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Commonwealth Transportation Board Briefing

Tolling Policy Material Adverse Effect Evaluation Traffic Operations & Safety Analysis

Stephen C. Brich, P.E. – Commissioner VDOT

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HRTAC Tolling Policy

PURSUANT to HRTAC RESOLUTION 2021-02: Resolution Authorizing Initial Tolling Policies of The Hampton Roads Express Lanes Network

- **Covered Lanes: HOT Lanes in the Initial Network created under the Master Tolling Agreement (MTA)**
- **Hours of Operation 24/7/365**
- **Automated Toll Collection**
- **Single Trip Transactions**
- **Dynamic Toll pricing based managed lane network traffic density**
- **Truck Traffic Restricted**

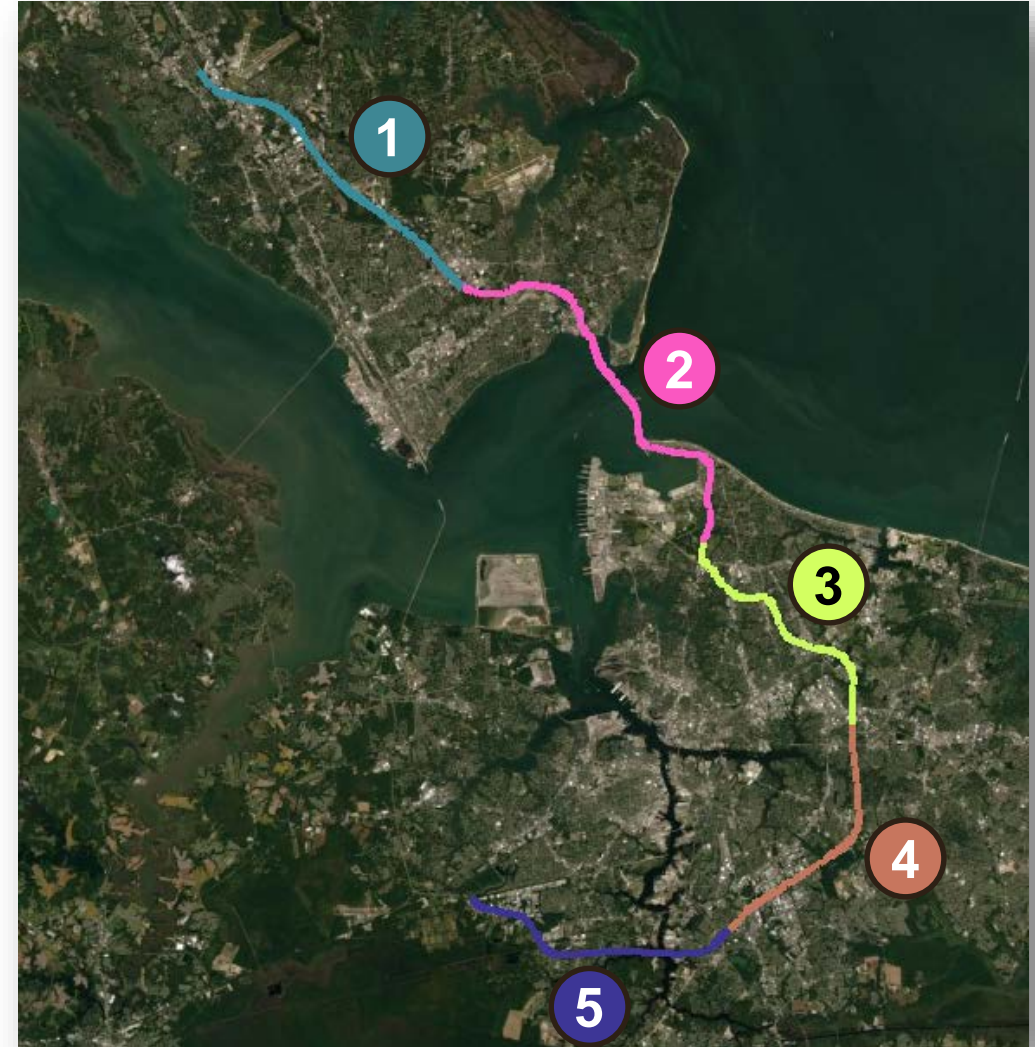
Tolling Policy Evaluation

- Evaluate proposed HRTAC tolling policy impacts to HREL system person throughput and safety against adverse impact criteria identified in Master Tolling Agreement
 - Operations – Person throughput < 5% in 2 or more segments and or < 10% in any one segment.
 - Safety - Crash Rate > 5% for any segment
- Compare existing network geometry (No Build) vs. future HREL geometry (HREL Build)
- Evaluate affects of tolling policy (applied to HREL Build)
 - High Occupancy Toll 2 (HOT-2)
 - 24/7 tolling operations
 - Dynamic pricing based on traffic density per 23 U.S.C. Section 166 to maintain no less than 45 mph within the managed lane network
 - No Truck traffic

Material Adverse Effect Analysis – Segmentation

- 1) Jefferson Ave to I-664
- 2) I-664 to I-564
- 3) I-564 to I-264
- 4) I-264 to I-464
- 5) I-464 to Bowers Hill

Segmentation as defined in Master Tolling Agreement



HREL - Material Adverse Effect Analysis

Outcome Summary

- Operations Outcome

Overall Network person throughput increase (average 22%)

- Safety Outcome

