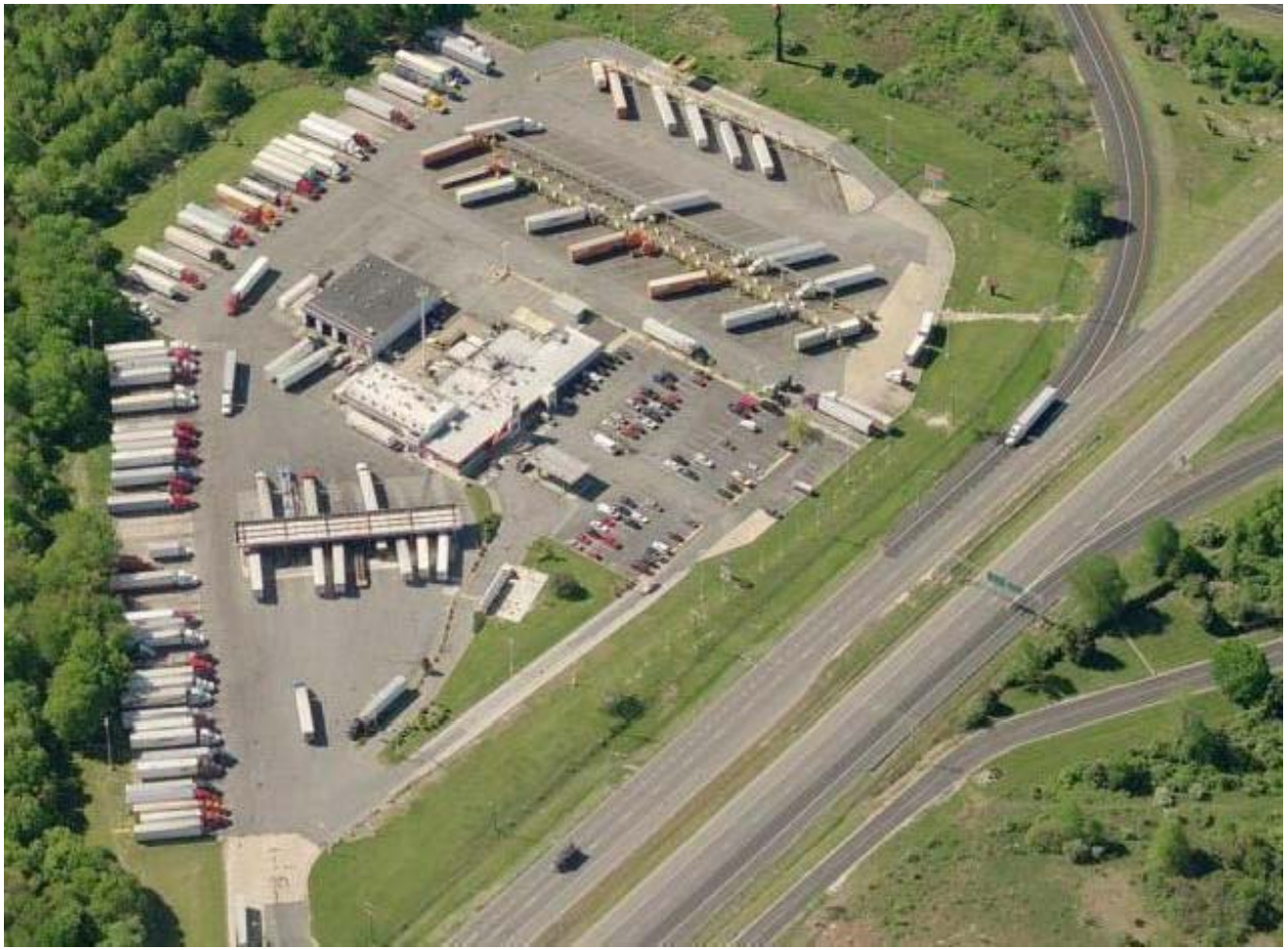
SHA/MDTA
Freight Implementation Plan



SHA State Highway Administration
Maryland Department of Transportation

Maryland Transportation Authority

URS

February 2, 2012

Presentation to the
National Capital Region Transportation Planning Board

SHA/MDTA's Study

The SHA/MDTA Freight Implementation Plans will serve as a guide for planning and project development and provide direction for future transportation investments to enhance the safe and efficient movement of freight.

Today's Topics

- What are the freight related challenges?
  - Existing
  - Future
- How can we address the challenges?

Commercial Vehicle Freight

Container Ship

Distribution Centers and Beyond

From Port to Rail

Double Stack Rail Transport

By Truck

Why is Planning for Commercial Vehicle Freight Important?

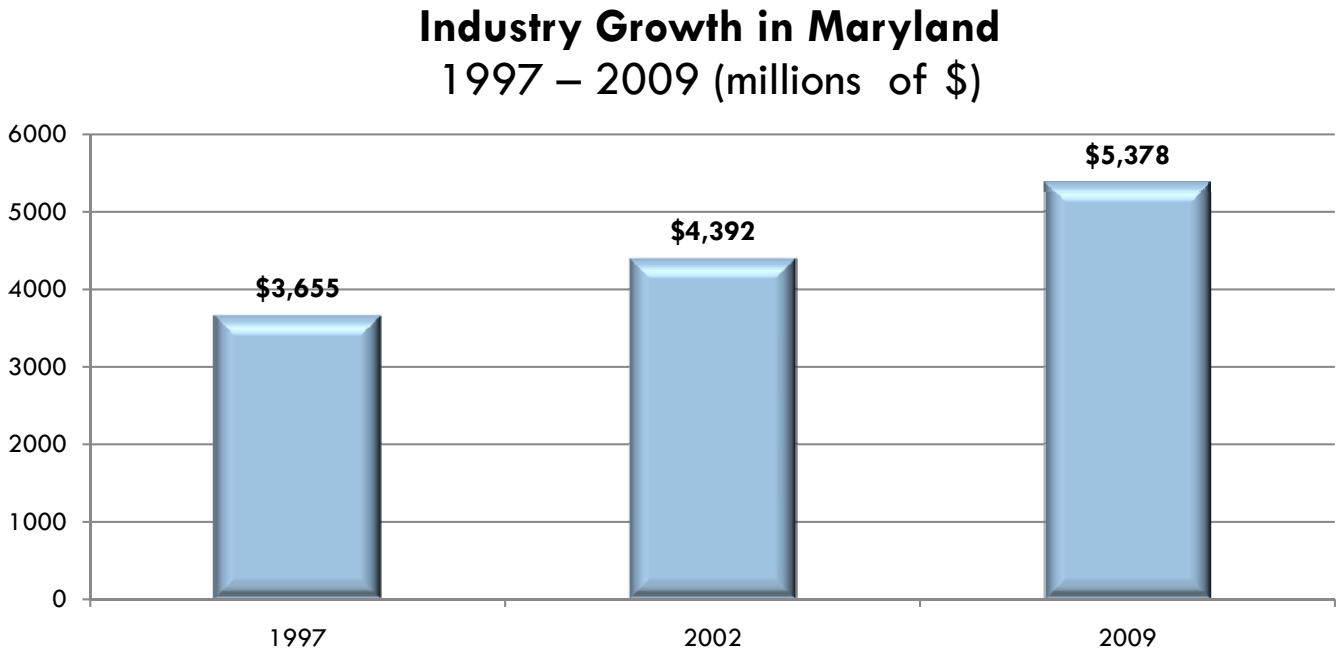
Because…

- Maryland's economic competitiveness is related to reliable network
- Global supply chains depend on reliable transportation network in Maryland
- Passengers and freight compete for existing capacity
- Growth in economy, population, and freight are directly connected
- Freight in all modes will increase (24% by 2020) with resulting capacity constraints
- People want their stuff

The Economy

Maryland's Gross Domestic Product:

Transportation & Warehousing worth $5.4 billion



Source: U.S. Bureau of Economic Analysis, 2009.

