

ALIGNMENT SEGMENTS & OPERATIONALLY INDEPENDENT SECTIONS

Given the magnitude and scope of the alternatives, it is expected that a Preferred Alternative would be constructed in stages or operationally independent sections (OIS). An OIS is a portion of an alternative that could be built and function as a viable transportation facility even if other portions of the alternative are not advanced (FHWA, 2007). The OISs are comprised of various roadway alignments and were developed by identifying sections of roadway improvements that if constructed, could function independently. Additionally, different sections within an OIS also could be replaced with another.

Following the release of the Draft SEIS and an opportunity for public review and comment, the independent sections could ultimately be combined to form “hybrid” alternatives. The OIS strategy allows for the identification of a “hybrid” alternative in addition to the alternatives described in this Draft SEIS that could reduce impacts and costs while achieving purpose and need. Depending on the nature of a hybrid alternative, if selected, public involvement opportunities may be offered to solicit additional public comment.

If a hybrid is identified as the Preferred Alternative, it would be fully documented in the Final SEIS; however, this OIS strategy allows impacts and costs to be summarized in this Draft SEIS.

The alignment segments that make up each Build Alternative are shown on **Figure A-1** and summarized in **Table A-1**. **Figures A-2 through A-5** show each Build Alternative broken down by alignment segment. For the alignment segments that are included under two or more alternatives, **Figure A-1** lists the letter of the corresponding alternatives with the numbered segment. The OISs are shown on **Figure A-6**. Environmental impacts have been quantified by roadway alignment segment and are presented in detail in **Table A-2**.

Table A-1: Alternative Alignment Segments

Segment	Roadway Segment Description
Alternative A	
8	I-64 north of HRBT
9	I-64 from HRBT to I-564
Alternative B	
8	I-64 north of HRBT
9	I-64 from HRBT to I-564
10	I-564 and I-564 Connector
12	I-564 Connector and VA 164 Connector Interchange
13	VA 164 Connector
14	VA 164
3	I-664 and VA 164 Interchange
Alternative C	
7	I-664 from I-64 to and including Terminal Avenue Interchange. Proposed design includes 8 lanes plus 2 transit only lanes
6	Terminal Avenue Interchange. Proposed interchange to connect with I-664 design that includes 8 lanes plus 2 transit only lanes
5	I-664 from Terminal Avenue Interchange to I-664 Connector. Proposed design includes 8 lanes plus 2 transit only lanes

Segment	Roadway Segment Description
11	I-664 Connector including I-664 interchange. Proposed interchange to connect with I-664 design that includes 8 lanes plus 2 transit only lanes
4	I-664 from I-664 Connector to VA 164
3	I-664 and VA 164 Interchange
2	I-664 from VA 164 to US 58 (Bowers Hill)
1	I-664 from US 58 (Bowers Hill) to I-264
13	VA 164 Connector
12	I-564 Connector, I-664 Connector, and VA 164 Connector Interchange. Proposed interchange to connect with I-564 design that includes 4 lanes plus 2 transit only lanes
10	I-564 and I-564 Connector. Proposed design includes 8 lanes plus 2 transit only lanes
Alternative D	
8	I-64 north of HRBT
9	I-64 from HRBT to I-564
7	I-664 from I-64 to and including Terminal Avenue Interchange. Proposed design includes 8 lanes
6	Terminal Avenue Interchange. Proposed interchange to connect with I-664 design that includes 8 lanes
5	I-664 from Terminal Avenue Interchange to I-664 Connector. Proposed design includes 8 lanes
11	I-664 Connector including I-664 interchange. Proposed interchange to connect with I-664 design that includes 8 lanes
4	I-664 from I-664 Connector to VA 164
3	I-664 and VA 164 Interchange
2	I-664 from VA 164 to US 58 (Bowers Hill)
1	I-664 from US 58 (Bowers Hill) to I-264
14	VA 164
13	VA 164 Connector
12	I-564 Connector, I-664 Connector, and VA 164 Connector Interchange. Proposed interchange to connect with I-564 design that includes 4 lanes
10	I-564 and I-564 Connector. Proposed design includes 8 lanes

