April 18, 2022

Memorandum #2022-55

TO: Regional Connectors Study Steering Committee and Working Group

BY: Camelia Ravanbakht, RCS Project Coordinator

RE: Regional Connectors Study Steering Committee and Working Group Joint Meeting – April 26, 2022
Please RSVP by COB Thursday, April 21, 2022

Attached is the agenda for the **Joint Steering (Policy) Committee and Working Group** meeting of the Regional Connectors Study (RCS) scheduled for **Tuesday, April 26, 2022, at 9:30 AM.**

This meeting will be held in person in Board Room A/B of the Regional Building located at 723 Woodlake Drive, Chesapeake.

/kl

Attachments

RCS Steering Committee and Working Group Members

Voting Members:

Steering Policy Group
Rick West (CH)
Donnie Tuck (HA)
McKinley Price (NN)
Martin Thomas (NO)
Shannon Glover (PO)
Mike Duman (SU)
Robert Dyer (VB)

Working Group
Troy Eisenberger (CH)
Jason Mitchell (HA)
Bryan Stilley (NN)
Deborah Mangiaracina (NO)
James Wright (PO)
Jason Souders (SU)
Ric Lowman (VB)

Nonvoting Members:
Ivan Rucker (FHWA)
Craig Quigley (HRMFFA)
Kevin Page (HRTAC)
Lesley Dobbins-Noble (USACE)
Col. Brian Hallberg (USACE)
George Janek (USACE)
Keith Lockwood (USACE)
Robert Pruhs (USACE)
Tim Dolan (USCG)
Gene Leonard (USCG)
Michael King (USN)
Pamela Phillips (VDOT)
Jennifer Salyers (VDOT)
Chris Hall (VDOT)
Stephen Edwards (VPA)
Barbara Nelson (VPA)

Staff:
Bob Crum (HRTPO)
Pavithra Parthasarathi (HRTPO)
Keith Cannady (HRPDC)
Rob Case (HRTPO)
Greg Grootendorst (HRPDC)
Keith Nichols (HRTPO)
Dale Stith (HRTPO)

Project Coordinator:
Camelia Ravanbakht

Project Consultants:
Paul Prideaux
Lorna Parkins

Agenda

Regional Connectors Study

Joint Steering (Policy) Committee and Working Group Meeting

Tuesday April 26, 2022

9:30 AM

The Regional Building, Regional Board Room, 723 Woodlake Drive, Chesapeake, Virginia

1. **Call to Order**

2. **Welcome and Introductions**

3. **Public Comment Period** (Limit 3 minutes per individual)

4. **Minutes** (**Action Requested**)
   Summary Minutes from January 11, 2022, Joint Steering (Policy) Committee and Working Group Meeting

   Attachment 4

   Recommended Action: **For Approval**

5. **Regional Connectors Study: Qualitative Evaluation of Mandated Segments and Segment Bundling (Action Requested)**
   Lorna Parkins and Paul Prideaux, MBI, RCS Project Co-Managers

   As approved at the last Joint Meeting of January 11, 2022, the revised Phase 3 scope of work consists of the following four-step process:

   Step 1 – Qualitative Evaluation of Mandated Segments and Bundling of Segments

   - Construction Complexity
   - Permitting Issues
   - Project Readiness

   Step 2 – Final Segment Tiering
   - Congestion Reduction Evaluation

- Revised Design and Cost Estimation

Step 3 – Full Recommendations to the HRTPO

- Scenario Analysis
- Traffic Operations Analysis

Step 4 – Final Report

- Public engagement and documentation

Since the last Joint Meeting, the Consultant Team has been working on the analysis of the mandated segments regarding construction complexity, permitting challenges, and project readiness. This Step 1 evaluation will provide a comparative evaluation of the mandated segments including construction cost drivers and timing issues, and impacts on community residents and businesses, environmental justice populations, and the environment.

The consultant team has further used the results of this qualitative evaluation (Step 1) in the bundling of segments and finalizing the RCS 2045 Baseline Network for congestion analysis.

Ms. Lorna Parkins and Mr. Paul Prideaux will brief the Joint Committee on the results of Phase 3 - Step 1 evaluations.

Attachments

- Attachment 5A - Map of Mandated Segments
- Attachment 5B - Summary of Phase 3 Qualitative Analysis (Step 1) – Draft Report. Note: The segment drawings are provided for downloading via the following eFTP site link and will be available until May 12, 2022. https://eFTP.mbakerintl.com/message/RDblPEOb9KsvCrAlsil5KE

Recommended Actions: **For Approval**
Steering (Policy) Committee/Working Group Members to:

- Approve I-664 from Bowers-Hill Interchange to College Drive to be included in the RCS 2045 Baseline Network
- Approve Recommended Segment Bundles for Congestion Analysis in Step 2

6. For Your Information

RCS Diary of Key Decision Points: 2017 to Present

The attached diary includes a summary of key decision points from 2017 to the present time. The purpose of this document is to provide a quick reference for

members and the public. This is a living document and will be updated with future approved key action Items.

Attachment 6

7. **RCS Next Meeting:** June and July 2022**-** (Dates TBD)

8. **Other Items of Interest**

9. **Adjournment**

Regional Connectors Study
Joint Steering (Policy) Committee & Working Group Meeting Minutes
January 11, 2022 – 9:30 am

Steering (Policy) Committee

The following voting members attended the meeting (alphabetically by city):

Rick West (CH)
Donnie Tuck (HA)
McKinley Price, Chair (NN)
Martin Thomas (NO)
Michael Duman (SU)

The following voting members were absent from the meeting (alphabetically by city):

Shannon Glover (PO)
Robert Dyer (VB)

Working Group

The following voting members attended the meeting (alphabetically by city):

Troy Eisenberger (CH)
James Mitchell (HA)
Bryan Stilley (NN)
Amy Inman (NO)
James Wright (PO)
Jason Souders (SU)
Mark Shea (VB)

Others

The following others attended the meeting (alphabetically by last name):

Rob Cofield (HRTPO)
Robert A. Crum, Jr. (HRTPO/HRPDC)
Lesley Dobbins-Noble (USACE)
Rick Dwyer (HRFFMA)
Kathlene Grauberger (HRTPO)
Carl Jackson (Portsmouth)
Lynne Keenan (HA)
Michael King (US Navy)
Phil Lohr (HNTB)
Keith Lockwood (USACE)
Keith Nichols (HRTPO)
Kevin Page (HRTAC)
Lorna Parkins (Michael Baker Intl.)
Pavithra Parthasarathi (HRTPO)
Paul Prideaux (Michael Baker Intl.)
Camelia Ravanbakht (RCS Coordinator)
Eric Stringfield (VDOT)

1. Call to Order

Chair McKinley Price called the meeting to order at 9:30 a.m.

2. Welcome and Introductions

Mr. Robert Crum, HRTPO Executive Director, conducted a roll call for attendance purposes and requested other attendees introduce themselves.

3. Public Comment Period

There were no public comments.

4. Minutes

Chair Price asked for additions or corrections to the June 30, 2021 minutes. Hearing none, Mayor Donnie Tuck Moved to approve the minutes; seconded by Mayor Mike Duman. The Motion was Carried.

5. Regional Connectors Study (RCS): Scope of Work and Schedule Update

Ms. Lorna Parkins, RCS Co-Project Manager, reported that the consultant team has updated the scope of work and schedule associated with the RCS. Ms. Parkins stated that the updated methodology approved by the Steering Committee at the October 21, 2021 meeting will be used to evaluate and sort the RCS segments into chronological tiers based on readiness and known challenges associated with construction and permitting. She noted that segments will be divided into the following three tiers:

- Tier 1
    - Favorable constructability and permitting
    - Favorable readiness
- Tier 2
    - Favorable or mixed constructability and permitting
    - Less favorable readiness
- Tier 3
    - Currently challenged for constructability and permitting
    - Higher degree of uncertainty/requires additional information

The updated Study process will consist of four steps:

- Step 1 – Draft Segment Tiering (3 months)
    - Qualitative assessment of construction, permitting, and readiness
- Step 2 – Final Segment Tiering (3 months) – to include updating the RCS 2045 Baseline Network
    - Congestion reduction evaluation
    - Revised design and cost estimation
- Step 3 – Full recommendations to the HRTPO (6 months)
    - Scenario analysis
    - Traffic operations analysis
- Step 4 – Final Report (4 months)
    - Public engagement and documentation

Ms. Parkins stated that the consultant team will come back to the Joint RCS at the beginning of Step 2 to determine if any projects need to be added to the base network. She noted that although the schedule is tight, the consultant team should be able to make the original study completion date of June 2023.

Mr. Carl Jackson asked whether the Joint RCS was being asked to consider approving the updated study process or the baseline network. Ms. Parkins replied that the Joint RCS will be asked to vote on the updated study process.

Mayor Donnie Tuck stated that there were possible funding earmarks that may be brought forth from Congress and inquired to the status of the earmarks. Mr. Kevin Page, HRTAC Executive Director, replied that he was unaware of any federal funding at this time.

Mayor Rick West Moved to approve the revised RCS Scope of Work and Schedule; seconded by Mayor Donnie Tuck. The Motion Carried.

6. Regional Connectors Study: Draft Evaluation Measures for Segment Tiering

Ms. Lorna Parkins stated that as noted in her previous presentation regarding the revised scope of work, the mandated RCS segments will be evaluated utilizing the following criteria:

- Permitting Issues
- Construction Complexity
- Project Readiness
- Congestion Relief

Ms. Parkins noted that the consultant team has developed a series of draft measures and factors for evaluating the mandated segments on the first three criteria. She summarized each criterion and stated that this evaluation will provide a comprehensive understanding

of the mandated segments including impacts to community residents and businesses, environmental justice populations, regional economic drivers, and the environment.
She indicated that the outcome of this evaluation will provide logical information, supported by qualitative and quantitative observations, which will support the initial draft designation of the mandatory segments into three tiers as described in the revised scope of work.

Ms. Amy Inman inquired as to the quality of evaluating the segments with these measures based on unknown traffic impacts. Ms. Parkins acknowledged that there are unknown factors; however, the impacts on the segment alignments will be initially based on the current level of engineering.

Mayor Rick West Moved to approve the draft Evaluation Measures; seconded by Mayor Donnie Tuck. The Motion Carried.

7. For Your Information

Mr. Robert Crum highlighted the item in the For Your Information section of the Agenda packet.

8. RCS Next Meeting

Mr. Robert Crum stated that the next meeting of the Joint RCS Steering Committee and Working Group will tentatively be held in April.

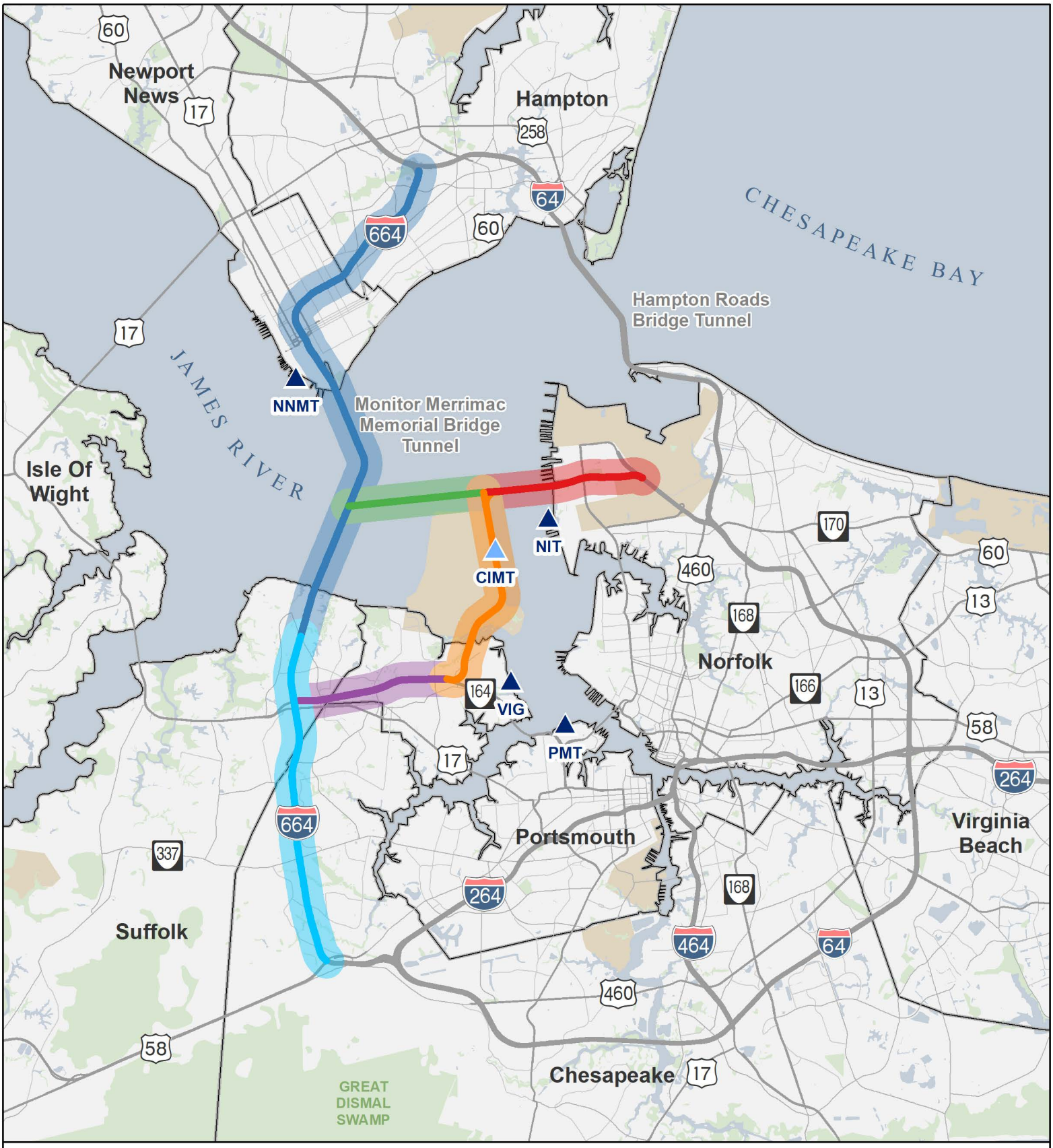
9. Other Items of Interest

There were no other items of interest.

10. Adjournment

The meeting was adjourned at 10:42 a.m.

Mandated Segments



Attachment 5A

REGIONAL CONNECTORS STUDY

Phase 3
Summary of Qualitative Analysis (Step 1)

DRAFT APRIL 15, 2022

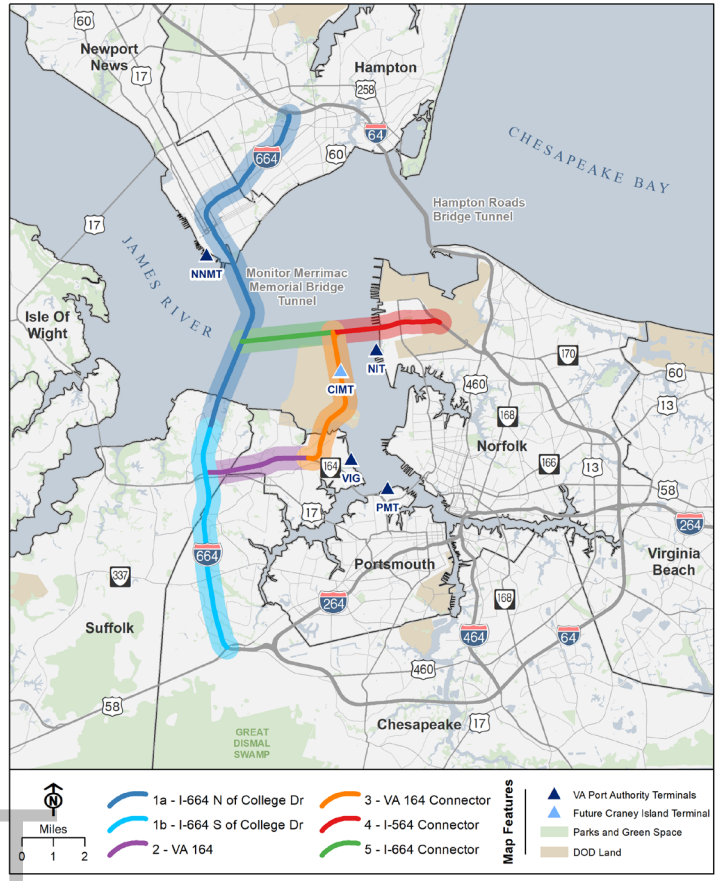
Attachment 5B

RCS Phase 3 – Summary of Qualitative Analysis

Table of Contents

- List of Abbreviations
- Segments Analyzed
- Evaluation Summary Tables and Map
- Construction Complexity Technical Evaluation
- Permitting Issues Technical Evaluation
- Readiness Technical Evaluation
- Permitting Issues Technical Resource Memos

Mandated Segments



Attachment 5B

REGIONAL CONNECTORS STUDY

the heartbeat of HAMPTON ROADS TPO Transportation Planning Organization

List of Abbreviations

Abbreviations	Meaning
AC	Acres
ACOE	Army Corps of Engineers
APE	Area of Potential Effects
BMP	Best Management Practices
CC	Collection Concern
CFR	Code of Federal Regulations
CGP	Construction General Permit
CIDMA	Centre for Intelligent Multidimensional Data Analysis Limited.
CIFD	Craney Island Fuel Terminal
Conn	Connector
COSS	Corridor of Statewide Significance
CWA	Clear Water Act
DOD	Department of Defense
DON	Department of the Navy
E&S	Erosion Sediment
ERC	Elizabeth River Crossings
ESA	Environmental Site Assessment
FESE	Federal Endangered, State Endangered
FHWA	Federal Highway Administration
FIRMs	Flood Insurance Rate maps
FTSE	Federal Threatened, State Endangered
FTST	Federal Threatened, State Threatened
GWMA	Groundwater Management Areas
HOT	High Occupancy Toll
HRBT	Hampton Road Bridge Tunnel
HREL	Hampton Roads Express Lanes
HRSD	Hampton Roads Sanitation District
HRTAC	Hampton Roads Transportation Accountability Commission
HRTPO	Hampton Roads Transportation Planning Organization

Abbreviations	Meaning
IIJA	Infrastructure Investment and Job Act
IMR	Interchange Modification Report
LEDPA	Least Environmental Damaging Practicable Alternative
LOD	Limits of Disturbance
LRTP	Long Range Transportation Plan
LWCF	Land and Water Conservation Fund
MMBT	Monitor-Merrimac Bridge Tunnel
MMMBT	Monitor-Merrimac Memorial Bridge-Tunnel
N/A	Not Applicable
NAS	Naval Station
NAVSTA	Naval Station in Norfolk
NEPA	National Environmental Policy Act
NIT	Norfolk International Terminals
N-MMBT	Northern - Monitor-Merrimac Bridge Tunnel
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NRHP	National Register of Historic Places
NSA	Naval Support Activity
PCB	Polychlorinated biphenyls
RCRA	Resource Conservation and Recovery Act
RCSII	Regional Connectors Study Phase II
ROW	Right-of-way
SE	State Endangered
SEIS	Supplemental Environmental Impact Statement
SMART SCALE	System for the Management and Allocation of Resources for Transportation – Safety, Congestion Mitigation, Accessibility, Land Use, and Economic Development and environment
SPUI	Single Point Urban Interchange
ST	State Threatened
SWPPP	Stormwater Pollution Prevention Plan
TBD	To-Be-Determined

Attachment 5B

List of Abbreviations (continued)

Abbreviation	Meaning
TMDL	Total Maximum Daily Load
US	United States
USACE	United State Army Corps of Engineers
USACOE	United States Army Corps of Engineers
USCG	United States Coast Guard
USFWS	United State Fish and Wildlife Service
USS	United States Ship
VA	Virginia
VAC	Virginia Administration Code
VaFWIS	Virginia Fish and Wildlife Information Service
VDACS	Virginia Department of Agriculture and Consumer Services
VDEQ	Virginia Department of Environmental Quality

Abbreviation	Meaning
VDGIF	Virginia Department of Game and Inland Fisheries
VDOT	Virginia Department of Transportation
VESCH	Virginia Erosion and sediment Control Handbook
VIG	Virginia International Gateway
VIMS SAV	Virginia Institute of Marine Science - Submerged
VLR	Virginia Landmark Register
VMRC	Virginia Marine Resources Commission
VPA	Virginia Port Authority
VSMP	Virginia Storm Water Program
VTrans	Virginia's Statewide Transportation Plan
VWPP	Virginia Water Protection Permit
W-RNHT	Washington-Rochambeau Revolutionary Route National Historic Trail

Attachment 5B

Segments Analyzed

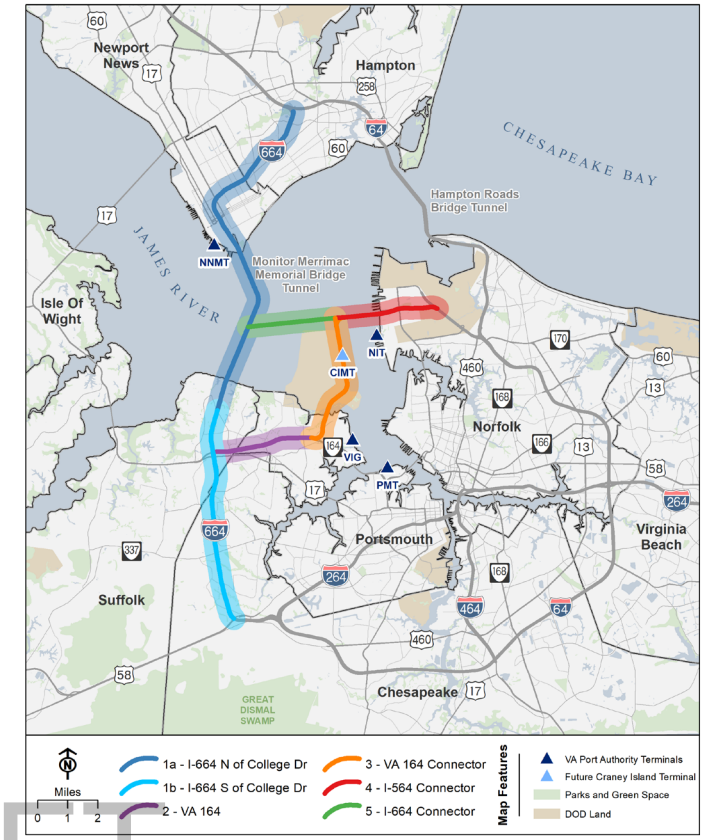
- 1a I-664 North of College Drive – Starting with general alignment of SEIS Alternative D – *adapted lane configuration* to 8 lanes with 4 GP lanes and 4 managed lanes.
- 1b I-664 South of College Drive – Using Bowers Hill Interchange Study Alternative C.
- 2 VA 164 – Widen toward the median to 6 GP lanes per SEIS (adding one in each direction) – *expanded corridor by 20' each side as a cautionary measure to allow for inside crash wall depth for freight rail.*
- 3 VA 164 Connector – SEIS alignment (4 GP lanes)
- 4 I-564 Connector – SEIS Alternative D (4 GP lanes)
- 5 I-664 Connector – SEIS Alternative D (4 GP lanes)

For EJ analysis, also considered demographics of surrounding 500' corridor

Final SEIS available at the HRBT Resources Page at
https://www.hrbtexpansion.org/resources-and-documents/default.asp

Segment drawings showing limits of disturbance (LOD) available until May 12, 2022 at
https://eFTP.mbakerintl.com/message/RDblPEOb9KsvCrAlsil5KE

Mandated Segments



Attachment 5B

REGIONAL CONNECTORS STUDY

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REGIONAL CONNECTORS STUDY

Evaluation Summary Tables and Map

Attachment 5B

REGIONAL CONNECTORS STUDY

Step 1 Evaluation Measures – Segment Comparison

Range of Complexity
High
Moderate
Minimal

Construction Complexity

Construction Complexity	*Segment 1a: I-664 N of College Dr.*	*Segment 1b: I-664 S of College Dr.*	*Segment 2: VA 164*	*Segment 3: VA 164 Connector*	*Segment 4: I-564 Connector*	*Segment 5: I-664 Connector*
	1a	*1b*	*2*	*3*	*4*	*5*
Design & Construction						
Bridges						
Tunnels		N/A	N/A	N/A		N/A
Constrained Work Areas						
Constraints of:						
Local Government or Agency						
State Agency						
Regional Entity						
Federal Entity		TBD				
Design Dependency of Other Mandated Segments						
Traffic Disruptions						
Cost Considerations						
Right-of-Way Acquisitions						N/A
Mitigation of Environmental Factors						
Noise				N/A	N/A	N/A
Wetlands					N/A	

Definitions of Evaluation Framework:

Impact on Constructability –
This measure will capture the anticipated impact on a segment's feasibility to be constructed given the circumstance as they are understood at this time. Measures that may change over time will include additional notation. The following categories will be used in evaluating a segment's design and construction issues:

- **Design complexity**: To include but not limited to the need for tunnels, large structures and limitations presented by constrained work areas.
- **Constraints of local, state and federal activities**: An evaluation of whether a segment would conflict with or limit current or future operations of local, state and federal activities. Examples of this would be regional utilities, landfills, military installations, and Army Corps of Engineers activities.
- **Dependency of other mandated segments**: Each segment will be reviewed against the other mandated segments to determine if that segment will impact the design of another segment or if another segment will impose constraints on that segment. For example, what limitations does the location of the tunnel island for an I-564 Connector have on I-664 and the VA 164 Connector.
- **Significant disruptions to traffic**: This category will evaluate to what extent it is anticipated construction will have a significant impact on existing travel patterns and travel times.
- **Right-of-Way Acquisition:** This will be a measure of the number of impacted parcels and area impacted for each segment.
- **Mitigation of environmental factors**: This will assess the challenges each segment possesses in mitigating environmental factors like noise, water quality and wetlands.

