

TABLE OF CONTENTS

SOUTHEAST HIGH SPEED RAIL TIER II DRAFT ENVIRONMENTAL IMPACT STATEMENT AND DRAFT SECTION 4(f) EVALUATION

Table of Contents	i
List of Tables	xii
List of Figures	xv
List of Appendices.....	xvi
1 PURPOSE AND NEED FOR THE PROPOSED ACTION	1-1
1.1 Project Background	1-1
1.2 Project Description	1-2
1.3 Legislative History	1-5
1.3.1 Initiatives by the Commonwealth of Virginia.....	1-8
1.3.2 Initiatives by the State of North Carolina	1-9
1.4 Purpose of the Proposed Project	1-9
1.5 Need for the Proposed Project	1-10
2 ALTERNATIVES.....	2-1
2.1 Study Corridor.....	2-1
2.2 Build Alternatives.....	2-2
2.2.1 Alternative Alignments	2-5
2.2.1.1 Rail Alignments	2-5
2.2.1.2 Road Alignments.....	2-7
2.2.1.3 Detailed Alignment Information	2-8
2.2.2 Alternatives Considered, but Not Carried Forward.....	2-41
2.2.2.1 Abandoned S-Line, from near Centralia to Lynch.....	2-41
2.2.2.2 S-line, from Appomattox River to Burgess.....	2-41
2.2.2.3 Alternatives Serving Old Union Station in Petersburg	2-43
2.2.3 Patronage	2-45
2.2.4 Stations.....	2-48
2.2.4.1 Richmond, VA	2-49
2.2.4.2 Petersburg, VA.....	2-49
2.2.4.3 La Crosse, VA, and Henderson, NC	2-50
2.2.4.4 Raleigh, NC.....	2-50
2.2.5 Operations	2-54
2.2.5.1 Operating Costs	2-54
2.3 No Build Alternative.....	2-55
2.4 Multiuse Greenway Concept.....	2-55
3 EXISTING ENVIRONMENT.....	3-1
3.1 Water Resources.....	3-1
3.1.1 Surface Water	3-1
3.1.1.1 Drainage Basins.....	3-2
3.1.1.2 Water Quality.....	3-8

TABLE OF CONTENTS (continued)

3.1.2	Wetlands	3-11
3.1.3	Floodplains and Floodways	3-12
3.1.4	Wild and Scenic Rivers	3-16
3.1.5	US Coast Guard Waters	3-17
3.2	Topography, Geology, and Soils	3-17
3.2.1	Topography	3-17
3.2.2	Geology	3-18
3.2.3	Soils	3-18
3.3	Prime and Other Important Farmland	3-22
3.4	Mineral Resources	3-24
3.5	Hazardous Material	3-25
3.6	Air Quality	3-26
3.6.1	Regulatory Setting	3-27
3.6.1.1	National Ambient Air Quality Standards (40 CFR Part 50)	3-27
3.6.1.2	Clean Air Act Amendments – Title I	3-29
3.6.1.3	Clean Air Act Amendments – Title II	3-29
3.6.1.4	Clean Air Act Conformity	3-29
3.6.1.5	Clean Air Nonroad Diesel Rule	3-30
3.6.1.6	Mobile Source Air Toxics (MSATs) Rule	3-30
3.6.1.7	PM Hot Spot Analysis	3-31
3.6.2	Affected Environment	3-31
3.6.2.1	Ambient Air Quality in the SEHSR Corridor	3-31
3.6.2.2	Existing Ambient Pollutant Concentrations at Selected Sites	3-33
3.7	Noise and Vibration	3-35
3.7.1	Noise Descriptors	3-35
3.7.2	Vibration Descriptors	3-36
3.7.3	Existing Setting	3-39
3.7.4	Noise Measurements	3-39
3.7.5	Vibration Measurements	3-39
3.8	Energy	3-47
3.9	Visual Environment	3-47
3.9.1	Virginia	3-47
3.9.1.1	City of Richmond	3-47
3.9.1.2	Chesterfield County	3-48
3.9.1.3	City of Colonial Heights	3-48
3.9.1.4	City of Petersburg	3-48
3.9.1.5	Dinwiddie County	3-48
3.9.1.6	Brunswick County	3-49
3.9.1.7	Mecklenburg County	3-49
3.9.2	North Carolina	3-50
3.9.2.1	Warren County	3-50
3.9.2.2	Vance County	3-50
3.9.2.3	Franklin County	3-51
3.9.2.4	Wake County	3-51
3.10	Biological Resources	3-53
3.10.1	Natural Communities	3-53
3.10.1.1	Terrestrial Communities	3-53

TABLE OF CONTENTS (continued)

