

TABLE OF CONTENTS

New sections that have been added to this Final SEIS since the publication of the Draft SEIS are indicated with underlined text.

S.	EXECUTIVE SUMMARY	S-1
1.	PURPOSE AND NEED	1-1
1.1	Introduction.....	1-1
1.2	History of Study.....	1-1
1.3	Study Area Corridors	1-3
1.4	Needs: Existing Conditions	1-16
1.4.1	Overview	1-16
1.4.2	Accommodate Travel Demand.....	1-16
1.4.3	Improve Transit Access	1-19
1.4.4	Increase Regional Accessibility.....	1-19
1.4.5	Address Geometric Deficiencies	1-25
1.4.6	Enhance Emergency Evacuation Capability	1-27
1.4.7	Improve Strategic Military Connectivity	1-27
1.4.8	Increase Access to Port Facilities	1-29
1.5	Needs: Future Conditions.....	1-30
1.5.1	Overview	1-30
1.5.2	Accommodate Travel Demand.....	1-31
1.5.3	Improve Transit Access	1-31
1.5.4	Increase Regional Accessibility.....	1-31
1.5.5	Address Geometric Deficiencies	1-32
1.5.6	Enhance Emergency Evacuation Capability	1-32
1.5.7	Improve Strategic Military Connectivity	1-33
1.5.8	Increase Access to Port Facilities	1-33
1.6	Purpose and Need Summary.....	1-33
2.	ALTERNATIVES	2-1
2.1	Introduction.....	2-1
2.2	<u>Alternatives Development, Evaluation, and The Identification of A Preferred Alternative</u>	<u>2-1</u>
2.2.1	Previous Studies	2-2
2.2.2	Methods for Assessing Ability of Each Alternative to Meet Needs	2-3
2.3	Alternatives Previously Considered.....	2-6
2.3.1	HRCS FEIS (2001)	2-6

2.3.2	HRBT (2012)	2-7
2.4	Verification For Not Retaining Previous Alternatives in this SEIS	2-10
2.5	Design Criteria	2-12
2.6	Alternatives Retained for Detailed Study.....	2-13
2.6.1	No-Build Alternative.....	2-13
2.6.2	Alternative A	2-17
2.6.3	Alternative B.....	2-23
2.6.4	Alternative C.....	2-31
2.6.5	Alternative D	2-38
2.7	<u>Preferred Alternative</u>	2-44
2.8	Operational Analysis of Alternatives.....	2-51
2.8.1	HRBT.....	2-52
2.8.2	I-564	2-54
2.8.3	MMMBT	2-56
2.8.4	I-664 Bowers Hill	2-58
2.9	<u>Operational Analysis of the Preferred Alternative</u>	2-61
2.9.1	<u>HRBT</u>	2-61
2.9.2	<u>I-564</u>	2-63
2.9.3	MMMBT	2-64
2.9.4	<u>I-664 Bowers Hill</u>	2-66
2.10	Operationally Independent Sections.....	2-69
2.11	Potential Hybrid Alternatives	2-69
2.12	Phased Implementation Approach.....	2-70
2.13	Order of Implementation	2-72
2.13.1	Alternative A	2-72
2.13.2	Alternative B.....	2-72
2.13.3	Alternative C.....	2-72
2.13.4	Alternative D	2-73
3.	AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES	3-1
3.1	Land Use	3-5
3.2	Socioeconomics.....	3-13
3.2.1	Communities, Community Facilities, and Military Facilities	3-13
3.2.2	Transportation Facilities.....	3-20
3.2.3	Population and Housing.....	3-31