A segment's constructability will have a direct impact on its ability to be implemented in a successful manner to benefit the region. Using the ratings below, the mandated segments will be evaluated with respect to their level of constructability and drivers of cost to differentiate the segments for draft tiering.

- *Minimal: No or very minor impacts that should be easily resolved as the project progresses*
- *Moderate: Impacts that are consistent with significant projects of this scale with a reasonable degree of confidence it can be resolved. Probable adverse impact to outside entity (i.e., local/state/federal agency, major business operation).*
- *High: Significant impact to the constructability of the segment that will require significant efforts or resources to resolve. Likely to result in an adverse impact to outside entity and impacts may be significant.*

Timing Considerations – It is important that such regionally significant projects can be reliably scheduled so that funding pipelines and adjacent projects are not disrupted by setbacks from the constructability issues being evaluated. While these considerations will be presented as notes for each category, below is a general range of how the timing impacts will be view:

- *Minimal: No likelihood of timing or schedule impacts*
- *Moderate: Timing and schedule likely to be impacted by the constructability issue but significant impacts are likely mitigated. There may be some uncertainty in the timing and schedule of the segment's implementation.*
- *High: Significant challenges are foreseen with additional resources needed to overcome the issue. Project likely limited in its implementation due to factors associated with the segments itself or limitations from outside factors beyond the project's control.*

REGIONAL CONNECTORS STUDY

Step 1 Evaluation Measures – Segment Comparison

Range of Impact

High
Moderate
Minimal

Permitting Issues and Key Environmental Impacts

Permitting Issues	*Segment 1a: I-664 N of College Dr.*	*Segment 1b: I-664 S of College Dr.*	*Segment 2: VA 164*	*Segment 3: VA 164 Connector*	*Segment 4: I-564 Connector*	*Segment 5: I-664 Connector*
	1a	*1b*	*2*	*3*	*4*	*5*
Social Environment						
Community impacts (right-of-way, consistency with local plans)						
Sensitive property impacts (noise, community facilities, cultural)						
Environmental Justice (low income and minority communities)						
Federal Permits						
USACOE Section 404 Permit Issues						
USACOE Section 408 Permit Issues						
USACOE Section 10 permit						
USCG Bridge Permit						
NOAA Incidental Harassment Authorization						
State Permits						
VDEQ Section 401 Virginia Water Protection Permit						
VMRC Subaqueous Bottomlands Permit						
VDEQ Virginia Construction General Permit						
Local Permits						
Local Wetlands Board Permit Issues						
Additional Factors						
Mitigation Complexity and Cost						

Attachment 5B

REGIONAL CONNECTORS STUDY

Step 1 Evaluation Measures – Segment Comparison

Range of Impact
High
Moderate
Minimal

Permitting Issues	*Segment 1a: I-664 N of College Dr.*	*Segment 1b: I-664 S of College Dr.*	*Segment 2: VA 164*	*Segment 3: VA 164 Connector*	*Segment 4: I-564 Connector*	*Segment 5: I-664 Connector*
	1a	*1b*	*2*	*3*	*4*	*5*
Permit Stakeholder Coordination (i.e. Maritime Stakeholders)						
Effect on other Federal Navigation Projects						
Potential Future Changes in Policy Issues						

Definitions of Evaluation Framework:

Impact Rating Concern – This evaluation category captures the potential effect of the project and its construction on the natural and social environment. Some of the most common environmental impacts are:

- social and community environment
- noise impacts
- water resources and wetlands
- protected species
- damage to ecosystems and loss of biodiversity
- historic resources
- regulatory requirements and complexity
- mitigation cost and complexity
- interdependence or conflict with other projects

Human well-being depends directly on biodiversity and ecosystems. It is therefore vital to try to measure, plan and minimize any segment activity that might alter the ecological balance.

- *Minimal: No or Minimal impacts to ecosystems (including social and natural)*
- *Moderate: Impacts that have reasonable solutions to ecosystems (including social and natural)*
- *High: Challenging or Unknown impacts to ecosystems (including social and natural)*

Feasibility Concern - Resource feasibility concerns indicate whether the segment will interfere with the socioeconomic activities within the corridor and identify potential issues and problems that could arise from pursuing the project.

- *Minimal: No or Minimal impacts to existing operations or other transportation projects occurring within the segment*
- *Moderate: Impacts that have reasonable solutions to existing operations or other transportation projects occurring within the segment*
- *High: Challenging or Unknown impacts to existing operations or other transportation projects occurring within the segment*

Timing Implications - It is important that such regionally significant projects can be reliably scheduled so that funding pipelines and adjacent projects are not disrupted by setbacks from the permitting issues being evaluated. While these considerations will be presented as notes for each category, below is a general range of how the timing impacts will be viewed:

- *Minimal: No or Minimal likelihood of timing issues or schedule impacts*

- *Moderate: Impacts that have reasonable solutions of timing issues or schedule impacts*
- *High: Challenging or Unknown (i.e. likelihood of future changes in policies related to permitting) impacts of timing issues or schedule impacts*

Resource Impacts – Reference to the HRTPO Corridor Evaluation Technical Memorandum Table of Resources for a detailed overview of resources potentially present within the segment.

- *Minimal: No or Minimal impacts to resources*
- *Moderate: Impacts that have reasonable solutions to resources*
- *High: Challenging or Unknown impacts to resources*

Range of Readiness

Least
Moderate
Most

Project Readiness

Readiness Issues	*Segment 1a: I-664 N of College Dr.*	*Segment 1b: I-664 S of College Dr.*	*Segment 2: VA 164*	*Segment 3: VA 164 Connector*	*Segment 4: I-564 Connector*	*Segment 5: I-664 Connector*
	1a	*1b*	*2*	*3*	*4*	*5*
Project Independence						
Independence from other segments to achieve operational benefits						
Phasing Potential						
Integration with HREL						
Project Development						
Adopted by a regional agency						
Stakeholder / Review Agency Engagement						
Advancement of Project Study						
Funding Opportunities Eligibility						
HRTAC						
SMART Scale High Priority Project						
Infrastructure Investment and Jobs Act (IIJA) Grant Funding						

Definitions of Evaluation Framework:

Readiness – This evaluation category captures the effort required to move a project through development, to identify the independent nature of each segment, the ability to move through the regional planning and prioritization process, as well as the project's ability to obtain funding.

Level of Project Independence – Each segment of the RCSII will improve the overall regional network. However, benefits are more easily achieved if a segment function has independent benefits or functions as an extension of an ongoing project. Additionally, some segments can be phased to provide interim benefits in a cost-effective manner or extend the region's express lanes project (HREL) which has been identified as a regional priority project.

Operational Independence/Benefits

- *High Readiness:* *Segment provides operational benefits with existing logical termini currently under construction*
- *Moderate Readiness:* *Segment provides operational benefits with programmed improvements*
- *Low Readiness:* *Project operationally dependent on completion of adjacent project*
- *Unknown*

Phasing Potential

- *High Readiness:* *Project segments/phases provide operational benefits and are easily expanded for ultimate build out*
- *Moderate Readiness:* *Project segments/phases result in minor operational benefits but are easily expanded for ultimate build out*
- *Low Readiness:* *Project segments/phases do not result in operational benefits and/or create challenges for ultimate build out*
- *Unknown*

Integration with HREL

- *High Readiness:* *Project segments/phases will extend the HREL that is currently underway*
- *Moderate Readiness:* *Project segments/phases will create a future connection to the HREL network*
- *Low Readiness:* *Project segments/phases will not include HREL*
- *Unknown*

Level of Project Development – A key step in project development process is gaining consensus in the planning process which involves prioritizing projects and ranking based on cost and benefits. In order to increase projects rankings, independent efforts may have taken place or are underway that provide more detailed information that enhance a project ranking. Stakeholder engagements are included in every step of the project development, but input or concerns vary based on where a project is in the overall process.

Adopted by a regional agency (In the existing LRTP)

- *High Readiness:* *Included in more than one Long Range Transportation Plan (LRTP) and within the constrained model*
- *Moderate Readiness:* *Included in the LRTP vision plan*
- *Low Readiness:* *Not included in long-range planning*
- *Unknown*

Stakeholder / Review Agency Engagement (Excluding SEIS effort)

- *High Readiness:* *Documentation of support by local, state, and federal agencies*
- *Moderate Readiness:* *Neither support nor opposition documented*
- *Low Readiness:* *Documentation of opposition by local, state, and federal agencies*
- *Unknown*

Advancement of Project Study

- *High Readiness:* *Project segment or phase is independently being studied or standalone study has been completed within last 3-5 years*

- *Moderate Readiness:* *Project segment or phase has been previously studied or is part of another study such as an interchange modification report*
- *Low Readiness:* *No activity has occurred beyond the SEIS*
- *Unknown*

Funding Opportunities Eligibility – All of the segments included in the RCSII will have significant costs and the current regional needs far exceed available funding for traditional financial sources. Therefore, it is important to identify projects that may be able to take advantage of federal, state, or future earmark funding sources.

HRTAC – Congestion Benefit (Transit not an option)

- *High Readiness:* *Eligible; capacity improvements provide significant level of congestion relief*
- *Moderate Readiness:* *Unknown*
- *Low Readiness:* *Non-Eligible; capacity improvements provide non-congestion benefits*
- *Unknown* *N/A*

SMART Scale High Priority Project

- *High Readiness:* *Meets VTrans and is a High Priority Need*
- *Moderate Readiness:* *Meets VTrans need*
- *Low Readiness:* *Does not meet VTrans need*
- *Unknown*

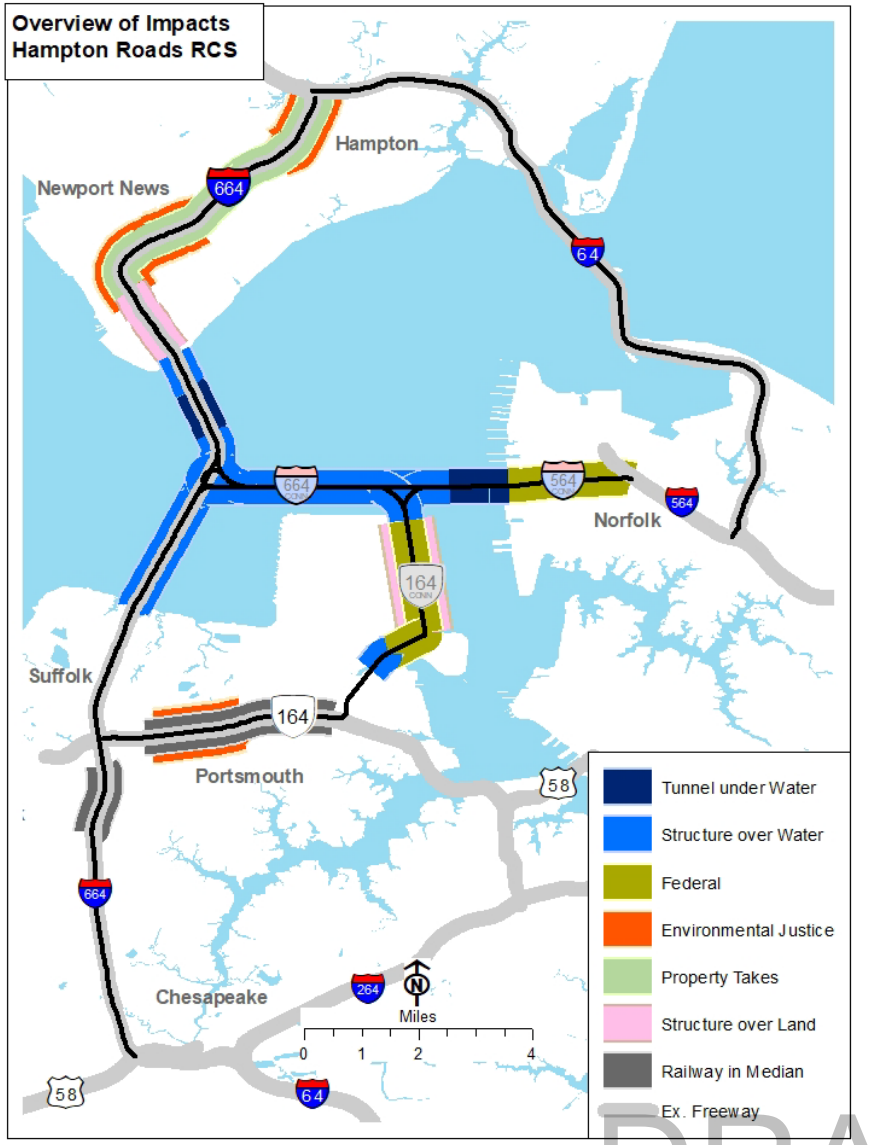
Infrastructure Investment and Jobs Act (IIJA) Grant Funding – to be further defined as funding opportunities are documented

Funding not clearly defined at this time; preliminary criteria identified the following objectives

- *Freight Funding – Rail Crossing (requires additional research)*
- *Transit Funding (requires additional research)*

- *High Readiness:* *N/A – not defined at this time*
- *Moderate Readiness:* *Priority – direct benefit to currently identified objectives*
- *Low Readiness:* *Non-Priority – no or indirect benefit to currently identified objectives*
- *Unknown*

Attachment 5B



Step 1 Evaluation Highlights - Key Features

Attachment 5B

REGIONAL CONNECTORS STUDY

Construction Complexity Technical Evaluation

Attachment 5B

SEGMENT: *1a: I-664 North of College Dr.*

1a: I-664 North of College Dr. **Resource**	**Impact Rating**	**Constructability Impact**	**Timing Consideration or Comments**
Design & Construction			
Design Complexity			
Bridges	High	It is anticipated that 19 overpass bridges will need to be widened/modified. The portion of I-664 just south of the 25th/26th/27th street interchange is entirely on structure until the MMMBT and will need to be widened. Modifications to existing bridges over I-664 would be necessary to accommodate access to I-664 HOT lanes pending determination of access locations. A new bridge will be needed from the new eastbound tunnel to Suffolk.	Widening of the structures south of 25th St. likely to be complex and have adverse impacts on the project cost and duration.
Tunnels	High	A new tunnel will be required for the eastbound lanes. The existing tunnel of the MMMBT will require modifications to accommodate the westbound HOT lanes. The existing approach and departures of the MMMBT will require modifications.	It is anticipated the HRBT tunnel boring machine will be utilized for this project.
Constrained Work Areas	High	Construction adjacent to the Dominion Terminal Associated coal shipping facility will be constrained due to the proximity of rail lines to the existing and proposed alignment of I-664. From 0.75 mi east of Aberdeen Rd. to the Aberdeen Rd. interchange, the work area will be constrained by the surrounding businesses.	Special consideration for access and work areas will be needed for these areas. Those considerations are likely to negatively impact construction schedule and budget.
Constraints of:			
Local Government or Agency	Moderate	The ramps to/from 34th St. will impact the property for the Newport News police department with some access impacts anticipated.	

1a: I-664 North of College Dr. **Resource**	**Impact Rating**	**Constructability Impact**	**Timing Consideration or Comments**
State Agency	Minimal	No impacts for state entities have been identified at this time.	
Regional Entity	High	At the time of this writing, there is an upcoming project for a new HRSD pipeline from Hampton to Suffolk. The proposed alignment viewed by the team conflicts with the proposed HRSD pipeline alignment. Potential mitigation measures have yet to be discussed.	Relocation of the HRSD line would create a significant expenditure for the project.
Federal Entity	Minimal	No impacts for federal entities have been identified at this time.	
Design Dependency of Other Mandated Segments	Minimal	Currently none as I-664 on the Hampton side does not connect to other mandated segments.	
Traffic Disruptions	Moderate	The majority of widening is anticipated to take place to the outside of the existing roadway, limiting traffic disruptions. However, construction from Jefferson Avenue to the tunnels will be more complex and require lane shifts and closures, resulting in more traffic disruptions. This is because a large portion of I-664 is on structures for this section of the highway and the alignment needs to be altered to accommodate the proposed widening.	Construction between Jefferson Avenue and MMMBT will require multiple stages which will extend the construction duration. While capacity would not be affected by the staging of the MMMBT expansion, complex changes in traffic patterns through the stages of construction will be necessary
Cost Consideration			
Right of Way Acquisitions	High	Approximately 71 parcels are projected to require right-of-way acquisition of some manner. Approximately 9 acres of property are impacted.	

1a: I-664 North of College Dr. Resource	Impact Rating	Constructability Impact	Timing Consideration or Comments
Mitigation of environmental factors:			
Noise	Moderate	Approximately 3,330' of existing noise wall will need to be replaced. Changes in the surrounding area, due to construction or in noise abatement requirements may require additional noise walls to be included in the project.	Detailed analysis to determine the extent of addition noise abatement measures.
Wetland	Minimal	No wetlands identified within the limits of disturbance.	

SEGMENT: *1b: I-664 South of College Dr.*

1b: I-664 South of College Dr. **Resource**	**Impact Rating**	**Constructability Impact**	**Timing Consideration or Comments**
Design & Construction			
Design Complexity			
Bridges	High	It is anticipated that 14 bridges will require widening, modification or replacement as a result of the widening. Additionally, 6 new bridges are anticipated for the interchange with VA-164. Modifications to existing bridges over I-664 would be necessary to accommodate access to I-664 HOT lanes pending determination of access locations.	All bridges either on I-664 or over I-664 are anticipated to be impacted. This will be a significant challenge to schedule and constructability. It is anticipated that significant resources will be dedicated to addressing the bridge impacts for this segment
Tunnels	N/A		
Constrained Work Areas	Minimal	The widening will predominantly occur to the inside of the roadway with variations needed based on site specific conditions. It is anticipated the construction area will not be constrained by surrounding parcels. The majority of the corridor.	
Constraints of:			
Local Government or Agency	Minimal	No impacts for local entities have been identified at this time.	
State Agency	Minimal	No impacts for state entities have been identified at this time.	
Regional Entity	Minimal	No impacts for regional entities have been identified at this time.	
Federal Entity	TBD	No impacts for regional entities have been identified at this time.	
Design Dependency of Other Mandated Segments	Minimal	Design considerations will need to be made for the I-664 Connector and any potential knock-on effects that may have from its connection to the I-564 Connector and VA-164 Connector. However, the primary constraint of the I-664 widening will be the existing alignment of I-664 and where the new lanes, tunnel and bridge can be located.	

1b: I-664 South of College Dr. Resource	Impact Rating	Constructability Impact	Timing Consideration or Comments
Traffic Disruptions	Moderate	The majority of widening is anticipated to take place to the inside of the existing roadway, limiting traffic disruptions. However, extensive bridge construction will impact traffic.	Although there will likely be an impact to the construction duration, it's unlikely to impact the ability to implement the project.
Cost Consideration			
Right of Way Acquisitions	Minimal	Approximately 5 parcels are projected to require right-of-way acquisition of some manner. Approximately 0.2 acres of property are impacted.	
Mitigation of environmental factors:			
Noise	Minimal	No noise walls are present on this section of I-664. Changes in the surrounding area, due to construction or in noise abatement requirements may require additional noise walls to be included in the project.	Detailed analysis to determine the extent of addition noise abatement measures.
Wetland	Minimal	0.15 AC of wetlands were identified within the limits of disturbance.	

SEGMENT: *2: VA 164*

2: VA 164 **Resource**	**Impact Rating**	**Constructability Impact**	**Timing Consideration or Comments**
Design & Construction			
Design Complexity			
Bridges	Minimal	One bridge crossed over VA-164 for the subject segments, and up to 10 bridges require modifications including interchange ramps. The totality of impacts are uncertain at this time but likely can be mitigated without significant impact to the bridge or widening project.	
Tunnels	N/A		
Constrained Work Areas	High	The widening shown in the SEIS is proposed to be into the median that includes two Commonwealth Railway railroad tracks. This poses a significant challenge to construction the widening and likely crash wall between the tracks and VA-164. Furthermore, should any widening occur along the outside shoulder to mitigate conflicts with the railroad, the corridor is constrained by adjacent residential and commercial parcels.	Resolving the challenges involved with constructing toward either the railroad or adjacent residential and commercial properties will incur a significant impact to the timing of the project.
Constraints of:			
Local Government or Agency	Minimal	No impacts for local entities have been identified at this time.	
State Agency	Minimal	No impacts for state entities have been identified at this time.	
Regional Entity	Minimal	No impacts for regional entities have been identified at this time.	
Federal Entity	Minimal	No impacts for federal entities have been identified at this time.	
Design Dependency of Other Mandated Segments	Moderate	The proposed widening from I-664 to Cedar Ln. would connect to the proposed VA-164 Connector the eastern termini of the VA-164 widening may be constrained by the design needs of the VA-164 Connector. Additionally, the capacity needs from implementation of the VA-164 Connector may also impact the design of the widening for VA-164.	Independent utility may need to be demonstrated for the widening of VA-164 to not be dependent on the implementation of the VA-164 Connector. Should the widening be dependent on the Connector, then the project will face implementation challenges due the constraints associated with the VA-164 Connector.

2: VA 164 Resource	Impact Rating	Constructability Impact	Timing Consideration or Comments
Traffic Disruptions	High	Given the constrained environment, it is anticipated that traffic will be severely and adversely impacted regardless of whether the widening is toward the median or shoulder. Single lane closures for extended periods may be likely.	
Cost Consideration			
Right of Way Acquisitions	Moderate	Approximately 14 parcels are projected to require right-of-way acquisition of some manner. Approximately 1 acre of property is directly impacted.	
Mitigation of environmental factors:			
Noise	Moderate	Noise walls are present on both sides of VA-164 for the length of the proposed widening. Should any widening need to occur to the outside, these noise walls would need to be replaced.	
Wetland	Minimal	0.5 AC of wetlands identified within the limits of disturbance.	

