Delmarva Freight Plan

Executive Summary

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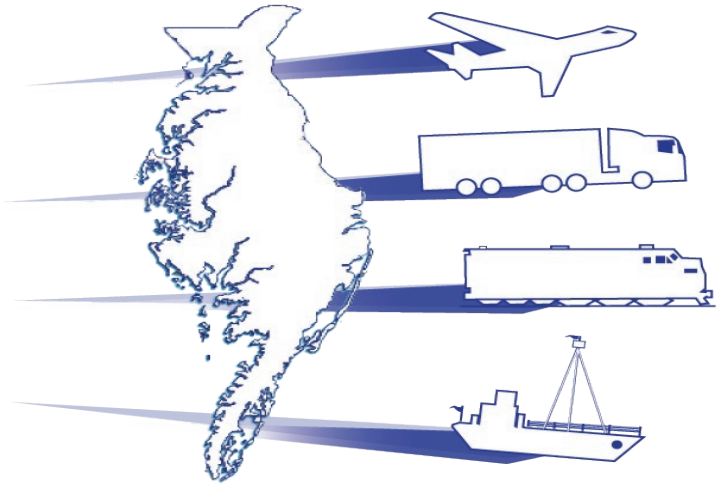
March 2015



Prepared for:

Delaware Department of Transportation

Prepared by:

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In collaboration with:

Maryland Department of Transportation
Virginia Department of Transportation
Wilmington Area Planning Council
Dover/Kent County Metropolitan Planning Organization
Salisbury/Wicomico Metropolitan Planning Organization

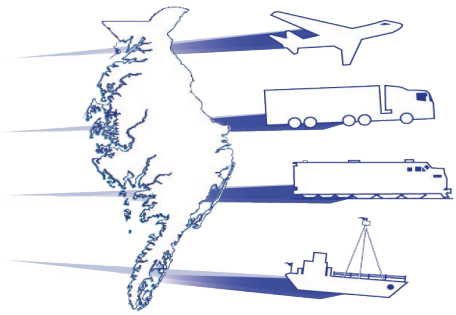
With additional support from:

University of Delaware
IHS Global Insight
Federal Highway Administration

Executive Summary

The Delmarva Freight Plan summarizes current and future freight planning and transportation needs to enhance freight and goods movement and related economic opportunities on the 14-county tri-state area of the Delmarva Peninsula (*Exhibit ES.1*). Undertaken by the Delaware Department of Transportation (DelDOT) and in fulfillment of statewide freight planning requirements for the state of Delaware, the plan aims to comply with Sections 1115 through 1118 of the Moving Ahead for Progress in the 21st Century (MAP-21) act and related National Freight Policy. It supports a regional perspective of freight flows, targets freight issues relevant to the local and regional economies, integrates commodity flow modeling and performance-based scenario planning, and ultimately provides insights to help inform future decision-making, freight infrastructure investments, and related policy guidance.

The plan recognizes and supports the need for multimodal freight planning collaboration within regional jurisdictions and across economic corridors to enhance mobility at the local, state, multi-state, and national level. It spans state boundaries on the peninsula to provide additional insights relevant to existing freight plans in Maryland and Virginia. Its development was thus informed by collaboration with state and Metropolitan Planning Organization (MPO) partners and public/private freight and economic stakeholders across the peninsula.



The Delmarva Freight Plan is organized by chapter to cover:

1. Introduction
2. Existing Economic Context
3. Existing Commodity Flows
4. Existing Freight Transportation System
5. Existing Freight Planning Resources
6. Freight Trends, Needs, and Issues
7. Future Freight Planning Scenarios
8. Freight Project Guidance
9. Freight Policy Guidance and Beyond