3.10.1.2 Aquatic Communities	3-55
3.10.2 Rare and Protected Species	3-57
3.11 Community Resources	3-63
3.11.1 Demographics	3-64
3.11.1.1 Race	3-64
3.11.1.2 Ethnicity	3-66
3.11.1.3 Age	3-67
3.11.1.4 Income and Poverty	3-68
3.11.2 Economics	3-70
3.11.2.1 Community Economic Profile	3-70
3.11.2.2 Agriculture	3-76
3.11.2.3 Tourism	3-76
3.11.3 Land Use and Transportation Planning	3-78
3.11.3.1 Regional Planning	3-78
3.11.3.2 County & Municipal Planning	3-83
3.11.4 Neighborhoods and Communities	3-85
3.11.4.1 Virginia	3-86
3.11.4.2 North Carolina	3-88
3.11.5 Community Facilities and Services	3-90
3.11.5.1 Public Educational Facilities	3-91
3.11.5.2 Emergency Services	3-94
3.11.5.3 Health Services	3-96
3.11.5.4 Places of Worship & Cemeteries	3-97
3.12 Archaeological and Historical Resources	3-102
3.12.1 Archaeological Resources	3-103
3.12.2 Historical Resources	3-105
3.12.2.1 Historical Resources – Virginia	3-111
3.12.2.2 Battlefields – Virginia	3-125
3.12.2.3 Historical Resources – North Carolina	3-131
3.13 Parklands, Recreational Areas, and Refuges	3-145
3.13.1 Federal Parklands	3-145
3.13.2 State Parklands and Recreation Areas	3-148
3.13.2.1 Virginia	3-148
3.13.2.2 North Carolina	3-148
3.13.3 County/City Parklands	3-148
3.13.3.1 Virginia	3-148
3.13.3.2 North Carolina	3-149
3.13.4 Wildlife Refuges	3-149
3.13.5 Section 4(f)/Section 6(f) Resources	3-149
3.13.5.1 Section 4(f) Requirements	3-150
3.13.5.2 Section 6(f) Requirements	3-150
3.13.5.3 Section 4(f) and 6(f) Resources	3-150
3.14 Roads	3-151
3.14.1 City of Richmond, VA	3-151
3.14.2 Chesterfield County, VA	3-151
3.14.3 City of Colonial Heights, VA	3-152
3.14.4 City of Petersburg, VA	3-152
3.14.5 Dinwiddie County, VA	3-153
3.14.6 Brunswick County, VA	3-153
3.14.7 Mecklenburg County, VA	3-153
3.14.8 Warren County, NC	3-153

TABLE OF CONTENTS (continued)

3.14.9 Vance County, NC	3-154
3.14.10 Franklin County, NC	3-154
3.14.11 Wake County, NC	3-155
3.15 Traffic Conditions	3-156
3.15.1 Richmond, VA	3-156
3.15.2 Chesterfield County, VA	3-156
3.15.2.1 Perrymont Road – Bellwood Area	3-156
3.15.3 Chester, VA	3-157
3.15.3.1 Chester Road – Bellwood Area	3-157
3.15.3.2 Centralia Road and Chester Road	3-157
3.15.4 La Crosse, VA	3-158
3.15.4.1 Main Street and Pine Street	3-158
3.15.5 Norlina, NC	3-158
3.15.5.1 Warren Plains Road and Yancey Road	3-158
3.15.5.2 Warren Plains Road, Hyco Street, and Liberty Street	3-158
3.15.5.3 Axtell-Ridgeway Road and St Tammany Road	3-159
3.15.5.4 Soul City Blvd and US 1	3-159
3.15.6 Middleburg, NC	3-159
3.15.6.1 Carol Street and US 1	3-159
3.15.7 Henderson, NC	3-159
3.15.7.1 Beckford Drive/Main Street and US 1 Business (Garnett Street)/ Chestnut Street	3-159
3.15.7.2 US 1 Business (Garnett Street) and NC 39 (Andrews Avenue)	3-160
3.15.7.3 William Street and Chavasse Avenue	3-160
3.15.7.4 Belmont Drive and Welcome Avenue	3-161
3.15.7.5 US 1 Business (Raleigh Road) and Bearpond Road	3-161
3.15.7.6 US 1 Business (Raleigh Road) and Peter Gill Road	3-162
3.15.7.7 US 1 Business (Raleigh Rd) and Chavis Road	3-162
3.15.8 Kittrell, NC	3-162
3.15.8.1 US 1 (Capital Boulevard) and Kittrell College Road	3-162
3.15.9 Franklinton, NC	3-162
3.15.9.1 Main Street and Green Street (NC 56)	3-162
3.15.9.2 Main Street (US 1 Business) and Cedar Creek Road	3-163
3.15.10 Raleigh, NC	3-163
3.15.10.1 Atlantic Avenue and Wolfpack Lane/Highwoods Avenue	3-163
3.15.10.2 Downtown Raleigh	3-165
3.16 Rail	3-165
3.16.1 Virginia	3-168
3.16.2 North Carolina	3-169
3.17 Stations	3-169
3.17.1 Richmond, VA	3-169
3.17.2 Petersburg, VA	3-170
3.17.2.1 Dunlop	3-170
3.17.2.2 Ettrick	3-170
3.17.2.3 Washington Street	3-170
3.17.2.4 Collier	3-171
3.17.3 La Crosse, VA	3-171
3.17.4 Henderson, NC	3-171
3.17.5 Raleigh, NC	3-171
3.18 Utilities and Related Services	3-172

TABLE OF CONTENTS (continued)