SEGMENT: *3: VA 164 Connector*

3: VA 164 Connector **Resource**	**Impact Rating**	**Constructability Impact**	**Timing Consideration or Comments**
Design & Construction			
Design Complexity			
Bridges	High	The overwhelming majority of the VA-164 Connector is projected to be on structure. The exception being the southern terminus and portions of the interchange ramps with VA-164 may be on grade. The use of structures is necessary given the alignment of the low-lying wetland areas between VIG and Churchland High School, traversing a tributary of the Elizabeth River and the uncertain material that deposited into the CIDMA facility.	Determining the suitability of construction over/through the CIDMA facility at the end of it's lifecycle will be a significant challenge and will require significant resources to resolve.
Tunnels	N/A		
Constrained Work Areas	High	The SEIS alignment bisect the current Portsmouth landfill and passes to the east of a significant Navy fuel depot and proposed port expansion at Craney Island. Each of these pose a significant constraint in where construction can take place, how construction be done and the timing of such construction.	Resolving the construction challenges associated with the location of the SEIS alignment for VA-164 Connector are anticipated to require significant resources.
Constraints of:			
Local Government or Agency	High	The proposed alignment bisects the Portsmouth landfill and would have a significant impact of the operations and expansion ability of the facility.	This challenge will require either significant time for the landfill to no longer be needed or resources to resolve the conflict with the landfill.
State Agency	High	The alignment show for VA-164 Connector is directly adjacent to the expansion of the Port of Virginia at Craney Island. The alignment poses challenges in ensuring access to the expanded facility given its proximity. There is a desire to connect the Port to VA-164 Connector to access the regional network but that connection's feasibility remains unclear.	
Regional Entity	Minimal	No impacts for regional entities have been identified at this time.	
Federal Entity	High	The proposed alignment runs to the east of the existing Navy fuel depot and it future expansion	The proposed location of the Connector is untenable for the Dept. of Defense and will

3: VA 164 Connector Resource	Impact Rating	Constructability Impact	Timing Consideration or Comments
		location. The proximity of the roadway would pose a challenge that is unacceptable to the Department of Defense and it's mission for the facility. The alignment also runs along the east side of CIDMA which is still a current project for the USACE. It has been expressed by the Corps that VA-164 Connector would interfere with the operations of the dredge disposal site.	require additional resources and time to resolve the challenge. It is likely that the only feasible time for the VA-164 Connector to be constructed is following the end of the USACE's project at CIDMA. The latest approximate projection for that is 2050. However, this may be extended by technological advances at the site.
Design Dependency of Other Mandated Segments	High	VA-164 Connector will be constrained by the elevation and location of I-564 and I-664 Connectors. Likely the most impactful is the location of the western island for the tunnel on the I-564 Connector.	The timing and design of the VA-164 Connector is entirely dependent on the construction of the I-564 Connector and design constraints of that segment.
Traffic Disruptions	Minimal	No traffic is present for this corridor today and limited impacts to traffic on VA-164 would be expected for the construction of the interchange between VA-164 and VA-164 Connector.	
Cost Consideration			
Right of Way Acquisitions	High	Approximately 29 parcels are projected to require right-of-way acquisition of some manner. Approximately 167 acres of property are impacted	
Mitigation of environmental factors:			
Noise	N/A	.	
Wetland	High	The segment is projected to impact 31.3Ac of wetlands. This will require either the purchase of credits or remediation.	

Attachment 5B

SEGMENT: 4: *I-564 Connector*

4: *I-564 Connector* **Resource**	**Impact Rating**	**Constructability Impact**	**Timing Consideration or Comments**
Design & Construction			
Design Complexity			
Bridges	High	The landside portion of the I-564 Connector will need to bridge over Hampton Blvd. and include a Single Point Urban Interchange (SPUI) for access to the port and Navy facilities. Both will be in constrained areas making construction more difficult. The proximity of the SPUI to the proposed tunnel opening will also be a challenge. The interchange ramps between I-664 Connector and VA-164 Connector will be entirely on structures since they are over water.	The proposed SPUI for access to the port and Navy facilities is likely going to require significant coordination to design and implement.
Tunnels	High	The I-564 Connector requires a new tunnel.	It is anticipated the HRBT tunnel boring machine will be utilized for this project. The deeper profile requires adjustments to the approaches. To the west this may affect placement of the island connecting to I-664 Connector and/or VA-164 Connector. To the east, this may alter impacts to Norfolk International Terminal.
Constrained Work Areas	High	The landside portion of the I-564 Connector needs to connect to the Intermodal Connector and goes in between port and Navy facility access locations. Additionally, the eastern tunnel opening is proposed to be constructed in the location of an existing Navy pier. These pose significant challenges to the constructability of the segment.	The proximity of the segment to the Navy and port facilities and crossing under the Elizabeth River will be considerable challenges in implementing this segment. The Navy will likely have security concerns and concerns over the loss of a pier and how that will impact its mission. The port is likely to have concerns over access for its facility.
Constraints of:			
Local Government or Agency	Minimal	No impacts for local entities have been identified at this time.	

4: *I-564 Connector* Resource	Impact Rating	Constructability Impact	Timing Consideration or Comments
State Agency	High	Pier 4 at the Port of Virginia will need to be removed to accommodate the eastern opening of the tunnel for I-564. The tunnel is needed to go under the Elizabeth River to maintain the channel for access to the Port and federal facilities.	Resolving the conflict with the pier will require significant resources and it's resolution is uncertain.
Regional Entity	Minimal	No impacts for regional entities have been identified at this time.	
Federal Entity	High	The alignment is directly adjacent to Navy piers that support various vessels. It is unclear at this time what impacts and limitations this alignment will incur in addressing the Navy's needs.	Resolving the conflicts with the Navy facility will require significant resources and coordination. It is unclear if these challenges can ultimately be resolved.
Design Dependency of Other Mandated Segments	High	I-564 Connector will need to be constructed with the I-664 Connector and/or VA-164 Connector. I-564 Connector will need to make considerations for the VA-164 Connector to ensure the two segments can be connected and constructed safely. Additionally, the required height of I-664 Connector over the water will directly impact the design constraints of the I-564 Connector.	I-564 Connector cannot be constructed by itself and must be constructed with either or both I-664 Connector or VA-164 Connector so that it is connected to the regional network.
Traffic Disruptions	Minimal	No traffic is present for this corridor today.	
Cost Consideration			
Right of Way Acquisitions	Moderate	Approximately 8 parcels are projected to require right-of-way acquisition of some manner. Approximately 73 acres of property are impacted	
Mitigation of environmental factors:			
Noise	N/A	No noise barriers have been identified for this corridor.	
Wetland	N/A	No wetlands identified within the limits of disturbance	

Attachment 5B

SEGMENT: *5: I-664 Connector*

5: I-664 Connector **Resource**	**Impact Rating**	**Constructability Impact**	**Timing Consideration or Comments**
Design & Construction			
Design Complexity			
Bridges	High	The entirety of the I-664 Connector will be on structures since it is over water. This includes the interchange ramps with I-664, I-540 Connector and VA-164 Connector.	
Tunnels	N/A		
Constrained Work Areas	Moderate	The proximity to CIDMA may restrict some of the working area. Additionally, the interchange ramps with I-664 may be challenging as consideration will need to be given to working adjacent to the active roadway.	
Constraints of			
Local Government or Agency	Minimal	No impacts for local entities have been identified at this time.	
State Agency	Minimal	No impacts for state entities have been identified at this time.	
Regional Entity	Minimal	No impacts for regional entities have been identified at this time.	
Federal Entity	High	Access to the CIDMA site will need to be maintained as long as the site is open. Design considerations will need to be made for this.	
Design Dependency of Other Mandated Segments	High	I-664 Connector will need to be constructed with the I-564 Connector.	I-664 Connector cannot be constructed by itself and must be constructed with I-564 Connector so that it is connected to the regional network.
Traffic Disruptions	Minimal	No traffic is present for this corridor today.	
Cost Consideration			
Right of Way Acquisitions	N/A	There are no parcels impacted	
Mitigation of environmental factors:			
Noise	N/A	No noise walls anticipated.	
Wetland	Minimal	No wetlands identified within the limits of disturbance.	

Impact on Constructability –
This measure will capture the anticipated impact on a segment's feasibility to be constructed given the circumstance as they are understood at this time. Measures that may change over time will include additional notation. The following categories will be used in evaluating a segment's design and construction issues:

- **Design complexity**: To include but not limited to the need for tunnels, large structures and limitations presented by constrained work areas.
- **Constraints of local, state and federal activities**: An evaluation of whether a segment would conflict with or limit current or future operations of local, state and federal activities. Examples of this would be regional utilities, landfills, military installations, and Army Corps of Engineers activities.
- **Dependency of other mandated segments**: Each segment will be reviewed against the other mandated segments to determine if that segment will impact the design of another segment or if another segment will impose constraints on that segment. For example, what limitations does the location of the tunnel island for an I-564 Connector have on I-664 and the VA 164 Connector.
- **Significant disruptions to traffic**: This category will evaluate to what extent it is anticipated construction will have a significant impact on existing travel patterns and travel times.
- **Right-of-Way Acquisition:** This will be a measure of the number of impacted parcels and area impacted for each segment.
- **Mitigation of environmental factors**: This will assess the challenges each segment possesses in mitigating environmental factors like noise, water quality and wetlands.

A segment's constructability will have a direct impact on its ability to be implemented in a successful manner to benefit the region. Using the ratings below, the mandated segments will be evaluated with respect to their level of constructability and drivers of cost to differentiate the segments for draft tiering.

- *Minimal: No or very minor impacts that should be easily resolved as the project progresses*
- *Moderate: Impacts that are consistent with significant projects of this scale with a reasonable degree of confidence it can be resolved. Probable adverse impact to outside entity (i.e., local/state/federal agency, major business operation).*
- *High: Significant impact to the constructability of the segment that will require significant efforts or resources to resolve. Likely to result in an adverse impact to outside entity and impacts may be significant.*

Timing Considerations – It is important that such regionally significant projects can be reliably scheduled so that funding pipelines and adjacent projects are not disrupted by setbacks from the constructability issues being evaluated. While these considerations will be presented as notes for each category, below is a general range of how the timing impacts will be view:

- *Minimal: No likelihood of timing or schedule impacts*
- *Moderate: Timing and schedule likely to be impacted by the constructability issue but significant impacts are likely mitigated. There may be some uncertainty in the timing and schedule of the segment's implementation.*
- *High: Significant challenges are foreseen with additional resources needed to overcome the issue. Project likely limited in its implementation due to factors associated with the segments itself or limitations from outside factors beyond the project's control.*

REGIONAL CONNECTORS STUDY

Permitting Issues Technical Evaluation

Attachment 5B

SEGMENT: *1a: I-664 North of College Dr.*

1a: I-664 North of College Dr. **Resource**	**Impact Rating**	**Comments on Resource Impacts or Timing Implications**
Social Environment		
Community impacts (right-of-way, consistency with local plans)	Moderate	Most resources are adjacent to the LOD; however, final LOD requirements may show that minor right-of-way acquisitions will be needed and further detailed design may avoid and/or minimize potential impacts. Construction activities would result in temporary interruptions to vehicular traffic patterns, including the potential temporary closure of roads and temporary interruptions to vehicular traffic patterns. Construction activities would cause intermittent fluctuations in noise levels throughout the construction area. The degree of noise impact would vary, as it is directly related to the types of equipment used and the proximity to the noise-sensitive land uses within the project area. Based on a review of the project area, no considerable, long-term construction-related noise impacts are anticipated.
Sensitive property impacts (noise, community facilities, cultural)	Moderate	Most sensitive resources are located outside the LOD; however, final LOD requirements may show that minor right-of-way acquisitions will be needed. Some sensitive properties immediately adjacent to the limits of disturbance may be impacted including Park Place Playground and Kingdom Hall of Jehovah's Witnesses.
Environmental Justice (low income and minority communities)	Moderate	Widening of the existing corridor in an urban environment provides limited adjacent land for construction. Identified Environmental Justice impacts anticipated within the LOD; however, further detailed design may avoid and/or minimize potential impacts. All communities within 500 feet of the proposed construction to the north and south of the corridor are majority minority, with most over 75% minority. All communities in Newport News within 500 feet of the proposed edge of the corridor have over 25% poverty, and many have 75-100% poverty. There are 3 apartment buildings, 11 apartment blocks, and 45 houses within 500 feet of the corridor in Newport News. In Hampton, poverty is less severe, though the communities next to I-664 are also majority minority. In the indirectly impacted areas of Hampton that have over 25% poverty, there are 144 homes and a senior living facility, as well as a High School.

1a: I-664 North of College Dr. Resource	Impact Rating	Comments on Resource Impacts or Timing Implications
Federal Permits		
USACOE Section 404 Permit Issues	Moderate	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with Federal Regulatory Agencies; however, the segment will be widening of the existing corridor. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
USACOE Section 408 Permit Issues	Moderate	Section 408 is the process that allows alteration to a federally authorized project. The proposed project cannot pose a risk to the public interest and will not impair the usefulness of the federally authorized project. Construction activities requiring access to the James River (Newport News Channel) maintained channel for potential barge work zones and safe harbor sites will most likely be required.
USACOE Section 10 permit	Moderate	Maintenance of operations and traffic will be required for all identified Maintained Federal Channels and the existing I664 Monitor Merrimack transportation corridor.
USCG Bridge Permit	Moderate	The segment does cross the James River (Newport News Channel), construction activities requiring access to potential barge work zones and safe harbor sites in or adjacent to the James River (Newport News Channel) will most likely be required.
NOAA Incidental Harassment Authorization	Moderate	There is moderate potential for incidental harassment within this segment.
State Permits		
VDEQ Section 401 Virginia Water Protection Permit	Moderate	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with State Regulatory Agencies; however, the segment will be widening of the existing corridor. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
VMRC Subaqueous Bottomlands Permit	Moderate	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with State Regulatory Agencies; however, the segment will be widening of the existing corridor. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
VDEQ Virginia Construction General Permit	Minimal	Assumption that all required stormwater controls and requirements pursuant to this permit will be obtained and adhered to. It is assumed for this segment that all additional stormwater controls would be located within the boundaries of the LOD.

1a: I-664 North of College Dr. Resource	Impact Rating	Comments on Resource Impacts or Timing Implications
Local Permits		
Local Wetlands Board Permit Issues	Moderate	Tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with Local Wetlands Boards; however, the segment will be widening of the existing corridor. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Additional Factors		
Mitigation Complexity and Cost	High	This segment does contain bridge and roadway structures within water and landside to Federal Navigation Projects along the James River (Newport News Channel), Elizabeth River, and current operations at the Newport News Marine Terminals. Moderate to extensive mitigation costs would be required for wetland and US waters impacts; however, field surveys and additional detailed design may avoid and/or minimize impacts to further reduce potential mitigation costs.
Permit Stakeholder Coordination (i.e. Maritime Stakeholders)	High	Extensive stakeholder coordination with Federal Navigation Projects along the James River (Newport News Channel), Elizabeth River, rail facilities, and current operations at the Newport News Marine Terminals will be required and may pose design and/or construction schedule risk.
Effect on other Federal Navigation Projects	Moderate	This segment does contain bridge and roadway structures within water and landside to Federal Navigation Projects along the James River (Newport News Channel), Elizabeth River, and current operations at the Newport News Marine Terminals; however, the segment is the widening of the existing corridor.
Potential Future Changes in Policy Issues	Minimal	No major regulatory policy changes are anticipated at this time.

Attachment 5B

SEGMENT: *1b: I-664 South of College Dr.*

1b: I-664 South of College Dr. **Resource**	**Impact Rating**	**Comments on Resource Impacts or Timing Implications**
Social Environment		
Community impacts (right-of-way, consistency with local plans)	Minimal	Construction activities would result in temporary interruptions to vehicular traffic patterns, including the potential temporary closure of roads and temporary interruptions to vehicular traffic patterns. Construction activities would cause intermittent fluctuations in noise levels throughout the construction area. The degree of noise impact would vary, as it is directly related to the types of equipment used and the proximity to the noise-sensitive land uses within the project area. Based on a review of the project area, no considerable, long-term construction-related noise impacts are anticipated.
Sensitive property impacts (noise, community facilities, cultural)	Minimal	Most sensitive resources are located outside the LOD; however, final LOD requirements may show that minor right-of-way acquisitions will be needed. It does not appear that the LOD will exceed the ROW parcel edge along this segment; therefore, there will be no impact to existing businesses, schools, residences, places of worship, or cemeteries.
Environmental Justice (low income and minority communities)	Minimal	Widening of the existing corridor in an urban environment provides limited adjacent land for construction. Based on review of the LOD, no residents or neighboring communities would be relocated; however, final LOD requirements may show that minor right-of-way acquisitions will be needed.
Federal Permits		
USACOE Section 404 Permit Issues	Minimal	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Coordination would be required with Federal Regulatory Agencies; however, the segment will be widening of the existing corridor. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
USACOE Section 408 Permit Issues	Minimal	No rivers or harbors are located within the boundaries of the LOD evaluated.
USACOE Section 10 permit	Minimal	This segment does not contain bridge structures over or adjacent to Federal Navigation Projects nor does this segment cross any maintained Federal Channels.
USCG Bridge Permit	Minimal	This segment does not contain bridge structures over or adjacent to Federal Navigation Projects or mat.
NOAA Incidental Harassment Authorization	Minimal	There is no potential for incidental harassment within this segment.

1b: I-664 South of College Dr. Resource	Impact Rating	Comments on Resource Impacts or Timing Implications
State Permits		
VDEQ Section 401 Virginia Water Protection Permit	Minimal	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Coordination would be required with State Regulatory Agencies; however, the segment will be widening of the existing corridor. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
VMRC Subaqueous Bottomlands Permit	Minimal	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Coordination would be required with State Regulatory Agencies; however, the segment will be widening of the existing corridor. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
VDEQ Virginia Construction General Permit	Minimal	Assumption that all required stormwater controls and requirements pursuant to this permit will be obtained and adhered to. It is assumed for this segment that all additional stormwater controls would be located within the boundaries of the LOD.
Local Permits		
Local Wetlands Board Permit Issues	Minimal	Tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Coordination would be required with Local Wetlands Boards; however, the segment will be widening of the existing corridor. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Additional Factors		
Mitigation Complexity and Cost	Minimal	No business impacts are anticipated within the segment corridor. Minimal anticipated mitigation costs would be required for wetland and US waters; however, field surveys and additional detailed design may avoid and/or minimize impacts to further reduce potential mitigation costs.
Permit Stakeholder Coordination (i.e. Maritime Stakeholders)	Moderate	Transportation facilities identified within the LOD; however, it is the assumption that all transportation facilities will remain at existing or improved functionality. Stakeholder coordination with railroad facilities elevates this segment to Moderate status since coordination will be required and may pose design and/or construction schedule risk.
Effect on other Federal Navigation Projects	Minimal	This segment does not contain bridge structures over or adjacent to Federal Navigation Projects.
Potential Future Changes in Policy Issues	Minimal	No major regulatory policy changes are anticipated at this time.

SEGMENT: *2: VA 164*

2: VA 164 **Resource**	**Impact Rating**	**Comments on Resource Impacts or Timing Implications**
Social Environment		
Community impacts (right-of-way, consistency with local plans)	Minimal	Construction activities would result in temporary interruptions to vehicular traffic patterns, including the potential temporary closure of roads and temporary interruptions to vehicular traffic patterns. Construction activities would cause intermittent fluctuations in noise levels throughout the construction area. The degree of noise impact would vary, as it is directly related to the types of equipment used and the proximity to the noise-sensitive land uses within the project area. Based on a review of the project area, no considerable, long-term construction-related noise impacts are anticipated.
Sensitive property impacts (noise, community facilities, cultural)	Minimal	Many sensitive property identified resources are located outside of the limits of disturbance. It does not appear that the LOD will exceed the ROW parcel edge along this segment; therefore, there will be no impact to existing businesses, schools, residences, places of worship, or cemeteries. Expansion to the eastbound side of VA-164 may require a portion of easement from Ebony Heights Park; however, further detailed design may avoid and/or minimize any potential impacts.
Environmental Justice (low income and minority communities)	Moderate	Expansion to the eastbound side of VA-164 may require a portion of easement from Ebony Heights Park; however, further detailed design may avoid and/or minimize any potential impacts. No residents or neighboring communities would be relocated. Communities within 500 feet of the proposed construction to the north and south of the corridor are majority minority with over 25% of households in poverty. 102 houses 58 2-story apartments, 44 garden apartment blocks, and 3 churches.
Federal Permits		
USACOE Section 404 Permit Issues	Minimal	Non-tidal US Waters and wetlands were identified within the segment; however, however, field surveys and additional detailed design may avoid and/or minimize impacts to further reduce potential impacts.
USACOE Section 408 Permit Issues	Minimal	No rivers or harbors are located within the boundaries of the LOD evaluated.
USACOE Section 10 permit	Minimal	This segment does not contain bridge structures over or adjacent to Federal Navigation Projects nor does this segment cross any maintained Federal Channels.

2: VA 164 Resource	Impact Rating	Comments on Resource Impacts or Timing Implications
USCG Bridge Permit	Minimal	This segment does not contain bridge structures over or adjacent to Federal Navigation Projects or mat.
NOAA Incidental Harassment Authorization	Minimal	There is no potential for incidental harassment within this segment.
State Permits		
VDEQ Section 401 Virginia Water Protection Permit	Minimal	Non-tidal US Waters and wetlands were identified within the segment; however, however, field surveys and additional detailed design may avoid and/or minimize impacts to further reduce potential impacts.
VMRC Subaqueous Bottomlands Permit	Minimal	No subaqueous bottomlands were identified within the boundaries of the evaluated LOD.
VDEQ Virginia Construction General Permit	Minimal	Assumption that all required stormwater controls and requirements pursuant to this permit will be obtained and adhered to. It is assumed for this segment that all additional stormwater controls would be located within the boundaries of the LOD.
Local Permits		
Local Wetlands Board Permit Issues	Minimal	No tidal US Waters or wetlands were identified within the boundaries of the LOD of this segment. Limited coordination would be required with Local Wetlands Boards.
Additional Factors		
Mitigation Complexity and Cost	Minimal	No business impacts are anticipated within the segment corridor. Minimal anticipated mitigation costs would be required for wetland and US waters; however, field surveys and additional detailed design may avoid and/or minimize impacts to further reduce potential mitigation costs.
Permit Stakeholder Coordination (i.e. Maritime Stakeholders)	Moderate	Transportation facilities identified within the LOD; however, it is the assumption that all transportation facilities will remain at existing or improved functionality. Stakeholder coordination with railroad facilities elevates this segment to Moderate status since coordination will be required and may pose design and/or construction schedule risk.
Effect on other Federal Navigation Projects	Minimal	This segment does not contain bridge structures over or adjacent to Federal Navigation Projects.
Potential Future Changes in Policy Issues	Minimal	No major regulatory policy changes are anticipated at this time.

SEGMENT: *3: VA 164 Connector*

3: VA 164 Connector **Resource**	**Impact Rating**	**Comments on Resource Impacts or Timing Implications**
Social Environment		
Community impacts (right-of-way, consistency with local plans)	High	Construction activities would result in temporary interruptions to vehicular traffic patterns, including the potential temporary closure of roads and temporary interruptions to vehicular traffic patterns. Construction activities would cause intermittent fluctuations in noise levels throughout the construction area. The degree of noise impact would vary, as it is directly related to the types of equipment used and the proximity to the noise-sensitive land uses within the project area. Based on a review of the project area, no considerable, long-term construction-related noise impacts are anticipated. Segment traverses through a host of Military/DOD/USACOE facilities. Setback requirements for Anti-Terrorism Force Protection, Security Requirements, and Gate Access for all noted facilities.
Sensitive property impacts (noise, community facilities, cultural)	Minimal	Many sensitive property identified resources are located outside of the limits of disturbance. It does not appear that the LOD will exceed the ROW parcel edge along this segment; therefore, there will be no impact to existing schools, residences, places of worship, or cemeteries. Current design has 2 total business takes required. Identified Businesses and/or Business Access impacts anticipated within the LOD; however, further detailed design may avoid and/or minimize potential impacts. Additional detailed design and analysis required.
Environmental Justice (low income and minority communities)	Minimal	Past and present growth and development - expansion of controlled access roadways have separated neighboring communities No residents or neighboring communities would be relocated.
Federal Permits		
USACOE Section 404 Permit Issues	Moderate	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with Federal Regulatory Agencies. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.

3: VA 164 Connector Resource	Impact Rating	Comments on Resource Impacts or Timing Implications
USACOE Section 408 Permit Issues	Moderate	Section 408 is the process that allows alteration to a federally authorized project. The proposed project cannot pose a risk to the public interest and will not impair the usefulness of the federally authorized project. Although the segment does not cross the Elizabeth River, construction activities requiring access to potential barge work zones and safe harbor sites in or adjacent to the Elizabeth River will most likely be required.
USACOE Section 10 permit	Moderate	This segment does contain a bridge structures over Craney Island Creek which is a tributary of the adjacent Elizabeth River, a maintained Federal Channel. Although the segment does not cross the Elizabeth River, construction activities requiring access to potential barge work zones and safe harbor sites in or adjacent to the Elizabeth River will most likely be required.
USCG Bridge Permit	Moderate	This segment does contain a bridge structures over Craney Island Creek.
NOAA Incidental Harassment Authorization	Minimal	There is limited potential for incidental harassment within this segment.
State Permits		
VDEQ Section 401 Virginia Water Protection Permit	Moderate	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with State Regulatory Agencies. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
VMRC Subaqueous Bottomlands Permit	Moderate	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with State Regulatory Agencies. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
VDEQ Virginia Construction General Permit	Minimal	Assumption that all required stormwater controls and requirements pursuant to this permit will be obtained and adhered to. It is assumed for this segment that all additional stormwater controls would be located within the boundaries of the LOD.
Local Permits		
Local Wetlands Board Permit Issues	Moderate	Tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with Local Wetlands Boards. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.

