



REGIONAL CONNECTORS STUDY

WORKING GROUP MEETING

April 8, 2021

Michael Baker
INTERNATIONAL

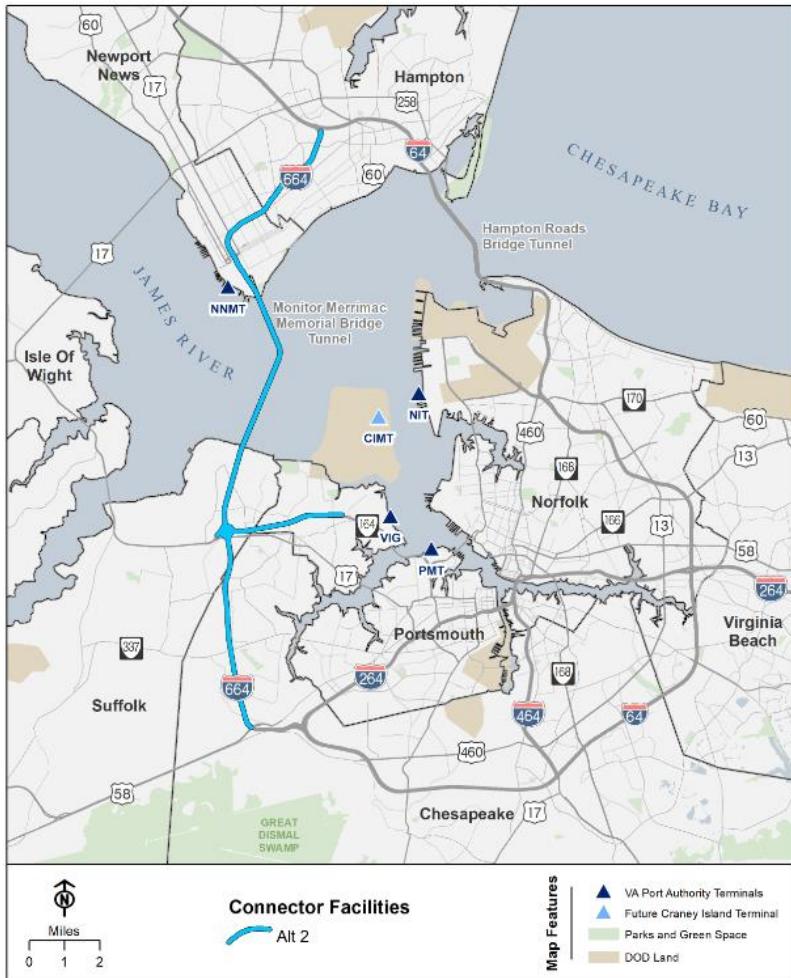
Meeting Purpose

- Convey work activity since February 11, 2021 meeting
- Get final decision on preliminary alternatives (alignments and design features)—**ACTION NEEDED**

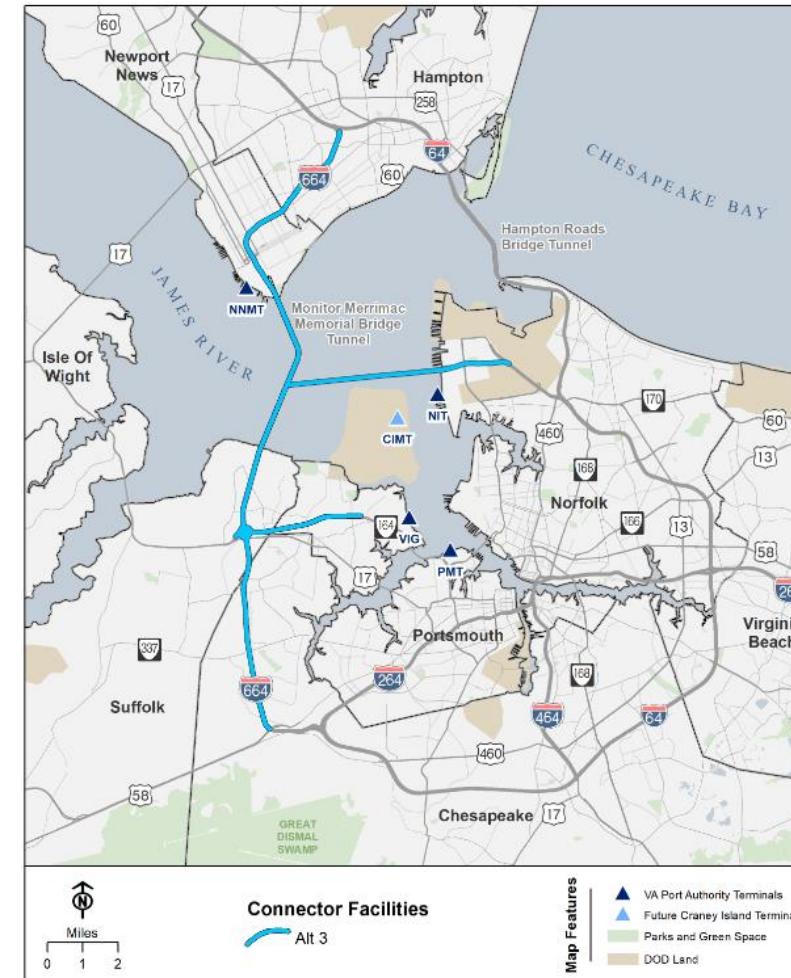
Activity Since February 11, 2021 Working Group Meeting

- Completed Existing Conditions Analysis Report – distributed for review and comment March 30
- Continued work on draft Technical Guide for Scenario Evaluation (draft by Apr 16)
- Presented study status update to Community Advisory Committee
- Conducted revised model runs for 2045 Baseline and Alternatives 2, 3, 6, and 7