Figure A-1: Alignment Segments



Figure A-2: Alternative A Segments

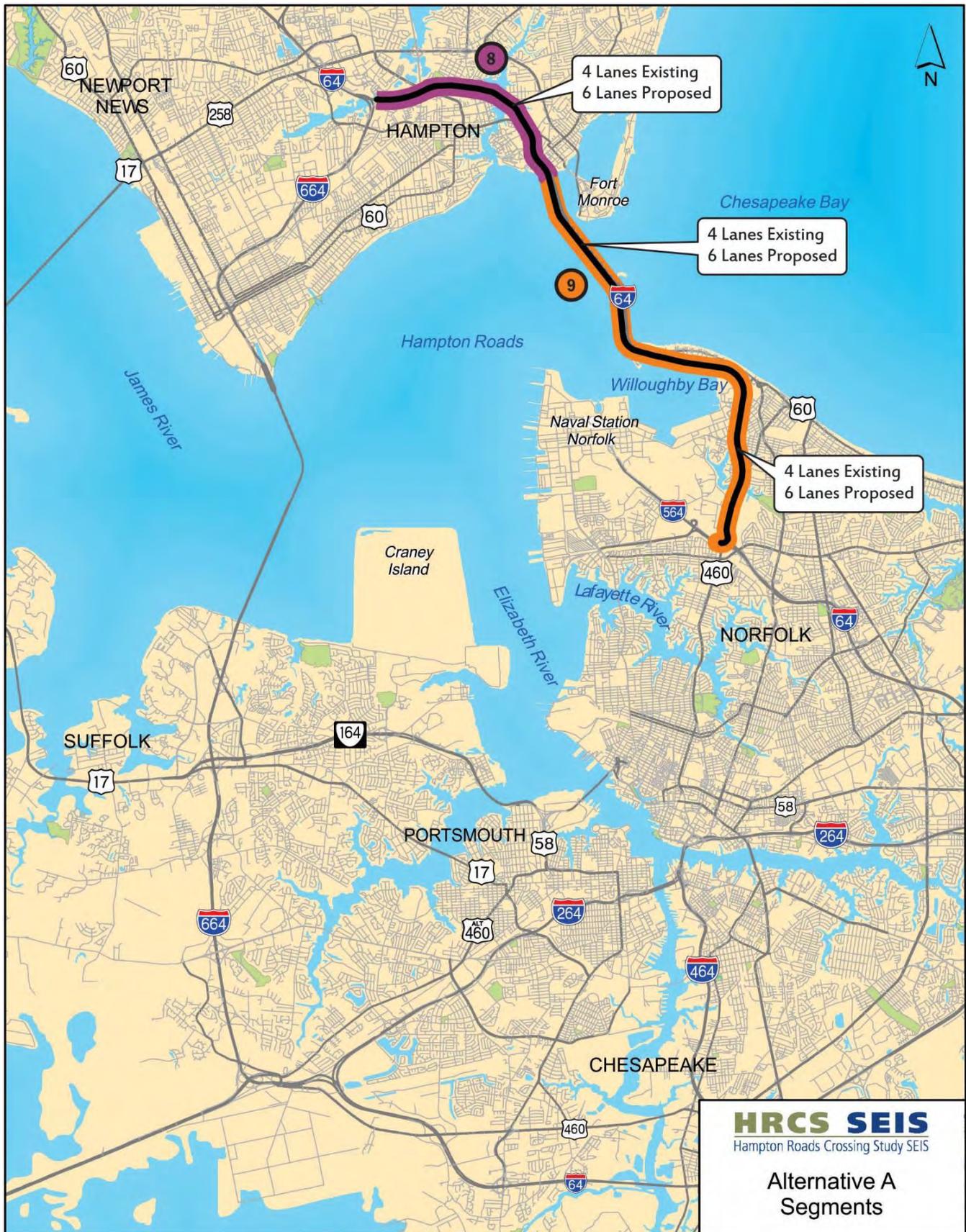


Figure A-3: Alternative B Segments



Figure A-4: Alternative C Segments

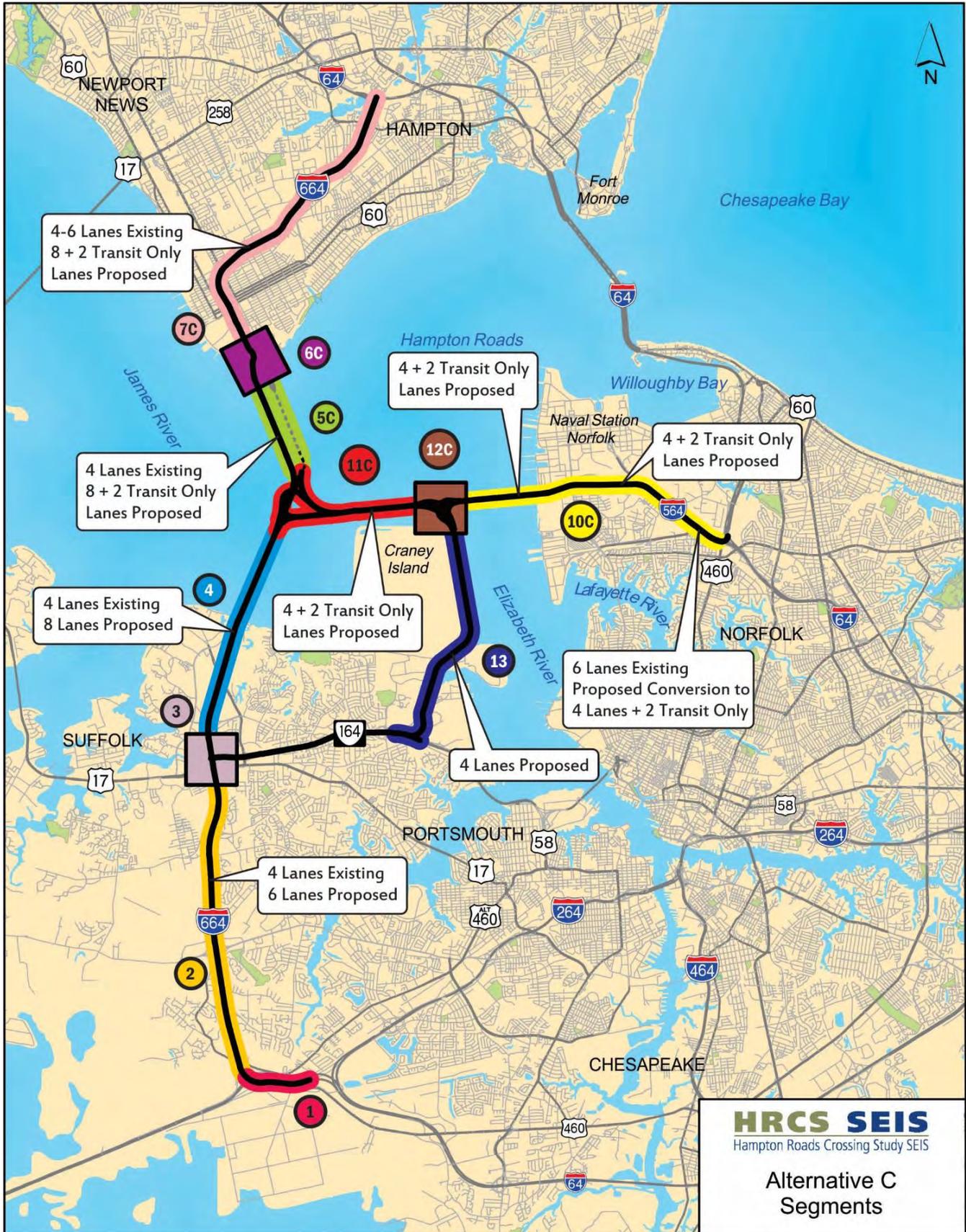


Figure A-5: Alternative D Segments

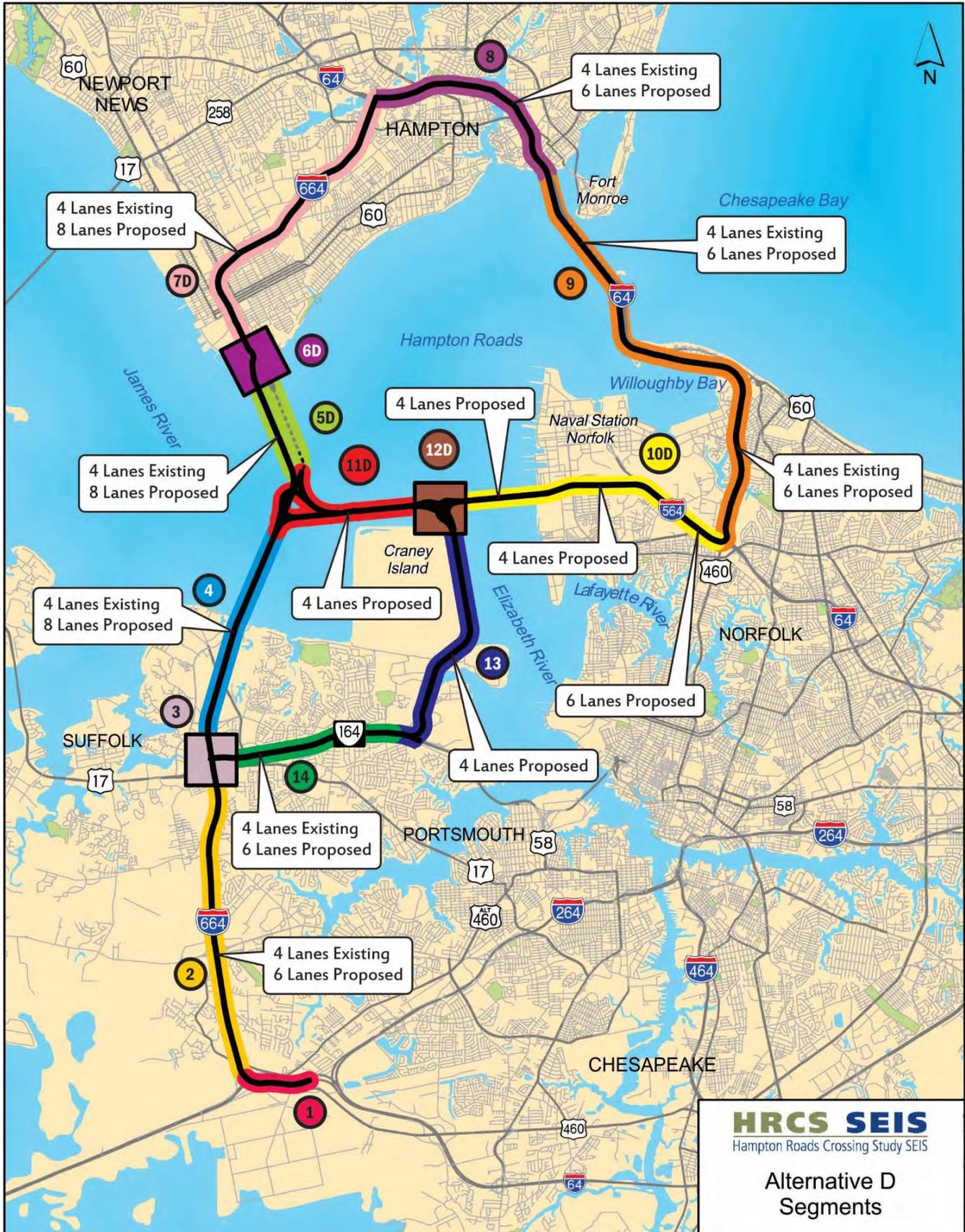


Figure A-6: Operationally Independent Sections



Resource	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5C	Segment 5D	Segment 6C	Segment 6D	Segment 7C	Segment 7D	Segment 8	Segment 9	Segment 10BD	Segment 10C	Segment 11C	Segment 11D	Segment 12B	Segment 12C	Segment 12D	Segment 13	Segment 14
Right-of-Way (# / acres)	8 (0.9)	20 (2.7)	1 (0.4)	8 (13.2)	3 (21.1)	2 (21.0)	5 (16.0)	4 (12.7)	111 (22.3)	75 (18.9)	20 (2.8)	66 (7.5)	7 (65.0)	8 (89.4)	0	0	1 (6.7)	1 (7.5)	1 (7.5)	36 (167.0)	0
Residential	2 (<0.1)	9 (0.2)	0	0	0	0	0	0	42 (1.7)	29 (1.3)	1 (0.1)	23 (0.5)	0	0	0	0	0	0	0	5 (0.1)	0
Commercial	1 (<0.1)	0	0	1 (<0.1)	0	0	0	0	17 (3.3)	11 (2.8)	2 (0.1)	4 (1.2)	0	0	0	0	0	0	0	4 (1.4)	0