3: VA 164 Connector **Resource**	**Impact Rating**	**Comments on Resource Impacts or Timing Implications**
Additional Factors		
Mitigation Complexity and Cost	Moderate	Current design has total business take required. Identified Businesses and/or Business Access impacts anticipated within the LOD. Moderate to Extensive anticipated mitigation costs would be required for wetland and US waters impacts; however, field surveys and additional detailed design may avoid and/or minimize impacts to further reduce potential mitigation costs.
Permit Stakeholder Coordination (i.e. Maritime Stakeholders)	High	Extensive stakeholder coordination with Military/DOD/USACOE facilities, the City of Portsmouth Landfill, and railroad facilities will be required and may pose design and/or construction schedule risk.
Effect on other Federal Navigation Projects	High	This segment does contain roadway structures landside to Federal Navigation Projects along the Elizabeth River and current operations at the US Army Corps of Engineers Craney Island Disposal Area. At the present time, the affect would be considered High; however, the status would change to Moderate once the US Army Corps of Engineers Craney Island Disposal Area were identified as end of operational life.
Potential Future Changes in Policy Issues	Minimal	No major regulatory policy changes are anticipated at this time.

SEGMENT: *4: I-564 Connector*

4: I-564 Connector **Resource**	**Impact Rating**	**Comments on Resource Impacts or Timing Implications**
Social Environment		
Community impacts (right-of-way, consistency with local plans)	High	Construction activities would result in temporary interruptions to vehicular traffic patterns, including the potential temporary closure of roads and temporary interruptions to vehicular traffic patterns. Construction activities would cause intermittent fluctuations in noise levels throughout the construction area. The degree of noise impact would vary, as it is directly related to the types of equipment used and the proximity to the noise-sensitive land uses within the project area. Based on a review of the project area, no considerable, long-term construction-related noise impacts are anticipated. Segment traverses through the DON and NIT properties. Need additional information regarding potential anti-terrorism force protection requirements.
Sensitive property impacts (noise, community facilities, cultural)	Minimal	Sensitive property resources are located outside of the limits of disturbance. It does not appear that the LOD will exceed the ROW parcel edge along this segment; therefore, there will be no impact to existing businesses, schools, residences, places of worship, or cemeteries. May have disturbance within the LOD for Fleet Recreation Park (park access/maintenance roads); however, further detailed design may avoid and/or minimize any potential impacts.
Environmental Justice (low income and minority communities)	Minimal	Past and present growth and development - expansion of controlled access facilities such as military installations like NAVSTA Norfolk have separated neighboring communities. No residents or neighboring communities would be relocated.
Federal Permits		
USACOE Section 404 Permit Issues	High	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with Federal Regulatory Agencies. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.

4: I-564 Connector Resource	Impact Rating	Comments on Resource Impacts or Timing Implications
USACOE Section 408 Permit Issues	High	Section 408 is the process that allows alteration to a federally authorized project. The proposed project cannot pose a risk to the public interest and will not impair the usefulness of the federally authorized project. The segment does cross the Elizabeth River and is adjacent to the James River (Newport News Channel), construction activities requiring access to potential barge work zones and safe harbor sites in or adjacent to the Elizabeth River and the James River (Newport News Channel) will most likely be required.
USACOE Section 10 permit	High	The loss of operational use at the Lineage Logistics at Talon Marine Terminals, NIT Pier 3 needs more information in order to determine all of the factors to be considered.
USCG Bridge Permit	High	The segment does cross the Elizabeth River and is adjacent to the James River (Newport News Channel), construction activities requiring access to potential barge work zones and safe harbor sites in or adjacent to the Elizabeth River and the James River (Newport News Channel) will most likely be required.
NOAA Incidental Harassment Authorization	High	There is moderate/high potential for incidental harassment within this segment.
State Permits		
VDEQ Section 401 Virginia Water Protection Permit	High	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with State Regulatory Agencies. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
VMRC Subaqueous Bottomlands Permit	High	Tidal and non-tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with State Regulatory Agencies. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
VDEQ Virginia Construction General Permit	Minimal	Assumption that all required stormwater controls and requirements pursuant to this permit will be obtained and adhered to. It is assumed for this segment that all additional stormwater controls would be located within the boundaries of the LOD.

4: I-564 Connector Resource	Impact Rating	Comments on Resource Impacts or Timing Implications
Local Permits		
Local Wetlands Board Permit Issues	High	Tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with Local Wetlands Boards. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Additional Factors		
Mitigation Complexity and Cost	High	No business impacts are anticipated within the segment corridor. High anticipated mitigation costs would be required for wetland and US waters impacts due to construction of the new island required for the tunnel segment.
Permit Stakeholder Coordination (i.e. Maritime Stakeholders)	High	Extensive stakeholder coordination with Military/DOD/USACOE facilities, transportation facilities, Lineage Logistics at Talon Marine Terminals, NIT Pier 3, and railroad facilities will be required and may pose design and/or construction schedule risk.
Effect on other Federal Navigation Projects	Moderate	No impacts to Federal Navigational Channels and Civil Works Projects are anticipated. All Maintained Navigational Channels will be avoided by the tunnel design.
Potential Future Changes in Policy Issues	Minimal	No major regulatory policy changes are anticipated at this time.

SEGMENT: *5: I-664 Connector*

5: I-664 Connector **Resource**	**Impact Rating**	**Comments on Resource Impacts or Timing Implications**
Social Environment		
Community impacts (right-of-way, consistency with local plans)	High	This segment does contain bridge and roadway structures within water and landside to Federal Navigation Projects along the James River (Newport News Channel), Elizabeth River, and current operations at the US Army Corps of Engineers Craney Island Disposal Area. At the present time, the affect would be considered High; however, the status would change to Moderate once the US Army Corps of Engineers Craney Island Disposal Area were identified as end of operational life.
Sensitive property impacts (noise, community facilities, cultural)	Minimal	No sensitive properties are located within the limits of disturbance.
Environmental Justice (low income and minority communities)	Minimal	No residents or neighboring communities would be relocated.
Federal Permits		
USACOE Section 404 Permit Issues	High	Tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with Federal Regulatory Agencies. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
USACOE Section 408 Permit Issues	High	Section 408 is the process that allows alteration to a federally authorized project. The proposed project cannot pose a risk to the public interest and will not impair the usefulness of the federally authorized project. Construction activities requiring access to the Elizabeth River and James River (Newport News Channel) maintained channels for potential barge work zones and safe harbor sites will most likely be required.
USACOE Section 10 permit	High	This segment does contain bridge and roadway structures within water and landside to Federal Navigation Projects along the James River, Elizabeth River, and current operations at the US Army Corps of Engineers Craney Island Disposal Area. Need more information on the US Army Corps of Engineers Craney Island Disposal Area anticipated end of operational life.
USCG Bridge Permit	High	The segment does cross the Elizabeth River and James River (Newport News Channel), construction activities requiring access to potential barge work zones and safe harbor sites in or adjacent to the Elizabeth River and the James River (Newport News Channel) will most likely be required.

5: I-664 Connector Resource	Impact Rating	Comments on Resource Impacts or Timing Implications
NOAA Incidental Harassment Authorization	High	There is moderate/high potential for incidental harassment within this segment.
State Permits		
VDEQ Section 401 Virginia Water Protection Permit	High	Tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with State Regulatory Agencies. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
VMRC Subaqueous Bottomlands Permit	High	Tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with State Regulatory Agencies. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
VDEQ Virginia Construction General Permit	Minimal	Assumption that all required stormwater controls and requirements pursuant to this permit will be obtained and adhered to. It is assumed for this segment that all additional stormwater controls would be located within the boundaries of the LOD.
Local Permits		
Local Wetlands Board Permit Issues	High	Tidal US Waters and wetlands were identified within the boundaries of the LOD of this segment. Extensive coordination would be required with Local Wetlands Boards. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Additional Factors		
Mitigation Complexity and Cost	High	This segment does contain bridge and roadway structures within water and landside to Federal Navigation Projects along the James River (Newport News Channel), Elizabeth River, and current operations at the US Army Corps of Engineers Craney Island Disposal Area. Moderate to extensive mitigation costs would be required for wetland and US waters impacts; however, field surveys and additional detailed design may avoid and/or minimize impacts to further reduce potential mitigation costs.
Permit Stakeholder Coordination (i.e. Maritime Stakeholders)	High	Extensive stakeholder coordination with Military/DOD/USACOE facilities will be required and may pose design and/or construction schedule risk.

5: I-664 Connector Resource	Impact Rating	Comments on Resource Impacts or Timing Implications
Effect on other Federal Navigation Projects	High	This segment does contain bridge and roadway structures within water and landside to Federal Navigation Projects along the James River, Elizabeth River, and current operations at the US Army Corps of Engineers Craney Island Disposal Area. Need more information on the US Army Corps of Engineers Craney Island Disposal Area anticipated end of operational life.
Potential Future Changes in Policy Issues	Minimal	No major regulatory policy changes are anticipated at this time.

Note that detailed resource evaluations are documented in the Technical Resource Memos for Permitting

Definitions of Tiering Framework:

Impact Rating Concern – This evaluation category captures the potential effect of the project and its construction on the natural and social environment. Some of the most common environmental impacts are:

- social and community environment
- noise impacts
- water resources and wetlands
- protected species
- damage to ecosystems and loss of biodiversity
- historic resources
- regulatory requirements and complexity
- mitigation cost and complexity
- interdependence or conflict with other projects

Human well-being depends directly on biodiversity and ecosystems. It is therefore vital to try to measure, plan and minimize any segment activity that might alter the ecological balance.

- *Minimal: No or Minimal impacts to ecosystems (including social and natural)*
- *Moderate: Impacts that have reasonable solutions to ecosystems (including social and natural)*
- *High: Challenging or Unknown impacts to ecosystems (including social and natural)*

Feasibility Concern - Resource feasibility concerns indicate whether the segment will interfere with the socioeconomic activities within the corridor and identify potential issues and problems that could arise from pursuing the project.

- *Minimal: No or Minimal impacts to existing operations or other transportation projects occurring within the segment*
- *Moderate: Impacts that have reasonable solutions to existing operations or other transportation projects occurring within the segment*
- *High: Challenging or Unknown impacts to existing operations or other transportation projects occurring within the segment*

Timing Implications - It is important that such regionally significant projects can be reliably scheduled so that funding pipelines and adjacent projects are not disrupted by setbacks from the permitting issues being evaluated. While these considerations will be presented as notes for each category, below is a general range of how the timing impacts will be viewed:

- *Minimal: No or Minimal likelihood of timing issues or schedule impacts*
- *Moderate: Impacts that have reasonable solutions of timing issues or schedule impacts*

- *High: Challenging or Unknown (i.e. likelihood of future changes in policies related to permitting) impacts of timing issues or schedule impacts*

Resource Impacts – Reference to the HRTPO Corridor Evaluation Technical Memorandum Table of Resources for a detailed overview of resources potentially present within the segment.

- *Minimal: No or Minimal impacts to resources*
- *Moderate: Impacts that have reasonable solutions to resources*
- *High: Challenging or Unknown impacts to resources*

REGIONAL CONNECTORS STUDY

Readiness Technical Evaluation

Attachment 5B

Range of Readiness
Least
Moderate
Most

SEGMENT: *1a: I-664 North of College Dr.*

Readiness Criteria	Rating	Description of Readiness
Project Independence		
Independence from other segments to achieve operational benefits	Moderate	Segment adds capacity. Consistent mainline cross section with northeastern termini at I-664/I-64 interchange, which is part of HRBT expansion (currently under construction). Capacity improvements fully realized upon completion of I-664 S widening to Bowers Hill.
Phasing Potential	Moderate	Capacity improvements would have incremental benefits if phasing occurred between interchanges. Interim solutions may create interim bottlenecks at termini. Ability to phase HREL system expansion depends on points of entry to system within segment. MMMBT Project would be standalone project if adjacent land projects completed first; would be last phased segment;
Integration with HREL	Most	HREL included in adjacent expansion Ph 4A/4B
Project Development		
Adopted by a regional agency	Moderate	Included in 2045 Vision Plan, not fiscally constrained plan
Stakeholder / Review Agency Engagement	Moderate	No documented support nor opposition from stakeholders
Advancement of Project Study	Least	No effort has occurred beyond SEIS
Funding Opportunities Eligibility		
HRTAC	Moderate	Level of congestion benefit unknown
SMART Scale High Priority Project	Most	VTrans High Priority – Corridor of Statewide Significance (COSS)
Infrastructure Investment and Jobs Act (IIJA) Grant Funding	Least	No direct benefits to freight/transit (associated with VPA)

Attachment 5B

Range of Readiness
Least
Moderate
Most

SEGMENT: *1b: I-664 South of College Dr.*

Readiness Criteria	Rating	Description of Readiness
Project Independence		
Independence from other segments to achieve operational benefits	Most	Segment adds capacity. Consistent mainline cross section with Bowers Hill interchange, which is part of High-Rise bridge (currently under construction)
Phasing Potential	Most	Capacity improvements would have significant benefits from VA-164 south to Bowers Hill interchange Interim solutions would create interim bottlenecks at termini. Inclusion of HREL depends on access points to system within segment.
Integration with HREL	Most	Project has potential to expand express lane network (segment 2) to Bowers Hill interchange
Project Development		
Adopted by a regional agency	Most	Included in 2045 Fiscally Constrained plan
Stakeholder / Review Agency Engagement	Most	Documented support and approval from stakeholders (FHWA NEPA Ph1)
Advancement of Project Study	Most	"On February 18, 2022, the Federal Highway Administration (FHWA) issued the Notice of Intent (NOI) for the Bowers Hill Interchange Improvements Study, formally initiating the National Environmental Policy Act (NEPA) process." [VDOT]
Funding Opportunities Eligibility		
HRTAC	Most	Recent VDOT study identified congestion levels to meet HRTAC funding criteria
SMART Scale High Priority Project	Most	664 COSS, meets need
Infrastructure Investment and Jobs Act (IIJA) Grant Funding	Moderate	Currently Unknown as no specific criteria has been published

Attachment 5B

Range of Readiness
Least
Moderate
Most

SEGMENT: *2: VA 164*

Readiness Criteria	Rating	Description of Readiness
Project Independence		
Independence from other segments to achieve operational benefits	Moderate	Segment adds capacity. *Inconsistent* mainline cross section with eastern and western termini. Potential bottlenecks created until 164 Connector and 664 widening projects completed.
Phasing Potential	Moderate	Capacity improvements would have incremental benefits if phasing occurred between interchanges. Interim solutions would create interim bottlenecks at termini.
Integration with HREL	Least	HREL not included along VA-164
Project Development		
Adopted by a regional agency	Most	Included in 2045 Fiscally Constrained Plan
Stakeholder / Review Agency Engagement	Least	Documented opposition from stakeholders (Portsmouth)
Advancement of Project Study	Moderate	Previous IMR completed by Port of Virginia
Funding Opportunities Eligibility		
HRTAC	Most	Included in the HRTAC Plan of Finance
SMART Scale High Priority Project	Moderate	VTrans Priority, not COSS; benefits to VA-164 assist port/truck travel therefore promoting VTrans goals of economic prosperity and connected places
Infrastructure Investment and Jobs Act (IIJA) Grant Funding	Moderate	Currently Unknown as no specific criteria has been published

Attachment 5B

Range of Readiness
Least
Moderate
Most

SEGMENT: *3: VA 164 Connector*

Readiness Criteria	Rating	Description of Readiness
Project Independence		
Independence from other segments to achieve operational benefits	Least	Requires either I-664 connector or I-564 connector for interstate connection
Phasing Potential	Least	Capacity improvements contingent on VA-164 widening and I-564 connector project.
Integration with HREL	Least	HREL not included along VA-164
Project Development		
Adopted by a regional agency	Moderate	Included in 2045 Vision Plan, not Fiscally Constrained Plan
Stakeholder / Review Agency Engagement	Least	Noted challenges from ACOE, DOD
Advancement of Project Study	Moderate	Craney Island Access Road Study funded (LRTP proj. 2045-604)
Funding Opportunities Eligibility		
HRTAC	Least	New roadway facilities do not have existing congestion and therefore are not eligible for HRTAC funding.
SMART Scale High Priority Project	Least	New roadway facilities do not have existing congestion, therefore do not achieve high scores within SMARTSCALE Criteria
Infrastructure Investment and Jobs Act (IIJA) Grant Funding	Moderate	Currently Unknown as no specific criteria has been published

Attachment 5B

Range of Readiness
Least
Moderate
Most

SEGMENT: *4: I-564 Connector*

Readiness Criteria	Rating	Description of Readiness
Project Independence		
Independence from other segments to achieve operational benefits	Least	Requires either VA-164 connector or I-664 connector for interstate connection
Phasing Potential	Least	Phases not feasible based on water crossing
Integration with HREL	Least	Project not adjacent to existing or proposed HREL expansion and would trigger an ERC compensation event
Project Development		
Adopted by a regional agency	Moderate	Included in 2045 Vision Plan, not Fiscally Constrained Plan
Stakeholder / Review Agency Engagement	Least	Noted challenges from ACOE, DOD
Advancement of Project Study	Least	No effort has occurred beyond SEIS
Funding Opportunities Eligibility		
HRTAC	Least	New roadway facilities do not have existing congestion and therefore are not eligible for HRTAC funding.
SMART Scale High Priority Project	Least	New roadway facilities do not have existing congestion, therefore do not achieve high scores within SMARTSCALE Criteria
Infrastructure Investment and Jobs Act (IIJA) Grant Funding	Moderate	Currently Unknown as no specific criteria has been published

Attachment 5B

Range of Readiness
Least
Moderate
Most

SEGMENT: *5: I-664 Connector*

Readiness Criteria	Rating	Description of Readiness
Project Independence		
Independence from other segments to achieve operational benefits	Least	Requires either VA-164 connector or I-564 connector for interstate connection
Phasing Potential	Least	Phases not feasible based on water crossing
Integration with HREL	Least	HREL not included along VA-164 connector and would trigger an ERC compensation event
Project Development		
Adopted by a regional agency	Moderate	Included in 2045 Vision Plan, not Fiscally Constrained Plan
Stakeholder / Review Agency Engagement	Least	Noted challenges from ACOE
Advancement of Project Study	Least	No effort has occurred beyond SEIS
Funding Opportunities Eligibility		
HRTAC	Least	New roadway facilities do not have existing congestion and therefore are not eligible for HRTAC funding.
SMART Scale High Priority Project	Least	New roadway facilities do not have existing congestion, therefore do not achieve high scores within SMARTSCALE Criteria
Infrastructure Investment and Jobs Act (IIJA) Grant Funding	Least	Currently Unknown as no specific criteria has been published

Definitions of Tiering Framework:

Readiness – This evaluation category captures the effort required to move a project through development, to identify the independent nature of each segment, the ability to move through the regional planning and prioritization process, as well as the project's ability to obtain funding.

Level of Project Independence – Each segment of the RCSII will improve the overall regional network. However, benefits are more easily achieved if a segment function has independent benefits or functions as an extension of an ongoing project. Additionally, some segments can be phased to provide interim benefits in a cost-effective manner or extend the region's express lanes project (HREL) which has been identified as a regional priority project.

Operational Independence/Benefits

- *High Readiness:* *Segment provides operational benefits with existing logical termini currently under construction*
- *Moderate Readiness:* *Segment provides operational benefits with programmed improvements*
- *Low Readiness:* *Project operationally dependent on completion of adjacent project*
- *Unknown*

Phasing Potential

- *High Readiness:* *Project segments/phases provide operational benefits and are easily expanded for ultimate build out*
- *Moderate Readiness:* *Project segments/phases result in minor operational benefits but are easily expanded for ultimate build out*
- *Low Readiness:* *Project segments/phases do not result in operational benefits and/or create challenges for ultimate build out*
- *Unknown*

Integration with HREL

- *High Readiness:* *Project segments/phases will extend the HREL that is currently underway*
- *Moderate Readiness:* *Project segments/phases will create a future connection to the HREL network*
- *Low Readiness:* *Project segments/phases will not include HREL*
- *Unknown*

Level of Project Development – A key step in project development process is gaining consensus in the planning process which involves prioritizing projects and ranking based on cost and benefits. In order to increase projects rankings, independent efforts may have taken place or are underway that provide more detailed information that enhance a project ranking. Stakeholder engagements are included in every step of the project development, but input or concerns vary based on where a project is in the overall process.

Adopted by a regional agency (In the existing LRTP)

- *High Readiness:* *Included in more than one Long Range Transportation Plan (LRTP) and within the constrained model*
- *Moderate Readiness:* *Included in the LRTP vision plan*
- *Low Readiness:* *Not included in long-range planning*
- *Unknown*

Stakeholder / Review Agency Engagement (Excluding SEIS effort)

- *High Readiness:* *Documentation of support by local, state, and federal agencies*
- *Moderate Readiness:* *Neither support nor opposition documented*
- *Low Readiness:* *Documentation of opposition by local, state, and federal agencies*
- *Unknown*

Advancement of Project Study

- *High Readiness:* *Project segment or phase is independently being studied or standalone study has been completed within last 3-5 years*

- *Moderate Readiness:* *Project segment or phase has been previously studied or is part of another study such as an interchange modification report*
- *Low Readiness:* *No activity has occurred beyond the SEIS*
- *Unknown*

Funding Opportunities Eligibility – All of the segments included in the RCSII will have significant costs and the current regional needs far exceed available funding for traditional financial sources. Therefore, it is important to identify projects that may be able to take advantage of federal, state, or future earmark funding sources.

HRTAC – Congestion Benefit (Transit not an option)

- *High Readiness:* *Eligible; capacity improvements provide significant level of congestion relief*
- *Moderate Readiness:* *Unknown*
- *Low Readiness:* *Non-Eligible; capacity improvements provide non-congestion benefits*
- *Unknown* *N/A*

SMART Scale High Priority Project

- *High Readiness:* *Meets VTrans and is a High Priority Need*
- *Moderate Readiness:* *Meets VTrans need*
- *Low Readiness:* *Does not meet VTrans need*
- *Unknown*

Infrastructure Investment and Jobs Act (IIJA) Grant Funding – to be further defined as funding opportunities are documented

Funding not clearly defined at this time; preliminary criteria identified the following objectives

- *Freight Funding – Rail Crossing (requires additional research)*
- *Transit Funding (requires additional research)*

- *High Readiness:* *N/A – not defined at this time*
- *Moderate Readiness:* *Priority – direct benefit to currently identified objectives*
- *Low Readiness:* *Non-Priority – no or indirect benefit to currently identified objectives*
- *Unknown*

Attachment 5B

REGIONAL CONNECTORS STUDY

Permitting Issues Technical Resource Memos

Attachment 5B

SEGMENT: *1a: I-664 North of College Dr.*

1a: I-664 N of College Dr. **Resource**	**Resources Identified**	**Comments**
Social Environment		
Community Resources		
Military/DOD/USACOE	n/a	No resources within the LOD
Transportation Facilities	North Side: ▪ Overpass at W. Queen Street ▪ Braemer Drive ▪ Balmoral Drive ▪ Keswick Lane ▪ Interchange at Powhatan Parkway ▪ 50th Street ▪ Maxwell Drive ▪ Interchange at Aberdeen Road ▪ Overpass of Railway Line (near Greenlawn Avenue) ▪ Overpass at Chestnut Avenue ▪ Overpass at Roanoke Avenue ▪ Overpass at Marshall Avenue ▪ Overpass at 39th Street ▪ Overpass of Railway Lines (near Terminal Avenue) ▪ Terminal Avenue (several locations) ▪ Overpass at 35th Street ▪ Overpass at 36th Street ▪ Interchange at Route 60 ▪ Overpass at 28th Street ▪ Overpass at 27th Street ▪ Overpass at 26th Street ▪ Overpass at 25th Street ▪ Overpass at 21th Street ▪ 19th Street ▪ 17th Street ▪ 14th Street ▪ Harbor Road ▪ Commonwealth Road ▪ Club Drive ▪ Wagon Road ▪ Armstead Road ▪ College Drive (VA-135)	Transportation facilities identified within the LOD. Assumption that all transportation facilities will remain at existing or improved functionality. Stakeholder coordination with railroad facilities will be required and may pose construction schedule risk.
Virginia Port Authority (VPA)	Newport News Marine Terminals	May require right-of-way acquisition and/or construction easements. Maintenance of terminal operations and traffic will be required.