Alternative 2



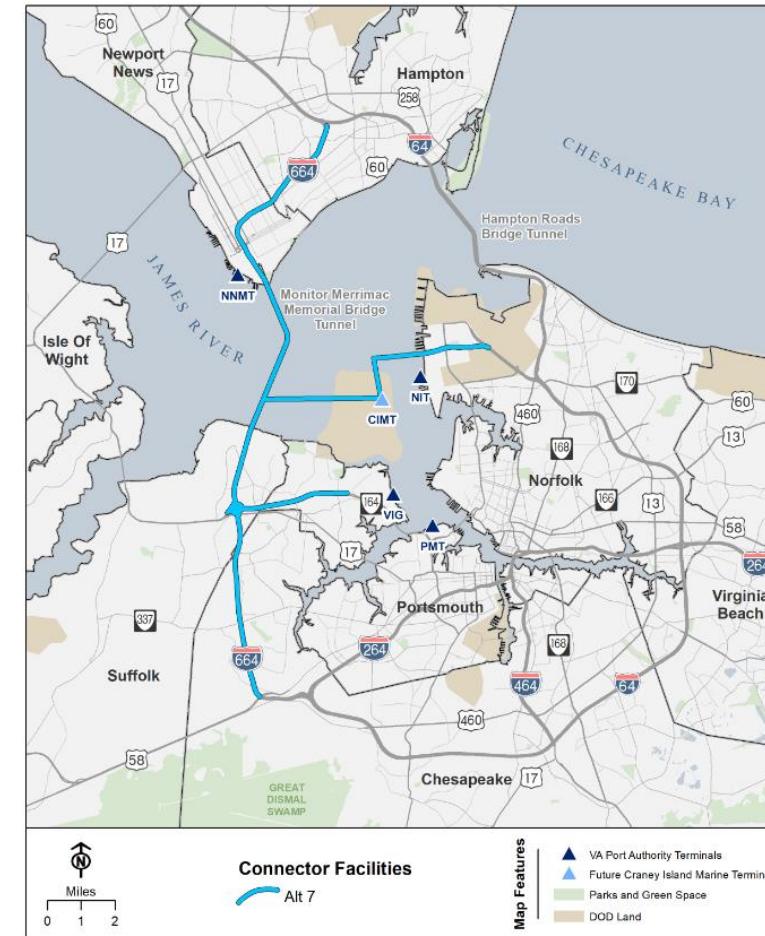
Alternative 3



Alternative 6



Alternative 7



Modeling Runs

- Ran travel demand model the 2045 Baseline and 4 combinations of mandated segments with all mandated segments constrained like the rest of the network:
 - Alternatives 2, 3, 6, and 7
- Prepared matrix to illustrate volumes for 2017, 2045 Baseline, and the 4 combinations of segments in constrained conditions

Modeling Runs Assumptions

Notes:

- Number of lanes is total for both directions – E+C network as of Oct 2020
- All toll values in Year 2017 US dollars
- Trucks are prohibited from using the managed lanes.
- Managed lane tolls only apply to single-occupant vehicles (SOV)

I-664

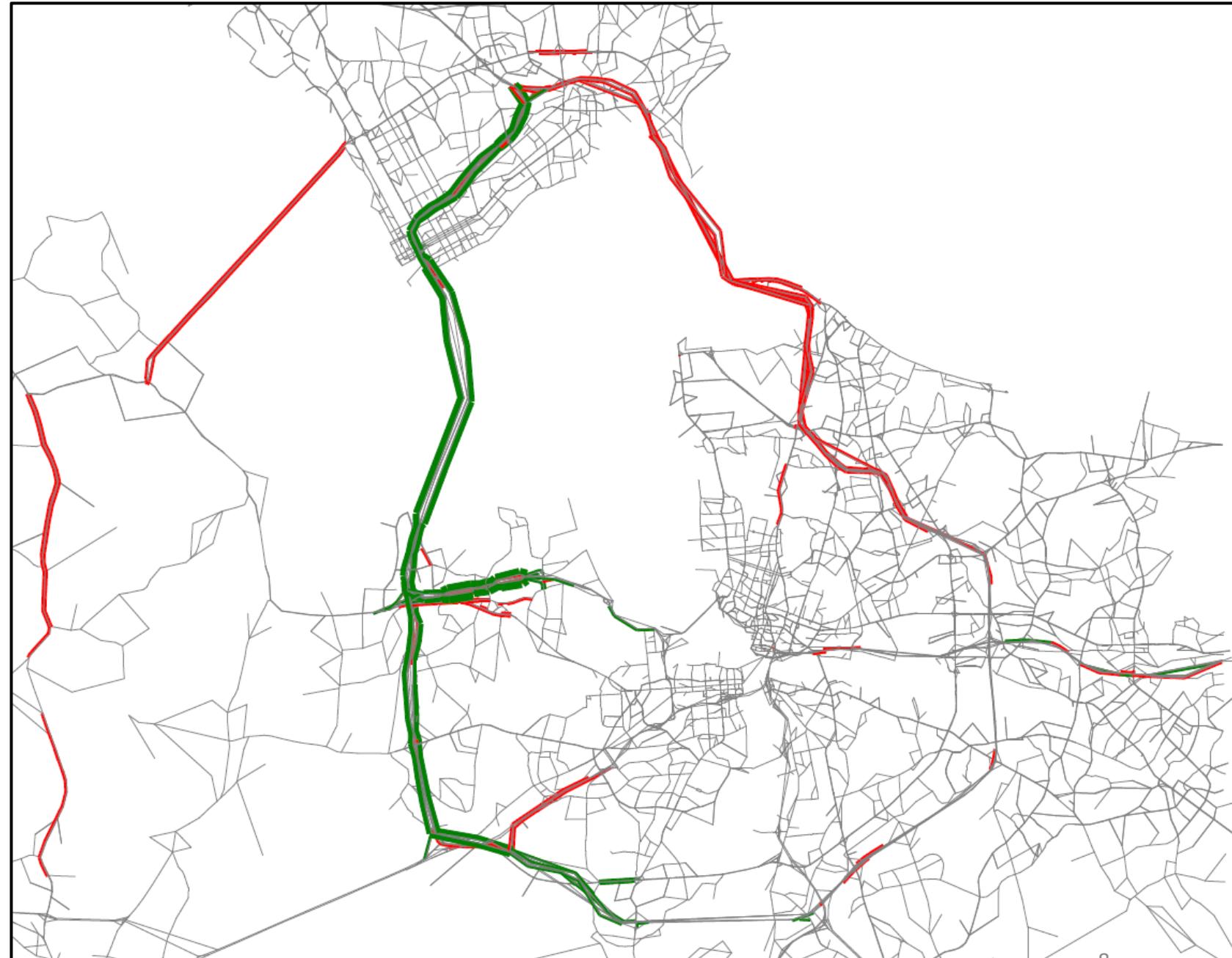
Roadway Segments	General Purpose Lanes	Managed Lanes	Toll Rate (\$/mi.)	
		24 Hrs.	Peak	Off-Peak
I-664: I-64 to Terminal Avenue Interchange	6	2	\$ 0.10	\$ 0.10
I-664: Terminal Avenue Interchange to I-664 Connector	6	2	\$ 0.35	\$ 0.26
I-664: I-664 Connector to College Dr. (Exit 8)	6	2	\$ 0.10	\$ 0.10
I-664: College Dr. (Exit 8) to VA 164	6	2	\$ 0.10	\$ 0.10
I-664: VA 164 to US 58 (Bowers Hill)	4	2	\$ 0.10	\$ 0.10
I-664: US 58 (Bowers Hill) to I-264W	6	2	\$ 0.10	\$ 0.10