Jobs in Maryland

	Industry	Employment	Percent
1	Healthcare & Social Assistance	382,925	11
2	Retail Trade	355,429	10
3	State & Local Government	345,896	10
4	Professional & Technical Services	335,677	10
5	Leisure & Hospitality	292,546	8
12	**Manufacturing**	**136,811**	**4**
13	**Wholesale Trade**	**103,987**	**3**
14	**Transportation & Warehousing**	**96,771**	**3**
Subtotal		**337,569**	**10**

- 337,569 jobs in 2009 related to:
  - Manufacturing
  - Wholesale trade
  - Transportation & warehousing
- This is 10 percent of Maryland's Economy!

Source: U.S. Bureau of Economic Analysis, 2009. Total full-time and part-time employment.

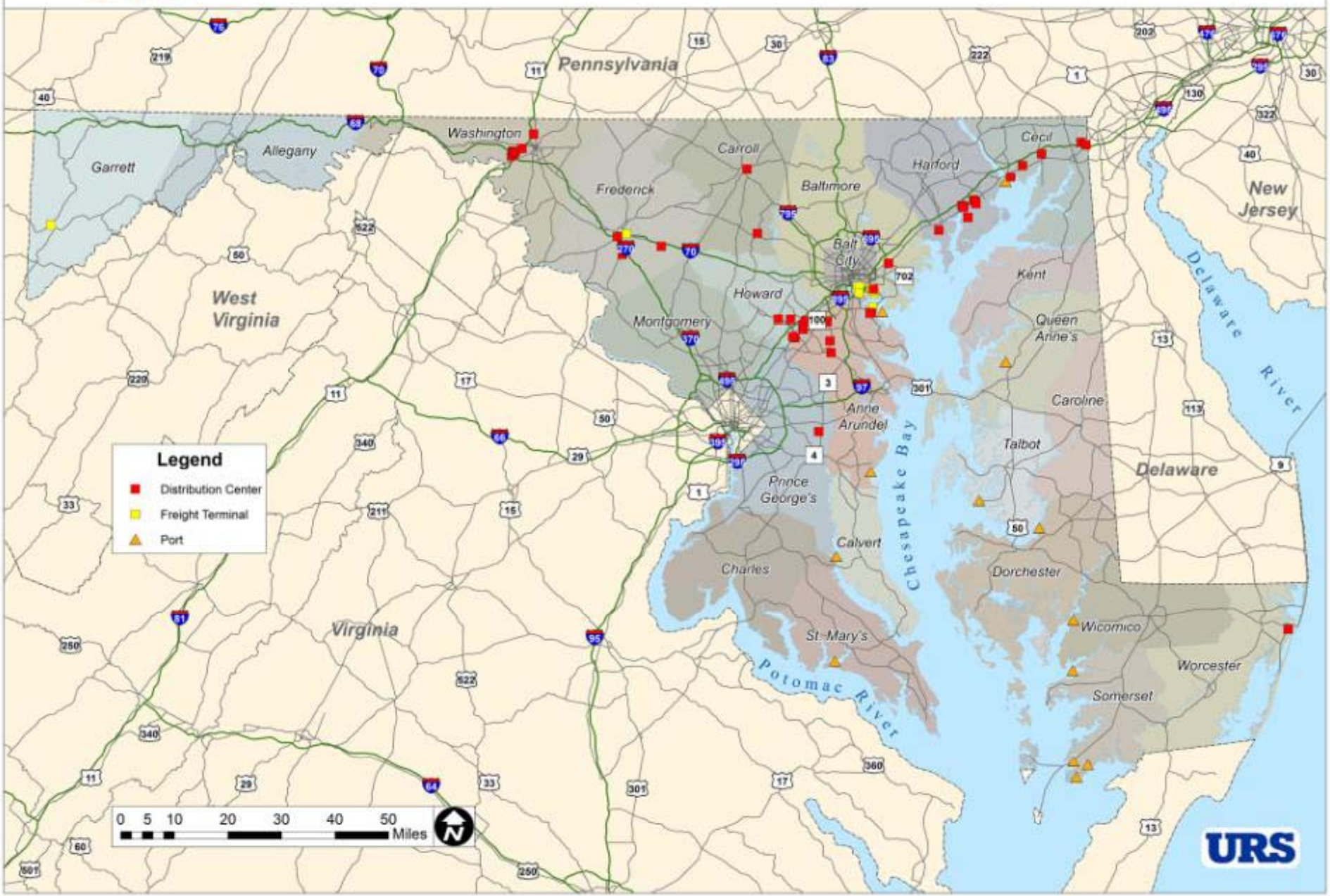
Transportation

- Most goods in the US move by truck
  - 83% by value
  - 70% by weight
- Total Vehicle Miles Traveled on Maryland State Roads
  - 1994: 44.2 billion
  - 2010: 56 billion
  - 66 percent of total traffic travels on State roads
  - 85 percent of freight traffic travels on State roads
- MDTA's Facilities carried 152 million vehicles in 2010
  - 62 percent autos
  - 38 percent commercial vehicles
  - Usage by commercial vehicles up 6 percent from 2008 to 2009

