.4 Would air quality be impacted from construction of the Preferred Alternative?	3-125
<b>3.10 Farmlands</b>	<b>3-126</b>
3.10.1 Why is farmland an important consideration?	3-126
3.10.2 How is farmland protected?	3-127
3.10.3 What are the different types of protected farmlands?	3-127



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
3.10.4 What are the types and amounts of farmland in the project study area?	3-128
3.10.5 What are the typical farm sizes in Dillon, Horry, and Marion Counties?	3-128
3.10.6 What methodology was used to determine farmlands impacts?	3-129
3.10.7 How would the Preferred Alternative impact farmlands?	3-131
3.10.8 What would be the potential indirect and cumulative impacts to farmlands?	3-133
3.10.8.1 What would be the potential impacts from induced development on farmlands?	3-133
3.10.8.2 What would be the potential cumulative impacts on farmlands?	3-133
3.10.9 What Federal/USDA farmland programs are active or found in the project study area and how would they be impacted by the Preferred Alternative?	3-135
3.10.9.1 Conservation Reserve Program	3-135
3.10.9.2 Farm and Ranch Lands Protection Program	3-137
3.10.9.3 Wetlands Reserve Program	3-137
<b>3.11 Uplands</b>	<b>3-138</b>
3.11.1 What are upland communities?	3-138
3.11.2 Why are uplands important?	3-138
3.11.3 How were upland communities identified in the Preferred Alternative study corridor?	3-138
3.11.4 What upland natural community types were identified within the Preferred Alternative study corridor?	3-139
3.11.4.1 Mesic mixed hardwood forest	3-139
3.11.4.2 Oak-hickory forest	3-140
3.11.4.3 Pine flatwoods	3-141
3.11.4.4 Pine-scrub oak sandhill	3-141
3.11.4.5 Xeric sandhill scrub	3-142
3.11.4.6 Agricultural fields and timberlands	3-143
3.11.4.7 Disturbed areas	3-143
3.11.4.8 Drained bottomland hardwoods	3-143
3.11.5 How would natural upland communities be impacted?	3-143
<b>3.12 Wetlands</b>	<b>3-144</b>
3.12.1 What are wetlands?	3-144
3.12.2 Why are wetlands important?	3-145



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
3.12.3 How are wetland identified for this project?	3-145
3.12.4 What wetland types were identified within the corridor?	3-146
3.12.4.1 Aquatic beds	3-149
3.12.4.2 Bay forests	3-149
3.12.4.3 Bottomland hardwoods	3-149
3.12.4.4 Deciduous shrub swamps	3-150
3.12.4.5 Freshwater marsh	3-151
3.12.4.6 Pine wet flatwoods	3-151
3.12.4.7 Ponds and borrow pits	3-152
3.12.4.8 Rivers and canals	3-152
3.12.4.9 Wooded swamp	3-153
3.12.5 What kind of impacts would occur to wetlands as a result of the Preferred Alternative?	3-153
3.12.6 How were the potential wetland impacts calculated?	3-154
3.12.7 How many acres of wetland would be impacted by the project?	3-154
3.12.8 What other impacts could occur from construction?	3-156
3.12.9 What kind and how much impact would occur in streams as a result of this project?	3-157
3.12.10 What indirect impacts to wetlands and streams could occur as the result of the project?	3-158
3.12.11 What would cumulative impacts be to wetlands and streams in the project study area?	3-159
3.12.12 What is mitigation?	3-161
3.12.13 What was done to avoid and minimize wetland and stream impacts?	3-162
3.12.14 How will compensation be determined for the wetland and stream impacts?	3-165
<b>3.13 Invasive Species</b>	<b>3-168</b>
3.13.1 What are invasive plant species?	3-168
3.13.2 What is FHWA policy on invasive species?	3-168
3.13.3 What are FHWA recommendations regarding invasive species?	3-169
3.13.4 What invasive plant species occur within the project study corridor?	3-169
3.13.5 How do invasive plant species negatively impact the land?	3-170