Other Mandated Segments

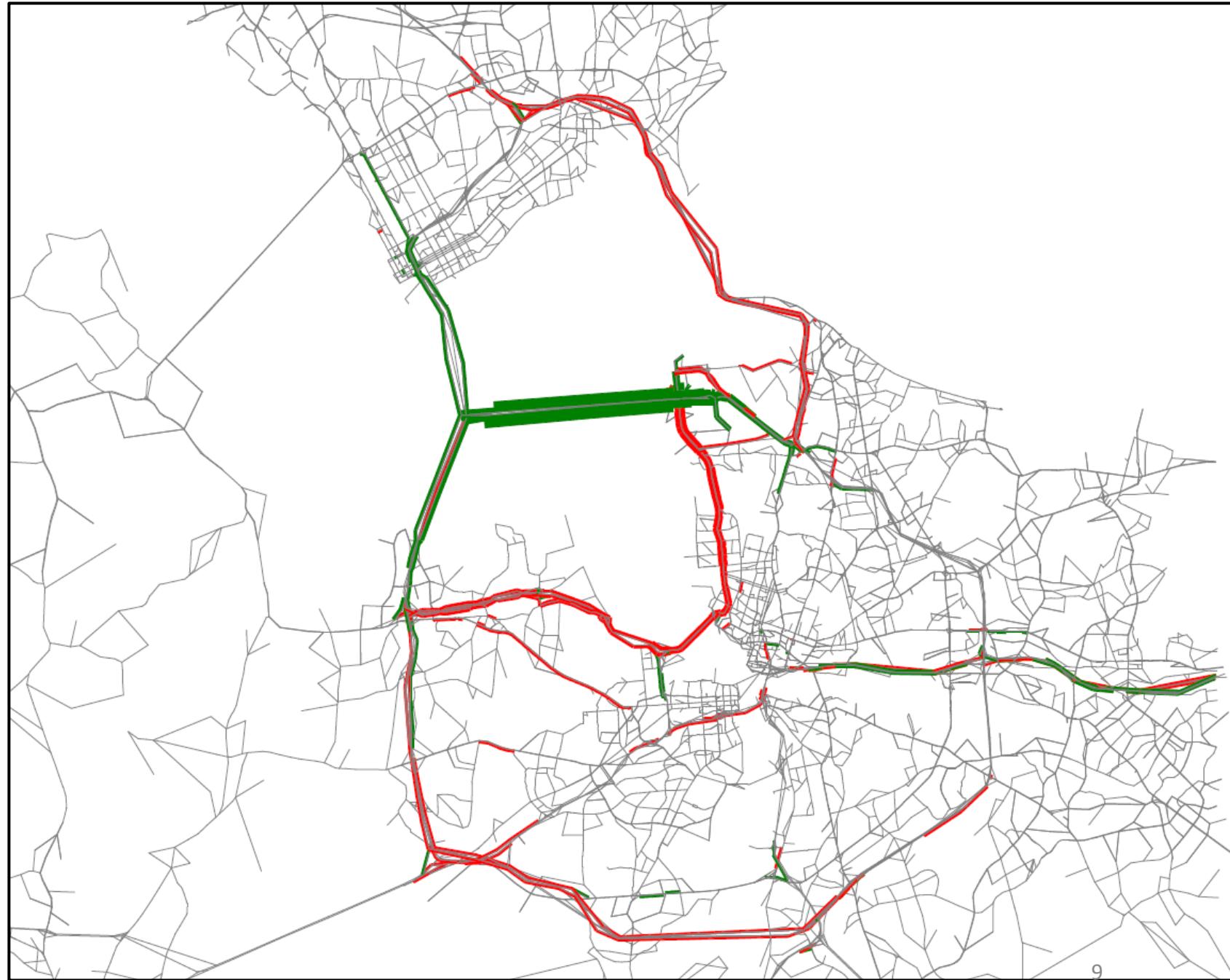
Roadway Segments	General Purpose Lanes	Managed Lanes	Toll Rate (\$/mi.)	
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I-564 Connector	4	-	\$1.00 Auto* \$3.00 Truck*	\$1.00 Auto* \$3.00 Truck*
I-664 Connector including I-664 Interchange	4	-	\$1.00 Auto* \$3.00 Truck*	\$1.00 Auto* \$3.00 Truck*
CIMT Connector	4	-	-	-
VA 164: I-664 to Cedar Lane	4	2	\$ 0.10	\$ 0.10

* - Fixed toll at a location on the segment - all lanes (GP).