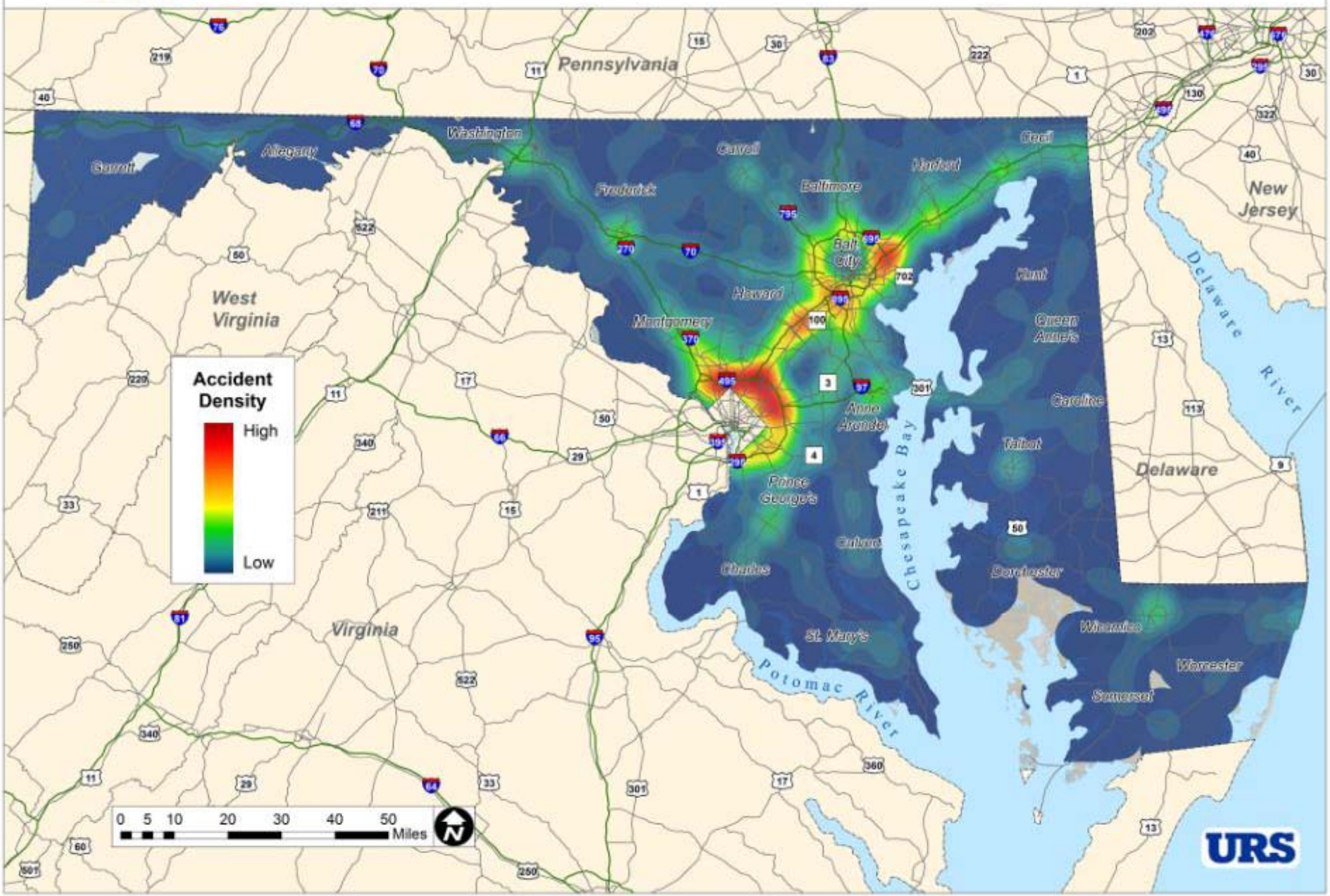
What are the Challenges Today?

- Freight facilities – where do trucks go?
- Safety – where are the crashes?
- Traffic – where are the bottlenecks?
- Parking – where can trucks park?

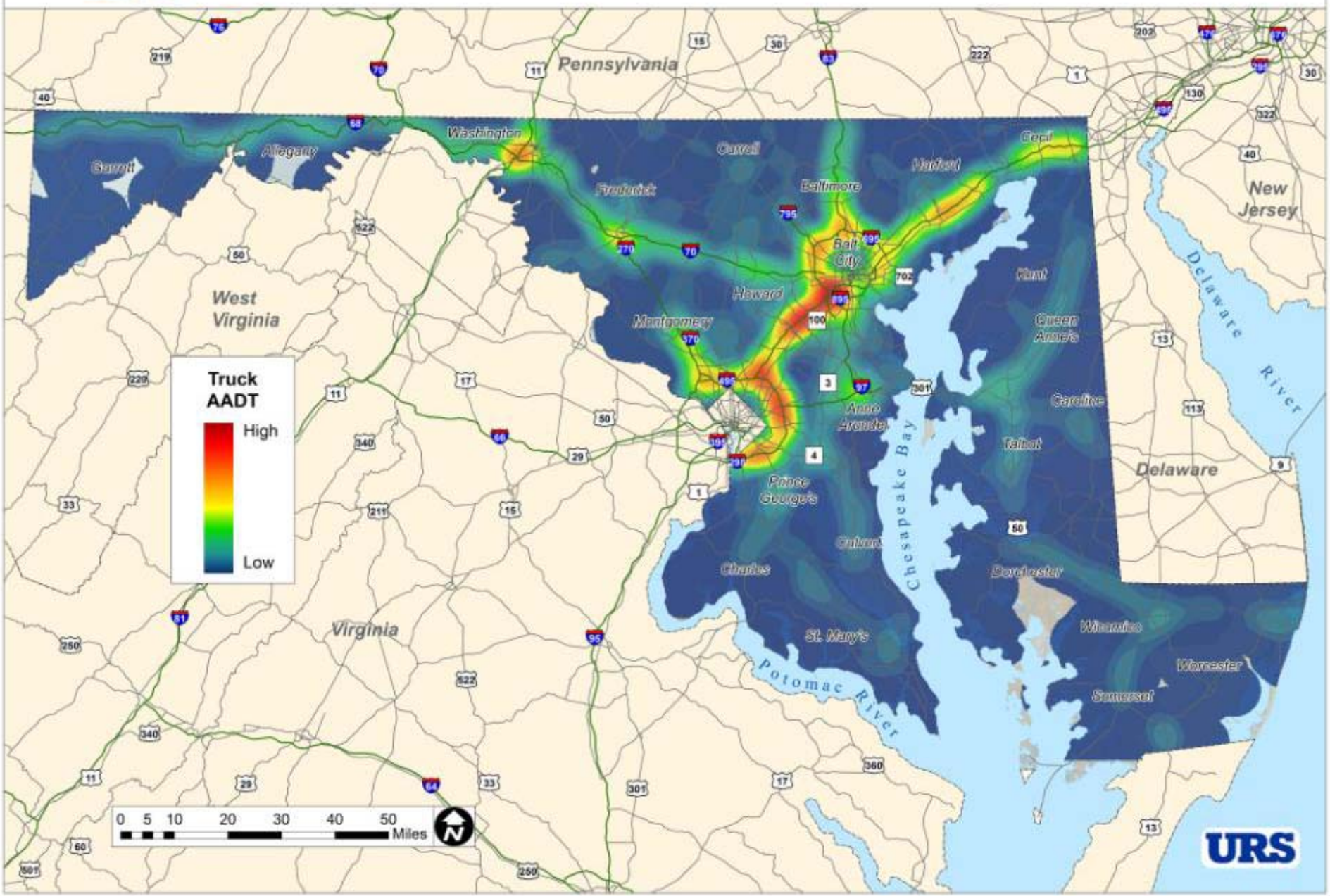
SHA/MDTA Freight Implementation Plan
Freight Terminal, Distribution Center and Port Locations