## TABLE OF CONTENTS

<b><u>Chapter and Section</u></b>	<b><u>Page</u></b>
3.13.6 How would actions from the project create impacts from invasive plant species?	3-171
3.13.7 What measures have been successful in preventing and/or controlling the spread of invasive plant species?	3-171
<b>3.14 Wildlife</b>	<b>3-172</b>
3.14.1 What types of wildlife habitat are found in the study corridor?	3-172
3.14.2 What species are typically found in upland habitats within the project study corridor?	3-172
3.14.2.1 Mesic mixed hardwood forest	3-173
3.14.2.2 Oak-hickory forest	3-173
3.14.2.3 Pine flatwoods	3-174
3.14.2.4 Xeric sandhill scrub and Pine-scrub oak sandhill	3-174
3.14.2.5 Disturbed areas	3-174
3.14.3 What species are typically found in wetland habitats within the project study area?	3-176
3.14.3.1 Aquatic beds	3-176
3.14.3.2 Bay forest	3-177
3.14.3.3 Bottomland hardwoods	3-177
3.14.3.4 Deciduous shrub swamp	3-178
3.14.3.5 Freshwater marsh	3-178
3.14.3.6 Pine wet flatwoods	3-179
3.14.3.7 Ponds and borrow pits	3-179
3.14.3.8 Rivers and canals	3-180
3.14.3.9 Wooded swamp	3-181
3.14.4 How would wildlife and their habitat be impacted by the proposed project?	3-182
3.14.5 What has been done to minimize impacts to wildlife?	3-185
3.14.6 What else could be done to minimize impacts to wildlife?	3-186
3.14.7 What indirect and cumulative impacts would occur to wildlife?	3-186
<b>3.15 Protected Species</b>	<b>3-189</b>
3.15.1 What are protected species?	3-189
3.15.2 What is the Endangered Species Act, and how would species protected under this Act be impacted by the Preferred Alternative?	3-189
3.15.2.1 What federally protected species may occur within the Preferred Alternative study corridor?	3-189



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
3.15.2.2 What has been done to avoid impact to federally protected species for this project?	3-190
3.15.2.3 How could federally protected species be affected by the proposed project?	3-191
3.15.3 What is the Bald and Golden Eagle Protection Act, and how would species protected under this Act be impacted by the Preferred Alternative?	3-197
3.15.4 What is the Migratory Bird Treaty Act?	3-198
3.15.4.1 What are migratory birds, and which ones may potentially occur within the study corridor?	3-199
3.15.4.2 What are the potential impacts of roadways to migratory birds?	3-200
3.15.5 What is the Magnuson-Stevens Fishery Conservation and Management Act?	3-201
3.15.5.1 What are EFH and HAPC?	3-201
3.15.5.2 What impacts could occur to EFH from the Preferred Alternative?	3-201
3.15.6 What indirect and cumulative impacts may occur to federally protected species?	3-202
3.15.7 What are State Species of Concern, and which ones may occur within the project study area?	3-204
<b>3.16 Groundwater Resources</b>	<b>3-207</b>
3.16.1 What are the groundwater resources in the project study area?	3-207
3.16.2 How would groundwater resources be impacted by the proposed project?	3-208
<b>3.17 Surface Waters</b>	<b>3-209</b>
3.17.1 What surface water resources are located within the project study area?	3-209
3.17.2 What are the designations of the surface waters?	3-210
3.17.3 What drinking water sources are in the project study area?	3-210
3.17.4 How is surface water quality evaluated?	3-213
3.17.5 What is the surface water quality like in the Pee Dee River Sub-basin and Waccamaw/AIWW Sub-basin	3-214
3.17.5.1 Watershed units which drain into the Great Pee Dee River	3-215
3.17.5.2 Watershed units which drain into the Little Pee Dee River	3-216



