



COMMONWEALTH of VIRGINIA
Office of the
SECRETARY of TRANSPORTATION

VTrans Freight Element

Commonwealth Transportation Board

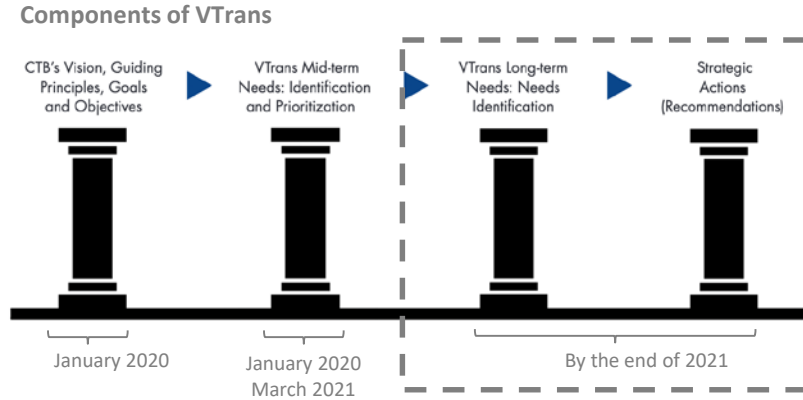
Nick Donohue, Deputy Secretary of Transportation
Jitender Ramchandani, Office of Intermodal Planning and Investment (OIPI)

June 22, 2021

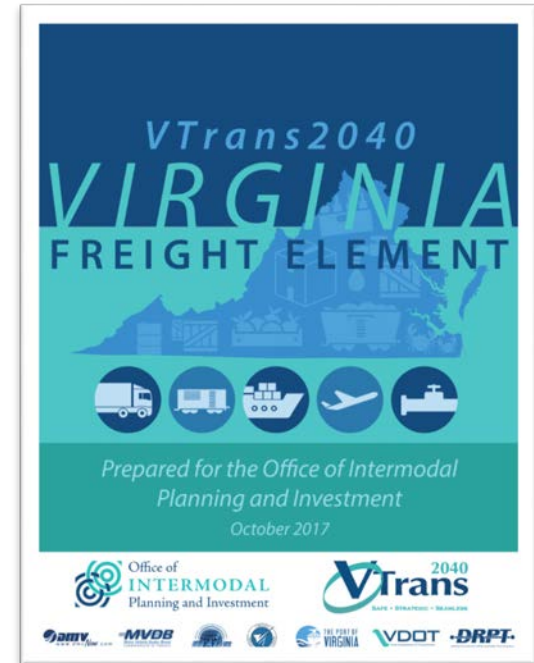


CONTEXT AND BACKGROUND | PURPOSE OF THIS PRESENTATION

- **VTrans includes four major components.**
 - The Office of Intermodal Planning and Development (OIPI) assists the Commonwealth Transportation Board (CTB) in the development of the plan.
- **Pursuant to § 33.2-353, a summary of the plan shall be submitted to the Governor and General Assembly.**
 - OIPI will request Board action in fall of this year.
- **Between June and November, a series of presentations are planned on the following subjects:**
 - VTrans Freight Element
 - VTrans Mactrotrends (likely two presentations)
 - Strategic Actions



- **This presentation focuses on the VTrans Freight Element, which also fulfills requirements for a Statewide Freight Plan.**
 - Virginia's Freight Plan/Element was updated last updated in 2017.
 - Requirements for State Freight Plans are outlined in *49 U.S.C. 70202 FAST Act State Freight Plans*.
 - This presentation focuses on the following subjects:
 - Commodity Flows
 - Commodity Storage and Distribution
 - Truck Safety
 - Truck Congestion and Reliability
- **Issues identified by VTrans Freight Element may inform VTrans Strategic Actions.**



Last iteration of the plan

- **Scope of the Effort**

- The VTrans Freight Element focuses on highway and rail modes and is informed by planning conducted by the Port of Virginia and other stakeholder agencies.
- A multi-agency working group is involved in the development of VTrans Freight Element. The working group includes:
 - o Department of Aviation
 - o Department of Motor Vehicles (DMV)
 - o Federal Highway Administration (FHWA)
 - o Port of Virginia
 - o Department of Rail and Public Transportation (DRPT)
 - o Several VDOT divisions

- **Outreach and Engagement**

- A presentation was made to the Freight Advisory Committee (FAC) to gather feedback.
- Two two virtual events have also been conducted to gather feedback from localities, MPOs, PDCs, and other interested groups.

- **Commodity flows are useful for identifying freight travel characteristics and associated needs.**

- Caution is recommended when viewing and citing these numbers as this data may not show trip chains. For example, a truck trip carrying imported goods from the Port of Virginia may show Hampton Roads, not the country of import, as the origin.
- Despite limitations, these numbers are generally indicative of freight activity on Virginia’s roadways.

- **A significant portion (88%) of freight tonnage on Virginia’s roadways has origins or destinations outside of Virginia.**

Percent Truck Freight Tonnage by Origin and Destination, 2017

		Origin	
		Internal (VA)	External (Outside VA)
Destination	Internal (VA)	12%	21%
	External (Outside VA)	16%	51%