3.19 Safety and Security	3-174
4 ENVIRONMENTAL CONSEQUENCES	4-1
4.1 Water Resources	4-1
4.1.1 Surface Waters	4-1
4.1.1.1 Streams	4-2
4.1.1.2 Riparian Areas and Other Jurisdictional Waters	4-4
4.1.1.3 Stormwater/Drainage	4-6
4.1.2 Wetlands	4-8
4.1.3 Floodplains and Floodways	4-9
4.1.4 Wild and Scenic Rivers	4-11
4.1.5 Permits	4-11
4.1.5.1 Section 404/401 Permits	4-11
4.1.5.2 Stormwater Permits	4-12
4.1.5.3 US Coast Guard Permits	4-13
4.1.6 Avoidance, Minimization, and Mitigation Evaluation	4-14
4.1.6.1 Avoidance and Minimization	4-14
4.1.6.2 Other Avoidance and Minimization Measures	4-14
4.1.6.3 Compensatory Mitigation	4-15
4.2 Topography, Geology, and Soils	4-16
4.2.1 Topography	4-16
4.2.2 Geology	4-16
4.2.3 Soils	4-16
4.3 Prime and Other Important Farmlands	4-16
4.4 Mineral Resources	4-18
4.5 Hazardous Material	4-19
4.6 Air Quality	4-20
4.6.1 Locomotive Operations - CO, NO _x , HC, and PM	4-20
4.6.2 Locomotive Operations - MSATs	4-23
4.6.3 Highway Vehicle Operations - CO	4-23
4.6.4 Highway Vehicle Operations - PM _{2.5}	4-25
4.6.5 Highway Vehicle Operations - MSAT	4-25
4.6.6 Construction Impacts	4-26
4.7 Noise and Vibration	4-26
4.7.1 Impact Criteria	4-27
4.7.1.1 Operation Noise Impact Criteria	4-27
4.7.1.2 Operation Vibration Impact Criteria	4-30
4.7.2 Impact Assessment	4-31
4.7.2.1 Operation Noise	4-31
4.7.2.2 Operation Vibration	4-34
4.7.2.3 Construction Noise	4-38
4.7.2.4 Construction Vibration	4-38
4.7.3 Mitigation	4-39
4.7.3.1 Mitigation during Construction	4-39
4.7.3.2 Mitigation during Operation	4-41
4.8 Energy	4-44

TABLE OF CONTENTS (continued)

4.9 Visual Environment.....	4-45
4.9.1 Virginia	4-46
4.9.1.1 City of Richmond, VA	4-46
4.9.1.2 Chesterfield County, VA.....	4-47
4.9.1.3 City of Colonial Heights, VA	4-48
4.9.1.4 City of Petersburg, VA.....	4-48
4.9.1.5 Dinwiddie County, VA	4-49
4.9.1.6 Brunswick County, VA.....	4-50
4.9.1.7 Mecklenburg County, VA	4-50
4.9.2 North Carolina.....	4-51
4.9.2.1 Warren County, NC.....	4-51
4.9.2.2 Vance County, NC	4-52
4.9.2.3 Franklin County, NC.....	4-54
4.9.2.4 Wake County, NC.....	4-54
4.10 Biological Resources.....	4-58
4.10.1 Natural Communities	4-58
4.10.1.1 Terrestrial Community Impacts.....	4-59
4.10.1.2 Aquatic Community Impacts	4-60
4.10.1.3 Natural Community Impact Minimization	4-61
4.10.2 Rare and Protected Species.....	4-61
4.10.2.1 Threatened and Endangered Species.....	4-61
4.10.2.2 Bald Eagle and Golden Eagle Protection Act	4-63
4.10.2.3 Migratory Bird Treaty Act.....	4-64
4.11 Community Resources	4-64
4.11.1 Socio-Economics	4-64
4.11.1.1 Economic Impacts from Construction and Operation	4-64
4.11.1.2 Changes in Economic Activity	4-65
4.11.2 Neighborhood and Community Impacts	4-66
4.11.2.1 Community Concerns	4-67
4.11.2.2 Impacts from Changes to the Transportation Network.....	4-69
4.11.3 Community Facilities and Services.....	4-85
4.11.3.1 Schools	4-85
4.11.3.2 Places of Worship.....	4-89
4.11.3.3 Police, Fire, and EMS	4-104
4.11.4 Land Use Planning	4-113
4.11.4.1 Land Use Plans	4-113
4.11.4.2 Changes in Land Use	4-114
4.11.4.3 Compatibility with Future Land Use and Long-Range Transportation Plans	4-115
4.11.4.4 Compatibility with Multimodal Transportation Plans.....	4-117
4.11.5 Environmental Justice.....	4-118
4.11.5.1 Corridor-Wide Impacts.....	4-119
4.11.5.2 Community-Level Impacts	4-119
4.11.6 Relocations and Associated Right of Way Costs	4-127
4.11.6.1 VDOT Relocation Policies	4-127
4.11.6.2 NCDOT Relocation Policies.....	4-128
4.11.6.3 Relocation Impacts	4-130
4.11.6.4 Right of Way Costs	4-131
4.12 Archaeological and Historical Resources	4-132
4.12.1 Archaeological Resources.....	4-132
4.12.2 Historical Resources.....	4-132
4.12.2.1 Historical Resources – Virginia.....	4-138

TABLE OF CONTENTS (continued)