## TABLE OF CONTENTS

<b><u>Chapter and Section</u></b>	<b><u>Page</u></b>
3.17.5.3 Watershed units which drain into the Waccamaw River/AIWW	3-219
3.17.6 How would water quality be impacted by the No-build and Preferred Alternatives?	3-220
3.17.6.1 How much pollutant would runoff into streams in the project study area due to the No-build and Preferred Alternatives?	3-220
3.17.6.2 How would the No-build Alternative impact water quality?	3-221
3.17.6.3 How would the Preferred Alternative impact surface waters?	3-224
3.17.6.4 What indirect impacts would occur from the No-build Alternative?	3-225
3.17.7 What are the cumulative impacts to water quality?	3-225
3.17.8 What best management practices and measures to minimize the amount of runoff pollution into streams could be used?	3-227
<b>3.18 Floodplains</b>	<b>3-229</b>
3.18.1 What are floodplains?	3-229
3.18.2 What agencies regulate floodplains?	3-229
3.18.3 How were the floodplain boundaries determined for the FEIS?	3-229
3.18.4 What floodplains might be affected by the Preferred Alternative?	3-230
<b>3.19 Wild and Scenic Rivers</b>	<b>3-231</b>
<b>3.20 Uniformly Affected Resources</b>	<b>3-233</b>
3.20.1 Coastal Zone Resources	3-233
3.20.1.1 Who protects the coastal zone?	3-233
3.20.1.2 Where is the coastal zone?	3-233
3.20.1.3 What direct impacts would occur to the coastal zone as a result of this project?	3-234
3.20.1.4 What indirect and cumulative impacts are anticipated to occur to the coastal zone?	3-234
3.20.1.5 Would there be any Coastal Barriers impacted by the project?	3-235
3.20.2 Energy	3-236
3.20.2.1 What energy consumption would occur during construction of the Preferred Alternative?	3-236



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
3.20.2.2 What energy consumption would occur as a result of the operation of the project?	3-236
3.20.2.3 What is the conservation potential of the proposed project?	3-237
<b>3.21 Permits</b>	<b>3-237</b>
3.21.1 Section 404 of the Clean Water Act	3-237
3.21.2 Section 401 Water Quality	3-237
3.21.3 Coastal Zone Consistency Certification	3-238
3.21.4 Stormwater Management and Sediment Reduction Act of 1991	3-238
3.21.5 Section 9 and Section 10 of the Rivers and Harbors Act of 1899	3-238
3.21.6 State Navigable Waters	2-239
<b>3.22 Short-term Uses versus Long-term Productivity</b>	<b>3-239</b>
<b>Chapter 4 Public Involvement and Agency Coordination</b>	<b>4-1</b>
<b>4.1 Public Involvement</b>	<b>4-1</b>
4.1.1 How was the public engaged in the project?	4-1
4.1.2 What happened at the Public Scoping Meetings?	4-1
4.1.3 What took place at the Public Information Meetings?	4-2
4.1.4 What happened at the Public Hearings?	4-4
4.1.5 How were local governments involved?	4-6
4.1.6 How did the FHWA and SCDOT reach out to communities?	4-9
4.1.7 What other Public Involvement Meetings were held?	4-10
4.1.8 How else was the public involved in the project?	4-12
4.1.9 What other forms of information were available to the public?	4-14
<b>4.2 Agency Involvement and Coordination</b>	<b>4-14</b>
4.2.1 What is the Agency Coordination Team?	4-15
4.2.2 How did the ACT contribute to the project?	4-15
4.2.3 Were there any meetings with agencies prior to the formation of the ACT?	4-15
4.2.4 Who participated in the ACT meetings and contributed to the project?	4-16
4.2.5 When did the ACT meetings occur and what happened at the meetings?	4-17
4.2.5.1 June 30, 2004 and July 1, 2004 ACT Meeting	4-17



## TABLE OF CONTENTS

<u>Chapter and Section</u>	<u>Page</u>
4.2.5.2 July 7, 2004 ACT NEPA/Section 404 Sub-committee Meeting	4-19
4.2.5.3 August 6, 2004 Meeting with SCDAH	4-20
4.2.5.4 August 12, 2004 ACT Scoping Meeting	4-20
4.2.5.5 September 1, 2004 Meeting with USACE	4-20
4.2.5.6 September 23, 2004 ACT Meeting	4-21
4.2.5.7 November 18, 2004 ACT Meeting	4-21
4.2.5.8 December 3, 2004 ACT CAT Workshop	4-21
4.2.5.9 December 9, 2004 ACT Meeting	4-21
4.2.5.10 December 16, 2004 and January 7, 2005 ACT Meetings with SCDNR	4-21
4.2.5.11 March 24, 2005 ACT Meeting	4-22
4.2.5.12 April 21, 2005 NEPA/Section 404 Sub-committee Meeting	4-22
4.2.5.13 April 22, 2005 Meeting with SCDNR	4-23
4.2.5.14 May 17, 2005 to May 19, 2005 ACT Field Tour	4-23
4.2.5.15 June 1, 2005 Meeting with SCDNR	4-23
4.2.5.16 June 16, 2005 ACT Meeting	4-23
4.2.5.17 July 27, 2005 ACT Meeting	4-24
4.2.5.18 August 24, 2005 ACT Meeting	4-24
4.2.5.19 September 7, 2005 ACT Meeting	4-24
4.2.5.20 November 14, 2005 NEPA/Section 404 Sub-committee Meeting	4-24
4.2.5.21 December 15, 2005 ACT Meeting	4-25
4.2.5.22 January 19, 2006 ACT Meeting	4-26
4.2.5.23 February 10, 2006 Meeting with SCDHEC-OCRM	4-27
4.2.5.24 February 23, 2006 Meeting with SCDAH	4-27
4.2.5.25 March 2, 2006 ACT Meeting	4-27
4.2.5.26 March 14, 2006 Meeting with SCDAH	4-28
4.2.5.27 April 19, 2006 ACT Meeting	4-28
4.2.5.28 July 13, 2006 ACT Meeting	4-29
4.2.5.29 August 1, 2006 Meeting with the USACE and SCDHEC	4-29
4.2.5.30 August 3, 2006 ACT Meeting	4-29
4.2.5.31 August 10, 2006 Meeting with NRCS	4-30
4.2.5.32 September 20, 2006 Meeting with the USACE	4-30
4.2.5.33 September 28, 2006 ACT Meeting	4-30