Industrial	0	3 (0.3)	0	0	3 (21.1)	2 (21.0)	4 (15.8)	4 (12.7)	16 (6.7)	10 (5.4)	0	6 (0.9)	1 (28.5)	2 (34.9)	0	0	0	0	0	7 (25.4)	0
Institutional	0	1 (<0.1)	0	1 (0.3)	0	0	1 (0.2)	0	7 (6.0)	4 (5.7)	8 (1.9)	1 (0.9)	0	0	0	0	1 (6.7)	1 (7.5)	1 (7.5)	4 (103.8)	0
Military	0	0	0	0	0	0	0	0	0	0	0	4 (0.6)	2 (10.2)	2 (11.4)	0	0	0	0	0	1 (11.7)	0
Open Space	5 (0.9)	7 (2.2)	1 (0.4)	6 (12.9)	0	0	0	0	27 (4.8)	20 (3.7)	3 (0.1)	11 (0.9)	2 (0.3)	2 (0.3)	0	0	0	0	0	11 (22.5)	0
Other	0	0	0	0	0	0	0	0	2 (<0.1)	1 (<0.1)	6 (0.7)	17 (2.4)	2 (26.0)	2 (42.7)	0	0	0	0	0	4 (2.1)	0
Potential Residential Displacements	0	0	0	0	0	0	0	0	11	11	0	9	0	0	0	0	0	0	0	0	0
Potential Commercial Displacements	0	0	0	0	1	1	0	0	4	3	0	0	0	0	0	0	0	0	0	0	0
Potential Other* Displacements	0	0	0	1	0	0	2	2	3	2	2	0	1	1	0	0	0	0	0	1	0
Military Facilities (#/acres)	0	0	0	0	0	0	0	0	0	0	0	1 (22.4)	1 (14.7)	1 (41.5)	0	0	1 (6.7)	1 (7.5)	1 (7.5)	3 (119.1)	0
Community Facilities	0	0	0	0	0	0	0	0	3	2	1	1	1	1	0	0	0	0	0	0	0
Park & Recreation	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0