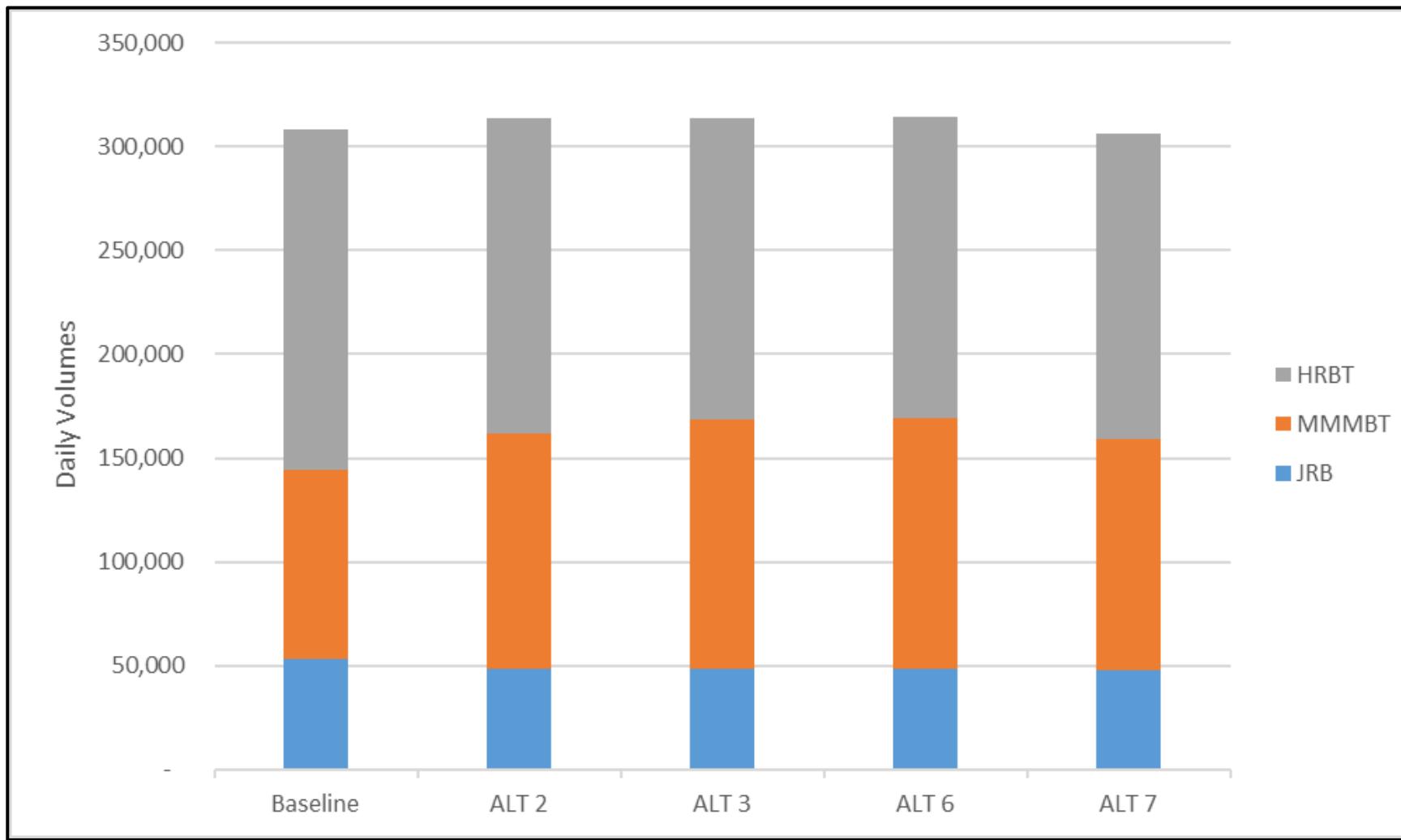
Effect of I-664 and VA 164 Improvements on Regional Daily Traffic