4.12.2.2 Battlefields – Virginia	4-147
4.12.2.3 Historical Resources – North Carolina	4-151
4.12.3 Summary and Potential Mitigation Measures	4-157
4.13 Parklands, Recreational Areas, and Refuges	4-158
4.13.1 Federal Parklands.....	4-158
4.13.2 County/City Parklands	4-158
4.13.2.1 Virginia	4-158
4.13.2.2 North Carolina.....	4-161
4.13.3 Greenways.....	4-162
4.13.3.1 Tobacco Heritage Trail (VA)	4-162
4.13.3.2 Middle Crabtree Creek Greenway (Raleigh, NC)	4-162
4.13.3.3 East Coast Greenway (VA & NC).....	4-163
4.13.3.4 Multiuse Greenway Concept (VA & NC).....	4-163
4.14 Transportation.....	4-164
4.14.1 Roads	4-164
4.14.1.1 City of Richmond, VA.....	4-164
4.14.1.2 Chesterfield County, VA	4-164
4.14.1.3 City of Petersburg, VA	4-164
4.14.1.4 Dinwiddie County, VA	4-165
4.14.1.5 Brunswick County, VA	4-165
4.14.1.6 Mecklenburg County, VA	4-165
4.14.1.7 Warren County, NC	4-165
4.14.1.8 Vance County, NC	4-166
4.14.1.9 Franklin County, NC	4-166
4.14.1.10 Wake County, NC	4-166
4.14.2 Traffic Conditions.....	4-167
4.14.2.1 Chesterfield County, VA	4-167
4.14.2.2 Chester, VA.....	4-168
4.14.2.3 La Crosse, VA.....	4-170
4.14.2.4 Norlina, NC	4-171
4.14.2.5 Middleburg, NC.....	4-175
4.14.2.6 Henderson, NC	4-177
4.14.2.7 Kittrell, NC.....	4-183
4.14.2.8 Franklinton, NC.....	4-184
4.14.2.9 Raleigh, NC.....	4-185
4.14.2.10 Downtown Raleigh, NC.....	4-187
4.14.3 Rail	4-188
4.14.3.1 River and Major Creek Bridges.....	4-190
4.14.3.2 Notable Differences in Infrastructure	4-192
4.14.4 Stations.....	4-195
4.14.4.1 Richmond, VA.....	4-196
4.14.4.2 Petersburg, VA	4-196
4.14.4.3 La Crosse, VA.....	4-196
4.14.4.4 Henderson, NC	4-196
4.14.4.5 Raleigh, NC.....	4-197
4.15 Utilities	4-197
4.16 Safety and Security.....	4-199
4.17 Indirect and Cumulative Effects	4-200
4.17.1 National Effects.....	4-200
4.17.1.1 Safe and Efficient Transportation Choices	4-200

TABLE OF CONTENTS (continued)

4.17.1.2	Foundation for Economic Competitiveness	4-201
4.17.1.3	Energy Efficiency and Environmental Quality	4-201
4.17.2	Regional Effects	4-201
4.17.3	Local Effects	4-202
4.17.4	Other Planned Actions	4-203
4.17.4.1	SEHSR: I-95 Corridor	4-203
4.17.4.2	SEHSR: Raleigh, NC to Charlotte, NC	4-204
4.17.4.3	Fort Lee Military Reservation: BRAC Expansion	4-204
4.17.4.4	Heartland Corridor Rail Project & National Gateway Project	4-205
4.17.4.5	City of Richmond, VA: Main Street Station Improvements	4-205
4.17.4.6	City of Henderson, NC: Downtown Revitalization	4-205
4.17.4.7	Raleigh Commuter Rail Service	4-206
4.18	Relationship between Short-Term Impacts and Long-Term Benefits	4-206
4.19	Irreversible and Irretrievable Commitment of Resources	4-207
5	SECTION 4(F) EVALUATION	5-1
5.1	Description of the Proposed Action	5-2
5.1.1	Purpose for the Project	5-2
5.1.2	Project Description and Approach	5-2
5.1.3	Project Alternatives	5-3
5.2	Description of the 4(f) Resources – Parks, Recreation Areas, Wildlife Refuges	5-4
5.2.1	Richmond Canal Walk (VA)	5-4
5.2.2	James River Park System – Slave Trail (VA)	5-4
5.2.3	Thomas B. Smith Community Center (VA)	5-5
5.2.4	Chester Kiwanis Historical Park (Planned) (VA)	5-5
5.2.5	Ettrick Park & Mayes-Colbert Ettrick Community Building (VA)	5-5
5.2.6	Appomattox Riverfront Trail (Planned) (VA)	5-5
5.2.7	Upper Appomattox Canal Trail (VA)	5-5
5.2.8	Petersburg National Battlefield (Fort Wadsworth Unit) (VA)	5-6
5.2.9	Tobacco Heritage Trail (VA)	5-6
5.2.10	Centennial Park (VA)	5-6
5.2.11	Franklinton Elementary School (NC)	5-6
5.2.12	Middle Crabtree Creek Greenway (NC)	5-6
5.3	Description of the 4(f) Resources – Historic Architecture Sites	5-7
5.4	Description of the 4(f) Resources – Battlefields	5-20
5.5	Description of the 4(f) Resources – Archaeology Sites	5-22
5.6	Section 4(f) Property Impacts – Parks, Recreation Areas, Wildlife Refuges	5-22
5.6.1	Richmond Canal Walk (VA)	5-23
5.6.2	James River Park System – Slave Trail (VA)	5-23
5.6.3	Thomas B. Smith Community Center (VA)	5-23
5.6.4	Chester Kiwanis Historical Park (Planned) (VA)	5-24
5.6.5	Ettrick Park & Mayes-Colbert Ettrick Community Building (VA)	5-24
5.6.6	Appomattox Riverfront Trail (Planned) (VA)	5-24
5.6.7	Upper Appomattox Canal Trail (VA)	5-25
5.6.8	Petersburg National Battlefield (Fort Wadsworth Unit) (VA)	5-25
5.6.9	Tobacco Heritage Trail (VA)	5-25
5.6.10	Centennial Park (VA)	5-26