1a: I-664 N of College Dr. **Resource**	**Resources Identified**	**Comments**
Businesses/Business Access	North Side: ▪ 1 utility impact ▪ 2 telecom impacts ▪ 1 active and 1 inactive rail corridor impact ▪ 1 police impact 1 house of worship impact ▪ 12-13 commercial impacts, including ▪ 1 restaurant impact ▪ 1 grocery impact ▪ 1 probable Navy impact ▪ 3 core structure impacts ▪ 6 Driveway impacts	Identified Businesses and/or Business Access impacts anticipated within the LOD; however, further detailed design may avoid and/or minimize potential impacts.
Sensitive Resources		
Parks & Recreation	North Side: ▪ Superblock Park (2601 Washington Avenue) ▪ King Lincoln Park (600 Jefferson Ave) ▪ Park Place Playground (50th Street)	May have disturbance within the LOD for Park Place Playground; however, further detailed design may avoid and/or minimize potential impacts.
Section 4(f) Properties (publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places)	Section 4(f) resources are identified within the segment corridor – refer to individual line items for each resource type. North Side: ▪ Park Place Playground (50th Street)	It is anticipated that all efforts to avoid any identified Section 4(f) resource will be evaluated. All impacts to Section 4(f) properties are anticipated to either not be considered a Section 4(f) use, or are considered a *de minimis* use, per 23 CFR 774 and the Section 4(f) Policy Paper.
Section 6(f) Properties	Any property that was planned, purchased, or improved with Land and Water Conservation Fund (LWCF) money **(**recreational lands that are also regulated under Section 4(f)	No resources within the LOD
Places of Worship	North Side: ▪ New Covenant Baptist Church ▪ Agape Hands Cathedral Church ▪ Kingdom Hall of Jehovah's Witnesses	Kingdom Hall of Jehovah's Witnesses – impacts within LOD; however, further detailed design may avoid and/or minimize potential impacts.
Cemetery	North Side: ▪ Pleasant Shade Cemetery ▪ Greenlawn Cemetery ▪ Greenlawn Memorial Park	No resources within the LOD
School/University	North Side: ▪ Hampton High School (adjacent to LOD) ▪ BT Washington Middle School (adjacent to LOD)	No resources within the LOD

1a: I-664 N of College Dr. **Resource**	**Resources Identified**	**Comments**
Apartment Complexes/Residences	North Side: ▪ Tidewater Senior Apartments ▪ Single family residences along Braemar Drive ▪ Single family residences along Azaela Drive ▪ Single family residences along Birch Avenue ▪ Single family residences along Byrd Street	Most resources are adjacent to the LOD; however, final LOD requirements may show that minor right-of-way acquisitions will be needed.
Children's Health & Safety	The most likely locations of potential effects on children (other than at residences abutting right-of-way) would be at schools where there are outdoor activity areas for children. ▪ Hampton High School (adjacent to LOD) ▪ BT Washington Middle School (adjacent to LOD)	No resources within the LOD
Environmental Justice		
Environmental Justice	North Side: ▪ 35 private residence impacts in the Jefferson neighborhood and Azalea Garden subdivision, including ▪ 1 driveway impact ▪ 9 structure (outbuilding) impacts ▪ There may be a catering business on the 1100 block of 41st street ▪ Concentration of poverty and population is on the west side of the corridor in East End, Marshall & Huntington. Populations in this area south of I-664 are predominately African American south of I-664, with an increasing minority Hispanic population north of I-664	Identified Environmental Justice impacts anticipated within the LOD; however, further detailed design may avoid and/or minimize potential impacts.
Federal State, and Local Permits		
Water Resources		
Tidal Waters/Tidal Streams/Subaqueous bottom	North Side: ▪ Newport News Creek (E1UBL) – adjacent but direct impact ▪ North Island Tunnel (24 acres) ▪ James River (E1UBL)(north bridge/trestle) (16 acres) ▪ South Island Tunnel (27 acres) ▪ James River (E1UBL)(south bridge/trestle) (43 acres)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Tidal Waters/Tidal Streams from Trestle construction: 59 acres Subaqueous bottom for island construction: 51 acres Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.

1a: I-664 N of College Dr. **Resource**	**Resources Identified**	**Comments**
Non-Tidal Waters	North Side: ▪ Freshwater roadway drainage ditch at Howmet Corporation (approx. 190 linear feet) ▪ Freshwater roadway drainage ditch W Pembroke Ave (approx. 1500 linear feet)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Non-Tidal Waters: 1,690 linear feet Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Maintained Navigational Channels and Civil Works Projects	▪ Newport News Creek (E1UBL) – adjacent but direct impact ▪ Newport News Channel	No impacts to Maintained Navigational Channels and Civil Works Projects is anticipated. All Maintained Navigational Channels will be avoided by the tunnel design.
Wetlands	n/a	No resources within the LOD
Waterfront Development Areas		
Commercial Ports	▪ River Port ▪ Blue Night Energy Partners ▪ Chesapeake Bay Fish Packing ▪ Seafood Industrial Park ▪ Davis Boat Works ▪ Boat Marina along Seawall	Impacts TBD when southern terminus with tunnel structure LOD alignment is complete; however anticipated to be outside limits of LOD.
Commercial Fishing Piers	▪ Green Mile Fishing Pier ▪ King-Lincoln Park Fishing Pier	No resources within the LOD
Wildlife Habitat		
Colonial Waterbird Nesting	▪ Urban, Newport News South, Newport News (outside LOD) ▪ 22nd Avenue (outside LOD) ▪ Peterson Yacht Basin (outside LOD) ▪ Salters Creek (outside LOD) ▪ Craney Island, Northwest (outside LOD)	No resources within the LOD Habitat is present for the Gull-billed tern, Piping plover, Red knot, and Wilson's plover.

1a: I-664 N of College Dr. **Resource**	**Resources Identified**	**Comments**
Benthic Species	▪ Hard Clam Habitat (571 acres) ▪ Hard Clam Habitat Tunnels (294 acres) ▪ Public Clamming Grounds (0 acres) ▪ Blue Crab (*Callinectes sapidus*) (0 acres) ▪ Oyster Reefs (*Crassostrea virginica*) (0 acres) ▪ Oyster Sanctuary (0 acres) ▪ Public Baylor Grounds (93 acres) ▪ Private Shellfish Leases (0 acres) The introduction of additional hard substrate such as pilings and riprap protection could provide beneficial habitat where it did not previously exist for oysters and other marine benthic organisms.	The entire footprint beneath each segment is considered potential hard clam habitat because the entire bottom is composed of sand, mud, or a combination suitable for hard clams. Construction BMPs, including conforming to the guidelines contained in the VESCH, would be employed to reduce turbidity and sediment disturbance. The time of year and length of dredging operations may need to be considered as prolonged dredging would result in disturbance to the benthos and adjacent water column over a longer period of time dependent upon the nature of the bottom substrate, tidal fluctuations, and estuarine dynamics. Strict adherence to erosion and sediment control measures and permit requirements would minimize water quality impacts due to sedimentation and turbidity during construction. Long-term effects to benthic communities due to changes in water quality would be minimized and avoided through implementation of stormwater management plans designed to minimize impacts from increases in impervious surfaces, mitigate increases in runoff volume, and satisfy requirements to reduce pollutant loads below existing baseline conditions, as required by the VSMP regulations and Chesapeake Bay TMDL.

1a: I-664 N of College Dr. **Resource**	**Resources Identified**	**Comments**
Historic Resources		
Architectural Resources / Historic Districts	North Side: ▪ 121-0032 (St. Vincent de Paul Catholic Church)(NRHP-Listed 2005) ▪ 121-0033 (Brown Manufacturing Coca-Cola Bottling Works, Daily Press Building)(Recommended Potentially Eligible 2016) ▪ 121-0157 (Peninsula Catholic High School/St. Vincent's School for Girls)(Recommended Potentially Eligible 2016) ▪ 121-0299 (Noland Company Building)(NRHP-Listed 2010) ▪ 121-5318 (Jefferson Avenue Commercial Historic District) ▪ 121-5277 (Jefferson Avenue Commercial Historic District) ▪ 121-0020 (Middle Ground Light Station)(NRHP Listing, VLR Listing)	The area of potential effects (APE) is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. No direct APE impacts. No anticipated indirect APE (viewshed) impacts.
Archaeological Resources	North Side: ▪ Captain John Smith Chesapeake National Historic Trail (first water trail designated under the National Trails System Act) ▪ Washington-Rochambeau Revolutionary Route National Historic Trail (designated a National Historic Trail under the National Trails System Act)(The W-RNHT is located within what is now a highly industrialized and developed area in which few remnants of the historic landscape survive)	If any significant archaeological sites associated with the Captain John Smith Chesapeake National Historic Trail and Washington-Rochambeau Revolutionary Route National Historic Trail are eventually identified within the LOD, they likely would meet the regulatory exception to the requirements of Section 4(f) approval: the sites likely would be important chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place.
Additional Factors		
Mitigation Complexity and Cost	▪ Wetland, US waters, and subaqueous bottomlands impacts	High anticipated mitigation costs would be required for wetland and US waters impacts due to construction of the new island required for the tunnel segment.
Permit Stakeholder Coordination	▪ Transportation facilities identified within the LOD (north side). ▪ Newport News Marine Terminals identified within the LOD (north side).	Extensive stakeholder coordination with Federal Navigation Projects along the James River (Newport News Channel), Elizabeth River, rail facilities, and current operations at

1a: I-664 N of College Dr. **Resource**	**Resources Identified**	**Comments**
	▪ Railroad facilities identified within the LOD (north side). ▪ River Port LLC facilities identified within the LOD (north side). ▪ Blue Night Energy Partners facilities identified within the LOD (north side). ▪ Adjacent Property Owners (Residents and Businesses)	the Newport News Marine Terminals will be required and may pose design and/or construction schedule risk.
Effect on other Federal Navigation Projects	▪ Newport News Creek (E1UBL) – adjacent but direct impact ▪ Newport News Channel	This segment does contain bridge and roadway structures within water and landside to Federal Navigation Projects along the James River (Newport News Channel), Elizabeth River, and current operations at the Newport News Marine Terminals.
Potential Future Changes in Policy Issues		No major regulatory policy changes are anticipated at this time.

SEGMENT: *1b: I-664 South of College Dr.*

1b: I-664 S of College Dr. **Resource**	**Resources Identified**	**Comments**
Social Environment		
Community Resources		
Military/DOD/USACOE	▪ DOD Suffolk Complex ▪ Suffolk Base ▪ Naval Information Sources ▪ US Army Reserve Center - Suffolk	No resources within the LOD
Transportation Facilities	South Side: ▪ College Drive (VA-135) ▪ Hampton Roads Parkway ▪ Western Freeway (VA-164) ▪ Bridge Road ▪ Bridge over Rail line on NB lanes ▪ Old Pughsville Road ▪ Bridge over Rail lines on SB lanes ▪ Bridge over Rail-Trail on NB lanes ▪ Bridge over US 17 Western Branch Blvd ▪ Portsmouth Boulevard (VA-337) ▪ Dock Landing Road ▪ Jolliff Road ▪ West Military Highway ▪ Ridgeway Avenue ▪ Schaefer Avenue	Transportation facilities identified within the LOD. Assumption that all transportation facilities will remain at existing or improved functionality.
Businesses/Business Access	South Side: ▪ VDOT Storage Yard Access (near Dock Landing Road)	Identified VDOT Storage Yard access impacts anticipated within the LOD; however, further detailed design may avoid and/or minimize potential impacts.
Sensitive Resources		
Parks & Recreation	n/a	No resources within the LOD
Section 4(f) Properties	Publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places. South Side: ▪ South Hampton Roads Trail – Chesapeake Segment ▪ Chesapeake Public Trail	It is anticipated that all efforts to avoid any identified Section 4(f) resource will be evaluated. All impacts to Section 4(f) properties are anticipated to either not be considered a Section 4(f) use, or are considered a *de minimis* use, per 23 CFR 774 and the Section 4(f) Policy Paper.
Section 6(f) Properties	Any property that was planned, purchased, or improved with Land and Water Conservation Fund (LWCF) money (recreational lands that are also regulated under Section 4(f). South Side: ▪ South Hampton Roads Trail – Chesapeake Segment ▪ Chesapeake Public Trail	It is anticipated that all efforts to avoid any identified Section 6(f) resource will be evaluated.
Places of Worship	n/a	No resources within the LOD
Cemeteries	South Side:	No resources within the LOD

1b: I-664 S of College Dr. **Resource**	**Resources Identified**	**Comments**
	▪ Triangle Cemetery	
School/University	South Side: ▪ Oak and Lily Academy ▪ Nansemond-Suffolk Academy Harbour View Campus ▪ Foundation Learning Center ▪ Gibson School ▪ Stonebridge School ▪ Jolliff Middle School	No resources within the LOD
Apartment Complexes/Residences	South Side: ▪ 4952 Old Pughsville Road	Most resources are located outside the LOD; however, final LOD requirements may show that minor right-of-way acquisitions will be needed.
Children's Health & Safety	The most likely locations of potential effects on children (other than at residences abutting right-of-way) would be at schools where there are outdoor activity areas for children.	No resources within the LOD
Environmental Justice		
Environmental Justice	South Side: ▪ LOD within ROW south of James River, no direct impacts	No residents or neighboring communities would be relocated.
Federal State, and Local Permits		
Water Resources		
Tidal Waters/Tidal Streams/Subaqueous bottom	South Side: ▪ Upper tributary of Sweeter Creek (approx. 500 linear feet) ▪ Bridge over Upper tributary of Bailey Creek (approx. 800 linear feet) ▪ Bridge over Goose Creek of Elizabeth River (approx. 215 linear feet)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Tidal Waters/Tidal Streams from Roadway construction: 1,515 linear feet Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.

1b: I-664 S of College Dr. **Resource**	**Resources Identified**	**Comments**
Non-Tidal Waters	South Side: ▪ Non-Tidal channel at Armstead Road (approx. 800 linear feet) ▪ Non-Tidal channel upper tributary of Sweeter Creek near Hampton Roads Parkway (approx. 300 linear feet) ▪ Non-Tidal channel upper tributary of Knotts Creek near 164 overpass (approx. 500 linear feet) ▪ Non-Tidal channel upper tributary of Drum Point Creek near Clifton Street (approx. 375 linear feet) ▪ Non-Tidal channel upper tributary of Drum Point Creek near Myrica Court (approx. 500 linear feet) ▪ Non-Tidal channel upper tributary of Western Branch North near Gum Court (approx. 300 linear feet) ▪ Non-Tidal channel upper tributary of Western Branch North near Deepspring Drive (approx. 250 linear feet) ▪ Non-Tidal channel upper tributary of Western Branch near Jolliff Road (approx. 220 linear feet) ▪ Non-Tidal channel upper tributary of Western Branch near Jolliff Road (approx. 275 linear feet) ▪ Non-Tidal channel near Dock Landing Road (approx. 650 linear feet) ▪ Non-Tidal channel of Goose Creek of Elizabeth River (approx. 575 linear feet) ▪ Non-Tidal channel of Goose Creek of Elizabeth River (approx. 375 linear feet) ▪ Non-Tidal channel of Goose Creek of Elizabeth River (approx. 160 linear feet)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Non-Tidal Waters: 5,280 linear feet Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Maintained Navigational Channels and Civil Works Projects	n/a	No resources within the LOD
Wetlands	Extensive wetland systems within the segment corridor are located outside the LOD. South Side: ▪ PFO at Drum Point Creek (0.15 acres) ▪ Estuarine and Marine Wetland at Bailey Creek (existing bridge) (2.0 acres) ▪ Estuarine and Marine Wetland at Goose Creek (existing bridge) (2.25 acres)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. PFO Wetlands: 0.15 acres Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.

1b: I-664 S of College Dr. **Resource**	**Resources Identified**	**Comments**
Waterfront Development Areas		
Commercial Ports	n/a	No resources within the LOD
Commercial Fishing Piers	n/a	No resources within the LOD
Wildlife Habitat		
Colonial Waterbird Nesting	▪ Salters Creek (outside LOD) ▪ Craney Island, Northwest (outside LOD) Habitat is present for the Gull-billed tern, Piping plover, Red knot, and Wilson's plover.	No resources within the LOD.
Benthic Species	n/a	No resources within the LOD
Historic Resources		
Architectural Resources / Historic Districts	South Side: ▪ 133-5038: Pig Point Ordnance Depot (historical) ▪ 133-5545, 133-5313, 133-5211, 133-5544; 133-5543: Huntersville Historic District ▪ 131-0389; Sunray Agricultural Historic District (NRHP Listed 2007)	The area of potential effects (APE) is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. No direct APE impacts. No anticipated indirect APE (viewshed) impacts.
Archaeological Resources	n/a	No resources within LOD.
Additional Factors		
Mitigation Complexity and Cost	▪ Wetland, US waters, and subaqueous bottomlands impacts	Minimal anticipated mitigation costs would be required for wetland and US waters impacts due to construction of the new island required for the tunnel segment.
Permit Stakeholder Coordination	▪ Transportation facilities identified within the LOD south side). ▪ Railroad facilities identified within the LOD (south side). ▪ Adjacent Property Owners (Residents and Businesses)	Transportation facilities identified within the LOD; however, it is the assumption that all transportation facilities will remain at existing or improved functionality. Stakeholder coordination with railroad facilities elevates this segment to Moderate status since coordination will be required and may pose design and/or construction schedule risk.
Effect on other Federal Navigation Projects	n/a	No resources within the LOD
Potential Future Changes in Policy Issues		No major regulatory policy changes are anticipated at this time.

SEGMENT: *2: VA 164*

2: VA 164 **Resource**	**Resources Identified**	**Comments**
Social Environment		
Community Resources		
Military/DOD/USACOE	n/a	No resources within the LOD
Transportation Facilities	▪ VA-164 ▪ Western Branch Boulevard ▪ College Drive ▪ Town Point Road ▪ Cedar Lane ▪ Railway Facilities	Transportation facilities identified within the LOD. Assumption that all transportation facilities will remain at existing or improved functionality. Stakeholder coordination with railroad facilities will be required and may pose construction schedule risk.
Businesses/Business Access	Does not appear that the LOD will exceed the ROW parcel edge. No business impacts.	No resources within the LOD
Sensitive Resources		
Parks & Recreation	Ebony Heights Park	Expansion to the eastbound side of VA-164 may require a portion of easement from Ebony Heights Park; however, further detailed design may avoid and/or minimize any potential impacts.
Section 4(f) Properties	Publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places. ▪ Ebony Heights Park	Expansion to the eastbound side of VA-164 may require a portion of easement from Ebony Heights Park; however, further detailed design may avoid and/or minimize any potential impacts.
Section 6(f) Properties	Any property that was planned, purchased, or improved with Land and Water Conservation Fund (LWCF) money **(**recreational lands that are also regulated under Section 4(f)	No resources within the LOD
Places of Worship	▪ New Beginning Cristian Center ▪ New Beginning Pentecostal Church	No resources within the LOD
Cemetery	▪ New Beginning Pentecostal Church Cemetery	No resources within the LOD
School/University	n/a	No resources within the LOD
Apartment Complexes/Residences	▪ Stonebridge Apartments ▪ Churchland Square Apartments ▪ Westwinds Apartments ▪ Preston Trails Apartments ▪ 3833 Old Farm Rd – appears to have cleared into the right of way	No resources within the LOD
Children's Health & Safety	n/a	No resources within the LOD

2: VA 164 **Resource**	**Resources Identified**	**Comments**
Environmental Justice		
Environmental Justice	Past and present growth and development - expansion of controlled access roadways have separated neighboring communities. ▪ Expansion to the EB side of VA-164 may require a portion of easement from Ebony Heights Park	No residents or neighboring communities would be relocated.
Federal State, and Local Permits		
Water Resources		
Tidal Waters/Tidal Streams/Subaqueous bottom	n/a	No resources within the LOD
Non-Tidal Waters	▪ Non-Tidal channel at Lilac Drive (approx. 500 linear feet)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Non-Tidal Waters: 500 linear feet Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Maintained Navigational Channels and Civil Works Projects	n/a	No resources within the LOD
Wetlands	Several wetland systems within the segment corridor are located outside the LOD. ▪ PFO at Harvey Street (0.06 acres) – adjacent to ROW ▪ PFO at Bowden Street (0.24 acres) – adjacent to ROW ▪ PFO at Pond Lane (0.18 acres) – adjacent to ROW	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. PFO Wetlands: 0.48 acres Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Waterfront Development Areas		
Commercial Ports	n/a	No resources within the LOD
Commercial Fishing Piers	n/a	No resources within the LOD
Wildlife Habitat		
Colonial Waterbird Nesting	▪ Urban, Newport News South, Suffolk (outside LOD) Habitat is present for the Gull-billed tern, Piping plover, Red knot, and Wilson's plover.	No resources within the LOD.
Benthic Species	n/a	No resources within the LOD

2: VA 164 **Resource**	**Resources Identified**	**Comments**
Historic Resources		
Architectural Resources / Historic Districts	▪ 133-5542: Camellia Historic District (adjacent to ROW) ▪ 124-5264: Churchland West Historic District (adjacent to ROW) ▪ 124-5265: Churchland West Historic District (adjacent to ROW) ▪ 124-5261: Churchland Square Apartments (adjacent to ROW)(not eligible) ▪ 124-5262: Preston Trails Apartments (adjacent to ROW) (not eligible) ▪ 124-5260: Stone Ridge Apartments (adjacent to ROW) (not eligible) ▪ 124-5266: Merrifields Historic District (adjacent to ROW)	The area of potential effects (APE) is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. No direct APE impacts. No anticipated indirect APE (viewshed) impacts.
Archaeological Resources	n/a	No resources within the LOD
Additional Factors		
Mitigation Complexity and Cost	▪ Wetland, US waters, and subaqueous bottomlands impacts	Minimal anticipated mitigation costs would be required for wetland, US waters, and subaqueous bottomlands impacts throughout the corridor.
Permit Stakeholder Coordination	▪ Transportation facilities identified within the LOD. ▪ Railroad facilities identified within the LOD. ▪ Adjacent Property Owners (Residents and Businesses)	Assumption that all transportation facilities will remain at existing functionality. Stakeholder coordination with railroad facilities will be required and may pose construction schedule risk.
Effect on other Federal Navigation Projects	n/a	Resources outside the LOD.
Potential Future Changes in Policy Issues		No major regulatory policy changes are anticipated at this time.