3.2.4	Economics	3-35
3.2.5	Environmental Justice	3-38
3.3	Energy	3-43
3.4	Farmlands and Forestal Districts	3-45
3.5	Right-of-Way and Relocations	3-46
3.6	Air Quality	3-48
3.7	Noise	3-65
3.8	Natural Resources	3-75
3.8.1	Water Resources	3-75
3.8.2	Virginia Coastal Zone Management Program	3-119
3.8.3	Wildlife Habitat	3-122
3.8.4	Threatened and Endangered Species	3-141
3.9	Historic Resources	3-150
3.9.1	Architectural Resources	3-151
3.9.2	Archaeological Resources	3-184
3.9.3	<u>Completion of the Section 106 Process</u>	3-186
3.10	Hazardous Materials	3-186
3.11	Visual Resources	3-189
3.12	Section 4(f) and Section 6(f) Properties	3-193
3.12.1	Section 4(f)	3-193
3.12.2	Section 6(f)	3-195
3.13	Children’s Health and Safety	3-195
3.14	Short-Term Construction Impacts	3-196
3.14.1	Traffic	3-197
3.14.2	Air Quality	3-197
3.14.3	Noise	3-198
3.14.4	Soils and Erosion	3-198
3.14.5	Water Quality	3-199
3.14.6	Waters of the US and Wetlands	3-200
3.14.7	Wildlife and Habitat	3-200
3.14.8	Hazardous Materials	3-202
3.14.9	Visual	3-203
3.15	Indirect and Cumulative Effects	3-203
3.15.1	Regulatory Context and Methodology	3-203

3.15.2	Indirect Effects	3-209
3.15.3	<u>Induced Growth Impact Summary</u>	3-242
3.15.4	Cumulative Effects	3-242
3.16	Short-Term Versus Long-Term Impacts.....	3-272
3.16.1	Short-Term Impacts	3-272
3.16.2	Long-Term Impacts	3-273
3.17	Irreversible and Irrecoverable Commitment of Resources	3-273
4.	LIST OF PREPARERS	4-1
5.	DISTRIBUTION LIST.....	5-1
5.1	Federal Agencies	5-1
5.2	Commonwealth of Virginia Agencies	5-1
5.3	City and County Agencies.....	5-2
5.4	Other Organizations	5-2
6.	COMMENTS AND COORDINATION	6-1
6.1	Agency Coordination	6-1
6.1.1	Scoping	6-1
6.1.2	Cooperating Agencies	6-1
6.1.3	Participating Agencies.....	6-2
6.1.4	Section 106 Consulting Parties.....	6-2
6.2	Public Involvement.....	6-3
6.2.1	Citizen Information Meeting #1.....	6-3
6.2.2	Stated Preference Survey.....	6-4
6.2.3	Citizen Information Meeting #2	6-4
6.2.4	Location Public Hearings	6-5
6.3	<u>Stakeholder Coordination</u>	6-6
7.	REFERENCES.....	7-1

LIST OF FIGURES

Figure 1-1:	HRCS Study Area Corridors.....	1-4
Figure 1-2a:	I-64 Study Area Corridor	1-5
Figure 1-2b:	I-64 Study Area Corridor	1-6
Figure 1-2c:	I-64 Study Area Corridor	1-7
Figure 1-3a:	I-564 Study Area Corridor	1-8
Figure 1-3b:	I-564 Study Area Corridor	1-9
Figure 1-3c:	I-564 Study Area Corridor	1-10
Figure 1-4:	VA 164 Study Area Corridor	1-11
Figure 1-5a:	I-664 Study Area Corridor	1-12
Figure 1-5b:	I-664 Study Area Corridor	1-13
Figure 1-5c:	I-664 Study Area Corridor	1-14
Figure 1-5d:	I-664 Study Area Corridor	1-15
Figure 1-6:	Hampton Roads Ports of Virginia	1-17
Figure 1-7:	MAX Routes.....	1-20
Figure 1-8:	I-564 Intermodal Connector Project	1-22
Figure 2-1:	I-64 No-Build Typical Sections.....	2-14
Figure 2-2:	I-664 No-Build Typical Sections.....	2-15
Figure 2-3:	VA 164 No-Build Typical Sections.....	2-16
Figure 2-4:	Alternative A Lane Configurations	2-18
Figure 2-5:	I-64 Proposed Typical Sections.....	2-19
Figure 2-6:	I-64 Approach Bridges to Tunnel Typical Section.....	2-21
Figure 2-7:	Alternative B Lane Configurations	2-24
Figure 2-8:	Proposed I-564 Typical Sections.....	2-26
Figure 2-9:	Proposed VA 164 Connector Typical Sections.....	2-27
Figure 2-10:	Proposed VA 164 Typical Sections	2-29
Figure 2-11:	Alternative C Lane Configurations.....	2-32
Figure 2-12:	I-664 Alternative C Typical Sections	2-34
Figure 2-13:	I-564 Alternative C Typical Sections.....	2-35
Figure 2-14:	Alternative D Lane Configurations	2-40
Figure 2-15:	I-664 Alternative D Typical Sections.....	2-42
<u>Figure 2-16:</u>	<u>Preferred Alternative Lane Configurations</u>	<u>2-46</u>
<u>Figure 2-17:</u>	<u>Preferred Alternative Proposed Typical Sections</u>	<u>2-47</u>
<u>Figure 2-18:</u>	<u>Preferred Alternative Northern Approach Bridges to Tunnel Typical Section.....</u>	<u>2-49</u>
	2-49
<u>Figure 2-19:</u>	<u>Preferred Alternative Southern Approach Bridges to Tunnel Typical Section.....</u>	<u>2-50</u>
Figure 2-20:	I-64 HRBT PM Peak Traffic Travel Time Comparison	2-53
Figure 2-21:	I-64 HRBT 2034 PM Peak Hour Travel Time for No-Build Conditions	2-53
Figure 2-22:	2034 PM Peak Hour Travel Time Savings along I-64 HRBT Compared to No-Build Conditions	2-54
Figure 2-23:	I-564 AM Peak Traffic Travel Time Comparison.....	2-55
Figure 2-24:	I-564 2034 AM Peak Hour Travel Time for No-Build Conditions.....	2-56