## TABLE OF CONTENTS

<b><u>Chapter and Section</u></b>	<b><u>Page</u></b>
4.2.5.34 November 2, 2006 ACT Meeting	4-30
4.2.5.35 January 18, 2007 ACT Meeting	4-31
4.2.5.36 January 29, 2007 ACT Sub-committee Meeting on Mitigation	4-31
4.2.5.37 February 1, 2007 Meeting with NRCS	4-31
4.2.5.38 February 22, 2007 ACT Meeting	4-31
4.2.5.39 April 10, 2007 ACT Meeting	4-32
<b>4.3 Stakeholder Working Group Involvement</b>	<b>4-33</b>
4.3.1 What was the Stakeholder Working Group?	4-33
4.3.2 What Happened at the Stakeholder Working Group Meetings?	4-33
<b>4.4 Tribal Involvement</b>	<b>4-34</b>
<b>4.5 Draft EIS Comment Letters</b>	<b>4-36</b>
<b>Chapter 5 List of Preparers</b>	<b>5-1</b>
<b>5.1 Federal Highway Administration</b>	<b>5-1</b>
<b>5.2 South Carolina Department of Transportation</b>	<b>5-1</b>
<b>5.3 The LPA Group Incorporated</b>	<b>5-1</b>
<b>5.4 Wilbur Smith Associates</b>	<b>5-3</b>
<b>5.5 Adobe Palm Communications, LLC.</b>	<b>5-5</b>
<b>5.6 Brockington and Associates, Inc.</b>	<b>5-5</b>
<b>5.7 CDR Associates</b>	<b>5-5</b>
<b>5.8 Civil Engineering Consulting Services, Inc.</b>	<b>5-5</b>
<b>5.9 Environmental Planning Strategies, Inc.</b>	<b>5-5</b>
<b>5.10 The Grant Group, Inc.</b>	<b>5-5</b>
<b>5.11 OLH International</b>	<b>5-6</b>
<b>5.12 PBS &amp; J</b>	<b>5-6</b>
<b>5.13 P.J. Noble &amp; Associates, Inc.</b>	<b>5-6</b>
<b>5.14 Press and Potter, LLC.</b>	<b>5-6</b>
<b>5.15 Carolina Mapping</b>	<b>5-6</b>
<b>List of Acronyms</b>	<b>A-1</b>
<b>Index</b>	<b>i-1</b>



## TABLE OF CONTENTS

### Appendices

A	Agency Letters
B	Corridor Analysis Tool
C	Environmental Consequences for Reasonable Alternatives
D	Resolutions and Local Government Letters
E	Final Section 4(f) Evaluation
F	Conceptual Relocation Study
G	Memorandum HEPN-10
H	Farmland Conversion Impact Rating For Corridor Type Projects (NRCS-CPA-106) Forms
I	Comprehensive List of Wildlife Species
J	Tribal Consultation Correspondence

### Tables

#### **Executive Summary**

S.1	Preferred Alternative Impact Matrix	S-5
-----	-------------------------------------	-----