TABLE OF CONTENTS (continued)

5.6.11 Franklinton Elementary School (NC)	5-27
5.6.12 Middle Crabtree Creek Greenway (NC)	5-27
5.7 Section 4(f) Property Impacts – Historic Architecture Sites.....	5-27
5.7.1 Seaboard Air Line Railroad Corridor (VA)	5-33
5.7.2 C. & O. & Seaboard Railroad Depot (VA).....	5-34
5.7.3 Shockoe Valley & Tobacco Row Historic District (VA)	5-34
5.7.4 Shockoe Slip Historic District (VA)	5-34
5.7.5 James River and Kanawha Canal Historic District (VA).....	5-34
5.7.6 Atlantic Coast Line Railroad Corridor (VA)	5-35
5.7.7 Manchester Warehouse Historic District (VA)	5-35
5.7.8 Williams Bridge Company (VA)	5-35
5.7.9 Transmontaigne Product Services, Inc. (VA)	5-35
5.7.10 Davee Gardens Historic District (VA)	5-35
5.7.11 Dupont Spruance (VA).....	5-36
5.7.12 Richmond & Petersburg Electric Railway (VA).....	5-36
5.7.13 House at 3619 Thurston Rd (VA)	5-36
5.7.14 Centralia Post Office (VA).....	5-36
5.7.15 Ragland House/4626 Centralia Rd (VA).....	5-37
5.7.16 Circle Oaks/4510 Centralia Road (VA).....	5-37
5.7.17 Chester Historic District (VA)	5-37
5.7.18 Pretlow House (VA)	5-37
5.7.19 Eichelberger House (VA).....	5-38
5.7.20 Battersea (VA)	5-38
5.7.21 North Battersea/Pride’s Field Historic District (VA)	5-38
5.7.22 Defense Road (VA).....	5-38
5.7.23 Dimmock Line/Earthworks (VA).....	5-39
5.7.24 Bridge over Defense Road (VA).....	5-39
5.7.25 Bowen House (VA)	5-39
5.7.26 Wynnhurst (VA)	5-39
5.7.27 Blick’s Store (VA)	5-40
5.7.28 Tourist Guest House (VA).....	5-40
5.7.29 Oak Shades (VA).....	5-40
5.7.30 La Crosse Commercial Historic District (VA).....	5-41
5.7.31 Wright Farmstead (VA)	5-41
5.7.32 Sardis Methodist Church (VA)	5-41
5.7.33 Bracey Historic District (VA)	5-41
5.7.34 Granite Hall/Fitts House (VA)	5-42
5.7.35 Holtzmann Farm (NC).....	5-42
5.7.36 Chapel of the Good Shepherd (NC)	5-42
5.7.37 William J. Hawkins House (NC).....	5-43
5.7.38 Holloway Farm (NC)	5-43
5.7.39 Forrest Ellington Farm (NC).....	5-43
5.7.40 Henderson Historic District and Proposed Boundary Expansion (NC)	5-43
5.7.41 South Henderson Industrial Historic District (NC)	5-44
5.7.42 Houses (5 worker houses on 1400 block of Nicholas St) (NC)	5-44
5.7.43 Houses (3 side gable houses on 1500 block of Nicholas St) (NC)	5-44
5.7.44 Franklinton Historic District (Includes Sterling Mill Historic District) (NC)	5-44
5.7.45 Sterling Cotton Mill (NC).....	5-44
5.7.46 Cedar Creek Railroad Bridge Piers (NC).....	5-45
5.7.47 Youngsville Historic District (NC).....	5-45
5.7.48 Glen Royall Mill Village Historic District (NC)	5-45
5.7.49 Crabtree Creek Railroad Bridge Pier (NC)	5-45
5.7.50 Roanoke Park Historic District (NC)	5-46
5.7.51 Noland Plumbing Company Building (NC)	5-46

TABLE OF CONTENTS (continued)