Figure 2-25:	2034 AM Peak Hour Travel Time Savings along I-564 Compared to No-Build Conditions .	2-56
Figure 2-26:	I-664 MMMBT PM Peak Traffic Travel Time Comparison	2-57
Figure 2-27:	I-664 MMMBT 2034 PM Peak Hour Travel Time for No-Build Conditions	2-58
Figure 2-28:	2034 PM Peak Hour Travel Time Savings along I-664 MMMBT Compared to No-Build Conditions	2-58
Figure 2-29:	I-664 Bowers Hill PM Peak Traffic Travel Time Comparison	2-59
Figure 2-30:	I-664 Bowers Hill 2034 PM Peak Hour Travel Time by Direction (No-Build)	2-60
Figure 2-31:	2034 PM Peak Hour Travel Time Savings along I-664 Bowers Hill Compared to No-Build Conditions	2-60
<u>Figure 2-32:</u>	<u>I-64 HRBT PM Peak Traffic Travel Time Comparison (Preferred Alternative)</u>	<u>2-62</u>
<u>Figure 2-33:</u>	<u>I-64 HRBT 2040 PM Peak Hour Travel Time for No-Build Conditions</u>	<u>2-62</u>
<u>Figure 2-34:</u>	<u>2040 PM Peak Hour Travel Time Savings along I-64 HRBT Compared to No-Build Conditions</u>	<u>2-63</u>
<u>Figure 2-35:</u>	<u>I-564 AM Peak Traffic Travel Time Comparison</u>	<u>2-64</u>
<u>Figure 2-36:</u>	<u>I-564 2034 AM Peak Hour Travel Time for No-Build Conditions</u>	<u>2-64</u>
<u>Figure 2-37:</u>	<u>I-664 MMMBT PM Peak Traffic Travel Time Comparison</u>	<u>2-65</u>
<u>Figure 2-38:</u>	<u>I-664 MMMBT 2040 PM Peak Hour Travel Time for No-Build Conditions</u>	<u>2-66</u>
<u>Figure 2-39:</u>	<u>2040 PM Peak Hour Travel Time Savings along I-664 MMMBT Compared to No-Build Conditions</u>	<u>2-66</u>
<u>Figure 2-40:</u>	<u>I-664 Bowers Hill PM Peak Traffic Travel Time Comparison</u>	<u>2-67</u>
<u>Figure 2-41:</u>	<u>I-664 Bowers Hill 2040 PM Peak Hour Travel Time by Direction (No-Build)</u>	<u>2-68</u>
<u>Figure 2-42:</u>	<u>2040 PM Peak Hour Travel Time Savings along I-664 Bowers Hill Compared to No-Build Conditions</u>	<u>2-68</u>
Figure 2-43:	Operationally Independent Sections	2-71
Figure 3-1:	Study Area Corridors	3-4
Figure 3-2a:	Land Use in the Study Area Corridors	3-6
Figure 3-2b:	Land Use in the Study Area Corridors	3-7
Figure 3-2c:	Land Use in the Study Area Corridors	3-8
Figure 3-2d:	Land Use in the Study Area Corridors	3-9
Figure 3-2e:	Land Use in the Study Area Corridors	3-10
Figure 3-2f:	Land Use in the Study Area Corridors	3-11
Figure 3-3:	Military Facility Locations and the STRAHNET Roadways	3-17
Figure 3-4:	HRT MAX Routes	3-24
Figure 3-5:	Port Facilities and Freight Rail Network	3-27
Figure 3-6:	Emergency Evacuation Routes	3-29
Figure 3-7:	Minority and Low-Income Populations	3-40
Figure 3-8:	NACCS Study Area Impact Map	3-61
Figure 3-9:	VA3 Hampton Roads Risk Areas	3-62
Figure 3-10:	Named Waterbodies	3-79
Figure 3-11:	Impaired Waterbodies	3-99
Figure 3-12:	100 Year Flood Zones	3-105
Figure 3-13:	Maintained Navigation Channel	3-113
Figure 3-14:	Existing Benthic Resource Areas	3-130