Place of Worship	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Cemetery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
School / University	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
Land Use*	0.9	3.1	0.7	16.4	21.8	21.6	16.1	12.8	22.6	19.0	2.6	25.2	61.1	79.1	0	0	6.7	7.5	7.5	164.8	0
Residential	0	0.6	0	0	0	0	0	0	2.0	1.5	0.1	0.5	0	0	0	0	0	0	0	0.1	0
Commercial	0	0	0	1.3	0	0	0	0	3.6	3.0	0.5	1.2	0	0	0	0	0	0	0	1.4	0
Industrial	0	0.2	0	0.2	21.8	21.6	15.9	12.8	6.2	5.0	0	0.7	46.0	50.2	0	0	0	0	0	25.3	0
Institutional	0	0	0	0	0	0	0.2	0	5.9	5.7	1.9	0.9	0	0	0	0	6.7	7.5	7.5	103.8	0
Military	0	0	0	0	0	0	0	0	0	0	0	20.8	14.8	28.6	0	0	0	0	0	11.7	0
Open Space	0.9	2.3	0.7	14.9	0	0	0	0	4.9	3.7	0.1	1.1	0.3	0.3	0	0	0	0	0	22.5	0
Section 4(f) Properties (# / acres)	0	0	0	1 (27.0)	1 (254.2)	1 (233.8)	1 (0.3)	1 (0.4)	3 (1.6)	3 (1.5)	2 (1.8)	4 (304.6)	2 (48.7)	2 (98.3)	1 (151.7)	1 (123.5)	1 (25.6)	1 (69.8)	1 (64.0)	1 (6.7)	0
Farmland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5C	Segment 5D	Segment 6C	Segment 6D	Segment 7C	Segment 7D	Segment 8	Segment 9	Segment 10BD	Segment 10C	Segment 11C	Segment 11D	Segment 12B	Segment 12C	Segment 12D	Segment 13	Segment 14		