5.7.52	Glenwood-Brooklyn Historic District (NC)	5-46
5.7.53	Seaboard Railway Station (NC)	5-47
5.7.54	Seaboard Railway Warehouses (NC)	5-47
5.7.55	Raleigh Cotton Mills (NC)	5-47
5.7.56	Raleigh Electric Company Power House (NC)	5-47
5.7.57	Carolina Power and Light Company Car Barn and Automobile Garage (NC)	5-48
5.7.58	National Art Interiors (NC)	5-48
5.7.59	Raleigh and Gaston Railroad Corridor (NC)	5-49
5.8	Section 4(f) Property Impacts – Battlefields	5-49
5.8.1	Proctor’s Creek	5-50
5.8.2	Port Walthall Junction	5-50
5.8.3	Swift Creek/Arrowfield Church	5-50
5.8.4	Petersburg III/The Breakthrough	5-51
5.8.5	Weldon Railroad/Globe Tavern	5-51
5.8.6	Peebles Farm	5-51
5.8.7	Boydton Plank Road	5-51
5.8.8	Hatcher’s Run	5-52
5.8.9	Lewis Farm	5-52
5.8.10	Dinwiddie Courthouse	5-52
5.9	Section 4(f) Property Impacts – Archaeology Sites	5-52
5.10	Avoidance Alternatives	5-53
5.10.1	Alternatives that Avoid All Section 4(f) Resources	5-54
5.10.2	Avoidance Alternatives for the Use (Not <i>De Minimis</i>) of Individual Section 4(f) Resources	5-54
5.10.3	Chester, La Crosse Commercial, Henderson, Franklinton, and South Henderson Industrial Historic Districts	5-55
5.10.3.1	Avoidance Concept 1: At-Grade Crossing	5-55
5.10.3.2	Avoidance Concept 2: Relocate Grade Separation	5-56
5.10.3.3	Avoidance Concept 3: Bypass of Historic District	5-58
5.10.4	Williams Bridge Company (VA)	5-58
5.10.5	Eichelberger House (VA)	5-59
5.10.6	Defense Road, Dimmock Line/Earthworks, and Bridge over Defense Road (VA)	5-59
5.10.7	Wynnhurst (VA)	5-59
5.10.8	Tourist Guest House (VA)	5-60
5.10.9	Oak Shades (VA)	5-60
5.10.10	Wright Farmstead (VA)	5-60
5.10.11	Bracey Historic District (VA)	5-60
5.10.12	Granite Hall/Fitts House (VA)	5-61
5.10.13	Holloway Farm (NC)	5-61
5.10.14	Roanoke Park Historic District (NC)	5-61
5.10.15	Raleigh Electric Company Power House (NC)	5-62
5.10.16	Carolina Power and Light Company Car Barn and Automobile Garage (NC)	5-63
5.10.17	Raleigh and Gaston Railroad Corridor (NC)	5-63
5.10.18	Summary	5-63
5.11	Measures to Minimize Harm	5-64
5.11.1	Williams Bridge Company (VA)	5-64
5.11.2	Chester Historic District (VA)	5-64
5.11.3	Eichelberger House (VA)	5-65
5.11.4	Defense Road, Dimmock Line/Earthworks, and Bridge over Defense Road (VA)	5-65
5.11.5	La Crosse Commercial Historic District (VA)	5-65
5.11.6	Henderson Historic District and Proposed Boundary Extension (NC)	5-65

TABLE OF CONTENTS (continued)

5.11.7 South Henderson Industrial Historic District (NC)	5-66
5.11.8 Franklinton Historic District (NC)	5-66
5.11.9 Roanoke Park Historic District (NC)	5-67
5.11.10 Raleigh Electric Company Power House (NC).....	5-67
5.11.11 Carolina Power and Light Company Car Barn and Automobile Garage (NC)	5-67
5.11.12 Raleigh and Gaston Railroad Corridor (NC)	5-67
5.12 Coordination	5-67
5.12.1 Williams Bridge Company (VA)	5-68
5.12.2 Resources Located in Chesterfield County, VA	5-68
5.12.3 Defense Road, Dimmock Line/Earthworks, and Bridge over Defense Road (VA).....	5-68
5.12.4 La Crosse Commercial Historic District (VA).....	5-68
5.12.5 Henderson Historic District and Proposed Extension and South Henderson Industrial Historic District (NC)	5-68
5.12.6 Franklinton Historic District (NC)	5-69
5.12.7 Resources Located in Raleigh, NC	5-69
5.12.8 Raleigh and Gaston Railroad Corridor (NC).....	5-69
5.12.9 Consulting Parties.....	5-69
5.13 Final Section 4(f) Evaluation	5-70
6 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THIS STATEMENT ARE SENT	6-1
7 AGENCY COORDINATION AND PUBLIC INVOLVEMENT	7-1
7.1 Tier II Agency Coordination	7-1
7.1.1 Agency Scoping Meetings	7-1
7.1.2 Advisory Committee Meetings	7-2
7.1.3 Agency-Specific Coordination	7-3
7.1.4 Local Official Coordination.....	7-5
7.2 Tier II Public Involvement.....	7-5
7.2.1 Mailing List.....	7-5
7.2.2 Newsletters	7-5
7.2.3 Project Website.....	7-6
7.2.4 Project Press Releases	7-6
7.2.5 Project Hotline	7-6
7.2.6 Small Group Informational Meetings	7-6
7.2.7 Project Brochure	7-7
7.3 Section 106 Coordination with Resource Owners.....	7-8
7.3.1 Meetings	7-8
7.3.2 Correspondence	7-9
7.3.3 Consulting Parties.....	7-9
8 LIST OF PREPARERS	8-1
9 INDEX AND ACRONYMS	9-1
9.1 Index	9-1
9.2 Acronyms	9-11

TABLE OF CONTENTS (continued)

10 REFERENCES..... 10-1

LIST OF TABLES

Chapter 2

2-1 Annual Passenger Forecasts for Southeast High Speed Rail Service Options Between Charlotte and New York (Prepared 7/05/04)
2-2 County/Town Populations of Potential Intermediate Station Locations