Figure 3-15a:	Architectural Historic Properties on Draft SEIS Study Corridors, Alternatives A, B, C, & D	3-156
Figure 3-15b:	Architectural Historic Properties on Draft SEIS Study Corridors, Alternative A, B, C, & D..	3-157
Figure 3-15c:	Architectural Historic Properties on Draft SEIS Study Corridors, Alternatives A, B, C, & D	3-158
Figure 3-15d:	Architectural Historic Properties on Draft SEIS Study Corridors, Alternatives A, B, C, & D	3-159
Figure 3-15e:	Architectural Historic Properties on Draft SEIS Study Corridors, Alternatives A, B, C, & D	3-160
Figure 3-15f:	Architectural Historic Properties on Draft SEIS Study Corridors, Alternatives A, B, C, & D	3-161
Figure 3-16:	Historic Battlefields on Draft SEIS Study Corridors, Alternatives A, B, C, & D.....	3-162
<u>Figure 3-17a:</u>	<u>Architectural Historic Properties on Preferred Alternative</u>	3-177
<u>Figure 3-17b:</u>	<u>Architectural Historic Properties on Preferred Alternative</u>	3-178
<u>Figure 3-18:</u>	<u>Historic Battlefields on Preferred Alternative</u>	3-179
Figure 3-19:	Area of Visual Effect	3-190
Figure 3-20:	Direct vs. Indirect Environmental Impact.....	3-204
Figure 3-21:	Cumulative Impacts.....	3-204
Figure 3-22:	Induced Growth ICE Study Area	3-206
Figure 3-23:	Socioeconomic Resources ICE Study Area	3-207
Figure 3-24:	Natural Resources ICE Study Area.....	3-208
Figure 3-25:	Historic Resources ICE Study Area	3-210
Figure 3-26:	Interchanges and Alternative A Induced Growth ICE Study Area	3-218
Figure 3-27:	Developed Lands in the Induced Growth ICE Study Area	3-220
Figure 3-28:	Designated Growth Areas in the Induced Growth ICE Study Area	3-221
Figure 3-29:	Designated Industrial, Commercial, and Mixed-use Areas	3-222
Figure 3-30:	Interchanges and Alternative B Induced Growth ICE Study Area	3-229
Figure 3-31:	Interchanges and Alternative C Induced Growth ICE Study Area	3-235
Figure 3-32:	Interchanges and Alternative D Induced Growth ICE Study Area.....	3-239
Figure 3-33:	Cumulative Effects Study Boundary	3-244