Overall Network projected crash rate reduced (~ 2.3%)

- Increased trip reliability

Travel times end to end reduced (~ 40min)

Moving more people, safer, and with a more reliable trip



Traffic Operations Analysis

Virginia Department of Transportation

Traffic Operations Analysis – Methodology

- Used 2025 VISSIM microsimulation for analysis
- Forecasts and Vehicle Occupancy Factor developed using HRTPO's regional travel forecast model
- AM and PM peak periods analyzed
- Master Tolling Agreement Criteria for Material Adverse Affect
 - A) Person Throughput < 5% in 2 or more system segments
 - B) Person Throughput < 10% in any one system segment

Network-wide Person Throughput Increase:
Eastbound: AM = 18% ; PM = 17%
Westbound: AM = 30% ; PM = 22%

Traffic Operations Analysis – Results (I-64 Eastbound)

System Segments I-64 Eastbound	Person Throughput		Material Adverse Effect?
	2025 No-Build	2025 Build	
1) From Jefferson Ave to I-664	AM: 8240	AM: 8335	No
	PM: 8320	PM: 7980*	
2) From I-664 to I-564	AM: 3345	AM: 4880	No
	PM: 3535	PM: 5435	
3) From I-564 to I-264	AM: 6065	AM: 7545	No
	PM: 9135	PM: 10595	
4) From I-264 to I-464	AM: 5785	AM: 6605	No
	PM: 6320	PM: 8410	
5) From I-464 to Bowers Hill	AM: 4710	AM: 5390	No
	PM: 5310	PM: 5670	
Total	AM: 18% Increase PM: 17% Increase		

* Vehicle throughput increased by 265 vehicles (4)%

Traffic Operations Analysis – Results (I-64 Westbound)

System Segments I-64 Westbound	Person Throughput		Material Adverse Effect?
	2025 No-Build	2025 Build	
5) From Bowers Hill to I-464	AM: 3570	AM: 5295	No
	PM: 3860	PM: 5030	
4) From I-464 to I-264	AM: 5630	AM: 8570	No
	PM: 4630	PM: 6290	
3) From I-264 to I-564	AM: 8600	AM: 10885	No
	PM: 5920	PM: 6545	
2) From I-564 to I-664	AM: 4055	AM: 5770	No
	PM: 3895	PM: 5705	
1) From I-664 to Jefferson Ave	AM: 6685	AM: 7255	No
	PM: 8190	PM: 9040	
Total	AM: 30% Increase PM: 22% Increase		