Source: Transearch

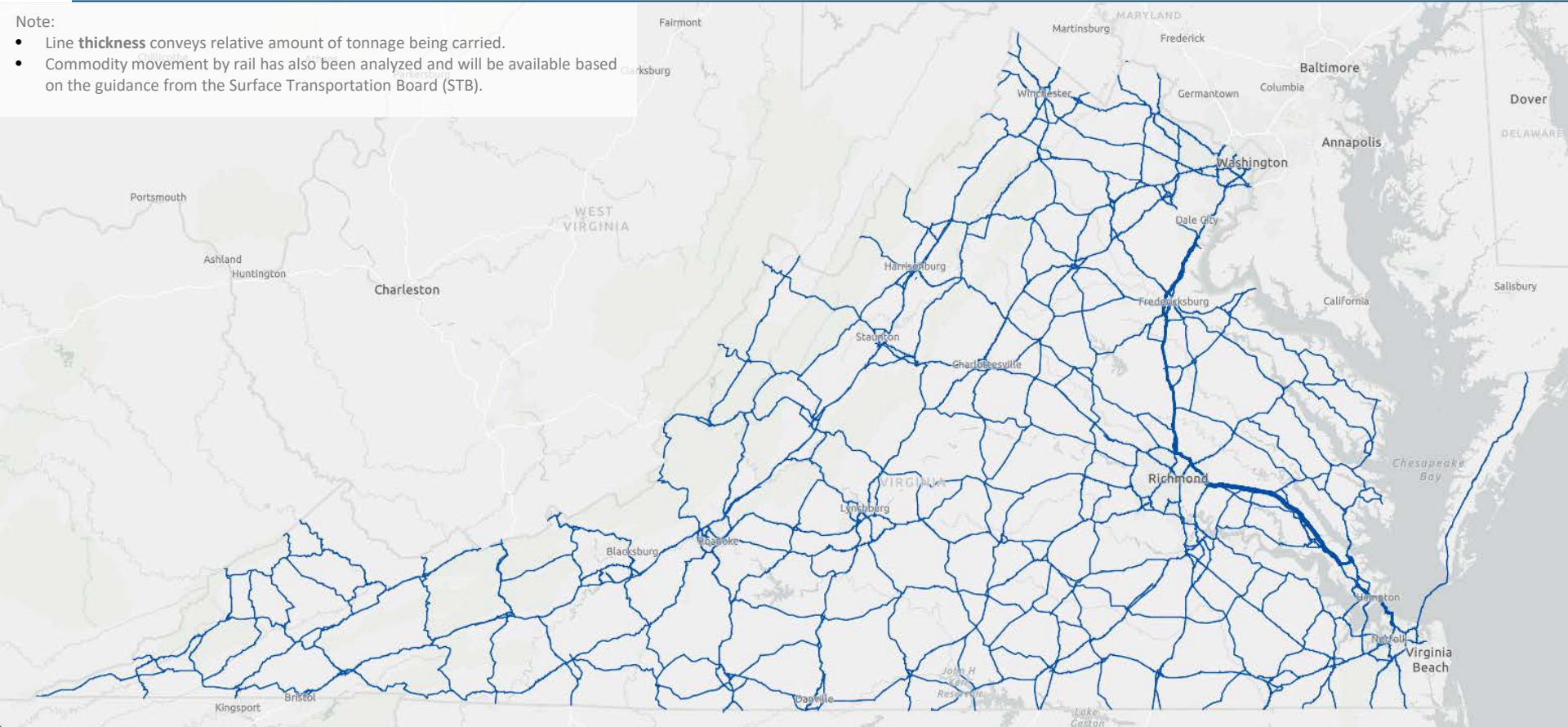
Projected Truck Freight Tonnage Growth to 2030 and 2045

	2017-2030	2017-2045
Internal-to-Internal (VA-VA)	37%	105%
Internal-to-External (VA-Outside)	33%	92%
External-to-Internal (Outside-VA)	24%	83%
External-to-External (Outside-Outside)	30%	88%

Source: Transearch

IDENTIFICATION OF FREIGHT ISSUES | COMMODITY FLOWS – INTERNAL TO INTERNAL

- Note:
- Line **thickness** conveys relative amount of tonnage being carried.
 - Commodity movement by rail has also been analyzed and will be available based on the guidance from the Surface Transportation Board (STB).