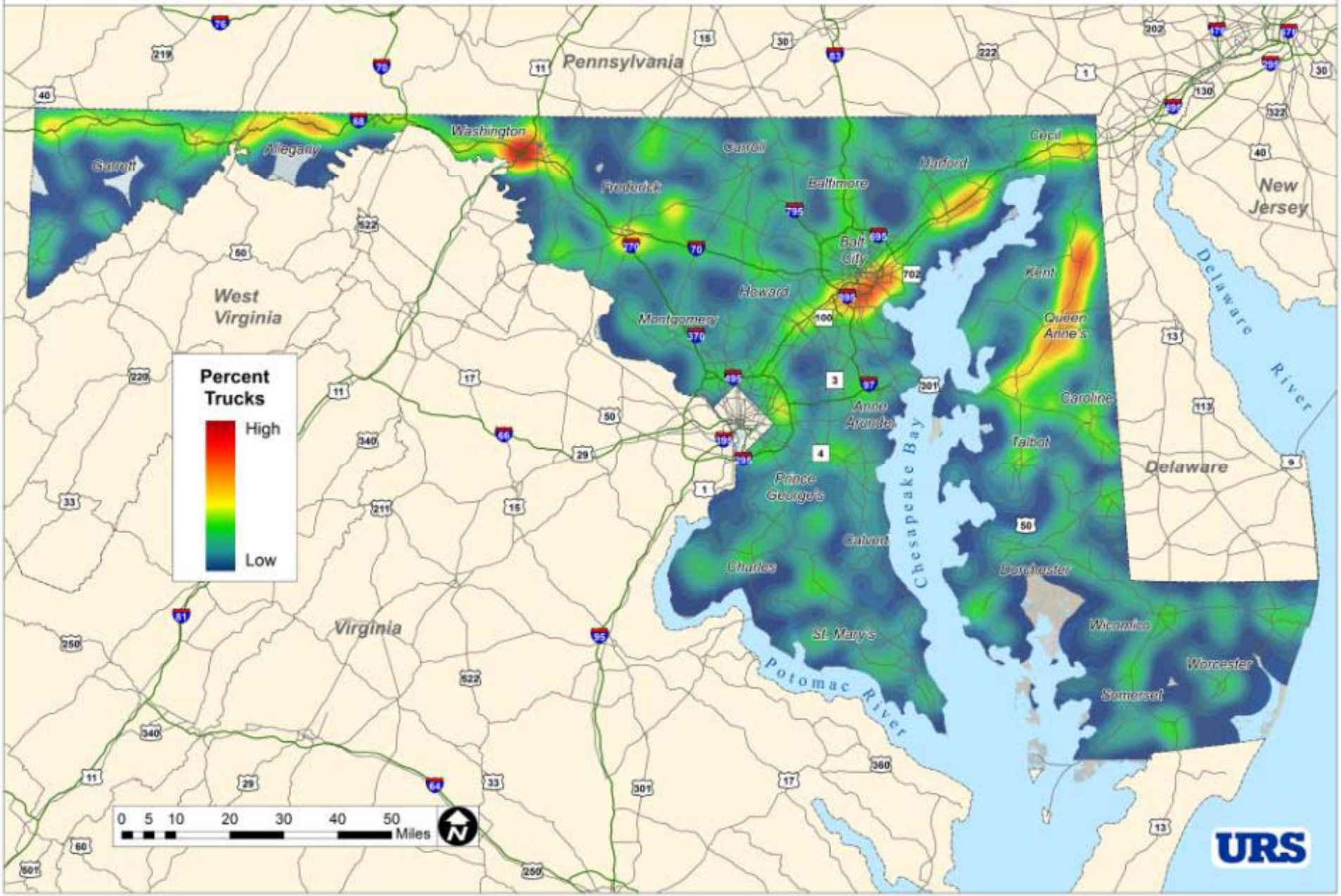
SHA/MDTA Freight Implementation Plan
Truck Accident Density



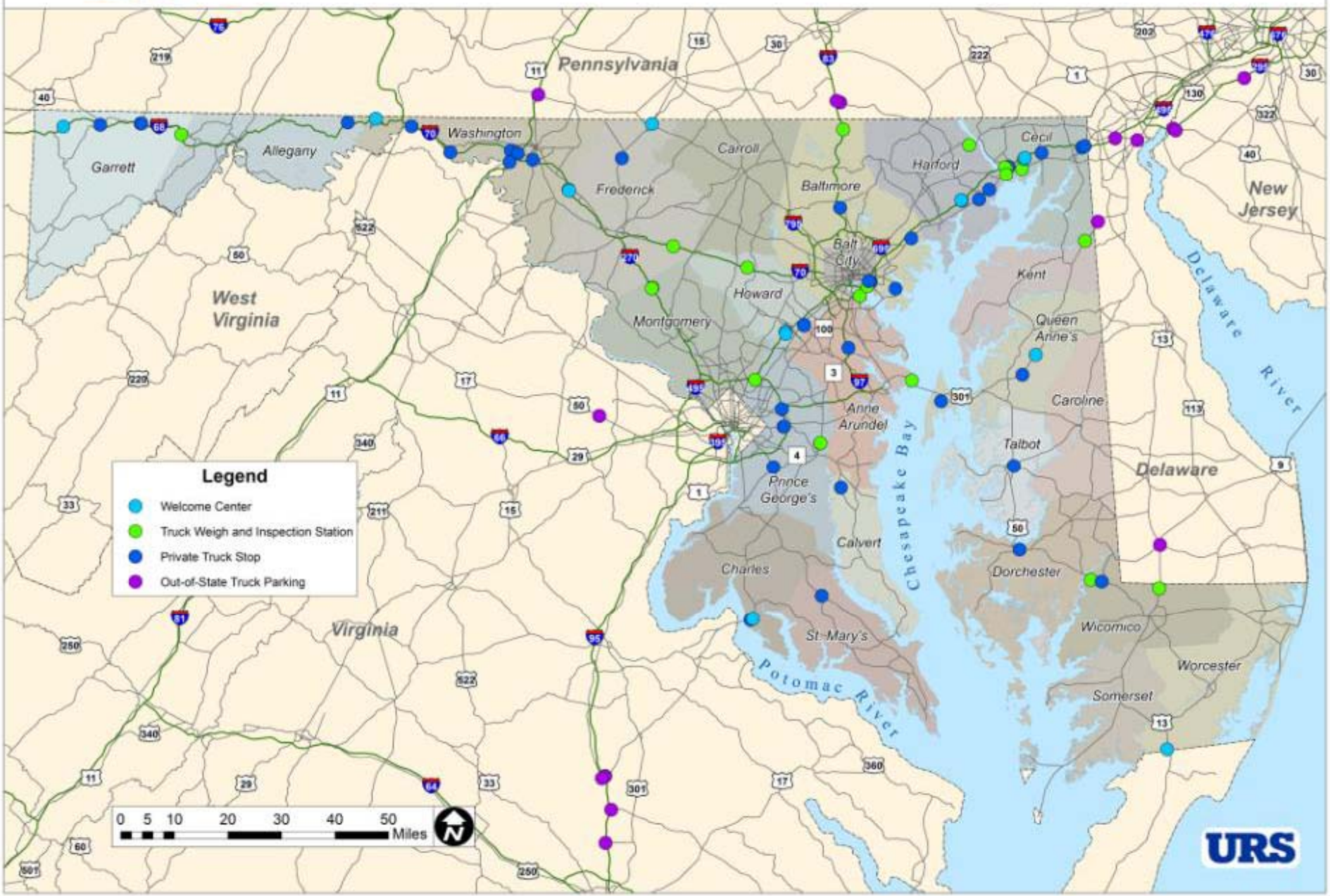
SHA/MDTA Freight Implementation Plan
Truck AADT



SHA/MDTA Freight Implementation Plan
Percentage of Truck Traffic



SHA/MDTA Freight Implementation Plan
Truck Parking Locations



Future Challenges

- The Port of Baltimore – expansion
- Growth – how much more freight?
- Traffic – how will the roads handle it?