Effect of East-West Connector on Regional Daily Traffic



2045 Daily Volumes - Harbor Crossings

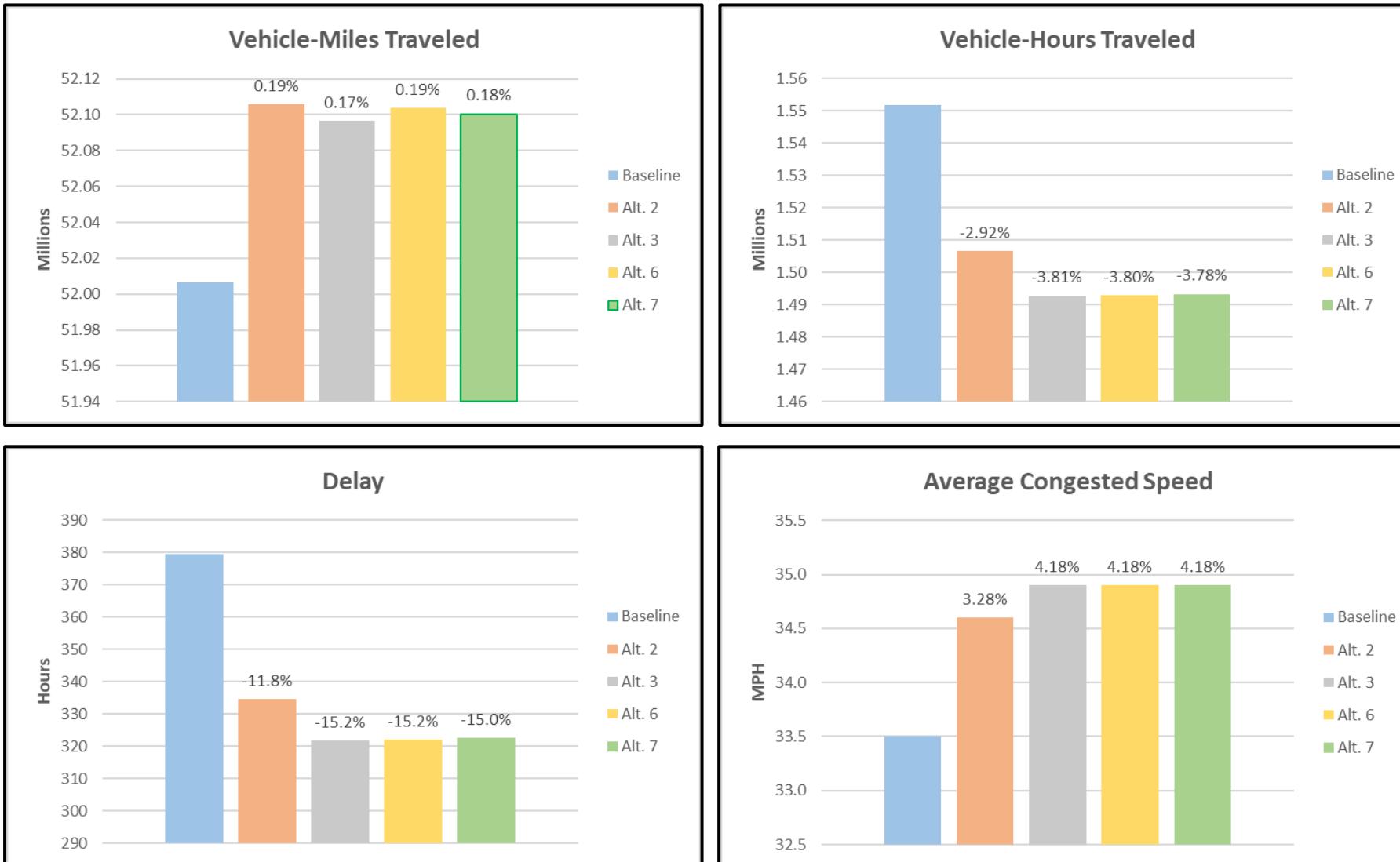


Roadway Capacity Utilization – Harbor Crossings

Description	Baseline		Alternative 2		Alternative 3	
	Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
James River Bridge	129%	72%	110%	70%	111%	71%
Monitor Merrimac Memorial Bridge-Tunnel (GP)	126%	94%	85%	63%	86%	63%
Monitor Merrimac Memorial Bridge-Tunnel (Managed)	-	-	83%	38%	86%	66%
Hampton Roads Bridge-Tunnel (GP)	159%	120%	142%	119%	135%	118%
Hampton Roads Bridge-Tunnel (Managed)	132%	100%	115%	93%	105%	84%

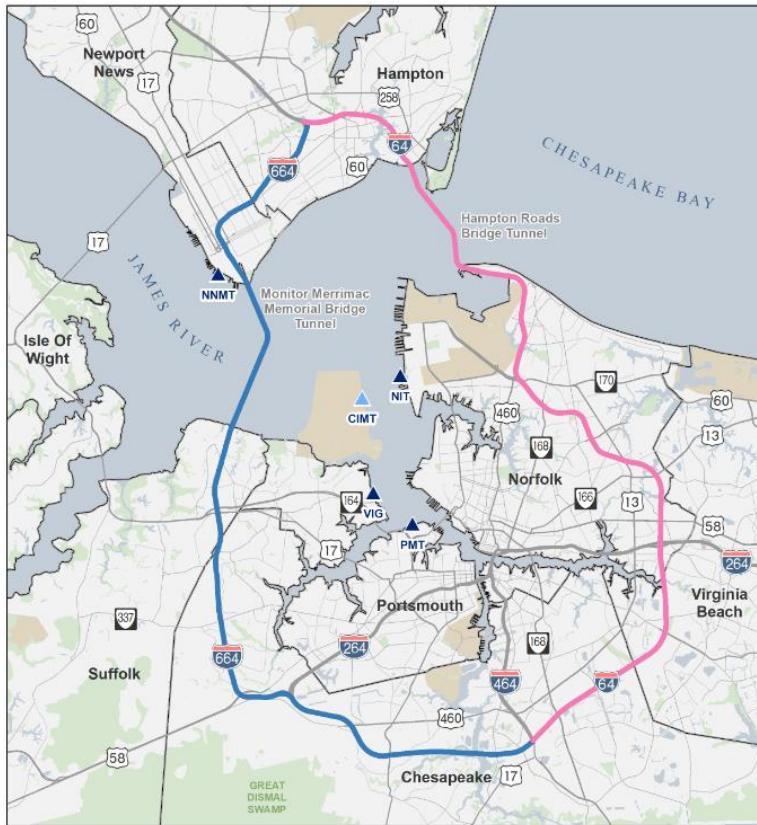
* Values reflect peak direction of traffic for AM peak and Midday off-peak periods.