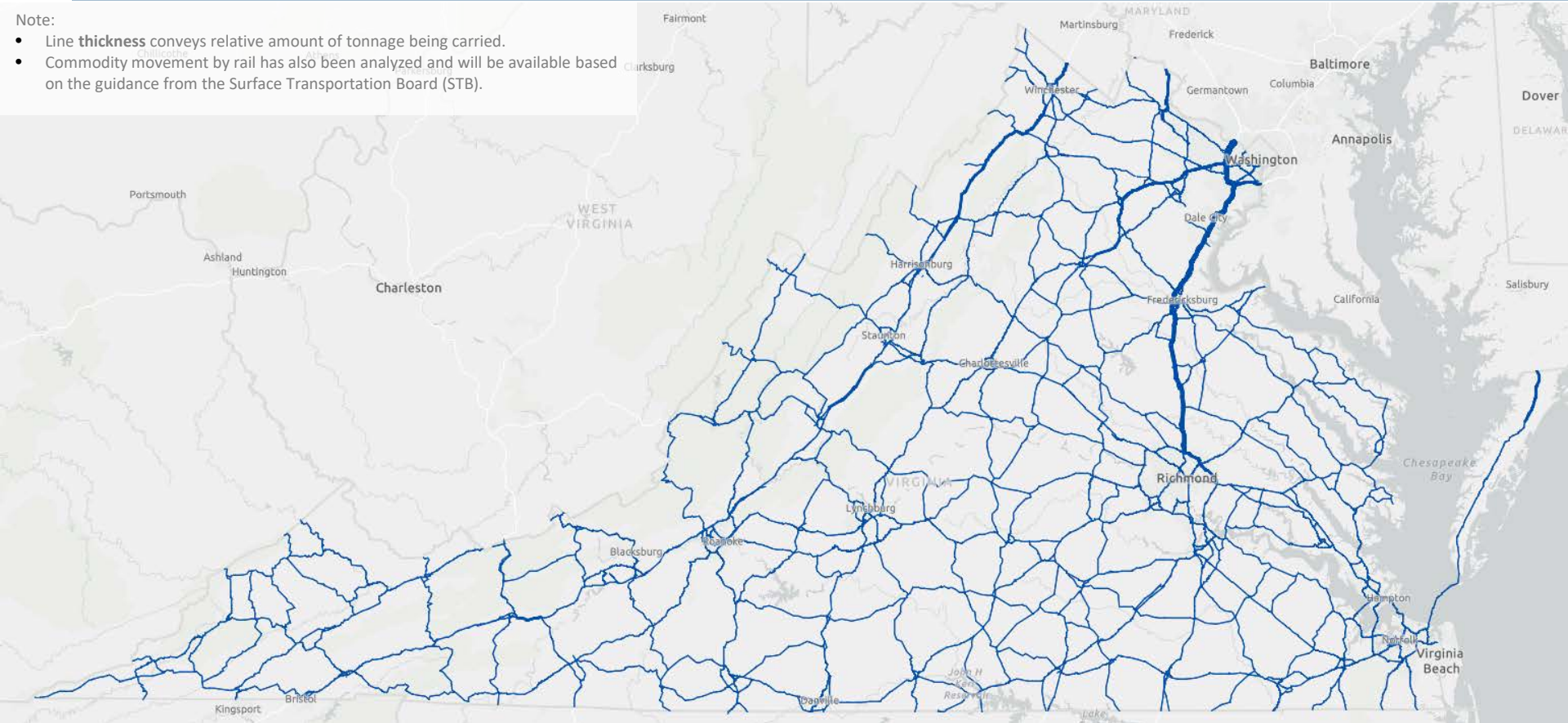


Source: Transearch, 2017

IDENTIFICATION OF FREIGHT ISSUES | COMMODITY FLOWS – INTERNAL TO EXTERNAL

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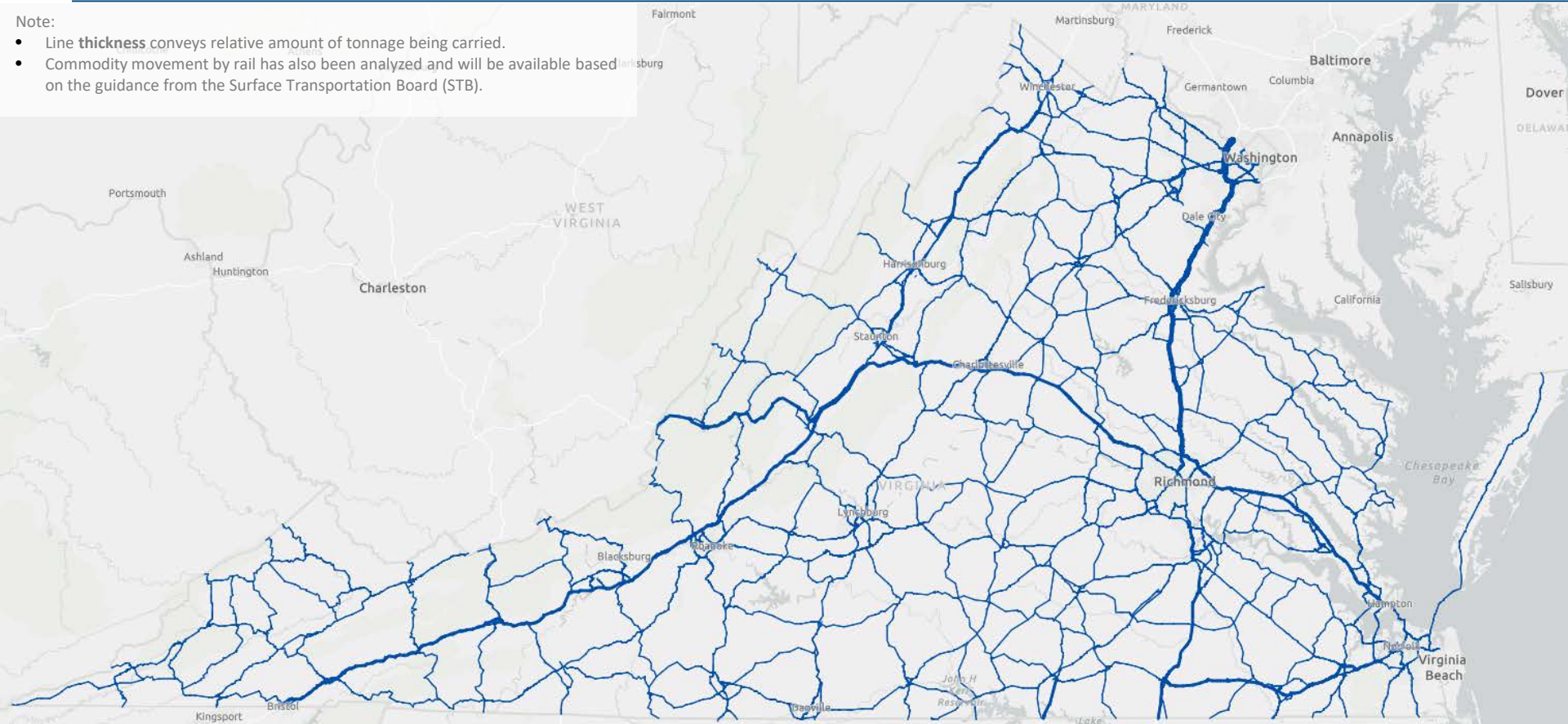


Source: Transearch, 2017

IDENTIFICATION OF FREIGHT ISSUES | COMMODITY FLOWS – EXTERNAL TO INTERNAL

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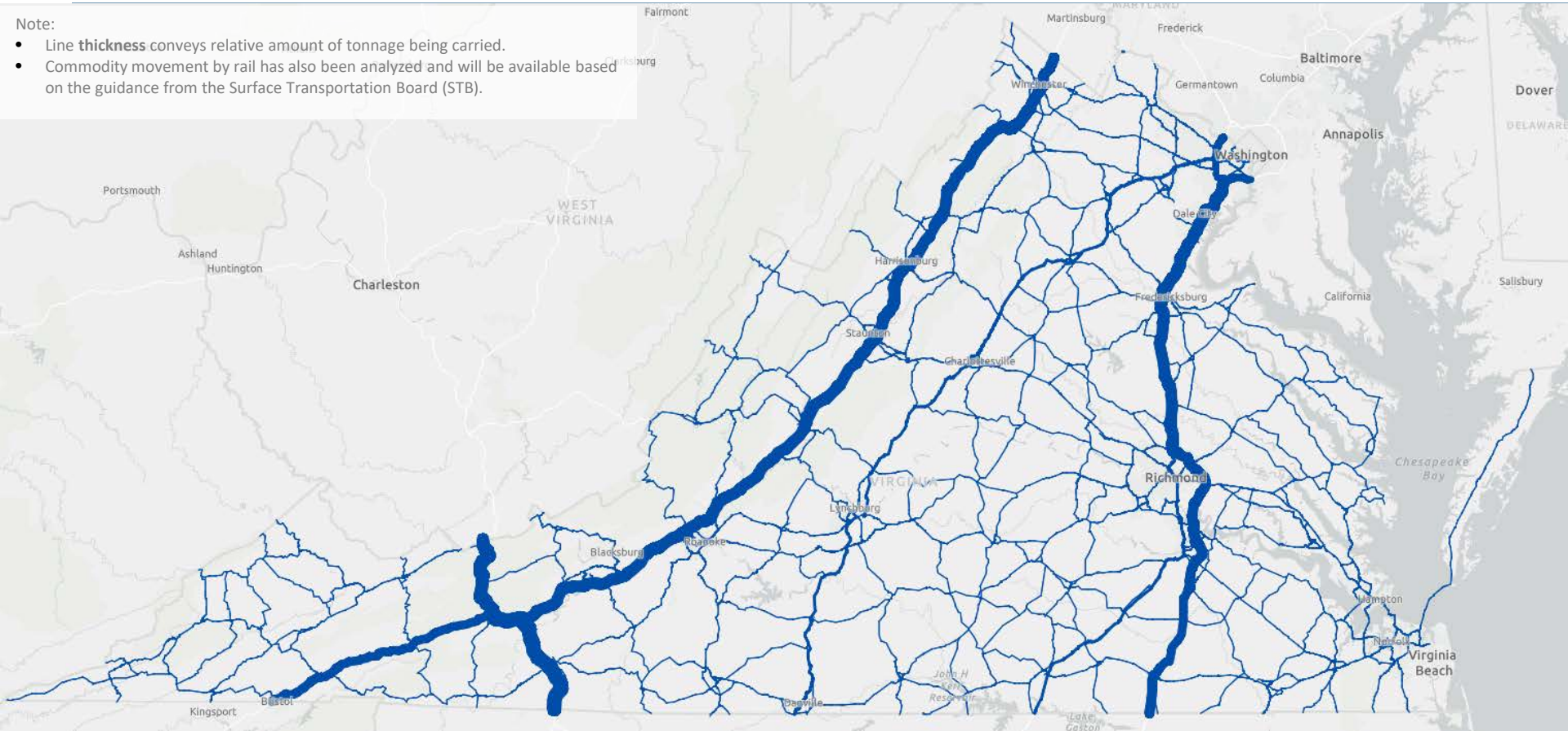
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Source: Transearch, 2017