#### **Chapter 1**

1.1	County Population Growth	1-13
1.2	Demographic Composition of County Seats and Population Centers with Greater than 2000 People	1-14
1.3	County Demographic Characteristics	1-14
1.4	Housing Characteristics of Counties in the Project Study Area	1-15
1.5	County Job Training/Adult Education Options	1-16
1.6	Total Employment, by County	1-17
1.7	Top Employers by County	1-19
1.8	Unemployment Rates, 2006	1-20
1.9	Evacuation Clearance Times on U.S. Route 501, S.C. Route 9 and I-73 by Hurricane Category (in hours)	1-23

#### **Chapter 2**

2.1	Agencies Contacted Regarding GIS Data	2-5
2.2	Possible GIS Layers for CAT Program	2-6
2.3	Alternatives Considered by the ACT	2-18
2.4	Alternatives	2-21
2.5	Reasonable Alternatives Matrix	2-31
2.6	Minimum Trip Time Between U.S. Route 17 and I-95 in Year 2030	2-41
2.7	I-73 Economic Impact Summary in 2030 – Value Change (Alternatives compared to No-Build)	2-43



## TABLE OF CONTENTS

<b>Tables</b>		<b>Page</b>
2.8	I-73 Economic Impact Summary Percentage Increase in 2030 (Alternatives compared to No-Build)	2-43
2.9	I-73 Cumulative Economic Output Impact from 2015 to 2030 (Alternatives compared to No-Build)	2-44
2.10	Strategic Development Impacts of I-73, Employment Increases by Alternative and County (Number of Jobs)	2-45
2.11	Annual Income Impacts based on Strategic Development Impacts of I-73, by Alternative and County (in Millions of Dollars)	2-45
2.12	Summary Economic Impacts of I-73 in 2030, by Alternative	2-45
2.13	Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in Network For Alternatives Using Average Annual Daily Traffic Volumes (Year 2030)	2-46
2.14	Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in Network For Alternatives using Peak Season Daily Traffic Volumes (Year 2030)	2-47
2.15	Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in Network For Alternatives using Average Annual Daily Traffic Volumes with I-73 Traffic Removed (Year 2030)	2-47
2.16	Public Interest Review Factors	2-59
2.17	Preferred Alternative	2-84
<b>Chapter 3</b>		
3.1	Projected Population Growth by County, 2000 to 2030	3-11
3.2	No-build Alternative, Summary of Land Use Requirements, by Acres	3-11
3.3	No-build Alternative, Detailed Land Use Requirements, in Acres	3-13
3.4	Proposed I-73 Interchanges Along Preferred Alternative by TAZ	3-16
3.5	Total Shift in Anticipated Development Resulting from the Preferred Alternative by TAZ	3-17
3.6	Impact of the Preferred Alternatives by TAZ	3-18
3.7	Cumulative Growth by 2030 by TAZ	3-19
3.8	Demographic and Economic Characteristics of Communities in Dillon County Portion of CIA Study Area	3-27
3.9	Dillon County and Communities Projected 2030 Development by Acreage	3-29
3.10	Demographic and Economic Characteristics of Communities in Horry County Portion of CIA Study Area	3-37
3.11	Horry County and Communities Projected 2030 Development by Acreage	3-39



## TABLE OF CONTENTS

<u>Tables</u>	<u>Page</u>
3.12 Demographic and Economic Characteristics of Communities in Marion County Portion of CIA Study Area	3-62
3.13 Marion County and Communities Projected 2030 Development by Acreage	3-64
3.14 Summary of Impacts to Communities in the Project Study Area from the Preferred Alternative	3-81 to 3-82
3.15 Summary of Relocations within the Project Study Area	3-83
3.16 2000 Department of Health and Human Services Poverty Thresholds	3-87
3.17 2000 Minority Population	3-89
3.18 2000 Low-income Population	3-90
3.19 Total Number of Block Groups with Environmental Justice Populations	3-90
3.20 Block Groups Impacted by the Preferred Alternative	3-92
3.21 Environmental Justice Block Groups and Community Relocations	3-94
3.22 NRHP Sites in the Historic Resources Study Area	3-102
3.23 Summary of Hazardous Material and Waste Sites Identified within the Project Study Area	3-105
3.24 Hazardous Materials and Waste Sites Potentially Impacted by the Preferred Alternative	3-106
3.25 Common Noise and dB Levels	3-107
3.26 FHWA Noise Abatement Criteria	3-108
3.27 Ambient Noise Levels	3-110
3.28 Approximate Distance to NAC Contours for Existing Future No-build And Future Build	3-111
3.29 Approximate Distance NAC Contour (feet)	3-112
3.30 Noise Impacts Based on GIS Analysis	3-114
3.31 Noise Barrier Analysis	3-116
3.32 Noise Abatement Analysis	3-116
3.33 Criteria Pollutants Measured Under the NAAQS	3-117
3.34 Top Five Crops in Dillon, Horry, and Marion Counties in 2002	3-126
3.35 Summary of Prime and Farmland of Statewide Important Soils	3-128
3.36 Types of Prime Farmland Soils in Project Study Area, by County	3-129
3.37 Types of Soils of Statewide Importance in Project Study Area, by County	3-130
3.38 Total land Area in Farms, 2002	3-130
3.39 Relative and Corridor Assessment Values for the Preferred Alternative	3-131
3.40 Impacts to Prime and Statewide Important Farmland Soils	3-132
3.41 Divided Farmland Parcels in Project Study Area	3-132