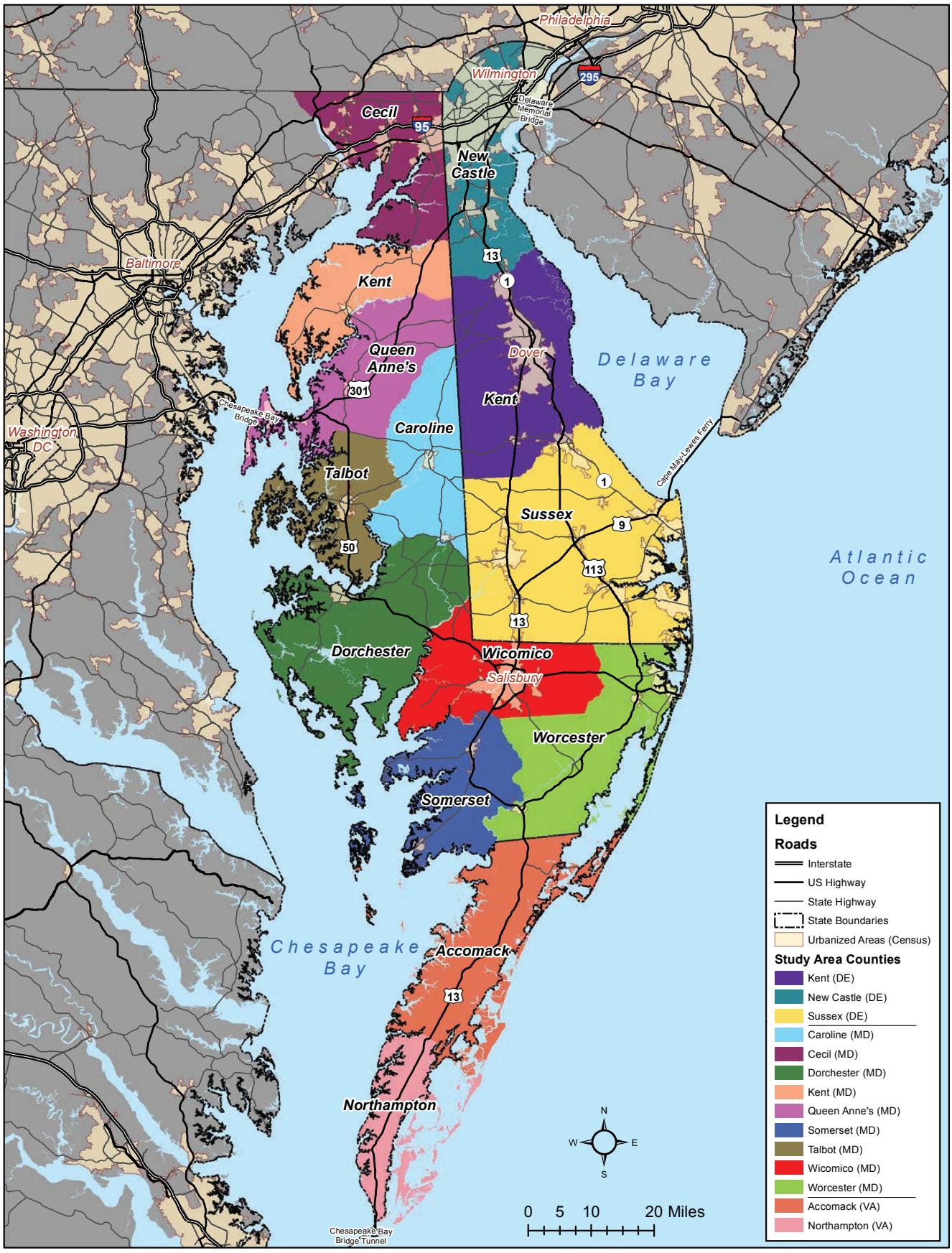
DelDOT's Delmarva Freight Plan was developed in collaboration with:

- Maryland Department of Transportation (MDOT)
- Virginia Department of Transportation (VDOT)
- Wilmington Area Planning Council (WILMAPCO)
- Dover/Kent County MPO (Dover/Kent MPO)
- Salisbury/Wicomico MPO (S/WMPO)
- University of Delaware
- IHS Global Insight
- Federal Highway Administration

Outreach and coordination efforts supporting the development of this plan included:

- 2012-2014 Delmarva Freight Summits
- 2013-2014 Delmarva Freight & Goods Movement Working Group meetings
- 12 Project Advisory Committee Meetings
- 30 targeted freight or economic stakeholder interviews
- Over 60 online freight survey responses
- Multiple presentations to area chambers of commerce
- Extensive background document reviews