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Source: Transearch, 2017

IDENTIFICATION OF FREIGHT ISSUES | COMMODITY FLOWS

- An online interactive tool has been developed to share this information with stakeholders.

Select Criteria for:
State, Construction District, MPO
or PDC

**Origin and
destination**

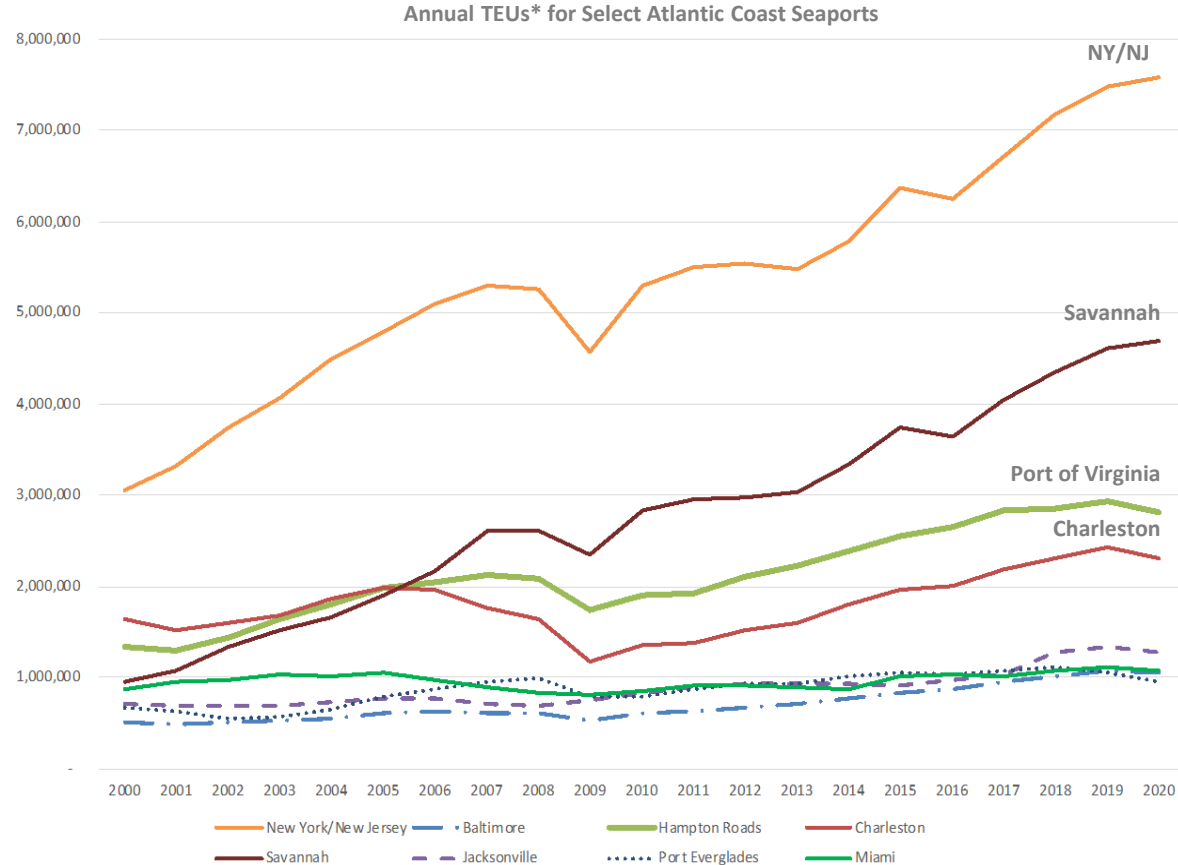
Commodity Types



IDENTIFICATION OF FREIGHT ISSUES | COMMODITY FLOWS AT PORT OF VIRGINIA

- Truck Trip Generators and Destinations**

- Compared to passenger vehicles, trucks have fewer trip generation and destination points, therefore truck volumes tend to be more concentrated in or around certain facilities.
- The Port of Virginia is one of the major publicly-owned trip generators.

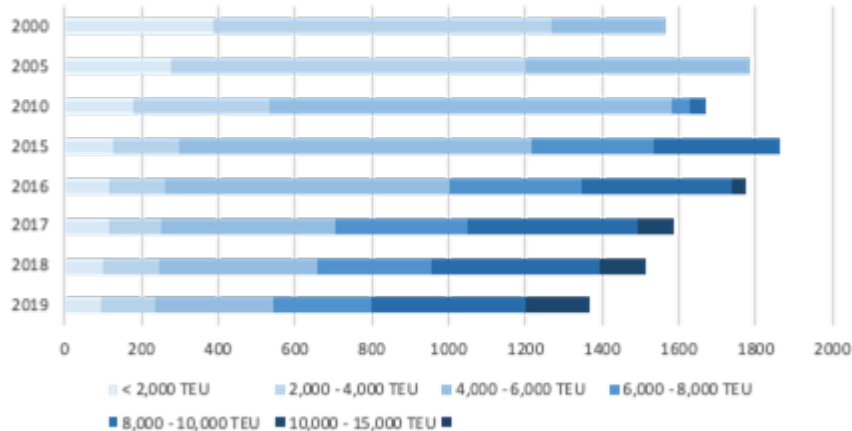


Source: American Association of Port Authorities; individual ports.

*Note: A TEU or Twenty-foot Equivalent Unit is an exact unit used to measure cargo capacity for container ships and container terminals.

- **Available data and trends indicate fewer but larger container ships arriving at the Port of Virginia and private terminals in Hampton Roads.**
 - Increase in the size of container ships indicates a likely increase in more concentrated demand on the transportation infrastructure.