The Port of Baltimore

- Truck traffic from the port uses nearby Interstates – I-83, I-895, I-95, I-70 and I-695
- Poor roadway connections to and from Port, with local roads not designed for heavy truck traffic
- Closest Atlantic port to major Midwestern population and manufacturing centers
- 32% of the population can be reached overnight by truck from the port

Freight Growth in Maryland

By 2035…

- Maryland anticipates a 75 percent increase in freight for the State and the region
- Freight tonnage will increase by 105 percent and the value of goods transported will increase by 118 percent

Source: Maryland Statewide Freight Plan, 2009

Factors Influencing Freight Growth

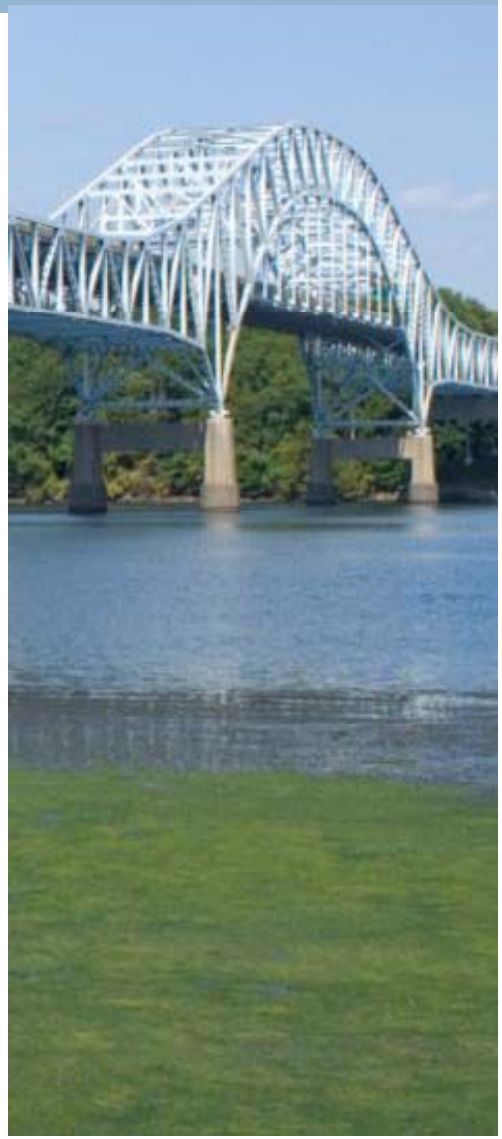
- Intermodal facility in Greencastle, PA (access via I-81)
- CSX improvements to rail infrastructure/ lack of double-stack rail capacity
- Panama Canal Expansion
- Shifting trade patterns that favor traffic moving through the Suez Canal
- Expansion of ports in Canada and Mexico

The Project

- Build on previous efforts by MDOT and other agencies – **research and lessons learned**
- Understand existing and projected freight demand on the network – **data collection and stakeholder input**
- Identify a range of freight transportation needs – **GIS spatial analysis**
- Identify potential short and long term projects – **the implementation plans**

Stakeholder Outreach

- Transportation agencies
- Law enforcement
- Trucking industry
- Logistics managers
- Truck stop owners
- Maintenance and operations staff
- Regulators
- Technology Experts



What Did We Ask the Agencies?

- How is accommodating freight incorporated into their agency's business plan?
- What performance measures are important to them?
- What freight-related projects they have implemented?
- What are their greatest challenges in moving freight in Maryland

What Did We Ask the Freight Haulers?

- Volume and types of freight
- How they deal with congestion
- Safety concerns
- Use of technology in communication, safety, routing
- Route selection
- Where they obtain information regarding incidents, restrictions
- Availability of truck parking
- Potential solutions

What Did They Say?

- Geometric constraints challenging at ramp termini and other locations
- Need additional virtual weigh stations and e-screening facilities
- Truckers don't always have the latest GPS data
- Increase the number of certified commercial vehicle inspectors

What Did They Say?

- Need safer places for trucks to pull off for enforcement activities (officer and driver safety)
- Need more designated truck lanes
- Traffic calming measures, roundabouts, and tree-lined boulevards difficult for trucks
- Lengthen ramps at weigh stations

What Did They Say?

- Cooperation between agencies, jurisdictions, and private industry to ensure connectivity along freight corridors
- Partner with GPS providers to properly identify approved truck routes and special restrictions
- Hours of Service
- Federal tractor-trailer size and weight regulations

What Did They Say?