## TABLE OF CONTENTS

<b>Tables</b>		<b>Page</b>
3.42	Indirect and Cumulative Impacts to Prime and Statewide Important Farmland Soils in the Project Study Area by the Preferred Alternative	3-134
3.43	Land Enrolled in Federal Conservation Programs	3-135
3.44	Conservation Reserve Program Contracts Impacted by the Preferred Alternative	3-137
3.45	Wetland Impacts in Acres and Wetland Values	3-155
3.46	Potential Borrow Pit Areas by Land Use Type	3-157
3.47	Potential Indirect Wetland Acres and Stream Impacts	3-159
3.48	Undisturbed Upland and Wetland Habitats in the Project Study Corridor	3-172
3.49	Potential Wildlife Habitat Impacts in Acres	3-183
3.50	Relative Roadway Effects on Habitat	3-185
3.51	Threatened and Endangered Species Known to Occur or Possibly Occur in Dillon, Horry, or Marion Counties, South Carolina	3-190
3.52	Migratory Bird species Potentially Occurring within the Project Study Corridor	3-200
3.53	State Listed Rare, Threatened, and Endangered Species (Species of Concern) Known to Occur or Possibly Occur in Dillon, Horry, and Marion Counties, South Carolina	3-205 to 3-206
3.54	Sub-basins, Watershed Units, and Major Streams in Project Study Area Crossed by Alternatives	3-212
3.55	Water Service Providers in the Project Study Area	3-213
3.56	2006 303(d) List of Impaired Streams being Crossed within Five Miles of the Preferred Alternative	3-214
3.57	Pollutant Discharge by Pounds in Year 2030	3-221
3.58	Streams Impacted by Predicted Development in the Project Study Area	3-222
3.59	Stream/Ditch Crossings by the Preferred Alternative	3-224
3.60	Anticipated Amount of New Impervious Surfaces by Induced Development in the Project Study Area (in acres)	3-226
3.61	Floodplain Crossing Locations and Impact Areas of the Preferred Alternative	3-230
<b>Chapter 4</b>		
4.1	Summary of Letters and Resolutions Received for Proposed Project	4-7
4.2	Community Information Meetings	4-11
4.3	Summary of Petitions Received for Project	4-13
4.4	Agency Coordination Team Members	4-16
4.5	ACT Meetings and Attendance	4-18
4.6	Tribal Consultation Process	4-35