SEGMENT: *3: VA 164 Connector*

3: VA 164 Connector **Resource**	**Resources Identified**	**Comments**
Social Environment		
Community Resources		
Military/DOD/USACOE	▪ US Army Corps of Engineers Craney Island Disposal Area ▪ Craney Island Naval Supply Center ▪ US Coast Guard Sector Virginia ▪ US Coast Guard Base Portsmouth ▪ US Navy Craney Island Fuel Depot (CIFD Terminal) ▪ US Navy	Segment traverses through all the facilities noted. Would require major right-of-way acquisition and/or construction easements. Setback requirements for Anti-Terrorism Force Protection, Security Requirements, and Gate Access for all noted facilities.
City of Portsmouth	▪ City of Portsmouth Landfill	Segment bisects the City of Portsmouth Landfill
Transportation Facilities	▪ Outer limit ring road of US Army Corps of Engineers Craney Island Disposal Area ▪ Waterfront Drive ▪ Oyster Shell Drive ▪ Main Road ▪ Main Drive ▪ South Perimeter Road ▪ Coast Guard Boulevard ▪ Access Road off Coast Guard Boulevard ▪ Railroad Facilities ▪ Old Coast Guard Boulevard ▪ Renfrow Road ▪ Wyatt Drive ▪ Wild Duck Lane ▪ Western Freeway (VA-164) ▪ Cedar Lane ▪ West Norfolk Road ▪ Virginia International Gateway Boulevard ▪ Sunnyside Avenue ▪ Gail Court	Transportation facilities identified within the LOD. Stakeholder coordination with railroad facilities will be required and may pose construction schedule risk.
Businesses/Business Access	▪ Driveway impact on Commercial Ready Mix off Coast Guard Boulevard ▪ Aire Serv HVAC Contractor on W. Norfolk Rd off of the Old Coast Guard Road	Current design has total business takes required. Identified Businesses and/or Business Access impacts anticipated within the LOD; however, further detailed design may avoid and/or minimize potential impacts.
Sensitive Resources		
Parks & Recreation	Hoffler Creek Wildlife Preserve (Lake Ballard)	No resources within the LOD
Section 4(f) Properties	Publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places	No resources within the LOD
Section 6(f) Properties	Any property that was planned, purchased, or improved with Land and Water Conservation	No resources within the LOD

3: VA 164 Connector **Resource**	**Resources Identified**	**Comments**
	Fund (LWCF) money (recreational lands that are also regulated under Section 4(f)	
Places of Worship	Liberty Christian Fellowship Liberty New Testament Church West Norfolk Baptist	No resources within the LOD
Cemetery	n/a	No resources within the LOD
School/University	▪ Churchland High School	No resources within the LOD
Apartment Complexes/Residences	West Norfolk Road Apartments	No resources within the LOD
Children's Health & Safety	The most likely locations of potential effects on children (other than at residences abutting right-of-way) would be at schools where there are outdoor activity areas for children.	No resources within the LOD
Environmental Justice		
Environmental Justice	Past and present growth and development - expansion of controlled access roadways have separated neighboring communities.	No residents or neighboring communities would be relocated.
Federal State, and Local Permits		
Water Resources		
Tidal Waters/Tidal Streams/Subaqueous bottom	▪ Estuarine and Marine Wetland (E2USN) at Craney Island Creek (2.25 acres) ▪ Estuarine and Marine Deepwater at Craney Island Creek (0.4 acres) ▪ Estuarine and Marine Wetland (E2USN) at Craney Island Creek (3.01 acres) ▪ Estuarine and Marine Wetland (E2USN) at Craney Island Creek (0.41 acres)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Tidal Waters/Tidal Streams: 5.67 acres Subaqueous bottom: 0.4acres Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Non-Tidal Waters	▪ Non-Tidal channel (drainage ditch) on Craney Island (approx. 260 linear feet) ▪ Non-Tidal channel (drainage ditch) on Craney Island (approx. 1400 linear feet) ▪ Non-Tidal channel (drainage ditch) on Craney Island (approx. 650 linear feet) ▪ Non-Tidal channel (drainage ditch) south of Craney Island Creek (approx. 325 linear feet)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Non-Tidal Waters: 2.635 linear feet Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Maintained Navigational Channels and Civil Works Projects	▪ Newport News Channel ▪ Elizabeth River	No resources within the LOD

3: VA 164 Connector **Resource**	**Resources Identified**	**Comments**
Wetlands	▪ Craney Island Disposal Area is classified as Lake (L2UBFh) – (0 acres) ▪ PEM wetland near Oyster Shell Road (1.25 acres) ▪ PEM wetland south of Craney Island Creek (3.27 acres) ▪ PFO at Coast Guard Boulevard (0.04 acres) ▪ PFO at Coast Guard Boulevard (13 acres) ▪ PFO at Wild Duck Lane (12 acres) ▪ PFO at Western Freeway (1.75 acres)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. PFO Wetlands: 31.31 acres Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Waterfront Development Areas		
Commercial Ports	▪ VIG Portsmouth	Access to VIG Portsmouth
Commercial Fishing Piers	n/a	No resources within the LOD
Wildlife Habitat		
Colonial Waterbird Nesting	▪ Craney Island ▪ Urban, Norfolk North, Portsmouth ▪ Craney Island Northwest (outside LOD) ▪ Urban, Norfolk South, Portsmouth (outside LOD) ▪ Lovett Point (outside LOD) ▪ Pinehurst ▪ Winston Colony ▪ Winston	Colonial Waterbird Nesting sites located on the eastern terminus of the segment LOD. Habitat is present for the Gull-billed tern, Piping plover, Red knot, and Wilson's plover.
Benthic Species	▪ Hard Clam Habitat (0 acres) ▪ Hard Clam Habitat Tunnels (0 acres) ▪ Public Clamming Grounds (0 acres) ▪ Blue Crab (*Callinectes sapidus*) (0 acres) ▪ Oyster Reefs (*Crassostrea virginica*) (0 acres) ▪ Oyster Sanctuary (0 acres) ▪ Public Baylor Grounds (0 acres) ▪ Private Shellfish Leases (0 acres)	No resources within the LOD
Historic Resources		
Architectural Resources / Historic Districts	n/a	No resources within the LOD
Archaeological Resources	▪ Captain John Smith Chesapeake National Historic Trail (first water trail designated under the National Trails System Act) ▪ Washington-Rochambeau Revolutionary Route National Historic Trail (designated a National Historic Trail under the National Trails System Act)(The W-RNHT is located within what is now a highly industrialized and developed area in which few remnants of the historic landscape survive)	If any significant archaeological sites associated with the Captain John Smith Chesapeake National Historic Trail and Washington-Rochambeau Revolutionary Route National Historic Trail are eventually identified within the LOD, they likely would meet the regulatory exception to the requirements of Section 4(f) approval: the sites likely would be important chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place.

3: VA 164 Connector **Resource**	**Resources Identified**	**Comments**
Additional Factors		
Mitigation Complexity and Cost	▪ Wetland, US waters, and subaqueous bottomlands impacts ▪ Business Takes	Current design has total business take required. Identified Businesses and/or Business Access impacts anticipated within the LOD. Moderate to Extensive anticipated mitigation costs would be required for wetland and US waters impacts; however, field surveys and additional detailed design may avoid and/or minimize impacts to further reduce potential mitigation costs.
Permit Stakeholder Coordination	▪ Transportation facilities identified within the LOD. ▪ Railroad facilities identified within the LOD. ▪ Maritime Stakeholders ▪ US Army Corps of Engineers Craney Island Disposal Area ▪ Craney Island Naval Supply Center ▪ US Coast Guard Sector Virginia ▪ US Coast Guard Base Portsmouth ▪ US Navy Craney Island Fuel Depot (CIFD Terminal) ▪ US Navy ▪ City of Portsmouth ▪ Adjacent Property Owners (Residents/Businesses)	May require major right-of-way acquisition and/or construction easements. Maintenance of terminal operations and traffic will be required. Extensive setback requirements for Anti-Terrorism Force Protection, Security Requirements, and Gate Access for all noted facilities. Stakeholder coordination with facilities will be required and may pose construction schedule risk.
Effect on other Federal Navigation Projects	▪ Newport News Channel ▪ Elizabeth River ▪ US Army Corps of Engineers Craney Island Disposal Area	No anticipated impact to the Newport News Channel. This segment does contain roadway structures landside to Federal Navigation Projects along the Elizabeth River and to current operations at the US Army Corps of Engineers Craney Island Disposal Area.
Potential Future Changes in Policy Issues		No major regulatory policy changes are anticipated at this time.

SEGMENT: *4: I-564 Connector*

4: I-564 Connector **Resource**	**Resources Identified**	**Comments**
Social Environment		
Community Resources		
Military/DOD/USACOE	▪ NSA Hampton Roads ▪ Norfolk International Terminals ▪ Norfolk Naval Station ▪ Norfolk Naval Air Station ▪ US Marine Corps ▪ United States Department of the Navy ▪ Marine Corps Personnel Support ▪ Camp Elmore ▪ NAS Norfolk Air Passenger Terminal	Segment traverses through the DON and NIT properties. Need additional information regarding potential anti-terrorism force protection requirements.
Transportation Facilities	▪ Northgate Road ▪ Hampton Boulevard (337) ▪ Seabee Road ▪ Intermodal Connector ▪ Admiral Taussig Boulevard (564) ▪ Patrol Road ▪ VPA Rail Facilities	Transportation facilities identified within the LOD. Assumption that all transportation facilities will remain at existing or improved functionality. Stakeholder coordination with railroad facilities will be required and may pose construction schedule risk.
Norfolk International Terminals	Lineage Logistics at Talon Marine Terminals, NIT Pier 3	The loss of operational use at the Lineage Logistics at Talon Marine Terminals, NIT Pier 3 needs more information in order to determine all of the factors to be considered.
Businesses/Business Access	n/a	Resources outside the LOD.
Sensitive Resources		
Parks & Recreation	▪ Fleet Recreation Park (DON facility) ▪ Sewells Point Golf Course (DON facility) (adjacent only)	May have disturbance within the LOD for Fleet Recreation Park (park access/maintenance roads).
Section 4(f) Properties	Publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places	Resources outside the LOD.
Section 6(f) Properties	Any property that was planned, purchased, or improved with Land and Water Conservation Fund (LWCF) money (recreational lands that are also regulated under Section 4(f)	Resources outside the LOD.
Places of Worship	n/a	Resources outside the LOD.
Cemetery	n/a	Resources outside the LOD.
School/University	n/a	Resources outside the LOD.
Apartment Complexes/Residences	n/a	Resources outside the LOD.
Children's Health & Safety	n/a	Resources outside the LOD.

4: I-564 Connector **Resource**	**Resources Identified**	**Comments**
Environmental Justice		
Environmental Justice	Past and present growth and development - expansion of controlled access facilities such as military installations like NAVSTA Norfolk have separated neighboring communities.	No residents or neighboring communities would be relocated.
Federal State, and Local Permits		
Water Resources		
Tidal Waters/Tidal Streams/Subaqueous bottom	▪ East tunnel (on upland) ▪ West tunnel (30 acres)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Subaqueous bottom for island construction: 30 acres Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Non-Tidal Waters	• Non-tidal channel along Intermodal Connector (approx. 200 linear feet) • Non-tidal channel near Patrol Road (approx. 190 linear feet)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Non-Tidal Waters: 390 linear feet Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Maintained Navigational Channels and Civil Works Projects	▪ Newport News Channel ▪ Elizabeth River Channel	No impacts to Maintained Navigational Channels and Civil Works Projects is anticipated. All Maintained Navigational Channels will be avoided by the tunnel design.
Wetlands	Wetlands are adjacent to portions of the corridor but none identified within the bounds of the LOD	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.

4: I-564 Connector Resource	Resources Identified	Comments
Waterfront Development Areas		
Commercial Ports	▪ Virginia Port Authority - Lineage Logistics at Talon Marine Terminals, NIT Pier 3	The loss of operational use at the Lineage Logistics at Talon Marine Terminals, NIT Pier 3 needs more information in order to determine all of the factors to be considered.
Commercial Fishing Piers	n/a	Resources outside the LOD.
Wildlife Habitat		
Colonial Waterbird Nesting	▪ Craney Island ▪ Urban, Norfolk North, Portsmouth ▪ Craney Island, Northwest ▪ Willoughby Spit ▪ Hermitage (outside LOD) ▪ Algonquin Park (outside LOD) ▪ Lochhaven (outside LOD)	Colonial Waterbird Nesting sites are located within the LOD. Proactive measures such as the sue of bird dogs could be employed during construction within the bird nesting season (April – September 1) so as to deter colonial bird nesting in these sites. Habitat is present for the Gull-billed tern, Piping plover, Red knot, and Wilson's plover.
Benthic Species	▪ Hard Clam Habitat Tunnels (30 acres) ▪ Public Clamming Grounds (0 acres) ▪ Blue Crab (*Callinectes sapidus*) (0 acres) ▪ Oyster Reefs (*Crassostrea virginica*) (0 acres) ▪ Oyster Sanctuary (0 acres) ▪ Public Baylor Grounds (0 acres) ▪ Private Shellfish Leases (0 acres) The introduction of additional hard substrate such as pilings and riprap protection could provide beneficial habitat where it did not previously exist for oysters and other marine benthic organisms.	The entire footprint beneath each segment is considered potential hard clam habitat because the entire bottom is composed of sand, mud, or a combination suitable for hard clams. Construction BMPs, including conforming to the guidelines contained in the VESCH, would be employed to reduce turbidity and sediment disturbance. The time of year and length of dredging operations may need to be considered as prolonged dredging would result in disturbance to the benthos and adjacent water column over a longer period of time dependent upon the nature of the bottom substrate, tidal fluctuations, and estuarine dynamics. Strict adherence to erosion and sediment control measures and permit requirements would minimize water quality impacts due to sedimentation and turbidity during construction. Long-term effects to benthic communities due to changes in water quality would be minimized and avoided through implementation of stormwater management plans designed to minimize impacts from

4: I-564 Connector Resource	Resources Identified	Comments
		increases in impervious surfaces, mitigate increases in runoff volume, and satisfy requirements to reduce pollutant loads below existing baseline conditions, as required by the VSMP regulations and Chesapeake Bay TMDL.
Historic Resources		
Architectural Resources / Historic Districts	▪ 121-0020 (Middle Ground Light Station)(NRHP Listing, VLR Listing) ▪ 122-0410 (Norfolk Naval Base Historic District) ▪ 122-5045 (Norfolk Naval Base Golf Historic District) ▪ 122-0334 (Sewells Point Docks (Historic); Virginia Port Authority (Current))	The area of potential effects (APE) is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. Alignment segment does bisect the 122-0334 (Sewells Point Docks (Historic); Virginia Port Authority (Current)); however, the area is currently an operational facility for VPA and no direct APE impacts are anticipated. No anticipated indirect APE (viewshed) impacts are anticipated for the adjacent 122-5045 (Norfolk Naval Base Golf Historic District) since existing transportation facility exists in the corridor.
Archaeological Resources	▪ Captain John Smith Chesapeake National Historic Trail (first water trail designated under the National Trails System Act) ▪ Washington-Rochambeau Revolutionary Route National Historic Trail (designated a National Historic Trail under the National Trails System Act)(The W-RNHT is located within what is now a highly industrialized and developed area in which few remnants of the historic landscape survive)	If any significant archaeological sites associated with the Captain John Smith Chesapeake National Historic Trail and Washington-Rochambeau Revolutionary Route National Historic Trail are eventually identified within the LOD, they likely would meet the regulatory exception to the requirements of Section 4(f) approval: the sites likely would be important chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place.
Additional Factors		
Mitigation Complexity and Cost	▪ Wetland, US waters, and subaqueous bottomlands impacts	High anticipated mitigation costs would be required for wetland and US waters impacts due to construction of the new island required for the tunnel segment.

4: I-564 Connector **Resource**	**Resources Identified**	**Comments**
Permit Stakeholder Coordination	▪ Transportation facilities identified within the LOD. ▪ Railroad facilities identified within the LOD. ▪ Craney Island ▪ Lineage Logistics at Talon Marine Terminals, NIT Pier 3 ▪ NSA Hampton Roads ▪ Norfolk International Terminals ▪ Norfolk Naval Station ▪ Norfolk Naval Air Station ▪ US Marine Corps ▪ United States Department of the Navy ▪ Marine Corps Personnel Support ▪ Camp Elmore ▪ NAS Norfolk Air Passenger Terminal ▪ Maritime Stakeholders ▪ Adjacent Property Owners	Extensive stakeholder coordination with Military/DOD/USACOE facilities, transportation facilities, Lineage Logistics at Talon Marine Terminals, NIT Pier 3, and railroad facilities will be required and may pose design and/or construction schedule risk.
Effect on other Federal Navigation Projects	▪ Newport News Channel ▪ Elizabeth River Channel (Norfolk Harbor Reach)	No impacts to Federal Navigational Channels and Civil Works Projects are anticipated. All Maintained Navigational Channels will be avoided by the tunnel design.
Potential Future Changes in Policy Issues		No major regulatory policy changes are anticipated at this time.

SEGMENT: *5: I-664 Connector*

5: I-664 Connector **Resource**	**Resources Identified**	**Comments**
Social Environment		
Community Resources		
Military/DOD/USACOE	▪ US Army Corps of Engineers Craney Island Disposal Area	Maintenance of operations and traffic will be required for all identified Craney Island facilities, Maintained Federal Channels, and the connection to the existing I664 Monitor Merrimack transportation corridor. Need more information on the US Army Corps of Engineers Craney Island Disposal Area anticipated end of operational life.
Transportation Facilities	▪ I-664 (Monitor Merrimac Bridge Tunnel) ▪ US Army Corps of Engineers Craney Island Disposal Area North East Ring Road	Project is dependent on improvements to I664 (North MMMBT) segment.
Norfolk International Terminals	Lineage Logistics at Talon Marine Terminals, NIT Pier 3	No resource within the LOD
Businesses/Business Access	n/a	No resource within the LOD
Sensitive Resources		
Parks & Recreation	n/a	No resource within the LOD
Section 4(f) Properties	Publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places	No resource within the LOD
Section 6(f) Properties	Any property that was planned, purchased, or improved with Land and Water Conservation Fund (LWCF) money (recreational lands that are also regulated under Section 4(f)	No resource within the LOD
Places of Worship	n/a	No resource within the LOD
Cemetery	n/a	No resource within the LOD
School/University	n/a	No resource within the LOD
Apartment Complexes/Residences	n/a	No resource within the LOD
Children's Health & Safety	n/a	No resource within the LOD
Environmental Justice		
Environmental Justice	n/a	No resource within the LOD

5: I-664 Connector **Resource**	**Resources Identified**	**Comments**
Federal State, and Local Permits		
Water Resources		
Tidal Waters/Tidal Streams/Subaqueous bottom	▪ Bridge/Trestle (144 acres)	Impacts are not based on surveyed field delineations but are meant to provide a conservative quantitative estimates. Tidal Waters/Tidal Streams from Trestle construction: 144 acres Field surveys and additional detailed detail to avoid and/or minimize impacts would be evaluated with more detailed design.
Non-Tidal Waters	n/a	No resource within the LOD
Maintained Navigational Channels and Civil Works Projects	▪ Newport News Channel ▪ Elizabeth River Channel	This segment does contain bridge and roadway structures within water and landside to Federal Navigation Projects along the James River, Elizabeth River, and current operations at the US Army Corps of Engineers Craney Island Disposal Area.
Wetlands	n/a	No resource within the LOD
Waterfront Development Areas		
Commercial Ports	n/a	No resource within the LOD
Commercial Fishing Piers	n/a	No resource within the LOD
Wildlife Habitat		
Colonial Waterbird Nesting	▪ Craney Island ▪ Urban, Norfolk North, Portsmouth ▪ Craney Island, Northwest ▪ Willoughby Spit ▪ Hermitage (outside LOD) ▪ Algonquin Park (outside LOD) ▪ Lochhaven (outside LOD)	Colonial Waterbird Nesting sites are located within the LOD. Proactive measures such as the sue of bird dogs could be employed during construction within the bird nesting season (April – September 1) so as to deter colonial bird nesting in these sites. Habitat is present for the Gull-billed tern, Piping plover, Red knot, and Wilson's plover.

5: I-664 Connector **Resource**	**Resources Identified**	**Comments**
Benthic Species	▪ Hard Clam Habitat (144 acres) ▪ Public Clamming Grounds (0 acres) ▪ Blue Crab (*Callinectes sapidus*) (0 acres) ▪ Oyster Reefs (*Crassostrea virginica*) (0 acres) ▪ Oyster Sanctuary (0 acres) ▪ Public Baylor Grounds (approx. 290 acres) ▪ Private Shellfish Leases (0 acres) The introduction of additional hard substrate such as pilings and riprap protection could provide beneficial habitat where it did not previously exist for oysters and other marine benthic organisms.	The entire footprint beneath the segment is considered potential hard clam habitat because the entire bottom is composed of sand, mud, or a combination suitable for hard clams. Construction BMPs, including conforming to the guidelines contained in the VESCH, would be employed to reduce turbidity and sediment disturbance. The time of year and length of dredging operations may need to be considered as prolonged dredging would result in disturbance to the benthos and adjacent water column over a longer period of time dependent upon the nature of the bottom substrate, tidal fluctuations, and estuarine dynamics. Strict adherence to erosion and sediment control measures and permit requirements would minimize water quality impacts due to sedimentation and turbidity during construction. Long-term effects to benthic communities due to changes in water quality would be minimized and avoided through implementation of stormwater management plans designed to minimize impacts from increases in impervious surfaces, mitigate increases in runoff volume, and satisfy requirements to reduce pollutant loads below existing baseline conditions, as required by the VSMP regulations and Chesapeake Bay TMDL.
Historic Resources		
Architectural Resources / Historic Districts	▪ 121-0020 (Middle Ground Light Station) (NRHP Listing, VLR Listing)	The area of potential effects (APE) is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. No direct APE impacts are anticipated. No anticipated indirect APE (viewshed) impacts are anticipated.

5: I-664 Connector **Resource**	**Resources Identified**	**Comments**
Archaeological Resources	▪ Captain John Smith Chesapeake National Historic Trail (first water trail designated under the National Trails System Act) ▪ Washington-Rochambeau Revolutionary Route National Historic Trail (designated a National Historic Trail under the National Trails System Act) (The W-RNHT is located within what is now a highly industrialized and developed area in which few remnants of the historic landscape survive)	If any significant archaeological sites associated with the Captain John Smith Chesapeake National Historic Trail and Washington-Rochambeau Revolutionary Route National Historic Trail are eventually identified within the LOD, they likely would meet the regulatory exception to the requirements of Section 4(f) approval: the sites likely would be important chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place.
Additional Factors		
Mitigation Complexity and Cost	▪ Wetland, US waters, and subaqueous bottomlands impacts	This segment does contain bridge and roadway structures within water and landside to Federal Navigation Projects along the James River, Elizabeth River, and current operations at the US Army Corps of Engineers Craney Island Disposal Area. Moderate to extensive mitigation costs would be required for wetland and US waters impacts; however, field surveys and additional detailed design may avoid and/or minimize impacts to further reduce potential mitigation costs.
Permit Stakeholder Coordination	▪ Transportation facilities identified within the LOD. ▪ Maritime Stakeholders	Extensive stakeholder coordination with Military/DOD/USACOE facilities will be required and may pose design and/or construction schedule risk.
Effect on other Federal Navigation Projects	▪ Newport News Channel ▪ Elizabeth River Channel (Norfolk Harbor Reach)	This segment does contain bridge and roadway structures within water and landside to Federal Navigation Projects along the James River, Elizabeth River, and current operations at the US Army Corps of Engineers Craney Island Disposal Area. Need more information on the US Army Corps of Engineers Craney Island Disposal Area anticipated end of operational life.
Potential Future Changes in Policy Issues		No major regulatory policy changes are anticipated at this time.

Other Factors Evaluated and Considered

Resource	4: I-564 Connector	5: I-664 Connector	3: VA 164 Connector	1a: I-664 North of College Dr.	1b: I-664 South of College Dr.	2: VA 164
Utilities	Existing utilities are identified within the corridors; however, it is assumed that all required utility relocations would be properly coordinated prior to any construction activities. Utility relocations would need to be included in the schedule of construction for each of the segments evaluated.					
Water Quality	In compliance with Sections 303(d), 305(b), and 314 of the CWA and the Safe Drinking Water Act, VDEQ has developed a prioritized list of waterbodies that currently do not meet state water quality standards (impaired waters). ▪ James River – Hampton Roads (Aquatic Life & Fish Consumption) (Chlorophyll-a, Dissolved Oxygen; Aquatic Plants (Macrophytes); PCB in Fish Tissue) ▪ Elizabeth River Mainstem (Aquatic Life & Fish Consumption) (Estuarine Bioassessments (Benthics), Dissolved Oxygen)				No overwater components of the James River or Elizabeth River Mainstem.	
Floodplains	Flood Insurance Rate maps (FIRMs) depict the 100-year floodplain within the corridor and involve encroachment within regulatory floodplains. Segment would involve encroachment within regulatory floodplains but will not pose a significant flooding risk. Segment would be designed to be consistent with procedures for the location and hydraulic design of highway encroachments on floodplains contained in 23 CFR 650 Subpart A; therefore, the segment is not expected to increase flood elevations, the probability of flooding, or the potential for property loss and hazard to life.					
Sediment Transportation, Bank Erosion, Shoaling and Hydrodynamic Modeling	Not evaluated in detail at this time. Hydrodynamic Modeling evaluations is not included at this level of study.					
Dredging and Disposal of Dredged Material	Quantities of required dredge material have not been calculated at this level of evaluation. Not evaluated at this time. It is assumed that all regulatory requirements will be evaluated and adhered to at the appropriate time.					
Aquifers/Water Supply (ground water wells, surface water intakes, and springs)	The closest public ground-water well is approximately 4,000 feet south at the I-664 interchange with Route 460; there are no public surface water intakes, public springs, or reservoirs. The closest SSA is on the Eastern Shore of Virginia. Segment is within the Eastern Virginia Groundwater Management Areas (GWMA) which comprises all areas east of I-95. No project-related effect on public water supplies.					
Coastal Natural Resource Areas	Virginia's coastal zone encompasses the 29 counties, 17 cities, and 42 incorporated towns in Tidewater Virginia, as defined in the Code of Virginia 28.2-100 (VDEQ, 2016d). All segments are entirely located within Virginia's coastal zone. Anticipate the segment would be found to be consistent with the goals and objectives of the Virginia Coastal Resources Management Program. This process is completed during the design and permitting phase of a project with VDEQ as part of the Coastal Resources Management Consistency Certification.					