Chapter 3

3-1 Summary of Streams, Wetlands and Other Surface Waters within Study Area by State
3-2 Major River Basins in the Project Area
3-3 Water Supply Surface Waters within Study Area
3-4 Clean Water Act 303(d) List of Impaired Surface Waters within Study Area
3-5 Streams in the Study Area Included in the Nationwide Rivers Inventory
3-6 Soil Associations Found in Counties within the Study Area
3-7 Acres of Prime and Other Important Farmland Soils within Study Area
3-8 National Ambient Air Quality Standards
3-9 2008 Air Quality Index Summary
3-10 Noise Measurement Sites
3-11 Vibration Sensitive Receptor Sites with Background Vibration Measurements
3-12 Existing Train Passby Vibration Measurements
3-13 Terrestrial Community Representative Flora & Fauna
3-14 Terrestrial Communities Summary
3-15 Aquatic Community Representative Flora & Fauna
3-16 Federally Protected Species in the Study Area
3-17 Federal Species of Concern in the Study Area
3-18 Migratory Bird Species of the North Carolina and Virginia Piedmont
3-19 Virginia Localities and Study Areas – Race
3-20 North Carolina Localities and Study Areas – Race
3-21 Virginia Localities and Study Areas – Ethnicity
3-22 North Carolina Localities and Study Areas – Ethnicity
3-23 Virginia Localities and Study Areas – Age
3-24 North Carolina Localities and Study Areas – Age
3-25 Virginia Localities and Study Areas - Income and Poverty
3-26 North Carolina Localities and Study Areas - Income and Poverty
3-27 State Profile Comparisons
3-28 Summary of Archaeological Sites Located within Study Area by State and County
3-29 Summary of Historical Resources Sites Located within Study Area by State and County
3-30 Historic Architecture Resources in the SEHSR Corridor – Virginia
3-31 Battlefields in the SEHSR Corridor – Virginia
3-32 Historic Architecture Resources in the SEHSR Corridor – North Carolina

Chapter 4

4-1 Potential Impacts to Jurisdictional Stream Channels in Virginia (linear feet)
4-2 Potential Impacts to Jurisdictional Stream Channels in North Carolina (linear feet)
4-3 Potential Impacts to Tar-Pamlico and Neuse Riparian Buffers (square feet)
4-4 Potential Impacts to Other Jurisdictional Surface Waters in Virginia (acres)
4-5 Potential Impacts to Other Jurisdictional Surface Waters in North Carolina (acres)
4-6 Potential Impacts to Jurisdictional Wetlands in Virginia (acres)
4-7 Potential Impacts to Jurisdictional Wetlands in North Carolina (acres)

TABLE OF CONTENTS (continued)

Chapter 4 - continued

4-8	FEMA Mapped 100-Year Floodplain Crossings
4-9	Prime and Other Important Farmland Acres Impacted by Section
4-10	Hazardous Waste Sites by Section
4-11	Predicted Locomotive Emissions
4-12	Predicted CO Concentrations (Including background)
4-13	Land Use Categories and Metrics for High Speed Rail Noise Impact Criteria
4-14	Ground-Borne Vibration Impact Criteria for Human Annoyance
4-15	Projected Train Operating Characteristics
4-16	Summary of Noise Impacts
4-17	Comparison of Ground Vibration Impact Curves
4-18	Summary of Vibration Human Annoyance Impacted Areas along the High Speed Rail Operation Corridor
4-19	Vibration Source Levels for Construction Equipment
4-20	Construction Equipment Vibration Impact Distances
4-21	Summary of Highway Noise Abatement Policies
4-22	Length of Rail Alternative by Section (in Miles)
4-23	Visual Impacts (Low, Moderate, High)
4-24	Potential Project Impacts to Natural Communities (acres)
4-25	Biological Conclusions for Federally Protected Species in the Study Area
4-26	Estimate of Economic and Fiscal Impacts
4-27	Crossing Consolidations per Alternative by Section
4-28	Impacts to Schools by Section
4-29	Impacts to Places of Worship by Section
4-30	Compatibility with Future Land Use and Long-Range Transportation Plans-Virginia
4-31	Compatibility with Future Land Use and Long-Range Transportation Plans – North Carolina
4-32	Is SEHSR Compatible With Multimodal Transportation Plans?
4-33	Potential Environmental Justice Impacts at the Community Level: Virginia
4-34	Potential Environmental Justice Impacts at the Community Level: North Carolina
4-35	Residential/Business Relocations by Section
4-36	Right of Way Costs by Section
4-37	Effect Recommendations for Historic Architecture Resources – Virginia
4-37	Effect Recommendations for Battlefields – Virginia
4-39	Effect Determinations for Historic Architecture Resources – North Carolina
4-40	Chester Road and Perrymont Road/Driveway – Level of Service in 2030
4-41	Norcliff Road and Perrymont Road – Level of Service in 2030
4-42	Kingsdale Road and Chester Road – Level of Service in 2030
4-43	Chester Road and Park Road- Level of Service in 2030
4-44	Centralia Road and Chester Road - Level of Service in 2030
4-45	Proposed New Centralia Road and Chester Road - Level of Service in 2030
4-46	US 58 and Main Street - Level of Service in 2030
4-47	Pine Street and Main Street - Level of Service in 2030
4-48	Carter Street and Pine Street - Level of Service in 2030
4-49	Warren Plains Road Extension and US 1 - Level of Service in 2030
4-50	Warren Plains Road Extension and US 1 - Level of Service in 2030
4-51	Main Street and US401/158 - Level of Service in 2030
4-52	Main Street and US401/158 - Level of Service in 2030
4-53	St Tammany Road and US 1 - Level of Service in 2030
4-54	Soul City Boulevard and US 1 - Level of Service in 2030
4-55	South Carol Street and US 1 - Level of Service in 2030
4-56	South Carol Street and US 1 - Level of Service in 2030
4-57	South Carol Street and US 1 - Level of Service in 2030
4-58	Beckford Drive/Main Street and Garnett Street - Level of Service in 2030
4-59	John Street and Garnett Street - Level of Service in 2030
4-60	Andrews Avenue and Chestnut Street - Level of Service in 2030

TABLE OF CONTENTS (continued)