Impacts on Regional Roadway Network (2045 Daily)



* % change compared with 2045 Baseline

Travel Times

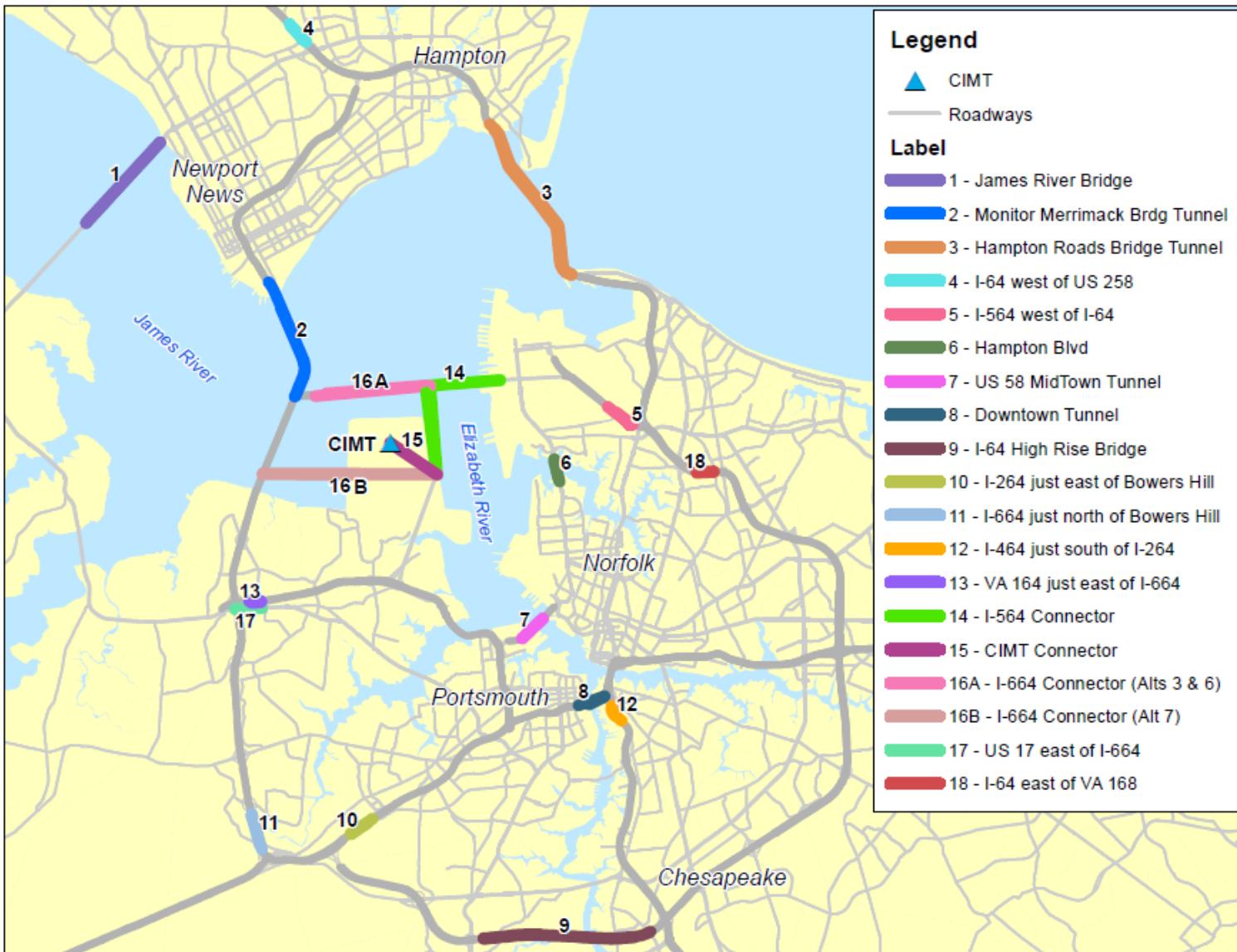


- Blue – Path A
- Pink – Path B

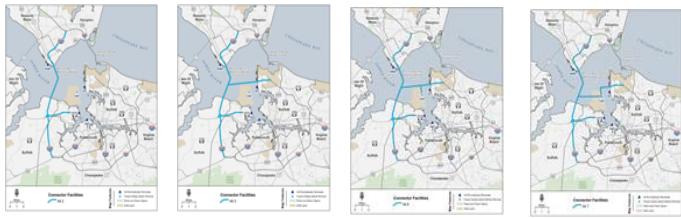
Direction of Travel	2045 Baseline		Alternative #2		Alternative #3		
	GP	Managed	GP	Managed	GP	Managed	
Path A (via I-664)	Peak (SB)	64.0	-	42.8	29.0	40.0	27.5
	Change	-	-	-33.1%	-	-37.5%	-
	Off-Peak (SB)	37.1	-	35.3	24.8	33.6	25.2
	Change	-	-	-4.9%	-	-9.4%	-
Path B (via I-64)	Peak (SB)	86.4	72.6	68.1	50.2	61.8	35.4
	Change	-	-	-21.2%	-30.9%	-28.5%	-51.2%
	Off-Peak (SB)	49.1	26.3	48.4	26.2	47.4	26.1
	Change	-	-	-1.4%	-0.4%	-3.5%	-0.8%

* Travel times reflect peak direction of traffic for AM peak and Midday off-peak periods; % change compared with 2045 Baseline; Units in minutes.