Safety Analysis

Virginia Department of Transportation

Safety Analysis – Methodology

- 2025 Average Daily Traffic (ADT) volume forecasts developed using HRTPO's regional travel forecast model similar to the traffic analysis
- Crash prediction governing factors
 - ADTs
 - Presence of on- and off-ramps
 - Shoulder widths
 - Roadside and median barrier
 - Horizontal curvature
- Master Tolling Agreement Criteria
 - Crash Rate > 5% for any segment

Material Adverse Effect Safety Analysis – Summary

System Segment	No-Build Crash Rate (crashes/100M VMT)	Build Crash Rate (crashes/100M VMT)	Percent Change	Adverse Safety Effect
1) Jefferson Ave to I-664	85.56	89.24	4.3%	No
2) I-664 to I-564	87.08	90.18	3.6%	No
3) I-564 to I-264	95.82	85.56	-10.7%	No
4) I-264 to I-464	72.77	79.99	9.9%	Yes
5) I-464 to Bowers Hill	86.84	70.38	-19.0%	No
All	85.84	83.85	-2.3%	No

- System Segment 4 crash rate increase a function of I-464 interchange and ADT increase.
- Overall decrease in crash rate across the network by 2.3%.

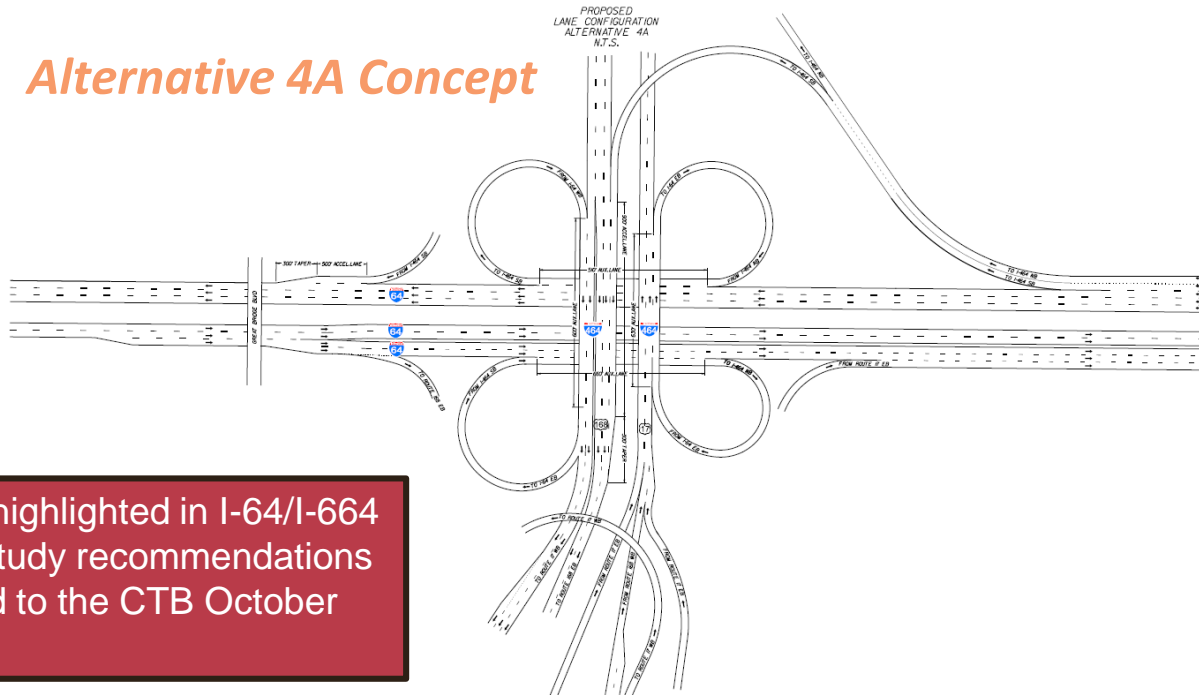
System Segment I-264 to I-464

- **9.9% increase in crash rate attributed to increase in average daily traffic (ADT)**
 - **Projected ADT to increase by more than 30k based on the HRTPO's Travel Demand Model due to increased capacity upstream and downstream of this segment.**
 - **I-464 interchange identified as remaining congestion hot spot in operational analysis**
- **I-464 interchange alternatives evaluated to address safety and congestion with funding programmed in HRTPO 2045 CL RTP**