LIST OF TABLES

Table S-1:	Impact Matrix	S-8
Table 1-1:	Existing (2015) Traffic Volumes.....	1-19
Table 1-2:	Metro Area Express Bus Transit Service on Study Area Corridors	1-21
Table 1-3:	Total Crashes and Average Crash Rates in the Study Area Corridors and VDOT Hampton Roads District	1-26
Table 1-4:	Future (2040) No-Build Traffic Volumes	1-31
Table 2-1:	Verification for Not Including in SEIS	2-11
Table 2-2:	Alternative A Lane Configurations	2-17
Table 2-3:	Alternative B Lane Configurations	2-25
Table 2-4:	Alternative C Lane Configurations.....	2-33
Table 2-5:	Alternative D Lane Configurations	2-39
Table 2-6:	Alternative D Study Area Corridor Configuration	2-39
Table 2-7:	I-64 HRBT PM Peak Travel Time Comparison – between I-664 and I-564	2-52
Table 2-8:	I-564 AM Peak Travel Time Comparison - between I-64 and the Proposed NIT/Navy Interchange	2-55
Table 2-9:	I-664 MMMBT PM Peak Travel Time Comparison - between I-64 and College Drive ..	2-57
Table 2-10:	I-664 Bowers Hill PM Peak Travel Time Comparison - between VA 164 and I-264	2-59
<u>Table 2-11:</u>	<u>I-64 HRBT PM Peak Travel Time Comparison – between I-664 and I-564</u>	<u>2-61</u>
<u>Table 2-12:</u>	<u>I-564 AM Peak Travel Time Comparison - between I-64 and the Proposed NIT/Navy Interchange</u>	<u>2-63</u>
<u>Table 2-13:</u>	<u>I-664 MMMBT PM Peak Travel Time Comparison - between I-64 and College Drive</u>	<u>2-65</u>
<u>Table 2-14:</u>	<u>I-664 Bowers Hill PM Peak Travel Time Comparison - between VA 164 and I-264</u>	<u>2-67</u>
Table 2-15:	Operationally Independent Sections.....	2-69
Table 2-16:	Alternative A Order of Implementation	2-72
Table 2-17:	Alternative B Order of Implementation	2-72
Table 2-18:	Alternative C Order of Implementation	2-72
Table 2-19:	Alternative D Order of Implementation.....	2-73
Table 3-1:	Inventory Corridor Summary	3-1
Table 3-2:	Study Area Corridors Land Use (2011)	3-5
Table 3-3:	Land Use Conversion by Build Alternative (acres)	3-12
Table 3-4:	Community Facilities in the Study Area Corridors	3-14
Table 3-5:	Impacts to Community Facilities (acres)	3-18
Table 3-6:	Military Facilities Impacts (acres).....	3-20
Table 3-7:	Limited Access Highways.....	3-21
Table 3-8:	Connecting State Routes and Locals Roads	3-21
Table 3-9:	Metro Area Express (MAX) Routes.....	3-23
Table 3-10:	Port Facilities	3-25
Table 3-11:	Emergency Evacuation Routes	3-28
Table 3-12:	Census Block Groups, Localities, and Statewide Population.....	3-31
Table 3-13:	Population by Census Block Group	3-32
Table 3-14:	Census Block Groups, Localities, and Statewide Housing Characteristics	3-33