Modeling Volume Locations



Daily Traffic Volumes at Key Locations



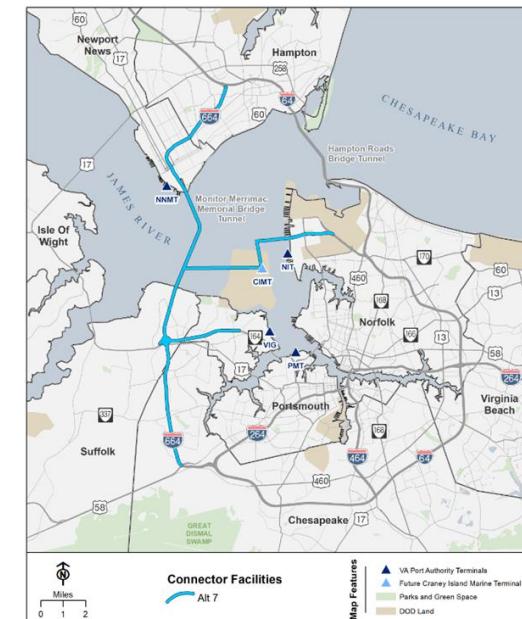
Note:

- **Red** – decrease from 2045 Baseline
- **Green** – increase from 2045 Baseline

ID	Location	2017 Existing	2045 Baseline (full HREL) (No Toll on I-664)	2045 Constrained Alternative 2 (w/ Toll)	2045 Constrained Alternative 3 (w/ Toll)	2045 Constrained Alternative 6 (w/ Toll)	2045 Constrained Alternative 7 (w/ Toll)
1	James River Bridge	37,431	53,554	48,831	48,537	48,564	47,806
2	Monitor Merrimack Bridge Tunnel (GP)	74,994	90,487	88,908	89,422	89,795	86,487
102	Monitor Merrimack Bridge Tunnel (Managed Lanes)	-	-	24,439	30,535	30,664	25,051
3	Hampton Roads Bridge Tunnel (GP)	92,195	107,051	103,165	101,702	101,669	101,363
103	Hampton Roads Bridge Tunnel (Managed Lanes)	-	57,265	48,371	43,408	43,551	45,595
Harbor Crossing Totals		204,620	308,357	313,715	313,603	314,245	306,301
4	I-64 west of US 258 (Mercury Blvd) (GP)	119,617	159,714	158,924	157,410	157,632	157,270
104	I-64 west of US 258 (Mercury Blvd) (Managed Lanes)	13,802	14,445	14,358	14,651	14,830	14,184
5	I-564 west of I-64	96,455	77,917	77,529	81,352	80,983	79,571
6	Hampton Blvd over the Lafayette River	42,949	44,070	43,428	35,575	36,222	35,822
7	US 58 MidTown Tunnel	50,700	61,016	61,638	54,721	54,562	55,420
8	I-264 under the Elizabeth River (Downtown Tunnel)	76,479	84,487	84,646	83,134	82,947	83,370
9	I-64 High Rise Bridge (GP)	106,183	122,614	123,384	122,889	123,289	123,164
109	I-64 High Rise Bridge (Managed Lanes)	-	16,004	19,584	17,250	17,701	17,351
10	I-264 just east of Bowers Hill	64,611	82,854	77,758	76,195	75,802	76,111
11	I-664 just north of Bowers Hill (GP)	85,186	101,159	101,610	101,146	101,149	101,246
111	I-664 just north of Bowers Hill (Managed Lanes)	-	-	16,932	14,508	14,746	14,739
12	I-464 just south of I-264	88,248	97,530	96,945	97,763	97,519	97,579
13	VA 164 just east of I-664 (GP)	50,087	49,561	47,370	43,414	43,642	42,900
113	VA 164 just east of I-665 (Managed Lanes)	-	-	17,173	13,574	13,742	14,821
14	I-564 Connector	-	-	-	39,040	39,081	31,977
15	CIMT Connector	-	-	-	-	704	842
16	I-664 Connector	-	-	-	39,040	39,410	32,425
17	US 17 east of I-664	22,206	27,148	24,723	23,718	23,741	23,835
18	I-64 east of VA 168 (GP)	113,334	114,430	111,292	112,484	112,111	112,276
118	I-64 east of VA 168 (Managed Lanes)	34,994	33,076	30,160	30,835	30,307	29,457

Group Discussion

- Preliminary Alternatives Decisions:
 - Select from 2,3,6, and 7 (e.g. 3,6 and 7)
 - Select designs (e.g. MMBT 6+2, MMBT 4+4)
 - Total combinations (3x2 = 6)
 - Label Alternatives (3A, 3B, 6A, 6B, 7A, 7B)



Modeling Runs Assumptions



I-664

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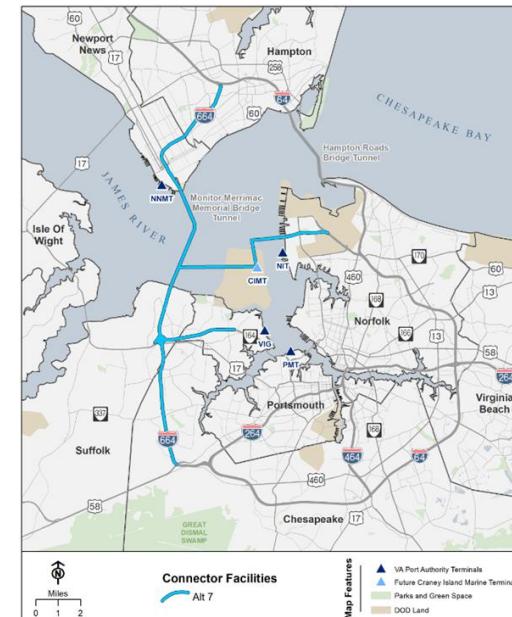
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Recommended Action

- Finalize preliminary alternatives including design features
- Recommend for Steering (Policy) Committee consideration and approval