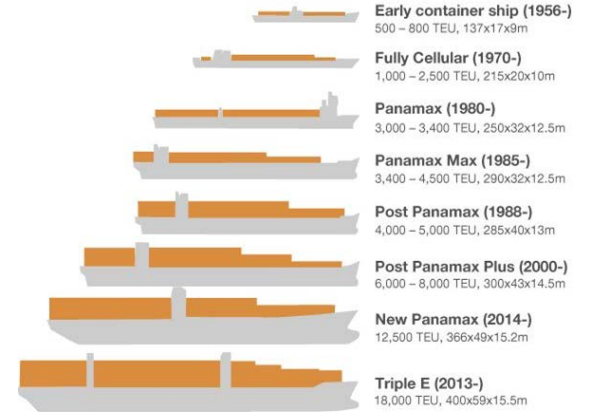
Container Ship Calls by Ship Category, Port of Virginia + Private Terminals



Source: United States Army Corps of Engineers

Evolution of Container Ships

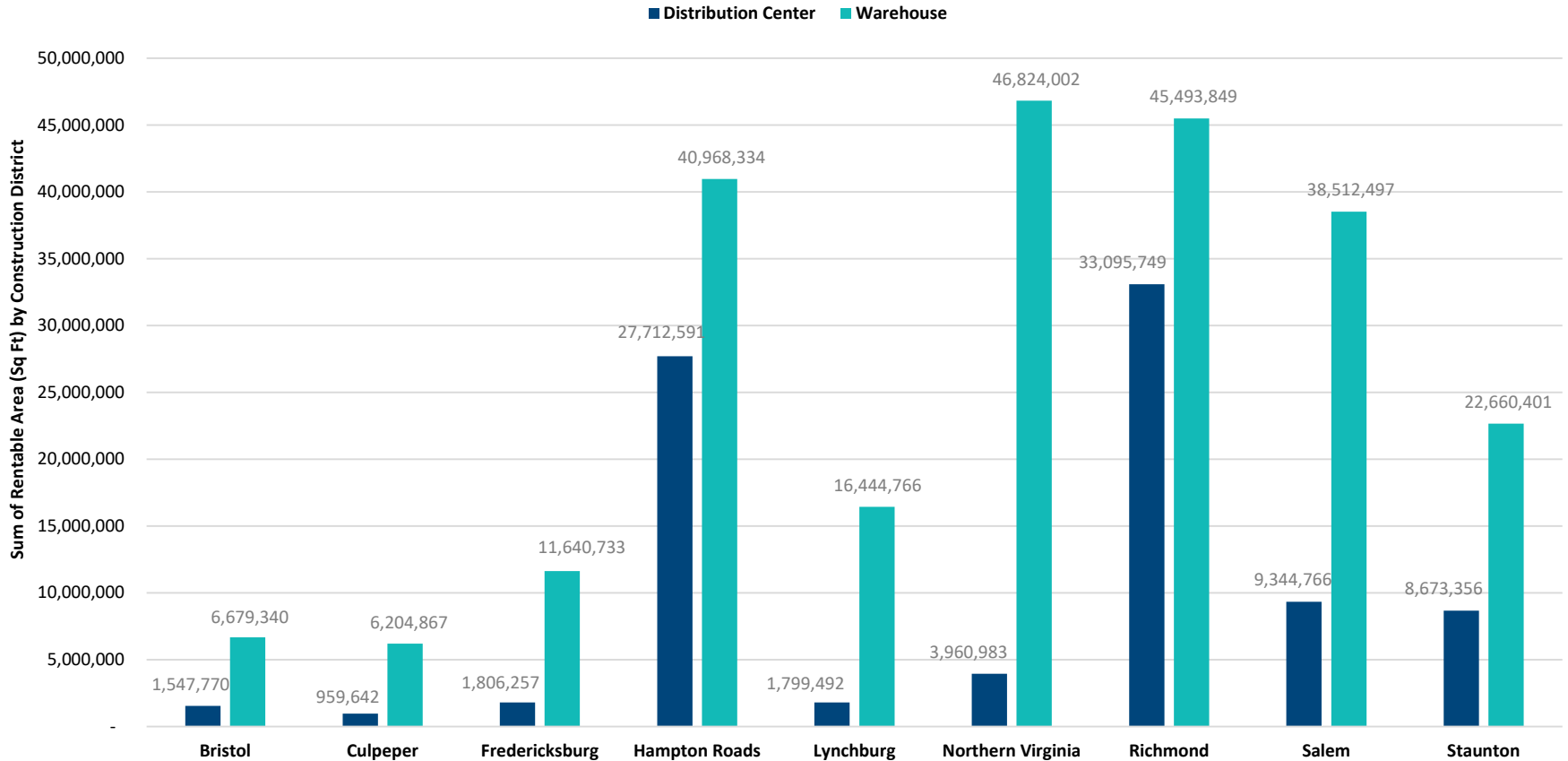
TEU: twenty-foot equivalent units.
length x width x depth below water in metres



Adapted with permission from The Geography of Transport Systems, Jean-Paul Rodrigue