Resource	4: I-564 Connector	5: I-664 Connector	3: VA 164 Connector	1a: I-664 North of College Dr.	1b: I-664 South of College Dr.	2: VA 164
Aquatic Spawning, Nursery, and Feeding Grounds	▪ James River ▪ Elizabeth River Temporary increases in turbidity and releases of nutrients and potential contaminants from dredging activities are not expected to substantially impact juvenile or adult fish because of their mobility and because construction would be spread out over time and would occur within discrete areas. Spawning, eggs and larvae, however, would be more vulnerable to these impacts. Time-of-year restrictions would be implemented to avoid or minimize impacts on fish during early life stages. VDGIF typically recommends restrictions on all in-stream work within Anadromous Fish Use Areas and their tributaries between February 15 and June 30, though no time-of-year restrictions are recommended on the James River and its tributaries below the Route 17 Bridge or on the Elizabeth River unless the project spans the width of the River to an extent that it significantly impedes fish passage. Exact restrictions may vary depending on the species, type of work, and location.				No overwater components of the James River or Elizabeth River Mainstem.	
Coastal Primary Sand Dunes	No resources within the LOD					
Barrier Islands	No resources within the LOD					
Significant Wildlife Habitat Areas	No resources within the LOD					
Sand And Gravel Resources	No resources within the LOD					

Attachment 5B

Resource	4: I-564 Connector	5: I-664 Connector	3: VA 164 Connector	1a: I-664 North of College Dr.	1b: I-664 South of College Dr.	2: VA 164
Underwater Historic Sites	▪ 114-5471; Battle of Hampton Roads (no significant archaeological resources) ▪ 122-5426; Battle of Sewells Point ▪ 124-5267; Battle of Craney Island (NRHP-Eligible)(the battlefield is located within the bounds of the present day US Navy Fuel Depot) ▪ USS Cumberland (44NN0073) have been identified and are located roughly one mile northwest of the centerline of the proposed improvements to the west side of the existing MMMBT The APE is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. If any significant underwater resources associated with the Battle of Hampton Roads are eventually identified within the HRCS LOD, they likely would meet the regulatory exception to the requirements of Section 4(f) approval: i.e., the sites likely would be important chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place [23 CFR §774.13(b)(1)].				No overwater components of the James River or Elizabeth River Mainstem.	
Highly Erodible Soils	No resources within the LOD					
Coastal High Hazard Areas, including floodplains	Flood Insurance Rate maps (FIRMs) depict the 100-year floodplain within the corridor and involve encroachment within regulatory floodplains. Segment would involve encroachment within regulatory floodplains but will not pose a significant flooding risk. Segment would be designed to be consistent with procedures for the location and hydraulic design of highway encroachments on floodplains contained in 23 CFR 650 Subpart A; therefore, the segment is not expected to increase flood elevations, the probability of flooding, or the potential for property loss and hazard to life.					
Community Waterfronts	No residential community waterfronts or industrial community's identified.					
Virginia Public Beaches	No resources within the LOD					
Virginia Outdoors Plan	No resources within the LOD					
Wildlife Management Areas	No resources within the LOD					
Waterfront Recreational Land Acquisition	No resources within the LOD					
Waterfront Recreational Facilities	No resources within the LOD					
Waterfront Historic Properties	No resources within the LOD					

Attachment 5B

Resource	4: I-564 Connector	5: I-664 Connector	3: VA 164 Connector	1a: I-664 North of College Dr.	1b: I-664 South of College Dr.	2: VA 164
Terrestrial Wildlife / Habitat	The majority of the existing land cover within the segment consists of developed lands, natural terrestrial communities, and open water. Expanses of terrestrial habitat are uncommon and fragmented as residential, commercial, industrial, government/military, and open water areas are common, resulting in predominantly low-quality edge habitat.					
Essential Fish Habitat	▪ James River (20 species) ▪ Elizabeth River (20 species) https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper It is assumed that all time of year restrictions and construction special conditions as identified in regulatory permits will be strictly adhered to an will not cause impacts to construction schedule.				No overwater components of the James River or Elizabeth River Mainstem.	
Anadromous Fish	▪ James River (7 species) ▪ Elizabeth River (3 species) ▪ alewife, American shad, Atlantic Sturgeon, striped bass, blueback herring, yellow perch, and hickory shad It is assumed that all time of year restrictions and construction special conditions as identified in regulatory permits will be strictly adhered to an will not cause impacts to construction schedule.				No overwater components of the James River or Elizabeth River Mainstem.	
Submerged Aquatic Vegetation	VIMS SAV Mapping (https://mobjack.vims.edu/sav/savwabmap/) – no SAVs identified					
Invasive Species	Construction equipment used in the study area could carry seeds or propagative plant parts from other construction projects or infested areas. Removal of sediment and soil to offsite locations could spread invasive species and placement of fill from borrow sites could introduce invasive species to the study area. Exposed soil also allows invasive species to spread, which could contribute to encroachment of invasive species on vegetation communities. The potential for the establishment of invasive animal or plant species during construction would be minimized by following provisions in VDOT's Road and Bridge Specifications.					
Section 106 Process	Coordination with VDHR for concurrence on project evaluation will be required.					
Farmlands	According to VDACS, there are no active farmlands within the Study Area Corridor.					
Forestal Districts	No land in the Study Area Corridor is currently zoned or used for agriculture.					

Resource	4: I-564 Connector	5: I-664 Connector	3: VA 164 Connector	1a: I-664 North of College Dr.	1b: I-664 South of College Dr.	2: VA 164
Energy	Qualitative comparison of energy consumption associated with the construction and maintenance of the evaluated segments and vehicle operation on the affected roadway network. Accurate construction energy costs cannot be determined given the uncertainty of field variables at this point in the study. An increase in capacity would consume more direct energy by roadway travelers; however, this consumption would be partially offset by reducing congestion over a larger area. Measures to mitigate the energy usage during construction may include limiting the idling of machinery and optimizing construction methods to lower overall fuel use.					
Traffic	Construction activities would result in temporary interruptions to vehicular traffic patterns, including the potential temporary closure of roads. Traffic modelling will be evaluated in Tier 2 of this study evaluation.					
Air Quality	The air quality analyses will be evaluated as part of the travel demand model to evaluate peak hour volumes will then be used to support the air analysis. Temporary air quality impacts from construction would consist primarily of emissions produced during the construction of this project by heavy equipment and vehicle travel to and from the construction areas. Earthmoving and ground-disturbing operations would also generate airborne dust. Construction emissions would be temporary in nature.					
Noise	FHWA Traffic Noise Model evaluations is not included at this level of study. To assess the degree of impact of highway traffic and noise on human activity within the corridor, more detailed information is required. Construction activities would cause intermittent fluctuations in noise levels throughout the construction area. The degree of noise impact would vary, as it is directly related to the types of equipment used and the proximity to the noise-sensitive land uses within the project area. Based on a review of the project area, no considerable, long-term construction-related noise impacts are anticipated.					
Soils & Erosion	Construction would result in soil disturbance, soil exposure and compaction that could cause potential adverse effects on shallow soil permeability, and soil erosion caused by water and wind. An Erosion and Sediment (E&S) Plan will be developed as part of the construction documents. The plan will identify measures to minimize impact to the construction sites and surrounding water bodies as a result of construction-related soil erosion.					
Water Quality	Construction would potentially result in short-term impacts to water quality such as increased sedimentation, increased turbidity from in-stream work, and possible spills or non-point source pollutants entering groundwater or surface water from stormwater runoff. To minimize these impacts, appropriate erosion and sediment control practices would be implemented in accordance with the Virginia Erosion and Sediment Control Regulations.					
Hazardous Materials	Sites containing hazardous or contaminated materials may exist within the Study Area Corridor. These include sites regulated by the Resource Conservation and Recovery Act (RCRA), petroleum release sites and facilities registered with the VDEQ, and sites that participate in the Virginia Voluntary Remediation Program. Prior to the acquisition of right-of-way and construction, a Phase I Environmental Site Assessment (ESA) as well as Phase II ESA (as needed) will be conducted to determine whether any of the sites are actually contaminated, and, if so, the nature and extent of that contamination. Any additional hazardous material sites discovered during construction will be removed and disposed of in compliance with all applicable federal, state, and local regulations. All necessary remediation would be conducted in compliance with applicable federal, state, and local environmental laws and would be coordinated with the EPA, VDEQ, and other federal or state agencies as necessary.					

Resource	4: I-564 Connector	5: I-664 Connector	3: VA 164 Connector	1a: I-664 North of College Dr.	1b: I-664 South of College Dr.	2: VA 164
Visual	Temporary changes to the visual quality throughout the Study Area Corridor would occur during construction. These changes would primarily occur in the form of large construction equipment such as cranes and barges, as well as and materials, storage and yarding areas, construction fences/barriers, traffic control devices, and changes to the landscape associated with land clearing and earth moving operations. These visual changes from construction equipment would occur only during the construction period and would be removed at the completion of construction.					
Protected Species	**VaFWIS Database Search**					
All segments contain similar potential habitat for the identified protected species. Section 7 consultation will be completed before any irreversible or irretrievable commitments of resources are made expressly for construction activities.						
Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)	FESE - Confirmed	FESE - Confirmed	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed
Woodpecker, red-cockaded (*Picoides borealis*)	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed
Atlantic Sturgeon (*Acipenser oxyrinchus*)	FESE - Confirmed	FESE - Confirmed	FESE - Confirmed	FESE - Confirmed	FESE - Confirmed	FESE - Not confirmed
Leatherback Sea Turtle (*Dermochelys coriacea*)	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed	n/a
Hawksbill Sea Turtle (*Eretmochelys imbricate*)	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed	FESE - Not confirmed	n/a
Loggerhead Sea Turtle (*Caretta caretta*)	FTST - Confirmed	FTST - Confirmed	FTST - Confirmed	FTST - Confirmed	FTST - Confirmed	FTST - Confirmed
Red Knot (*Calidris canutus rufa*)	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed
Rail, eastern black (*Laterallus jamaicensis jamaicensis*)	FTSE - Not confirmed	FTSE - Not confirmed	FTSE - Not confirmed	FTSE - Not confirmed	FTSE - Not confirmed	FTSE - Not confirmed
Northern Long-eared Bat (*Myotis septentrionalis*)	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed
Green Sea Turtle (*Chelonia mydas*)	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed	FTST - Not confirmed	n/a
Piping Plover (*Charadrius melodus*)	FTST - Confirmed	FTST - Confirmed	FTST - Confirmed	FTST - Confirmed	FTST - Confirmed	FTST - Potential
Manatee, West Indian (*Trichechus manatus*)	n/a	n/a	FTSE - Not confirmed	FTSE - Not confirmed	FTSE - Not confirmed	FTSE - Not confirmed
Wilson's Plover (*Charadrius wilsonia*)	SE - Potential	SE - Potential	SE - Potential	SE - Potential	SE - Potential	SE - Potential

Resource	4: I-564 Connector	5: I-664 Connector	3: VA 164 Connector	1a: I-664 North of College Dr.	1b: I-664 South of College Dr.	2: VA 164
Little Brown Bat (*Myotis lucifigus lucifigus*)	SE - Not confirmed	SE - Not confirmed	n/a	SE - Not confirmed	SE - Not confirmed	n/a
Bat, Rafinesque's eastern big-eared (*Corynorhinus rafinesquii macrotis*)	SE - Not confirmed	SE - Not confirmed	SE - Not confirmed	SE - Not confirmed	SE - Not confirmed	SE - Not confirmed
Tri-colored Bat (*Perimyotis subflavus*)	SE - Not confirmed	SE - Not confirmed	SE - Not confirmed	SE - Not confirmed	SE - Not confirmed	SE - Not confirmed
Canebrake Rattlesnake (*Crotalus horridus*)	SE - Potential	SE - Potential	SE - Potential	SE - Potential	SE - Potential	SE - Potential
Peregrine Falcon (*Falco peregrinus*)	ST - Confirmed	ST - Confirmed	ST - Confirmed	ST - Confirmed	ST - Confirmed	ST - Confirmed
Shrike, loggerhead (*Lanius ludovicianus*)	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed
Sparrow, Henslow's (*Centronyx henslowii*)	ST - Not confirmed	ST - Not confirmed	n/a	ST - Not confirmed	ST - Not confirmed	n/a
Gull-billed Tern (*Sterna nilotica*)	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed
Mabee's Salamander (*Ambystoma mabeei*)	ST - Potential	ST - Potential	ST - Potential	ST - Potential	ST - Potential	ST - Potential
Shrike, migrant loggerhead (*Lanius ludovicianus migrans*)	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed	ST - Not confirmed
Terrapin, northern diamond-backed (*Malaclemys terrapin terrapin*)	CC - Confirmed	CC - Confirmed	CC - Confirmed	CC - Confirmed	CC - Confirmed	CC - Confirmed
Turtle, spotted (*Clemmys guttata*)	CC - Confirmed	CC - Confirmed	CC - Confirmed	CC - Confirmed	CC - Confirmed	CC – Not Confirmed
Kingsnale, scarlet (*Lampropeltis elapsoides*)	n/a	n/a	CC – Confirmed	CC – Not Confirmed	CC – Not Confirmed	CC – Not Confirmed

Permits Considerations:

- Federal US Army Corps of Engineers - Section 404 of CWA (Waters of the US) – Individual Permit (*The USACE and VDEQ can only permit the LEDPA (Least Environmentally Damaging Practicable Alternative)*
- Federal: US Army Corps of Engineers - Section 408 permit under Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408). Work that may alter, occupy, or use a USACE Civil Works project, such as a USACE maintained navigation channel or USACE administered dredged material disposal area, requires authorization in the form of a Section 408 permit from the USACE under Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408).
- Federal: US Army Corps of Engineers - Section 10 permit
- Federal: USCG Bridge Permit (when crossing navigable waterways)
- Federal: USFWS Migratory Bird Permit
- State must certify that state water quality standards would not be violated by the Section 401 of CWA (VDEQ) - Virginia Water Protection Permit (VWPP) Program (9 VAC 25-210) – Individual Permit regulates activities in navigable waters, including tidal wetlands
- State: VMRC permit, under the authority of Chapter 12 of Title 28.2 of the Code of Virginia - Subaqueous Bottomlands Permit for subaqueous bottoms or bottomlands, tidal wetlands, and beaches and coastal primary sand dunes
- State: VDEQ Virginia Construction General Permit (CGP) (VAR10) outlines specific measures that development projects must address, including the development of a Stormwater Pollution Prevention Plan (SWPPP).
- State: VDEQ's Ground Water Withdrawal Permitting Program in their Office of Water Supply - proximity of public drinking water sources (ground water wells, surface water intakes, and springs)
- State: VDEQ Air Permits (for construction)
- State: VMRC cannot issue a permit to encroach upon Baylor Grounds unless the Virginia General Assembly removes that portion of the Baylor Grounds from the official survey.

Regional Connectors Study

Summary of Key Decision Points

Prepared By: Camelia Ravanbakht, PhD
RCS Project Coordinator
November 13, 2020
Revised: December 2020, January 2021, February 2021, April 2021, May 2021, June 2021, October 2021, December 2021, April 2022.

REGIONAL CONNECTORS STUDY

Abstract:

This document is a diary of key decision points approved by the RCS Steering (Policy) Committee and Working Group from 2017 to present, in chronological order.

The purpose of this document is to provide a quick reference for members of the Regional Connectors Study and the public. The information used in this document is based on excerpts from meeting minutes prepared by Dr. Rob Case, Mr. Keith Nichols and Ms. Kathlene Grauberger of HRTPO.

This is a living document and will be updated with future key action items per approval from the Committee.

REGIONAL CONNECTORS STUDY

2017

Steering (Policy) Committee meeting on 10/05/2017

Item#5: Draft Guidance for Scope of Work

Motion: Mayor Sessoms (VB) moved the endorsement and recommendation of the HRTPO Board's approval of the Guidance for Scope of Work; Mayor Rowe (Portsmouth) seconded; Motion passed unanimously.

2018

Working Group meeting on 05/11/2018:

Item#5: Contract Negotiations with Selected Consultant:

Mr. Crum (HRPDC/HRTPO) gave an overview of the consultant selection process in which Michael Baker was chosen. Craig Eddy (Michael Baker) gave an overview, with slides, of a phased approach and a scope for Phase 1. After much discussion by Working Group members, HTRPO staff, and HRTAC staff, it was decided that the consultant would do the following: • Monthly meetings of the Working Group, to be canceled as appropriate considering project progress • Convene a group meeting of stakeholders (Working Group and Policy Group) for Task 1 (Initiate Engagement Program) • Coordinate with VDOT HR District surveys to avoid duplication. • Establish goals & objectives during Phase 1 • Prepare a scope for Phase 2 during Phase 1 • Send details of the proposed survey to Kendall Miller (HRTPO) • Prepare a new baseline of existing conditions.

Mr. Crum asked the group if it concurred with him asking the HRTPO Board for authorization to enter contract with Michael Baker for Phase 1. A motion made by Brian Stilley (Newport News) and seconded by John Yorks (Hampton)—to move ahead with Phase 1—passed unanimously.

Working Group meeting on 06/04/18:

Item#5: Revised Phase 1 Scope:

Craig Eddy (MBI) presented the current Phase 1 scope, revised based on earlier comments of the working group. Bob Crum (HRTPO) asked that the purpose of Phase 1— "the establishment of goals and objectives [and] the development of a draft scope for Phase 2"—be included in the scope of Phase 1. Craig said that he would add those items to Task 5. Bob asked if the group was comfortable with him signing a contract for Craig to proceed. The group concurred.

REGIONAL CONNECTORS STUDY

2019

Joint Steering (Policy) Committee and Working Group meeting on 02/13/2019:

Item#5: RCS and Relationship with 2045 Long-Range Transportation Plan (LRTP):

Mr. Crum (HRPDC/HRTPO) stated that to-date, the timelines of the RCS and the 2045 LRTP have been synchronized; however, concerns have grown that more time is needed to conduct the RCS, and it has been suggested to pursue a second option. The options for discussion are as follows:

- Option 1: RCS Concurrent with the 2045 LRTP Schedule
- Option 2: RCS Separate Path from the 2045 LRTP Schedule

Mayor Rowe (Portsmouth) expressed support for Option 2 and stated that the RCS should be decoupled from the LRTP since the LRTP is a fiscally constrained document. He noted that in the 2030 LRTP, adopted by the HRTPO Board in March 2007, no State highway construction funds would be available by 2018; therefore, the projects in the 2030 plan were either pared down or tolled. He indicated that the LRTP was flawed in concept and should reflect the region's vision without the restrictions of fiscal constraint.

Motion:

Mayor Rowe (Portsmouth) moved to decouple the timelines of the RCS and the 2045 LRTP; seconded by Mayor Price (Newport News). The Motion Unanimously Carried.

Item# 6: RCS Draft Scope of Services for Phase 2:

Motion:

Mayor Rowe (Portsmouth) moved to refer the Phase 2 Scope of Work technical comments to the Working Group for review and to recommend HRTPO Board approval of the $1 million Phase 2 abbreviated scope of work; seconded by Mayor West (Chesapeake). The Motion carried.

Steering (Policy) Committee Meeting on 04/30/2019:

Item#3: Committee Organizational Structure:

Mr. Crum (HRPDC/HRTPO) presented the idea of the committee nominating a voting member as chair. Mayor Price (Newport News) was chosen as Chair, and he appointed Mayor Rowe (Portsmouth) as Vice Chair.

Item#7: Phase 2 Supplemental Scope of Work, Cost and Budget:

The committee approved the Phase 2 Supplemental Scope of Work, Cost and Budget, forwarding it to the HRTPO Board for approval at its May 16, 2019.

Steering (Policy) Committee meeting on 07/09/2019:

Item#5: Phase 2 Supplement Budget Omission:

Craig Eddy (MBI) presented slides concerning this matter. The committee approved the correction.

Item#7: Scenario Planning and Greater Growth Assumptions:
The consultant will run the models with 16% employment growth, and then present the results to the Working Group for it to decide whether that produces sufficient variation in the congestion of the existing + committed network between the three Greater Growth scenarios. Should upward revisions be deemed necessary by the Working Group, the consultant will run the models with employment growth rates up to 21% until sufficient variation between the scenarios is determined. The Committee approved the Scenario Narratives, Goals, Objectives, and Performance Measures.

Steering (Policy) Committee on 11/05/2019:
Item#6. Draft Phase 3 Scope of Work:
Craig Eddy (MBI) presented the draft Phase 3 scope, schedule, and budget using slides. The Committee approved the scope, schedule, and budget as presented.

2020

Working Group Electronic Meeting 06/12/2020
For the Preliminary Alternatives discussion, Craig Eddy (MBI) provided a background of the project scope, vision, goals, and objectives. His presentation included maps of the segments from the HRCS SEIS that were specified to be part of the RCS effort, as well as additional candidate segments received through stakeholder interviews. The group discussed the potential segments and alternatives to review and analyze as part of the study. Jason Flowers (USACE) read a statement regarding the Corps' federally mandated position to maintain and protect navigable waterways, channels, and access. After much discussion, there was concurrence among the members of the Working Group that the following candidate segments (shown on map provided at meeting) not be forwarded for analysis:

- o Segment 1: New bridge over James River, includes improvements on Rt 10 to US 17
- o Segment 4: Ferry service, Hampton to Norfolk
- o Segment 5: New bridge tunnel from NIT to Hampton

The Working Group also discussed at length the potential future need and scope of the VA-164 Connector and whether it should remain an RCS segment for consideration. For now, VA-164 will remain a potential segment since it is one of the mandated segments to analyze. Additional discussions with all impacted stakeholders will continue at future meetings.

Working Group Electronic Meeting on 07/09/ 2020:
Motion to move the study forward and accept the Travel Demand Model adjustments and calibrations were unanimously passed.

Working Group Electronic Meeting on 08/13/2020:

Concerning Phase 2, Lorna Parkins (MBI), Vlad Gavrilovic (EPR), Bill Thomas (MBI) presented inputs and outputs of travel demand model runs for various growth scenarios. Craig Eddy (MBI) asked the working group to confirm that the Greater Growth forecasts provide adequate differentiation in results.

Working Group members concurred that the differentiation between the 3 greater growth scenarios is sufficient and directed the consultant team to move the study forward. Congestion related performance measures will be presented at the August 27th meeting.

Working Group Electronic Meeting on 08/27/2020:

Bill Thomas (MBI) used slides to provide a modeling and congestion (by scenario) update. Results showed a decrease in VMT and VHT from 2017 to 2045 Base. Members expressed concerns with a decrease. Bill Thomas indicated that he intends to perform more checking of the modeling results.

Working Group directed the consultant team to improve model findings, coordinate with staff and report back in late summer/early fall.

Working Group Electronic Meeting on 10/08/2020:

Item #5. RCS: Modeling Update on Congestion Measures

Bill Thomas (MBI) indicated that he made model fixes to correct earlier counter-intuitive results and substandard differences (in screenline volumes) between counts and model. He presented volume data showing a better relationship between counts and the model. Then he presented measures (vehicle-miles traveled, delay, speed, etc.) comparing the three 2045 Greater Growth scenarios (Water, Urban, and Suburban). Bryan Stilley (Newport News) asked whether the group was satisfied with the fixes. The group made no objections. Mr. Stilley indicated that this satisfaction recommends to the Steering Committee approval of Phase 2.