REGIONAL CONNECTORS STUDY

6-MONTH OUTLOOK

Michael Baker
INTERNATIONAL

Tasks - Next 6 Months

- Determine Preliminary Alternatives (today)
- Complete Phase 2 documentation
- Development of Preliminary Alternatives (Task 2)
 - Develop/Refine Geometry of Preliminary Alternatives (Task 2.2 – end of Aug completion)
 - Hydraulics and Hydrology (Task 2.3 – end of Aug completion)
 - Structures (Task 2.4 – end of Aug completion)
 - Utilities and Railroad Crossings (Task 2.5 – end of Aug completion)
 - Planning Cost Estimates (Task 2.6 – end of Aug completion)
- Determination of Candidate Alternatives (Task 3)
 - Conduct Congestion Relief Assessments (Task 3.1a – end of May completion)
 - Performance Evaluation (Task 3.1b – mid-Oct completion)
 - Conduct Permitability Assessments (Task 3.2 – mid-Oct completion)
 - Conduct Constructability Assessments (Task 3.3 – mid-Oct completion)



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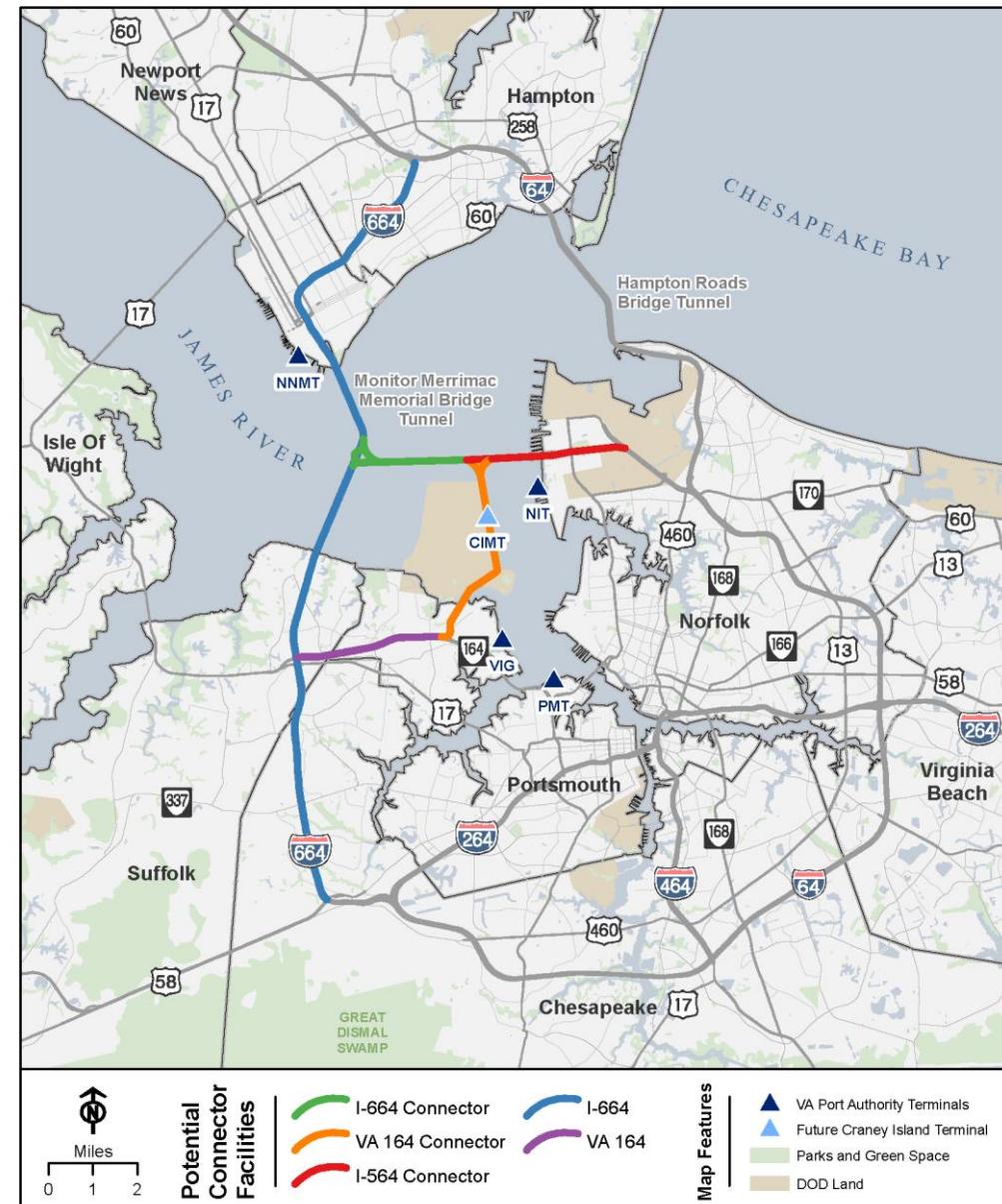
REFERENCE SLIDES – IF NEEDED

Michael Baker
INTERNATIONAL

MANDATED SEGMENTS

Previous Discussion

- As per October 27 Joint Steering (Policy) Committee/Working Group recommendation, Consultant team to investigate potential refinements of mandated segments



Phase 3 Schedule

REVISED - Regional Connectors Study - Phase 3 Schedule (January 14, 2021)

Study Purpose

- To evaluate the feasibility, permitability, and transportation benefits (including congestion relief) of the following segments not included in the CTB approved HRCS SEIS Preferred Alternative (Alternative A)
 - VA 164
 - I-564 Connector
 - VA 164 Connector
 - I-664 Connector
 - I-664 from I-64 to US 460/58/123 in Chesapeake, not including Bowers Hill
- To establish a regional long-term vision that investigates 21st century transportation options that connect the Peninsula and the Southside across the Hampton Roads Harbor that enhance economic vitality and improve the quality of life in the region

Hampton Roads Regional Connectors Study