Stream Impacts (linear feet)	292.7	143.0	0	112.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Navigable Waters (acres)	0	0.6	0	26.7	97.2	97.2	0.2	0.2	0	0	0.1	147.3	44.4	53.9	116.8	95.7	20.5	71.3	65.6	3.4	0	0	
Wetlands (acres)	23.6	5.8	4.8	7.8	0	0	0	0	5.7	5.3	0.6	7.2	0.2	1.9	0	0	0	0	0	0	61.6	3.0	
Resource Protection Areas (acres)	17.8	13.6	0	27.3	0	0	0	0	0	0	0	0	0	0	64.8	52.1	1.0	1.3	1.3	15.0	0	0	
Floodplains (acres)	0	3.5	0	4.0	23.6	25.0	5.6	4.5	0.4	0.4	3.3	109.3	25.4	31.1	43.5	38.7	10.3	36.8	34.4	64.9	0	0	
Hampton Roads Aquatic Habitat (acres)	0	0	0	27.4	249.0	227.8	2.5	2.4	0	0	0	155.7	45.5	57.8	151.7	123.5	30.7	79.9	74.1	4.4	0	0	
Benthic Communities	0	0	0	15.1	0	0	0	0	0	0	0	0	0	0	180.0	149.0	5.4	50.0	44.2	0	0	0	
Essential Fish Habitat, Habitat Areas of Particular Concern, and Anadromous Fish Use Areas (acres)	0	0	0	26.1	247.7	226.4	2.9	2.7	0	0	0	138.4	45.4	57.4	151.7	123.5	30.5	79.7	73.9	0	0	0	