## TABLE OF CONTENTS

		<u>Page</u>
<b><u>Figures</u></b>		
<b>Chapter 1</b>		
1-1	Interstate 73 Corridor	1-1
1-2	I-73 study area map	1-3
1-3	Interim typical section	1-4
1-4	Ultimate typical section	1-5
1-5	Northern Coastal Conglomerate	1-22
<b>Chapter 2</b>		
2-1	Preliminary Build Alternatives	2-9
2-2	Twenty-Five Preliminary Build Alternatives	2-12
2-3	Suitability Grid for Seven Reasonable Alternatives	2-15
2-4	108 Segments Modified by the Public Input	2-16
2-5	Additional Segments Suggested by the Public	2-17
2-6	10 Alternatives	2-20
2-7	Alternative 1	2-23
2-8	Alternative 2	2-24
2-9	Alternative 3	2-25
2-10	Alternative 4	2-26
2-11	Alternative 5	2-27
2-12	Alternative 6	2-28
2-13	Alternative 7	2-29
2-14	Alternative 8	2-30
2-15	2030 AADT Travel Time No Build	2-32
2-16	2030 AADT Travel Time Alternative 1	2-33
2-17	2030 AADT Travel Time Alternative 2	2-34
2-18	2030 AADT Travel Time Alternative 3	2-35
2-19	2030 AADT Travel Time Alternative 4	2-36
2-20	2030 AADT Travel Time Alternative 5	2-37
2-21	2030 AADT Travel Time Alternative 6	2-38
2-22	2030 AADT Travel Time Alternative 7	2-39
2-23	2030 AADT Travel Time Alternative 8	2-40
2-24	2030 AADT Level of Service No Build	2-49
2-25	2030 AADT Level of Service Alternative 1	2-50
2-26	2030 AADT Level of Service Alternative 2	2-51
2-27	2030 AADT Level of Service Alternative 3	2-52
2-28	2030 AADT Level of Service Alternative 4	2-53
2-29	2030 AADT Level of Service Alternative 5	2-54
2-30	2030 AADT Level of Service Alternative 6	2-55



## TABLE OF CONTENTS

<u>Figures</u>		<u>Page</u>
2-31	2030 AADT Level of Service Alternative 7	2-56
2-32	2030 AADT Level of Service Alternative 8	2-57
2-33	Catfish Church Road Shift	2-72
2-34	Signode Shift	2-74
2-35	U.S. Route 301 Interchange vs. U.S. Route 501 Interchange	2-75
2-36	Temperance Hill Segments	2-76
2-37	Temperance Hill Shift	2-77
2-38	FRPP Sites	2-78
2-39	Little Sister Bay and McRae Farm Shift	2-80
2-40	Ketchuptown Shift	2-81
<b>Chapter 3</b>		
3-1	Land Use Study Area	3-3
3-2	Year 2030 Potential Land Use Change Areas	3-20
3-3	Communities Evaluated by Community Impact Assessment	3-25
3-4	Community Boundaries	3-26
3-5	Dillon County	3-27
3-6	Dillon Urban Cluster	3-31
3-7	Latta	3-33
3-8	Horry County	3-36
3-9	Aynor	3-40
3-10	Bakers Chapel	3-42
3-11	Cool Spring	3-45
3-12	Dog Bluff	3-47
3-13	Galivants Ferry	3-49
3-14	Joiner	3-51
3-15	Ketchuptown	3-54
3-16	Poplar Hill	3-59
3-17	Marion County	3-61
3-18	City of Marion	3-63
3-19	Mullins	3-66
3-20	Gapway	3-69
3-21	Pecan Pointe	3-71
3-22	Spring Branch	3-73
3-23	Temperance Hill	3-75
3-24	Zion	3-78



## TABLE OF CONTENTS

<u>Figures</u>		<u>Page</u>
3-25	Environmental Justice Block Groups Impacted by the Preferred Alternative	3-88
3-26	Section 4(f) Resources and Known NRHP Sites	3-99
3-27	Category B Potential Noise Impacts	3-113
3-28	Land Enrolled in Federal Conservation Programs	3-136
3-29	Wetlands, Streams and Floodplains	3-147
3-30	Potential Roadway Impacts to Wildlife Habitat	3-184
3-31	Groundwater Aquifers	3-207
3-32	Potentially Impacted Watershed Units	3-211
3-33	Other Projects occurring in the Pee Dee and Waccamaw Sub-basins	3-226
3-34	Wild and Scenic Rivers in Project Study Area	3-232
3-35	Coastal Zone Counties and Critical Line Boundary	3-235
 <u>Charts</u>		 <u>Page</u>
<b>Chapter 1</b>		
1.1	County Population Growth Forecasts, 2005 to 2030	1-13
1.2	2000 Median Household Income	1-13
1.3	Education Levels of Dillon, Horry, and Marion Counties	1-15
1.4	Dillon County Employment, by Industry	1-18
1.5	Horry County Employment , by Industry	1-18
1.6	Marion County Employment, by Industry	1-18
<b>Chapter 3</b>		
3.1	U.S. Annual Vehicle Miles Traveled (VMT) vs. Mobile Source Air Toxics Emissions, 2000-2020	3-120