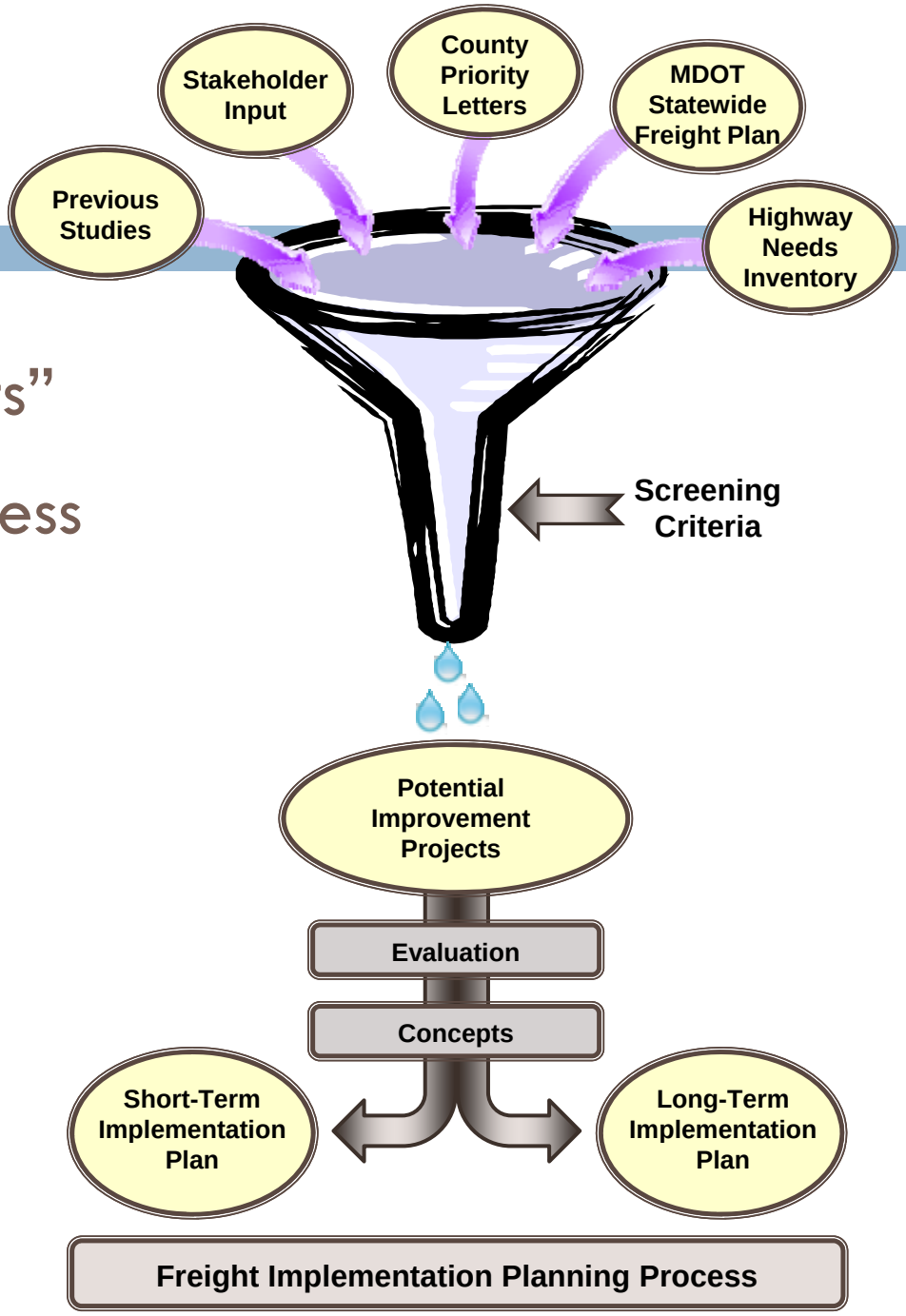
- Lack of overnight truck parking
- Trucks parked on shoulders and ramps unsafe and damaging to roadway
- Partner with hotels, commercial retail centers, and industrial complexes to allow truck parking
- Encourage shippers/receivers to provide additional off-hour truck parking
- Partner with GPS providers and truck stops to provide drivers with information on available truck parking

Stakeholder Workshop

- Congestion and delay for trucks
- Truck crashes and safety
- Geometric deficiencies that inhibit safe or efficient truck movement
- Community impacts caused by truck traffic
- Connectivity between distribution centers truck routes
- Inadequate truck parking
- Need for improved motor carrier enforcement
- Inter-agency and inter-jurisdictional coordination

The Process

- Identify freight "hot spots"
- Identify projects to address them
- Screen the projects to determine which ones are feasible
- Create short and long term plans



Identifying Needs and Challenges

- Collect data, information, and factors
- Create GIS data layers for each
- Weight factors based on comparison method
- Identify potential short term and long term projects that could address needs and challenges

Data/Information Available

- Truck related crashes
- Annual Average Daily Traffic (AADT)
- Annual Average Daily Truck Traffic (Truck AADT)
- Percentage of Truck AADT compared to AADT
- Proximity of route to distribution and intermodal centers
- Areas of safety, congestion, delay, geometric challenges, or community impacts noted by stakeholders

Weighting of Factors

	H	G	F	E	D	C	B	A
	Proximity to Distribution & Intermodal Centers	Community Impacts	Challenging Roadway Geometrics	Congestion & Delay	Percent Trucks	Volume of Truck Traffic	Overall Traffic Volumes	Number of Crashes
Number of Crashes A	A	A	A	A	A	A	A	
Overall Traffic Volumes B	H	B	F	E	D	C		
Volume of Truck Traffic C	C	C	F	E	C			
Percent Trucks D	H	D	F	D				
Congestion & Delay E	H	G	F					
Roadway Geometrics F	F	F						
Community Impacts G	H							
Proximity to Distribution & Intermodal Centers H								

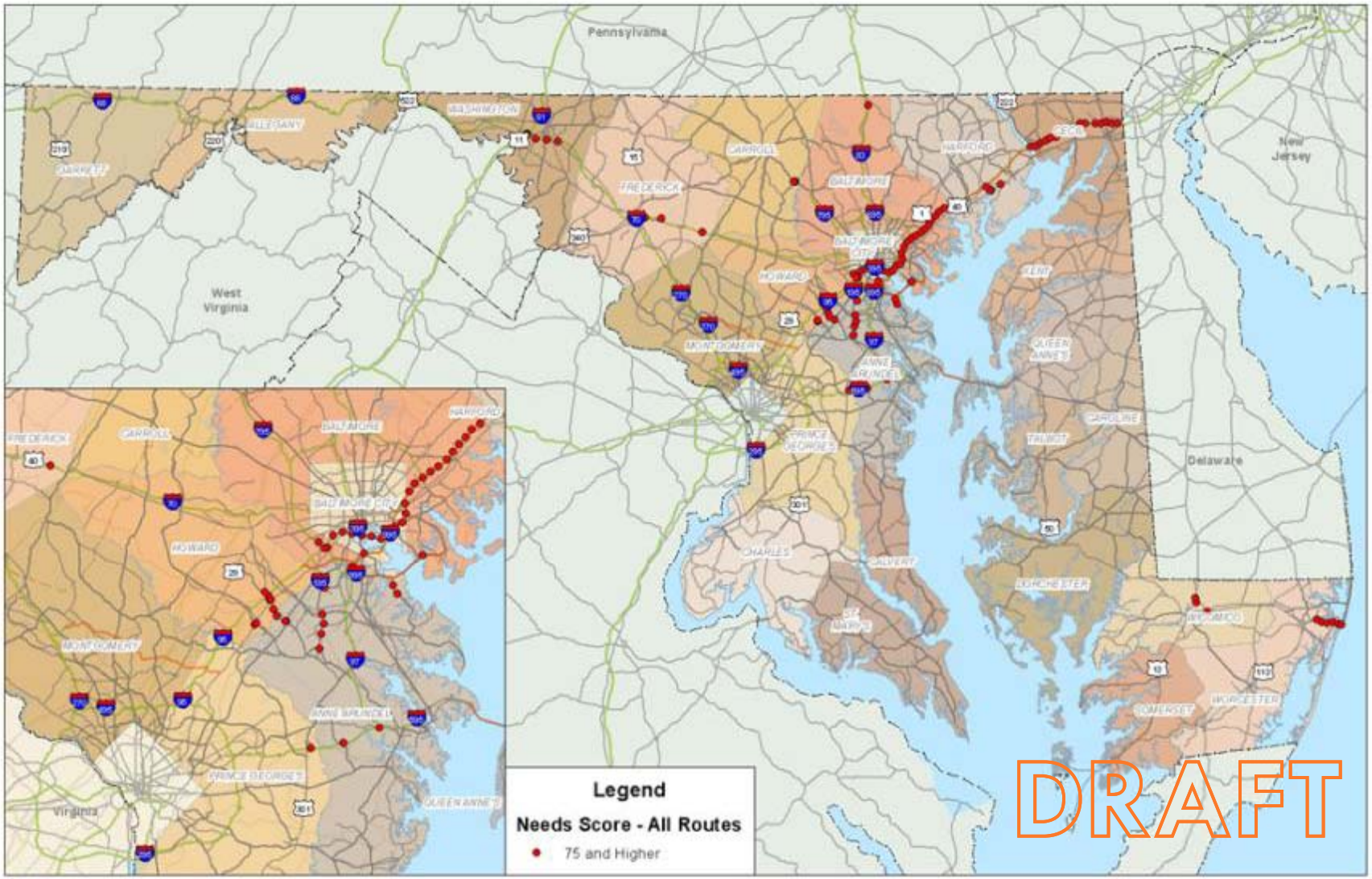
Weighting of Factors

Factors	Tally	Weights
A. Number of crashes	7	25
F. Roadway Geometrics	6	21
C. Volume of Truck Traffic	4	14
H. Proximity to Distribution/Intermodal Centers	4	14
D. Percent Trucks	3	11
E. Congestion and Delay	2	7
B. Total Traffic Volumes	1	4
G. Community Impacts	1	4
	28	100