Threatened & Endangered Species Habitat (acres)	22.2	4.2	1.2	13.5	0	0	0.4	0.0	0.6	0.6	0	1.0	3.0	14.1	0	0	6.3	7.0	7.0	101.7	0	0	
Submerged Aquatic Vegetation (acres)	0	0	0	0	0	0	0	0	0	0	0	1.8	0	0	0	0	0	0	0	0	0	0	0
Terrestrial Habitat (Forested Area) (acres)	54.6	12.3	6.6	13.6	0	0	0	0	18.2	17.3	0	14.9	7.2	23.1	0	0	0	0	0	0	51.0	0	0
Water Quality	Short-term and minor, beneficial long-term impacts																						
Historic Architecture Resources	0	0	0	1	1	1	1	1	1	1	3	3	2	2	1	1	1	1	1	1	2	0	0
Archaeology Resources	8	12	2	1	0	0	0	0	0	0	4	2	0	0	0	0	0	0	0	0	3	1	0
Visual Impacts	Minor to moderate impacts																						
Energy Requirements and Conservation Potential	Minor energy requirements																						
Total Cost	\$53.6M	\$195.1M	\$123.2M	\$423.6M	\$3.9B	\$2.5B	\$356.0M	\$284.6M	\$511.2M	\$432.8M	\$64.1M	\$3.2B	\$2.6B	\$4.5B	\$1.5B	\$1.1B	\$229.2M	\$577.1M	\$514.3M	\$407.7M	\$119.5M	0	0

Notes: Right-of-Way data was gathered from each of the localities. Land use data was gathered from HRTPO.

*Other includes Military, Institutional, and Industrial zoning classifications.