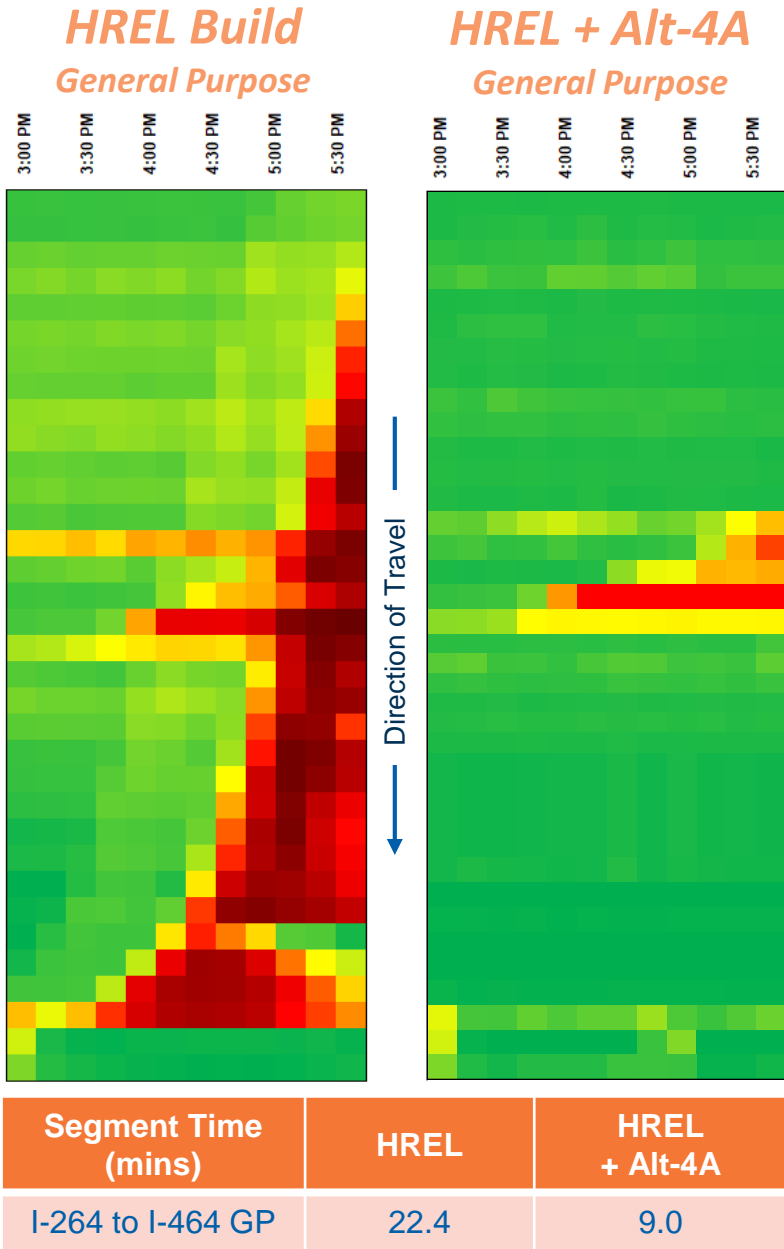
HREL – I-464 Interchange Improvement

- VDOT evaluated four (4) Alternatives
- Alternative 4A provides maximum benefit (13+ minutes of travel time savings)

Alternative 4A Concept



Concept highlighted in I-64/I-664 corridor study recommendations presented to the CTB October 2020



HREL - Material Adverse Effect Analysis

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HREL - Material Adverse Effect Analysis Commissioner's Recommendation

The CTB approve a finding of no Material Adverse Effect caused by the proposed HRTAC Tolling Policy

- **System Segment 4 (I-264 – I-464) crash rate increase due to network capacity increase, not a Tolling Policy decision**
- **I-464 improvements to programmed in HRTPO CLRTP**

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