Source: The Geography of Transport Systems

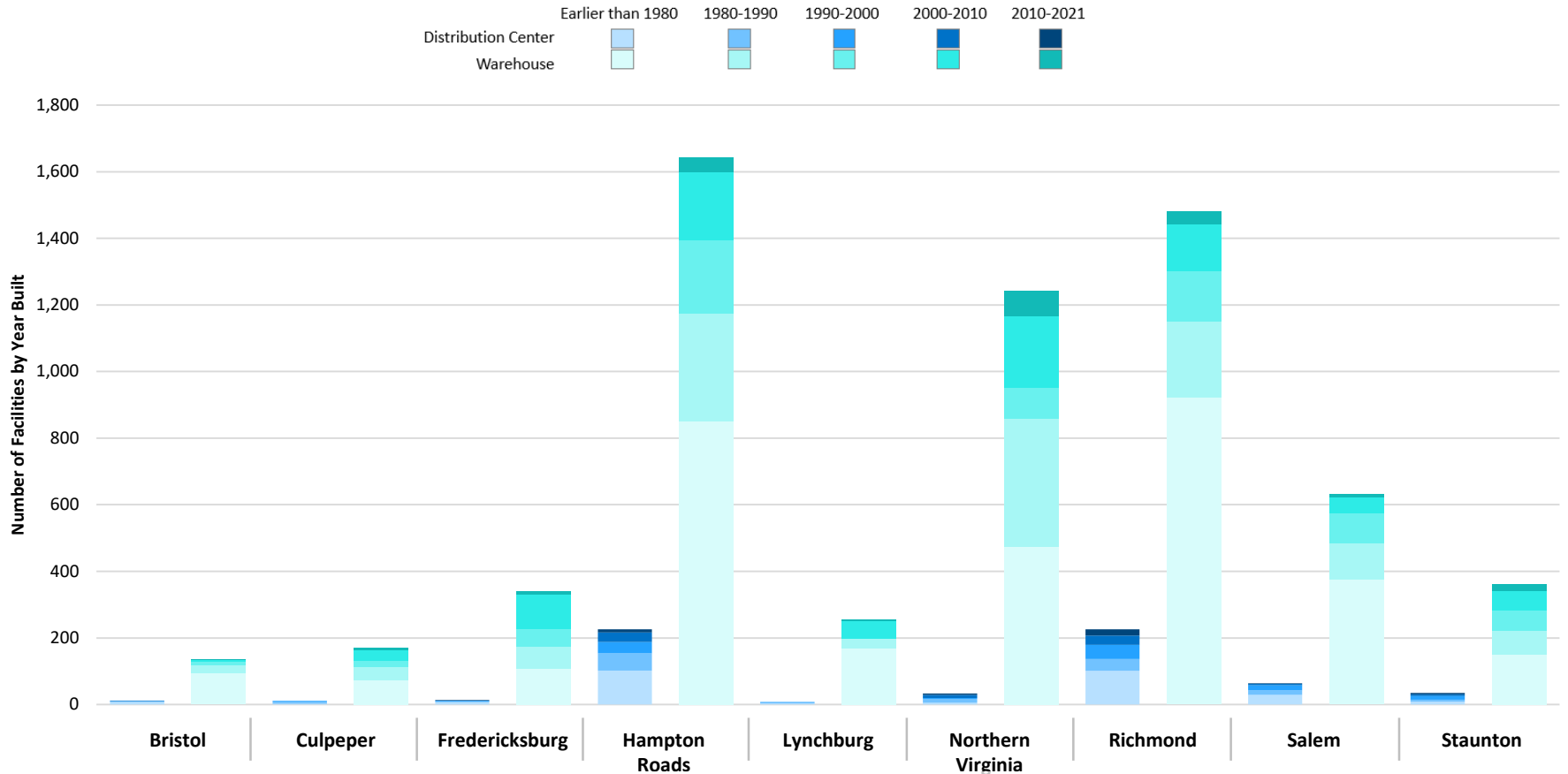
IDENTIFICATION OF FREIGHT ISSUES | STORAGE AND DISTRIBUTION – TOTAL RENTABLE AREA BY CONST. DIST.



Source: CoStar. Notes:

- For existing facilities only
- Summary by construction districts may reflect partial data

IDENTIFICATION OF FREIGHT ISSUES | STORAGE AND DISTRIBUTION – NUMBER OF FACILITIES BY CONST. DIST.



Source: CoStar. Notes:

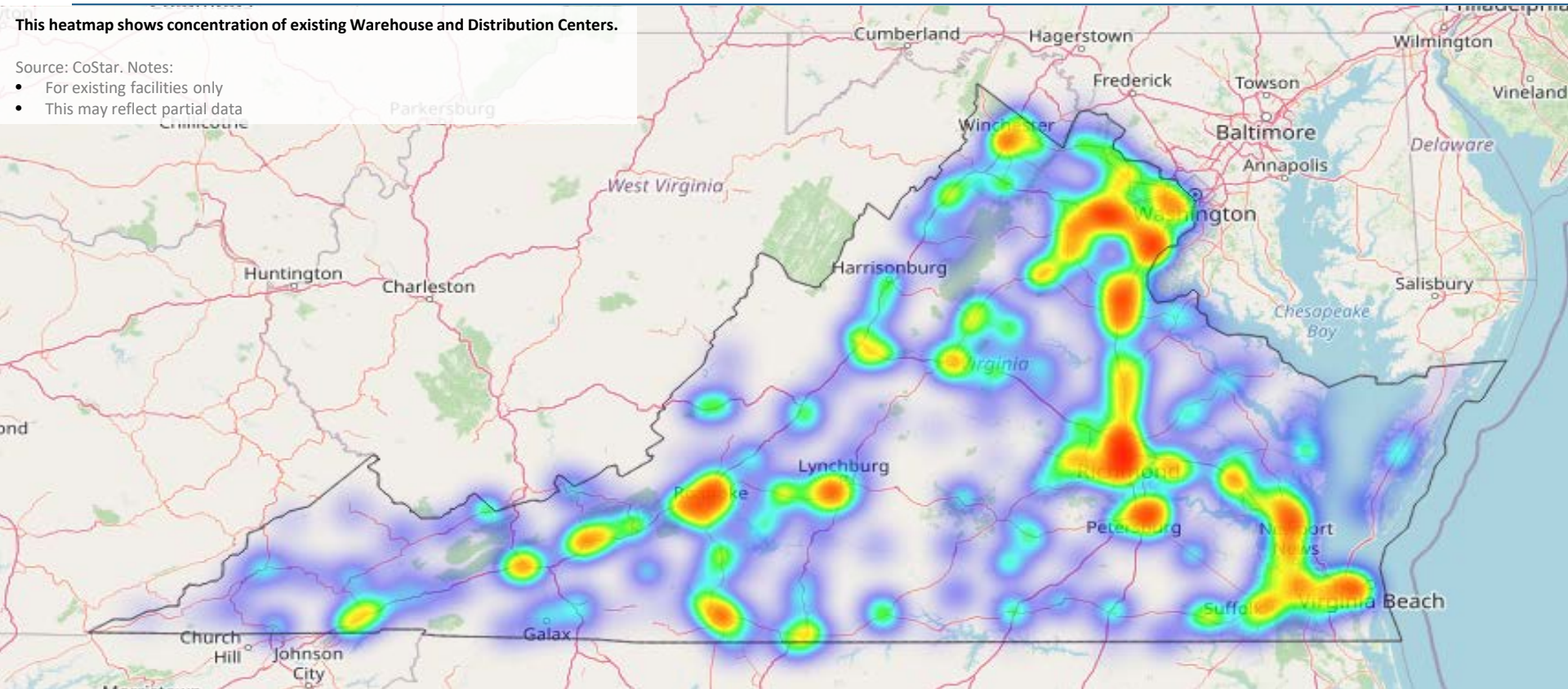
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IDENTIFICATION OF FREIGHT ISSUES | STORAGE AND DISTRIBUTION – CONCENTRATION OF FACILITIES