Item #6. Mandated and Other Potential Segments:

Craig Eddy (MBI) presented slides showing the five segments from the Hampton Roads Crossing Study (HRCS) Supplemental Environmental Impact Statement (SEIS).

Motion: Brian Fowler (Norfolk) made a motion that the RCS move forward studying alternatives comprised of the five SEIS segments and modifications of the five. Ric Lowman (Va. Beach) seconded the motion. The Working Group approved the motion (4 to 1 from those voting members present at the time of the motion).

Joint Steering (Policy) Committee and Working Group Electronic Meeting on 10/27/2020:

Item #5: RCS Phase 2 Status Report:

Motion: The joint body approved Phase 2 completion, including Greater Growth scenario planning differentiation and travel demand modeling performance measures. The motion was moved by Mayor Rowe (Portsmouth) and seconded by Mayor Dyer (Virginia Beach). Prior to the vote, at the request of Mayor Rowe (Portsmouth), Cathy Vick (VPA) and Barbara Nelson (VPA) verbalized the Port's perspective, including expected growth of the Port. The motion passed unanimously by individual voice vote.

Item #6: RCS Mandated SEIS Segments and Other Potential Segments:

Motion: Mayor Rowe (Portsmouth) moved that the Mandated Segments be carried forward for "feasibility". Camelia Ravanbakht (RCS Coordinator) mentioned that the segments will be evaluated for permitability. Brian Fowler (Norfolk) indicated that the next step would be for the segments to be modified, as necessary. Martin Thomas (Norfolk) asked that the motion mirrors the motion of the Working Group at its recent meeting. Bob Crum (HRTPO/HRPDC) listed the 5 Mandated segments—I-664 Connector, VA 164 Connector, I-564 Connector, I-664, VA 164—then he reiterated the motion: This joint committee directs the RCS to move forward with studying the feasibility of alternatives comprised of the 5 Mandated Segments and modifications thereof. The motion passed unanimously by individual voice vote.

Working Group Electronic Meeting on 12/10/2020:

Item#5: **Regional Connectors Study: Phase 3 - Task 2 - Development of Preliminary Alternatives**

The Consultant Team provided the group with a detailed presentation of two travel demand model (TDM) runs: 1) one Unconstrained 2045 Baseline with the Existing + Committed (E+C) network and 2) one Unconstrained 2045 Baseline with all five mandated segments including: I-664, I-664 Connector, I-564 Connector, VA 164, and VA 164 Connector. Results from these two unconstrained 2045 Baseline model runs were compared with 2017 traffic volumes at key locations. Following some group discussions, Working Group members directed the Consultant Team to prepare for the January 14, 2021, meeting, five new 2045 Baseline model runs with a Constrained E+C network and the following Unconstrained segments:

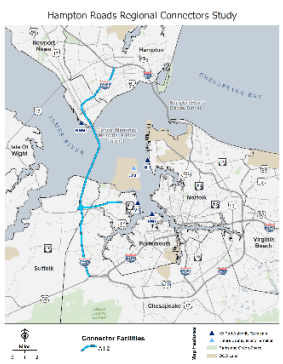
- All five Mandated Segments (I-664, I-664 Connector, I-564 Connector, VA 164, VA 164 Connector
- I-664 and VA 164
- I-664, VA 164, I-664 Connector, I-564 Connector
- I-664, VA 164, I-664 Connector, VA 164 Connector
- I-664, VA 164, VA 164 Connector, I-564 Connector

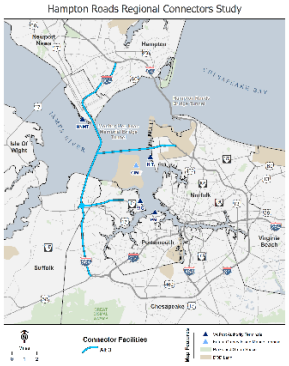
2021

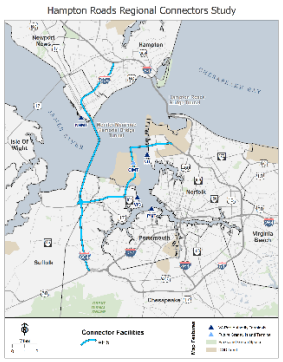
Working Group Electronic Meeting 01/14/2021

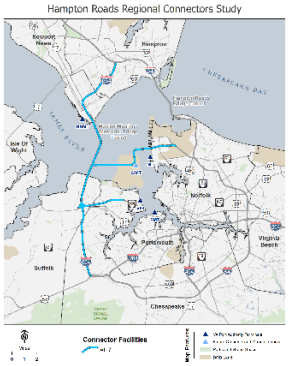
Item#5: **Regional Connectors Study: Development of Preliminary Alternatives**

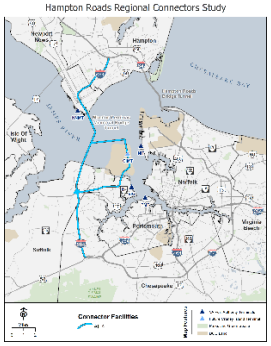
The Consultant Team presented the results from travel demand model runs for five Alternatives (see below graphics). Traffic volumes were tabulated for 2017, 2045 Baseline, and each of the five 2045 alternative runs. Following extensive discussions, Working Group Chair asked the members to decide which one of these alternatives should be moved forward to the next step for further modeling runs under Constrained E+C network as well as Constrained mandated segments.











Motion: Troy Eisenberger (Chesapeake) made a motion to move forward to the next step with Alternatives 2, 3, and 5. The motion was seconded by Ric Lowman (Virginia Beach) and passed 4 to 1 by those voting members present at the time of the motion.

Working Group Electronic Meeting 02/11/2021

Item#5: **Regional Connectors Study: Development of Preliminary Alternatives**

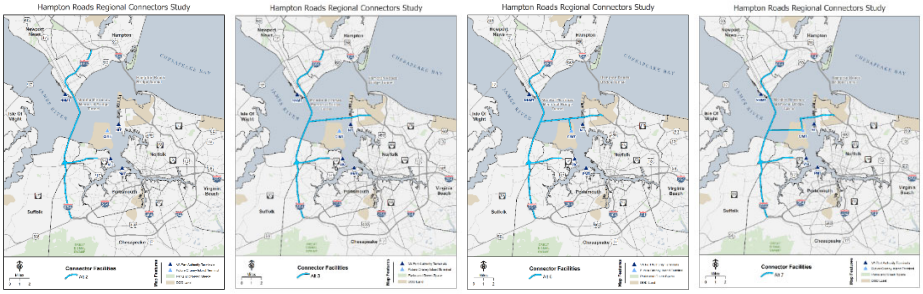
The Consultant Team presented the traffic volume results from travel demand model runs for 2045 Baseline, Alternatives 2, 3, and 5. The presentation also included summaries of two

meetings separately conducted on January 29, 2021, with ACOE and the Navy and on February 5,2021, with the Port of Virginia staff. Discussions focused on Segment 164 Connector regarding issues and constraints (listed below) expressed by ACOE, Navy and the City of Portsmouth:

- Segments must not interfere with operations, maintenance, construction, or capacity of Craney Island
- Current projected lifespan of Craney Island is 2050 based on current technology
- Segments must be a minimum of 1800 feet from the next phase of the Navy Fuel Depot project for safety and security reasons and may require walls to further safeguard from potential security threats
- City of Portsmouth Landfill expansion

Motion: Carl Jackson (Portsmouth) made a motion to delete Alternative 5 and add two new Alternatives 6 and 7. The motion was seconded by Brian Fowler (Norfolk) and passed unanimously.

The modeling results for Alternatives 2, 3, 6, and 7 will be presented at the March 11 Working Group meeting.



Working Group Electronic Meeting 03/11/2021 - Cancelled

Working Group Electronic Meeting 04/08/2021

Item#5: **Regional Connectors Study: Development of Preliminary Alternatives**

- The Consultant Team presented the modeling results from 2045 Baseline and Alternatives 2, 3, 6 and 7. The presentation included traffic volumes, capacity utilizations, and travel times for various runs. The Team also reviewed key model assumptions used for various model networks.

- Group discussion took place regarding the assumptions for HRELN toll rates, HRTPO Board approved 2045 list of projects, Bowers Hill Study recommended concept plans, and various design options.

- The WG members agreed to move all four alternatives (2, 3, 6, and 7) to the next step of the modeling process. In addition, they agreed to run Alternative 6 under two versions – with and without improvements to VA 164. Furthermore, they agreed to run each of the five preliminary alternatives under two design options for MMMBT: 6 General Purpose (GP) Lanes + 2 Managed Lanes (ML) and 4General Purpose Lanes + 4 Managed Lanes.

The next modeling runs will therefore include 10 Alternatives with the E+C Network (October 2020 version) while ensuring consistency with the Bowers - Hill Study recommended concept plans and HRTAC approved Initial Tolling Policy for HRELN ($0.06/mile or $0.25 per gantry). This is consistent with the scope of work.

Working Group Electronic Meeting 05/25/2021

Item#5: **Regional Connectors Study Phase 3: Development of Preliminary Alternatives**

- The Consultant Team presented the travel demand modeling results on five Alternatives (2, 3, 6, 7, and 8) selected at the April 8 meeting (see below Graphics 5A). The results were based on two design options for MMMBT: Option A (6GP+2M) and Option B (4GP+4M).

- The 2045 travel demand networks used for modeling these ten alternatives were corrected since the April 8th meeting to reflect the HRTAC Initial Toll Policy on the HRELN ($0.06/mile) and were also consistent with the recommendations from the Bowers-Hill Interchange Improvement Study (see Modeling assumptions below).

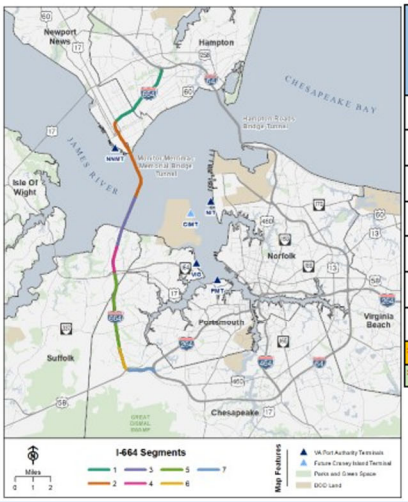
- The WG members agreed on eliminating Alternative 7 under both design options A and B due to design limitations and low estimated traffic volumes.

- The WG members agreed and selected Alternatives 2, 3, 6, and 8 with Options A and B to be moved to the next step of the analysis. The motion passed unanimously to recommend these 8 Alternatives for the Steering Committee's consideration and approval at their next meeting to be scheduled in the June/July timeframe.

REGIONAL CONNECTORS STUDY

ATTACHMENT 5A- ALTERNATIVES 2,3,6,7,8

Modeling Assumptions



I-664 Roadway Segments	Actual Existing Lanes	MMMBT Design Option (6+2)	MMMBT Design Option (4+4)	Comments
I-64 to Terminal Avenue Interchange	6	6+2	6+4/2*	
Terminal Avenue Interchange to I-664 Connector	4	6+2	4+4	MMMBT
I-664 Connector to College Dr. (Exit 8)	4	6+2	4+4	
College Dr. (Exit 8) to VA 164**	6	6+4	6+4	Bowers Hill Study Area
VA 164 to Dock Landing Rd**	4	4+4	4+4	
Dock Landing Rd to US 58 (Bowers Hill)**	4	6+4	6+4	
US 58 (Bowers Hill) to I-264W**	8	8+4	8+4	
* Adds/drops second HOT lane at Powhatan Parkway				
**Per Bowers Hill Interchange Improvement Study				

Joint Steering (Policy) Committee and Working Group Electronic Meeting 06/22/2021

Item#5: **Regional Connectors Study Phase 3: Development of Preliminary Alternatives**

The Consultant Team provided an update of activities conducted since the October 27, 2020, Joint meeting. Mr. Craig Eddy reviewed Alternatives 1 through 8 as considered by the Working Group during the past several months. Mr. Eddy further indicated that the Working Group had eliminated Alternative 1 (high cost), Alternatives 4 and 5 (VA 164 Connector constraints and issues raised by the Navy, Army Corps of Engineers, and city of Portsmouth), and Alternative 7 (low estimated traffic volumes and design constraints). Lastly, Mr. Eddy shared with the members the four alternatives (Alternatives 2, 3, 6, and 8) under two design options A and B that were recommended by the Working Group for the Steering Committee's approval.

Motion: Chair Price requested the members for a motion to approve the Working Group's recommended alternatives and design options. Mr. Thomas (Norfolk) indicated that a funding request has been submitted to Congress for the Craney Island Access Study. He further requested the Chair to include Alternatives 5 and 7 in the final list of Preliminary Alternatives. Following some discussions and the absence of several members of the Policy Committee, Chair Price directed the staff to schedule a 30-minute electronic meeting the following week for the joint group to reconvene and act on this one item: selection of Preliminary Alternatives.

Joint Steering (Policy) Committee and Working Group Electronic Meeting 06/30/2021

Item#4: **Regional Connectors Study Phase 3: Development of Preliminary Alternatives**

The purpose of this meeting was for the members to vote on the Working Group recommended Alternatives 2, 3, 6, and 8 under two design options A and B (a total of 8 Alternatives). The design options pertain to the number of general purpose (GP) and managed (M) lanes on I-664 from its interchange with I-64 on the peninsula to its proposed interchange with the I-664 Connector over the Hampton Roads Harbor. Option A would provide 6 GP and 2 M while Option B would provide 4 GP and 4 M.

Mayor Price (Newport News) initiated this item by asking for a motion to move ahead with the alternatives recommended by the working group that were to be voted on at the previous week's (June 22) meeting. Mayor Tuck (Hampton) made a motion, and Mayor Glover (Portsmouth) seconded the motion.

Vice-Mayor Thomas (Norfolk) made a substitute motion. The substitute motion is to include Alternatives 5 and 7 in the study, due to the burden of truck traffic on Hampton Boulevard, the burden that will be imposed by the future Craney Island Terminal, and the possibility that these alternatives may be cheaper. Vice-Mayor Thomas (Norfolk) then mentioned the possibility of an additional $3.1 million in federal earmark that was requested for a study to look at access to the future Craney Island Terminal. Mayor Dyer (Virginia Beach) seconded the substitute motion.

There was extensive discussion among the Steering (Policy) Committee members regarding the importance of Alternatives 5A, 5B, 7A, and 7B even though they had been recommended for removal. The addition of Alternatives 5A, 5B, 7A, and 7B, would result in 12 preliminary alternatives to be studied when added to the 8 recommended by the Working Group, which exceeds the number allowable (maximum of ten Alternatives) as per the scope of work. During the meeting, the Steering Committee was made aware of this scope limitation.

Motion: Vice-Mayor Thomas (Norfolk) amended his substitute motion. His amended substitute motion is to defer the action today to determine how much additional funding would be required to analyze 12 alternatives simultaneously through Phase 3 (including Alternatives 5 and 7) and to explore what additional money is available from HRTAC to fund the additional analysis. Mayor Tuck (Hampton) moved approval of the amended substitute motion; Mayor Dyer (Virginia Beach) seconded.

The Motion passed with five Yes votes and two No votes requiring:

- an estimated cost/per additional alternative (beyond 10)
- an inquiry as to the availability of additional funds from HRTAC for such study

RCS on Temporary Pause: July 2021 – September 2021

Following the June 30, 2021, Joint Steering (Policy) Committee/Working Group meeting, Robert Crum, HRPDC/HRTPO Executive Director worked diligently with the Committee members to resolve notable issues and develop a path forward to complete the RCS.

Joint Steering (Policy) Committee and Working Group Meeting 10/12/2021

Item #5: RCS Background and Recommended Path Forward:

Robert Crum, HRPDC/HRTPO Executive Director made a presentation on the path forward for the RCS. He began his presentation by introducing the consultant's new project leadership – Lorna Parkins and Paul Prideaux – and by highlighting the mandated segments and the past philosophy of the study.

Mr. Crum noted that he met with members of the Steering (Policy) Group after the June meeting. In these discussions he heard that some of the options in the RCS may not be constructed for decades; technology, community growth, and needs will evolve over time; there are questions and concerns about some segments but it's too early to eliminate them at this stage, the RCS should determine each segment's advantages and disadvantages, and ready-to-go projects shouldn't be slowed down.

Mr. Crum stated that HRTPO staff and the consultant team believe that retaining certain segments through the next stage of analysis can be accomplished without the need for additional funding. He added that each of these segments would be advanced to the next phase of this study, where an analysis would be completed on the degree to which each segment addresses the needs of the region.

Mr. Crum added that the cost, constructability, permitability and congestion relief of the various segments will be evaluated, and the various segments will be ranked using this evaluation and staged based on project readiness.

Mr. Crum concluded his presentation by noting the following potential category groupings:

- Those segments that are ready for advancement and should be recommended for consideration in the fiscally-constrained portion of the Hampton Roads 2050 Long-Range Transportation Plan.
- Those segments which require further refinement and maturation, and will be recommended for consideration in the 2050 Vision Plan as projects requiring further evaluation for permitability and constructability.
- Those segments that due to technical issues or other items will be retained but will warrant further consideration by the community at the appropriate time.

Motion: Mayor Dyer (Virginia Beach) made a motion to approve the recommended path forward and Mayor Duman (Suffolk) seconded. The motion was unanimously approved.

Item #6: RCS: Proposed Approach to Study Completion

Lorna Parkins (MBI) RCS Project Co-Manager noted that the mandated study segments have not changed. The updated methodology will simply sort the segments into chronological tiers based on readiness and known challenges associated with construction and permitting. She added that the updated Phase 3 Process will establish a tiering framework, apply the framework to tier the segments, evaluate congestion relief and finalize segments tiers, and provide the information for the 2050 LRTP and prioritization process.

Ms. Parkins added that there will be three tiers. Tier 1 will have favorable constructability, permitting and readiness; Tier 2 will have favorable or mixed constructability and permitting but less favorable readiness; and Tier 3 will be challenged for constructability and permitting and a higher degree of uncertainty.

Ms. Parkins noted that individual segments will be organized into bundles for analysis, and the congestion relief evaluation will include as many as three logical bundles for evaluation. The consultant team will evaluate congestion relief and other system effects of the bundles, and the evaluation results will finalize the tiering of the segments.

Mr. Jackson mentioned that the Working Group has had a strong role in the study to this point and asked if the Working Group will continue to have this role moving forward. Mr. Crum replied that the Working Group will continue to be key in the technical work of the study. Mr. Crum also noted that committee members indicated a preference for more Joint Steering (Policy) and Working Group meetings moving forward.

Joint Steering (Policy) Committee and Working Group Meeting 12/07/2021 – Cancelled

REGIONAL CONNECTORS STUDY

2022

Joint Steering (Policy) Committee and Working Group Meeting 01/11/2022

Item# 5. Regional Connectors Study (RCS): Scope of Work and Schedule Update:

Ms. Lorna Parkins, RCS Co-Project Manager, briefed the Joint Committee members on the updated scope of work and schedule associated with the RCS. She stated that the updated methodology approved by the Steering Committee at the October 21, 2021, meeting will be used to evaluate and sort the RCS segments into chronological tiers based on readiness and known challenges associated with construction and permitting. She then provided a summary of the following three tiers:

- Tier 1
  - Favorable constructability and permitting
  - Favorable readiness
- Tier 2
  - Favorable or mixed constructability and permitting
  - Less favorable readiness
- Tier 3
  - Currently challenged for constructability and permitting
  - Higher degree of uncertainty/requires additional information

The updated Study process will consist of four steps:

- Step 1 – Draft Segment Tiering (3 months)
  - Qualitative assessment of construction, permitting, and readiness
- Step 2 – Final Segment Tiering (3 months) – to include updating the RCS 2045 Baseline Network
  - Congestion reduction evaluation
  - Revised design and cost estimation
- Step 3 – Full recommendations to the HRTPO (6 months)
  - Scenario analysis
  - Traffic operations analysis
- Step 4 – Final Report (4 months)
  - Public engagement and documentation

Ms. Parkins stated that the consultant team will come back to the Joint RCS at the beginning of Step 2 to determine if any projects need to be added to the base network. She noted that although the schedule is tight, the consultant team should be able to make the original study completion date of June 2023.

Mr. Carl Jackson (Portsmouth) asked whether the Joint RCS was being asked to consider approving the updated study process or the baseline network. Ms. Parkins replied that the Joint RCS will be asked to vote on the updated study process.

Mayor Donnie Tuck (Hampton) stated that there were possible funding earmarks that may be brought forth from Congress and inquired to the status of the earmarks. Mr. Kevin Page, HRTAC Executive Director, replied that he was unaware of any federal funding at this time.

Motion: Mayor Rick West (Chesapeake) Moved to approve the revised RCS Scope of Work and Schedule; seconded by Mayor Donnie Tuck (Hampton). The Motion Carried.

Item# 6. Regional Connectors Study: Draft Evaluation Measures for Segment Tiering

Ms. Lorna Parkins stated that as noted in her previous presentation regarding the revised scope of work, the mandated RCS segments will be evaluated utilizing the following criteria:

- Permitting Issues
- Construction Complexity
- Project Readiness
- Congestion Relief

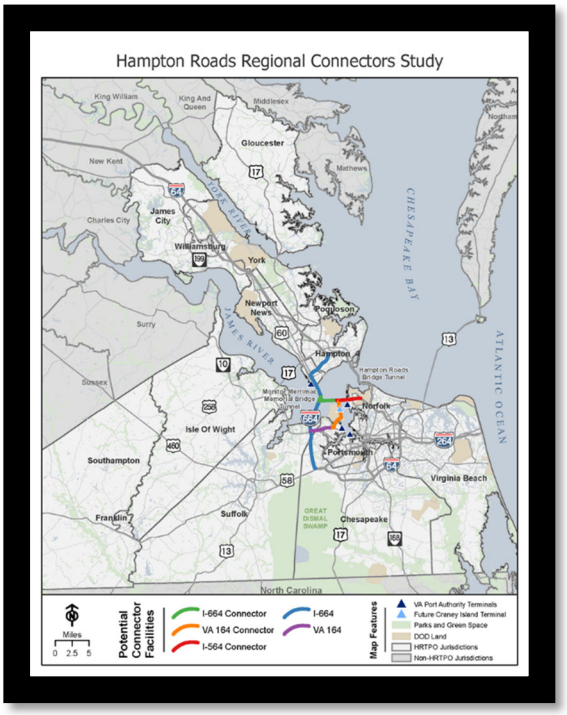
Ms. Parkins noted that the consultant team has developed a series of draft measures and factors for evaluating the mandated segments on the first three criteria. She summarized each criterion and stated that this evaluation will provide a comprehensive understanding of the mandated segments including impacts to community residents and businesses, environmental justice populations, regional economic drivers, and the environment.

She indicated that the outcome of this evaluation will provide logical information, supported by qualitative and quantitative observations, which will support the initial draft designation of the mandatory segments into three tiers as described in the revised scope of work.

Ms. Amy Inman (Norfolk) inquired as to the quality of evaluating the segments with these measures based on unknown traffic impacts. Ms. Parkins acknowledged that there are unknown factors; however, the impacts on the segment alignments will be initially based on the current level of engineering.

Motion: Mayor Rick West (Chesapeake) Moved to approve the draft Evaluation Measures; seconded by Mayor Donnie Tuck (Hampton). The Motion Carried.

APPENDIX A – STUDY AREA



REGIONAL CONNECTORS STUDY

Appendix B: Funding

Description Budget/Cost	
Phase 1	$359,497
Phase 1 (Supplement)	$3,784
Phase 2 (Interim)	$779,199
Phase 2 (Supplement)	$709,637
Phase 2 (Supplement Omission)	$96,746
Phase 3	$4,062,710
Subtotal amount (Consultant)	$6,011,573
Contingency	$80,638
Total Amount (Consultant)	$6,092,211
RCS Project Coordination	$322,000
HRTPO staff expenses	$535,756
Grand Total	**$6,949,967**

Funded by HRTAC, Administered by HRTPO

the heartbeat of HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

HRTAC
Hampton Roads Transportation Accountability Commission