Table 3-15:	Residential Impacts by Alternative	3-34
Table 3-16:	2009-2013 Median Household Income by Study Census Block Group	3-35
Table 3-17:	2009-2013 Median Household Income	3-36
Table 3-18:	Commercial Impacts by Alternative	3-37
Table 3-19:	Health and Human Services 2013 Poverty Guidelines	3-39
Table 3-20:	EJ Block Group Impacts by Alternative	3-41
Table 3-21:	Total Residential Relocations within EJ Block Groups	3-41
Table 3-22:	Total Relocations by Alternative	3-47
Table 3-23:	Modeling Results for the Worst-Case Interchanges	3-54
Table 3-24:	Projected Annual MSAT Emissions in tons per year (TPY) on “Affected Network”	3-57
Table 3-25:	Projected Annual MSAT Change in Emissions (Percent) on “Affected Network”	3-58
Table 3-26:	Noise Measurement Results	3-67
Table 3-27:	Noise Impact Summary by Corridor and Land Use Activity Category	3-70
Table 3-28:	FHWA Noise Abatement Criteria	3-72
Table 3-29:	Summary of Feasible and Reasonable Noise Barriers	3-75
Table 3-30:	Tidal or Navigable Waterbodies within Study Area Corridors (acres)	3-77
Table 3-31:	Potential Impacts to Tidal and Non-Tidal Waters	3-80
Table 3-32:	Potential Impacts to Maintained Navigable Channels and the CIDMMA (acres)	3-82
Table 3-33:	Wetland Types within Study Area Corridors (acres)	3-87
Table 3-34:	Palustrine Wetland Functional Assessment Results	3-89
Table 3-35:	Tidal Wetland Functional Assessment Results	3-90
Table 3-36:	Potential Wetland Impacts by Cowardin Classification (acres)	3-91
Table 3-37:	Potential Wetland Impact Totals (acres)	3-92
Table 3-38:	Potential Impacts Comparison of Altered vs. Unaltered Wetlands (acres)	3-92
Table 3-39:	Impaired Waters	3-98
Table 3-40:	Estimated Dredge Quantities (cubic yards)	3-114
Table 3-41:	Public Water Supplies	3-119
Table 3-42:	Virginia Coastal Zone Management Program Enforceable Regulatory Programs	3-121
Table 3-43:	Potential Waterbird Colony Impacts	3-128
Table 3-44:	Potential Impacts to Benthic Resources (acres)	3-132
Table 3-45:	Essential Fish Habitat and Life Stages	3-135
Table 3-46:	Anadromous Fish and Use Areas	3-137
Table 3-47:	Threatened and Endangered Species Regulatory Context and Methodology	3-142
Table 3-48:	Threatened and Endangered Species Mapped within the Vicinity of Study Area Corridors	3-143
Table 3-49:	Terrestrial Threatened and Endangered Species Habitat within Study Area Corridors (acres)	3-143
Table 3-50:	Proposed Critical Habitat for Atlantic Sturgeon within Study Area Corridors (acres)	3-144
Table 3-51:	Terrestrial Threatened and Endangered Species Habitat within the LOD (acres)	3-145
Table 3-52:	Proposed Critical Habitat for Atlantic Sturgeon within the LOD (acres)	3-145
Table 3-53:	Threatened and Endangered Species Time of Year Restrictions	3-149
Table 3-54:	Resources Listed On, Eligible for, or Assumed Eligible for Listing on the NRHP	3-151
Table 3-55:	Acreage of Architectural Historic Properties Located within the Limits of Disturbance	3-154

Table 3-56: Previously Identified Archaeological Resources Listed On or Potentially Eligible for Listing on the NRHP3-185

Table 3-57: Previously Identified Archaeological Resources Within the Preferred Alternative LOD
.....3-185

Table 3-58: Identified Sites by Alternative3-187

Table 3-59: Summary of Visual Impacts3-191

Table 3-60: Section 4(f) Use3-194

Table 3-61: Modeled HOT Toll Rates (in dollars per mile) for All Build Alternatives3-213

Table 3-62: Alternative A Induced Growth ICE Study Area Interchange Map Key3-217

Table 3-63: Alternative B Induced Growth ICE Study Area Interchange Map Key.....3-227

Table 3-64: Alternative C Induced Growth ICE Study Area Interchange Map Key.....3-234

Table 3-65: Alternative D Induced Growth ICE Study Area Interchange Map Key3-240

Table 3-66: Percent Development Within Induced Growth Study Area of the Build Alternatives.....
.....3-242

Table 3-67: Recently Completed Transportation Projects3-246

Table 3-68: Present and Reasonably Foreseeable Future HRTPO Transportation Projects within the Cumulative Effects Study Area3-249

Table 3-69: Present and Reasonably Foreseeable Future Non-Transportation Projects within the Cumulative Effects Study Area3-250

Table 3-70: General Effects Determination Matrix3-254

Table 3-71: Summary of Build Alternative Incremental Contribution to Cumulative Effects¹3-271