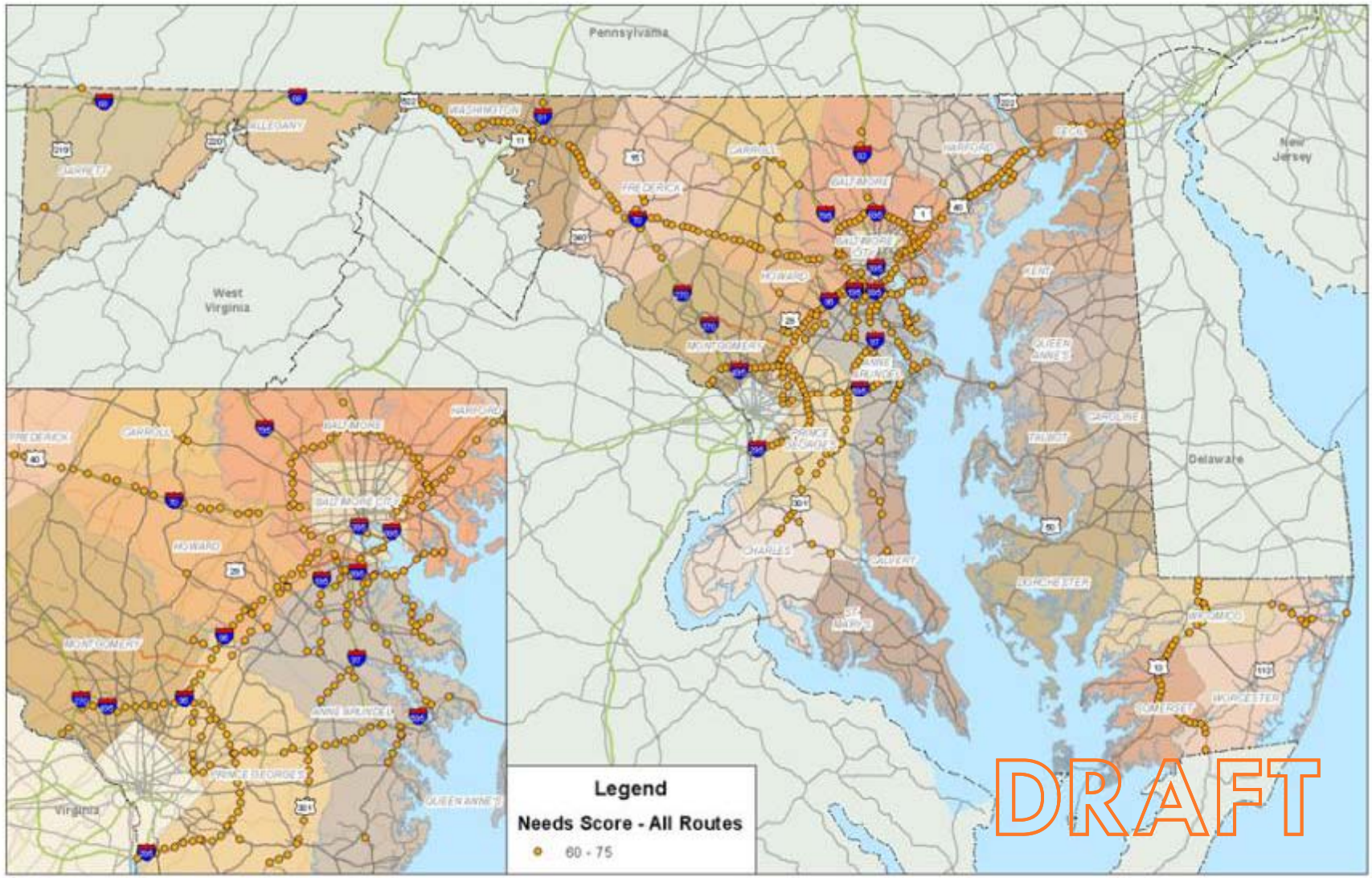
GIS Spatial Analyses

- Query the GIS database using the weighted factors
- Assign each roadway segment a "score"
- Review hot spots for State Routes, US Routes, and Interstates
- Overlay potential improvement projects from:
  - Stakeholder Interviews and Workshop
  - MDOT Statewide Freight Plan
  - County Priority Letters
  - Highway Needs Inventory (HNI)
  - Consolidated Transportation Plan (CTP)
  - Previous freight studies