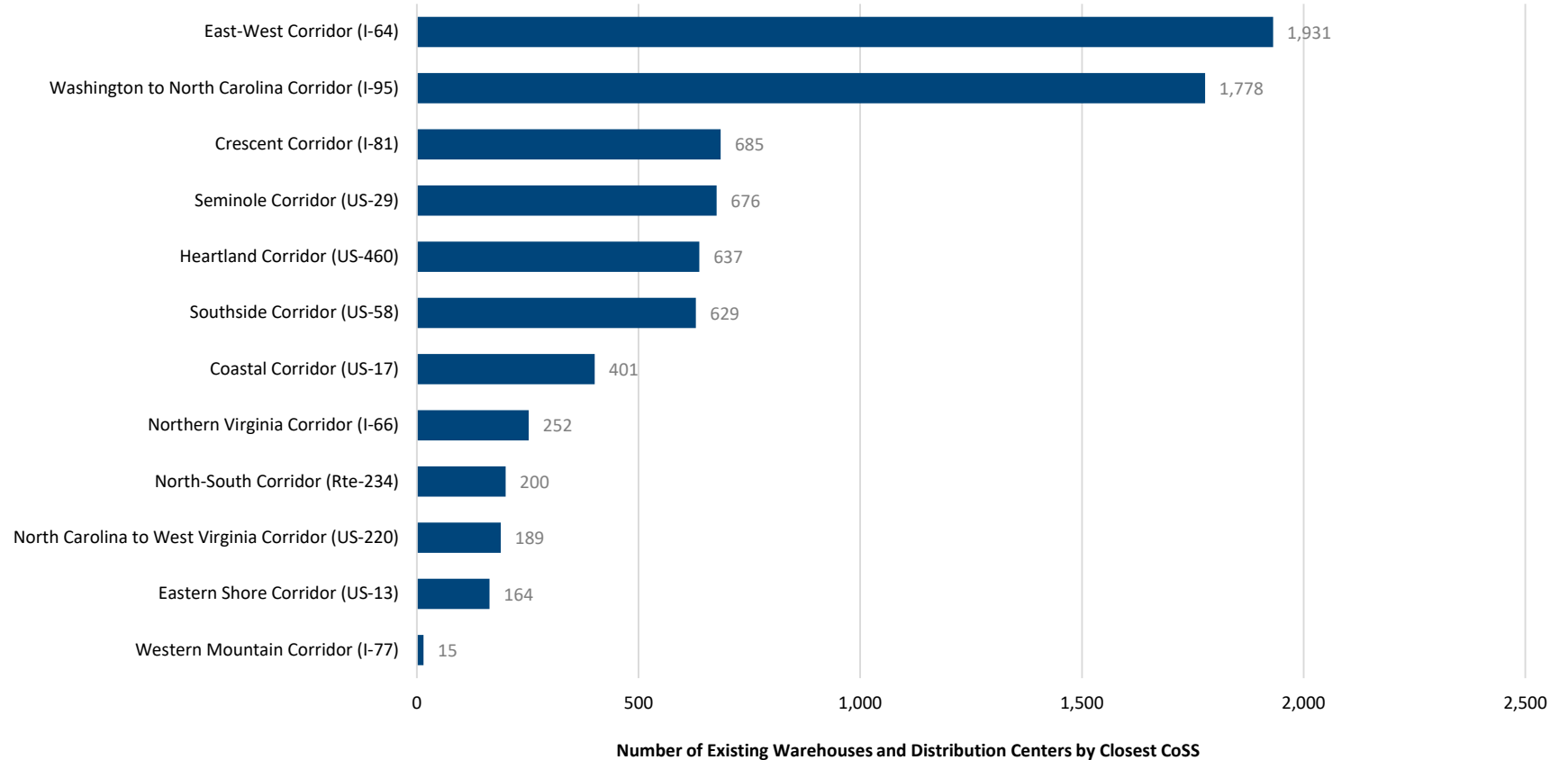
This heatmap shows concentration of existing Warehouse and Distribution Centers.

Source: CoStar. Notes:

- For existing facilities only
- This may reflect partial data



IDENTIFICATION OF FREIGHT ISSUES | STORAGE AND DISTRIBUTION – NUMBER OF FACILITIES BY CoSS



Number of Existing Warehouses and Distribution Centers by Closest CoSS

IDENTIFICATION OF FREIGHT ISSUES | TRUCK SAFETY - FREQUENCY

- This map identifies locations with high frequency of truck-involved crashes.
- Notes:
 - "Truck-involved" conveys that a truck was involved, not necessarily at fault, in a crash.
 - The number of crashes involving trucks are relatively small so reliance on one measure may provide an incomplete/inaccurate picture.



Note:

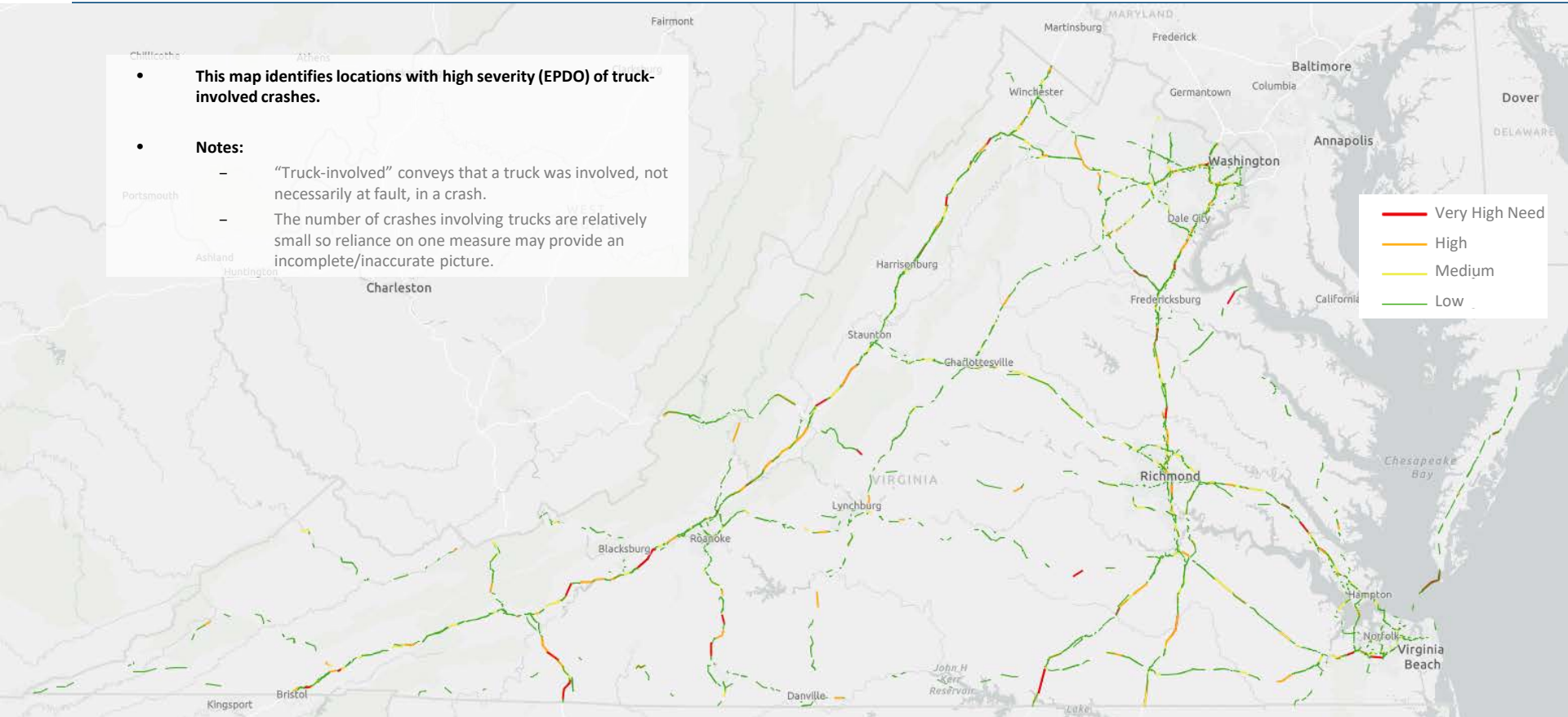
- This map shows major corridors defined as Corridors of Statewide Significance (CoSS).