LIST OF APPENDICES

Appendix A: Alignment Segments and Operationally Independent Sections

Appendix B: Alternatives Mapping

Appendix C: Coordination Plan

Appendix D: Agency Correspondence

Appendix E: Section 4(f) Review

Appendix F: Historical Topographic Maps and Aerials

Appendix G: List of Technical Supporting Documentation

Appendix H: Response to Comments

Appendix I: Programmatic Agreement

LIST OF ACRONYMS

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ABPP	American Battlefield Protection Program
ACS	American Community Survey
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AIRS	Permitted Airs Facility List
APE	Area of Potential Effect
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
AST	Registered Petroleum Aboveground Storage Tanks
AVE	Area of Visual Effect
BMP	Best Management Practice
BROWNFIELDS	Listing of Brownfield Sites
BRT	Bus Rapid Transit
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CBA	Candidate Build Alternative
CBPA	Chesapeake Bay Preservation Act
CEDS	Comprehensive Environmental Data System
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CIDMMA	Craney Island Dredged Material Management Area
CIM	Citizen Information Meeting
CAJO	Captain John Smith Chesapeake National Historic Trail
CLRP	Constrained Long Range Plan
CNE	Common Noise Environment
CNRMA	Commander Navy Region Mid-Atlantic
CO	Carbon Monoxide
CORRACTS	Hazardous Waste Handlers with Resource Conservation Recovery Act Corrective Action Activity
CTB	Commonwealth Transportation Board
CWA	Clean Water Act
CWSAC	Civil War Sites Advisory Commission
dBA	Decibel
DEIS	Draft Environmental Impact Statement
DMV	Department of Motor Vehicles
DoD	Department of Defense
DOT	Department of Transportation
DRPT	Department of Rail and Public Transportation
DRY CLEANER	Listing of Registered Dry Cleaners
E&S	Erosion and Sediment

EA	Environmental Assessment
EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR	Environmental Data Resources, Inc.
EFH	Essential Fish Habitat
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EJ	Environmental Justice
ENG CONTROLS	Listing of Engineering Controls Sites
EO	Executive Order
EPA	US Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
ESA	Environmental Site Assessment
ESC	Erosion and Sediment Control
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FINDS	Facility Index System
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
FUDS	Formerly Used Defense Properties
GHG	Greenhouse Gas
GIS	Geographic Information Systems
HAP	Hazardous Air Pollutant
HAPC	Habitat Area of Particular Concern
HCM	Highway Capacity Manual
HHS	Health and Human Services
HIST AUTO STATION	Sites Documented as Current or Historic Automotive Repair or Fueling Activities
HIST DRY CLEANERS	Sites Documented as Historic Dry Cleaning Facilities
HMIRS	Hazardous Materials Information System Database
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
HRBT	Hampton Roads Bridge-Tunnel
HRCS	Hampton Roads Crossing Study
HREDA	Hampton Roads Economic Development Alliance
HRT	Hampton Roads Transit
HRTAC	Hampton Roads Transportation Accountability Commission
HRTPO	Hampton Roads Transportation Planning Organization
HUC	Hydrologic Unit Code
I	Interstate
I-564	Interstate 564
I-64	Interstate 64
I-664	Interstate 664
IC	Intermodal Connector

ICIS	Integrated Compliance Information System
IDA	Intensely Developed Area
INST CONTROLS	Sites with Institutional Controls
IPaC	Information for Planning and Conservation
ISTEA	Intermodal Surface Transportation Efficiency Act
LEDPA	Least Environmentally Damaging Practicable Alternative
LEP	Limited English Proficient/Proficiency
LID	Low Impact Development
LOC	Limit of Construction
LOD	Limit of Disturbance
LOS	Level of Service
L RTP	Long Range Transportation Plan
LUST/LTANKS	Leaking Underground Storage Tank Tracking Database/Leading Petroleum Storage Tanks
MANIFEST	Document that Lists and Tracks Hazardous Waste from Generator through Transporters to a TSD Facility
MAX	Metro Area Express
MHW	Mean High Water
MIS	Major Investment Study
MMMBT	Monitor-Merrimac Memorial Bridge-Tunnel
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MOVES	Motor Vehicle Emissions Simulator
MPOs	Metropolitan Planning Organizations
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NACCS	North Atlantic Coast Comprehensive Study
NAVSTA	Navy Station (Norfolk)
NCDOT	North Carolina Department of Transportation
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Agency
NHD	National Hydrography Dataset
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NIT	Norfolk International Terminals
NLEB	Northern Long-eared Bat
NMFS	National Marine Fisheries Service (NOAA Fisheries)
NNMT	Newport News Marine Terminal
NO ₂	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System