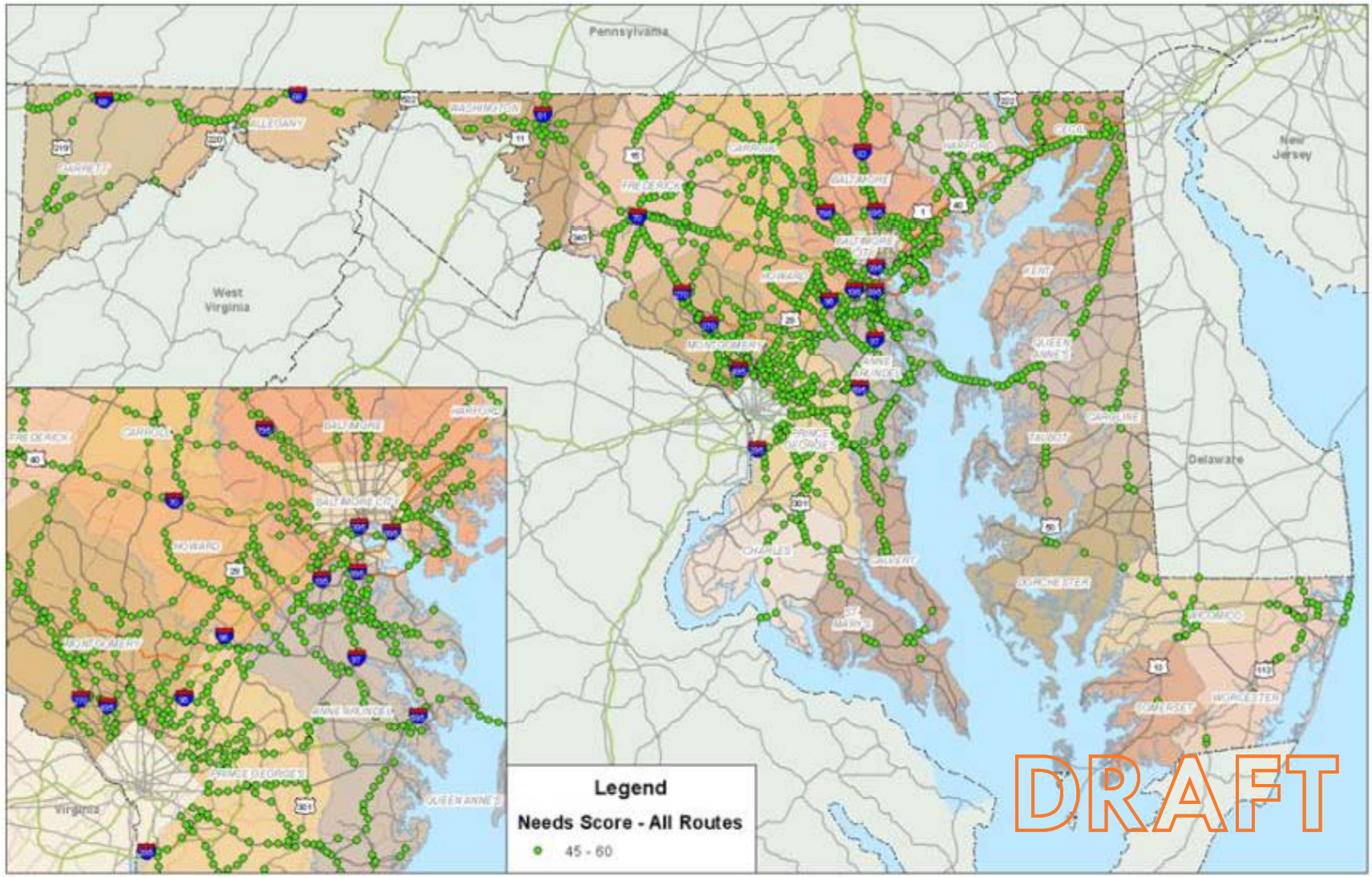
Hot Spots – High Scores



Hot Spots – Medium Scores



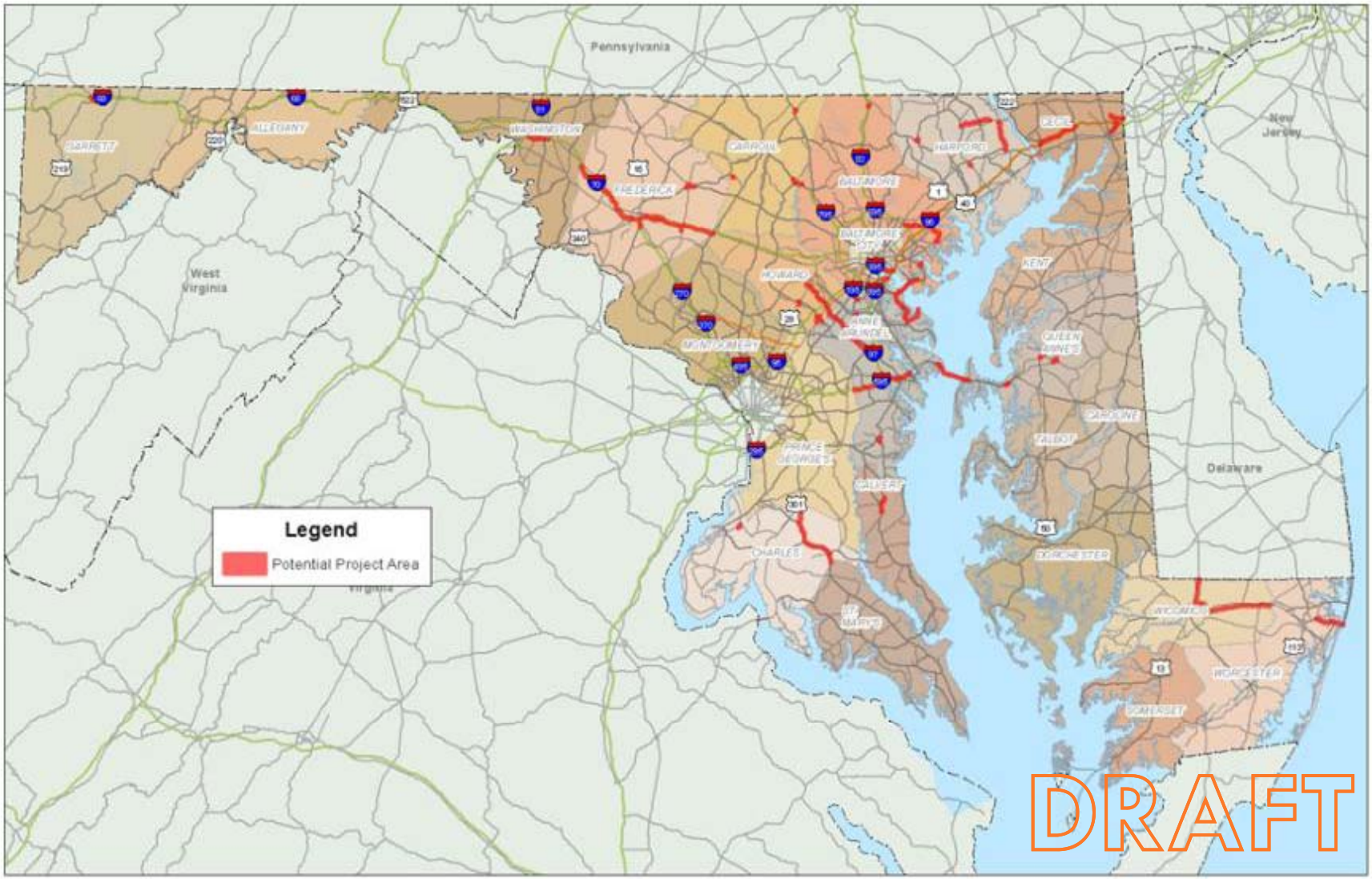
Hot Spots – Low Scores



Identifying Potential Solutions

- Short Term projects
- Spot safety improvements
- Break-out projects from ongoing studies
- Long Term projects

Potential Short Term Projects



Truck Parking Expansion Concepts

1. I-68 Youghiogheny Overlook in Friendsville
2. I-70 East Welcome Center
3. I-70 West Welcome Center
4. I-70 EB, east of the New Market weigh station
5. I-95 South Welcome Center
6. I-95 North Welcome Center
7. US 301 Bay Country Rest Area near Centreville
8. US 13 North Welcome Center in Pocomoke
9. US 15 South Welcome Center

Truck Parking Expansion Concepts

Remaining Steps in the Study

- Identify short term improvement roadway projects and develop improvement concepts and preliminary cost estimates
- Update truck parking needs inventory
- Develop truck parking expansion concepts and cost estimates
- Draft short and long term implementation plans
- Develop a freight planning process that MDTA and SHA can use for future projects

Questions?