IDENTIFICATION OF FREIGHT ISSUES | TRUCK SAFETY - SEVERITY

- **This map identifies locations with high severity (EPDO) of truck-involved crashes.**

- **Notes:**

- "Truck-involved" conveys that a truck was involved, not necessarily at fault, in a crash.
- The number of crashes involving trucks are relatively small so reliance on one measure may provide an incomplete/inaccurate picture.



Note:

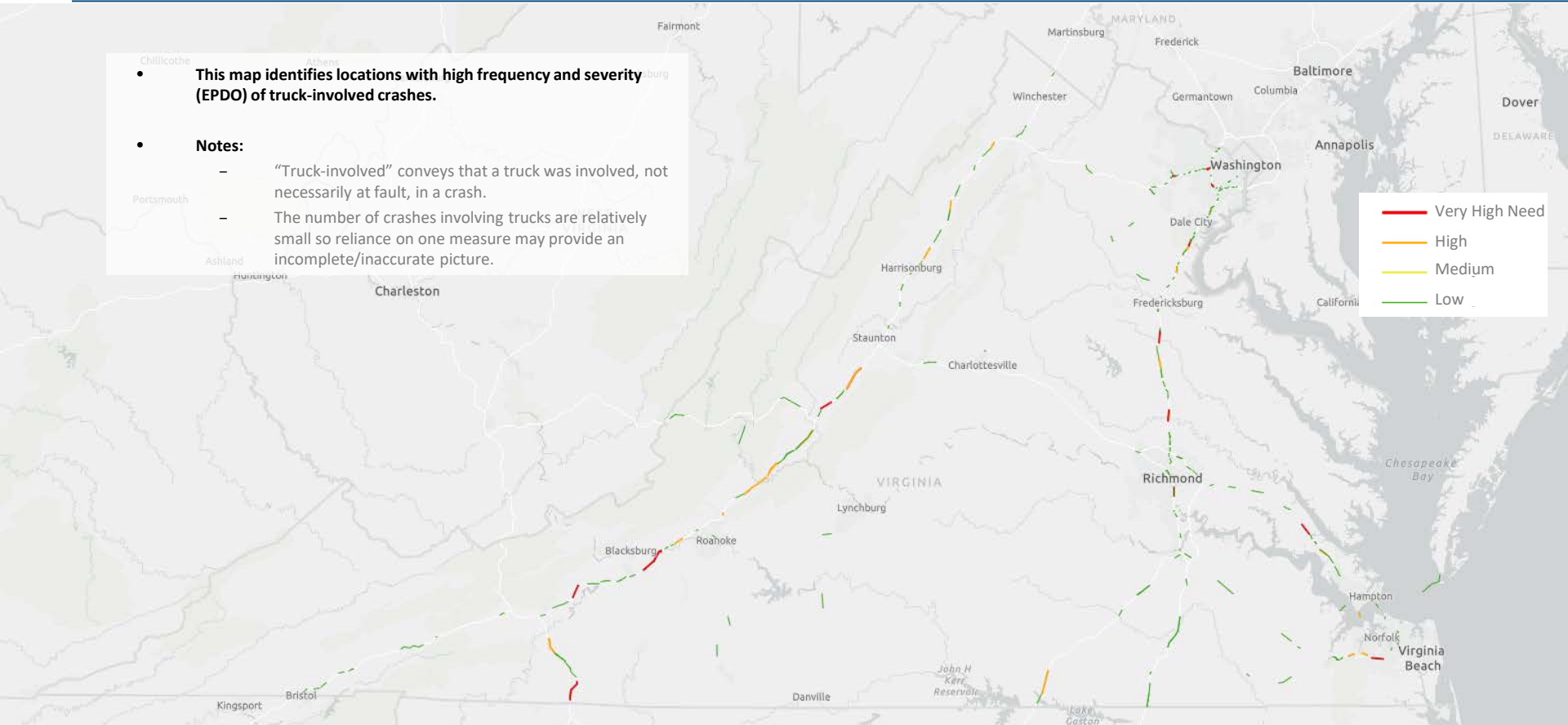
- This map shows major corridors defined as Corridors of Statewide Significance (CoSS).

IDENTIFICATION OF FREIGHT ISSUES | TRUCK SAFETY FREQUENCY + SEVERITY

- This map identifies locations with high frequency and severity (EPDO) of truck-involved crashes.

- **Notes:**

- "Truck-involved" conveys that a truck was involved, not necessarily at fault, in a crash.
- The number of crashes involving trucks are relatively small so reliance on one measure may provide an incomplete/inaccurate picture.



Note:

- This map shows major corridors defined as Corridors of Statewide Significance (CoSS).

- **Insert Map**

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NEXT STEPS

- **OIPI will continue outreach and engagement activities to:**
 - Gather and incorporate comments and feedback.
 - Consider development of Strategic Actions to address freight movement related issues.
- **Based on the direction from the Board, OIPI will present the following items at the upcoming CTB Workshops:**
 - VTrans Mactrotrends (likely two presentations)
 - Strategic Actions

Components of VTrans