NPL	National Priorities List (Superfund)
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	Naval Support Activity (Hampton Roads)
NSN	Naval Station Norfolk
NWI	National Wetlands Inventory
O ₃	Ozone
OIS	Operationally Independent Section
PA	Programmatic Agreement
PADS	PCB Activity Database System
Pb	Lead
PCB	Polychlorinated biphenyl
PEM	Palustrine Emergent
PFO	Palustrine Forested
PM10	Particle matter less than 10 microns
PM _{2.5}	Particle matter less than 2.5 microns
PMT	Portsmouth Marine Terminal
PND	Ports for National Defense
PotNR	Potentially Eligible for Listing on the National Register of Historic Places
PTI	Planning Time Index
QCEW	Quarterly Census of Employment Wages
RCRA	Resource Conservation and Recovery Act
RGA LF	Recorded Government Archives Landfill Database
RGA LUST	Recorded Government Archives LUST Database
RMA	Resource Management Area
ROD	Record of Decision
RPA	Resource Protection Area
SAV	Submerged Aquatic Vegetation
SEIS	Supplemental Environmental Impact Statement
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SLC	Sea Level Change
SO ₂	Sulfur Dioxide
SPILLS	Includes Regional and Historical Department of Environmental Quality- Pollution Response Program, known as PREP; Provides for Responses to Air, Water, and Waste Pollution Incidents in order to Protect Human Health and the Environment
SPCC	Spill Prevention, Control, and Countermeasure
SPUI	Single Point Urban Diamond Interchange
SSA	Sole Source Aquifer
STRAHNET	Strategic Highway Network
SVOC	Semi-volatile Organic Compound
SWM	Stormwater Management
SWPPP	Stormwater Pollution Prevention Plan

SYIP	Six-Year Improvement Plan
TAZ	Traffic Analysis Zones
TDM	Transportation Demand Management
THPO	Tribal Historic Preservation Officers
TIER 2	Listing of Facilities Which Store or Manufacture Hazardous Materials and Submit a Chemical Inventory Report
TIP	Transportation Improvement Plan
TMDL	Total Maximum Daily Load
TNM	Traffic Noise Model
TOYR	Time of Year Restrictions
TRB	Transportation Research Board
TRIS	Toxic Chemical Release Inventory System
TSM	Transportation System Management
TTI	Travel Time Index
TTTR	Traffic and Transportation Technical Report
US	United States
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDI	United States Department of the Interior
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USM	Unified Stream Methodology
UST	Registered Petroleum Underground Storage Tank
UVA	University of Virginia
VA ENF	Virginia Enforcement Actions Data
VA SWF/LF	Virginia Solid Waste/Landfill Facilities
VA	Department of Veterans Affairs
VA	Virginia Route
VA 164	Virginia Route 164
VCP	Voluntary Cleanup Program Sites
V-CRIS	Virginia Cultural Resource Information System
VDACS	Virginia Department of Agriculture and Consumer Services
VDCR	Virginia Department of Conservation and Recreation
VDCR-DNH	Virginia Department of Conservation and Recreation Division of Natural Heritage
VDEM	Virginia Department of Emergency Management
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VDH	Virginia Department of Health
VDHR	Virginia Department of Historic Resources
VDOT	Virginia Department of Transportation
VEC	Virginia Employment Commission
FWIS	Virginia Fish and Wildlife Information Service
VHT	Vehicle Hours of Travel

VIG	Virginia International Gateway
VIMS	Virginia Institute of Marine Science
VMRC	Virginia Marine Resources Commission
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
VWPP	Virginia Water Protection Permit
WOUS	Waters of the United States
W-RNHT	Washington-Rochambeau Revolutionary Route National Historic Trail