Chapter 4 - continued

- 4-61 Montgomery Street and Chestnut Street - Level of Service in 2030
- 4-62 Garnett Street and Montgomery Street - Level of Service in 2030
- 4-63 Raleigh Road and Dabney Drive - Level of Service in 2030
- 4-64 Belmont Drive and JP Taylor Road New Connection - Level of Service in 2030
- 4-65 Raleigh Road and Belmont Drive- Level of Service in 2030
- 4-66 Bearpond Road/Lynnbank Road and New Connector - Level of Service in 2030
- 4-67 Raleigh Road and New Connector - Level of Service in 2030
- 4-68 Wildlife Lane and Raleigh Road - Level of Service in 2030
- 4-69 Raleigh Road and Edwards Road/New Connector- Level of Service in 2030
- 4-70 US 1 and Kittrell College Road- Level of Service in 2030
- 4-71 Green Street (US 56) and Main Street- Level of Service in 2030
- 4-72 Main Street (US 1 Business) and Cedar Creek Road - Level of Service in 2030
- 4-73 St Albans Drive and Wake Forest Road Approach- Level of Service in 2030
- 4-74 St Albans Drive and Tarheel Drive- Level of Service in 2030
- 4-75 New Hope Church Road and St Albans - Level of Service in 2030
- 4-76 New Hope Church Road and Atlantic Avenue- Level of Service in 2030
- 4-77 Wolfpack Lane/Highwoods Boulevard and Atlantic Avenue- Level of Service in 2030
- 4-78 Utility Cost Impacts by Section (in dollars)

Chapter 5

- 5-1 Parks, Recreation Areas, and Wildlife Refuges in the SEHSR Corridor
- 5-2 Historic Architecture Resources in the SEHSR Corridor – Virginia
- 5-3 Historic Architectures Resources in the SEHSR Corridor – North Carolina
- 5-4 Battlefields in the SEHSR Corridor – Virginia
- 5-5 Section 4(f) Determinations for Parks, Recreation Areas, and Wildlife Refuges
- 5-6 Section 4(f) Determinations for Historic Architecture Resources – Virginia
- 5-7 Section 4(f) Determinations for Historic Architecture Resources – North Carolina
- 5-8 Section 4(f) Determinations for Battlefields – Virginia
- 5-9 Resources Where at Least One Alternative Would Require a Section 4(f) Use (Not *De Minimis*)
- 5-10 Grade Separation Locations Considered

TABLE OF CONTENTS (continued)

LIST OF FIGURES

Chapter 1

- 1-1 SEHSR Tier II Study Corridor Map
- 1-2 Vision for High-Speed Rail in America
- 1-3 Southeast High Speed Rail Corridor

Chapter 2

- 2-1 Section Breaks – Virginia, North Carolina
- 2-2 Existing Rail Rights of Way
- 2-3 Alternatives Considered, but Not Carried Forward
- 2-4 Richmond, VA, Main Street Station Location
- 2-5 Petersburg-area, VA, Potential Station Locations
- 2-6 Raleigh, NC, Raleigh Station Location
- 2-7 East Coast Greenway

Chapter 3

- 3-1 Major Drainage Basins
- 3-2 FEMA 100 Year Floodplain Crossings – Virginia
- 3-3 FEMA 100 Year Floodplain Crossings – North Carolina
- 3-4 Typical A- Weighted Sound Levels
- 3-5 Typical Levels of Ground-Bourne Vibration
- 3-6 Project Location Map – Virginia, North Carolina
- 3-7 Richmond Area MPO Study Area
- 3-9 Crater Planning District Commission Study Area
- 3-9 Southside Planning District Commission Study Area
- 3-10 CAMPO Study Area
- 3-11 Battlefield Boundary Comparison – Petersburg North
- 3-12 Battlefield Boundary Comparison – Petersburg South
- 3-13 Parklands, Recreational Areas, and Refuges – Virginia
- 3-14 Parklands, Recreational Areas, and Refuges – North Carolina
- 3-15 Active Railroads Intersecting the Study Corridor – Virginia
- 3-16 Active Railroads Intersecting the Study Corridor – North Carolina

Chapter 4

- 4-1 Noise Impact Criteria for High Speed Rail Projects
- 4-2 Increase In Cumulative Noise Levels Allowed by Criteria
- 4-3 EMS Response Coverage Area Comparison, Chesterfield County, Virginia
- 4-4 EMS Response Coverage Area Comparison, Alberta, Virginia
- 4-5 EMS Response Coverage Area Comparison, Ridgeway, North Carolina
- 4-6 EMS Response Coverage Area Comparison, Vance, North Carolina
- 4-7 EMS Response Coverage Area Comparison, Franklinton, North Carolina
- 4-8 EMS Response Coverage Area Comparison, Youngsville, North Carolina
- 4-9 EMS Response Coverage Area Comparison, Wake Forest, North Carolina
- 4-10 SEHSR Proposed Rail Improvements

TABLE OF CONTENTS (continued)

LIST OF APPENDICES

A	Agency Coordination
B	Public Involvement
C	Relocation and Right of Way Reports
D	Farmland Rating Sheets
E	Track Charts
F	Crossings and Roadwork Summary
G	Federal Railroad Administration Decision Brief
H	Surface Waters
I	Wetlands
J	Hazardous Waste Sites
K	Census Block Groups
L	Cultural Resources
M	Section 4(f) Concurrences
N	Utility Impacts
O	Land Cover
P	Additional Air Quality Information
Q	Detailed Maps