Exhibit ES.1 – Project Area for the Delmarva Freight Plan

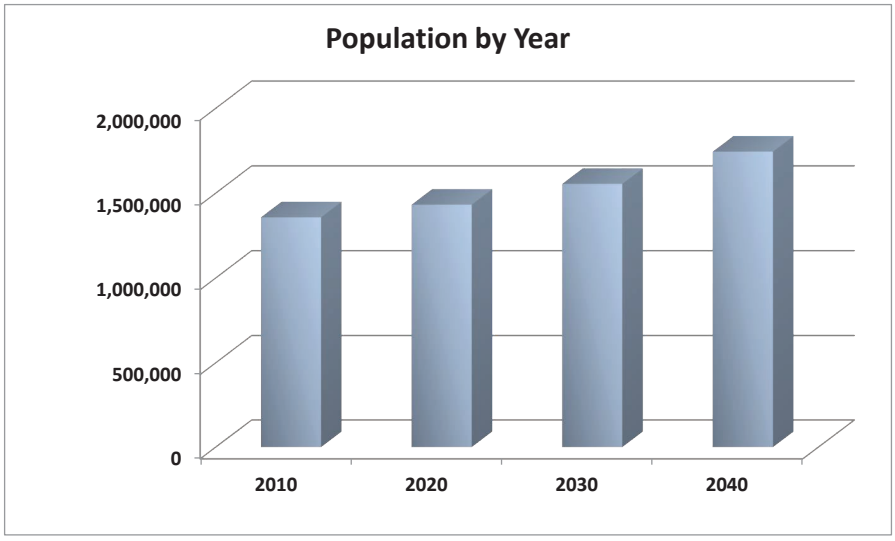


Existing Economic Context

The Delmarva Peninsula is a growing region with well-established industries and developed infrastructure. To fully understand the freight services that are the impetus of the plan, it is important to understand the economic drivers and markets of the region. *Chapter 2* of the plan investigates population and employment growth and related trends; highlights key industries, supply chain characteristics, and goods/cargo movement perspectives; explores the region's numerous economic development strategies that include business enterprise zones, tax credits, and other policies designed to promote industry and business opportunities; and reviews a macro perspective as to how the Delmarva region fits into the global market.

Background estimates anticipate a 29% increase in population between the plan's 2010 Base year and 2040 future horizon year (*Exhibit ES.2*). More population equates to more consumers, which equates to more freight demand. Surges in seasonal traffic in light of the peninsula's coastal resort areas and vibrant tourism industry will likewise grow future freight demands.

Exhibit ES.2 – Delmarva Population Projections



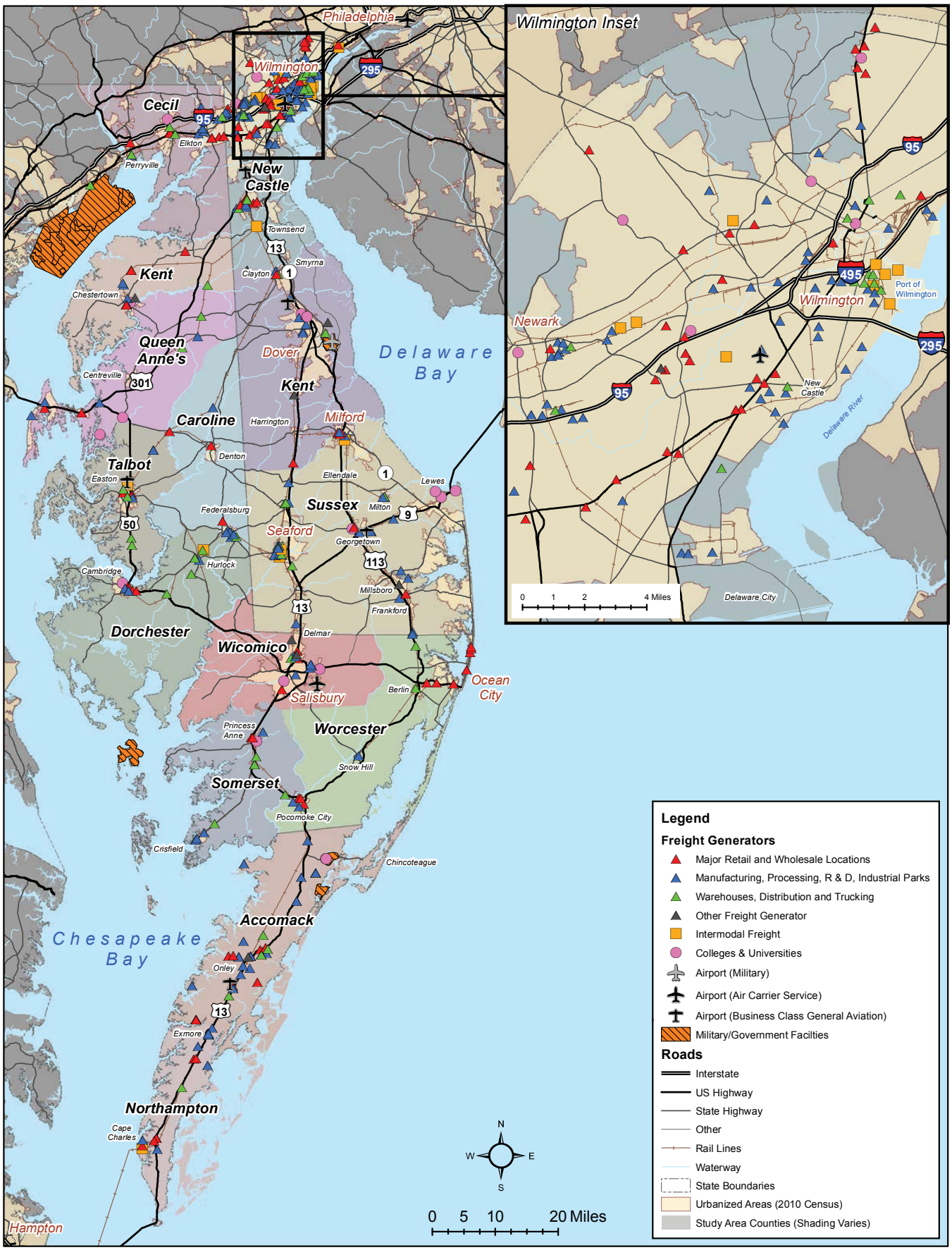
Freight Generators:

The identification of employment details and key freight generating industries across the peninsula (*Exhibit ES.3*) lays the groundwork for detailing Trendline and Accelerated Employment Growth scenarios in subsequent stages of the freight plan.

Supply Chains:

Key supply chains on the Delmarva Peninsula include energy, agriculture, poultry and agribusiness, food products and value-added food production, chemical products, and retail industries, among others.

Exhibit ES.3 – Major Freight Generating Industries on the Delmarva Peninsula



Existing Commodity Flows

Understanding existing commodity flows on and around the Delmarva Peninsula including, for example, what types of freight are moving, by what mode, and to/from where, is an important step toward identifying freight and goods movement patterns, trends, or needs specific to the region. *Chapter 3* of the plan summarizes these flows and establishes a baseline from which to begin developing a project-specific commodity flow model and future freight projections. This summary also highlights potential supply chain perspectives and unique issues related to energy, agriculture, or other productive activity centers that may warrant special attention within the freight planning process.

70 million tons ($75 billion)...
Annual commodity flows to, from, or on the Delmarva Peninsula.

157 million tons ($327 billion)...
Delmarva's annual commodity flows if pass-through freight is added, much of which crosses the peninsula along I-95 and the Northeast Corridor.

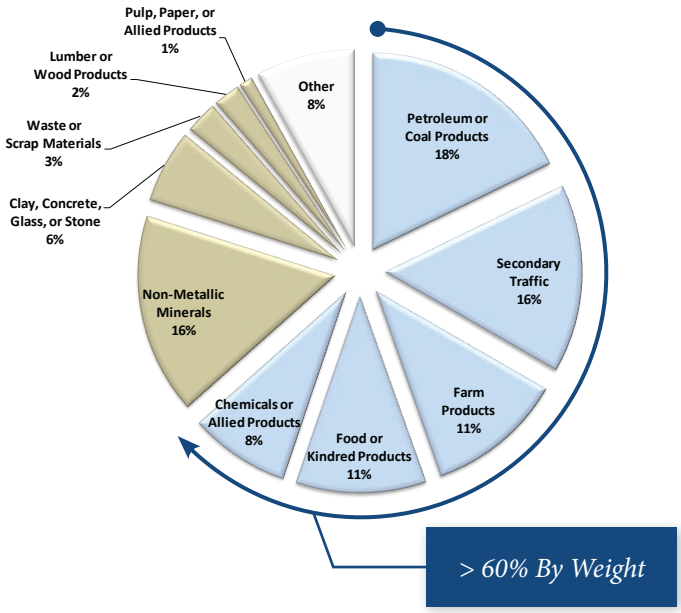
14 million tons ($13 billion)...
Delmarva's international freight total of approximately 12 million export tons and just under 2 million import tons with trade predominately between Canada, Europe, and Central or South America.

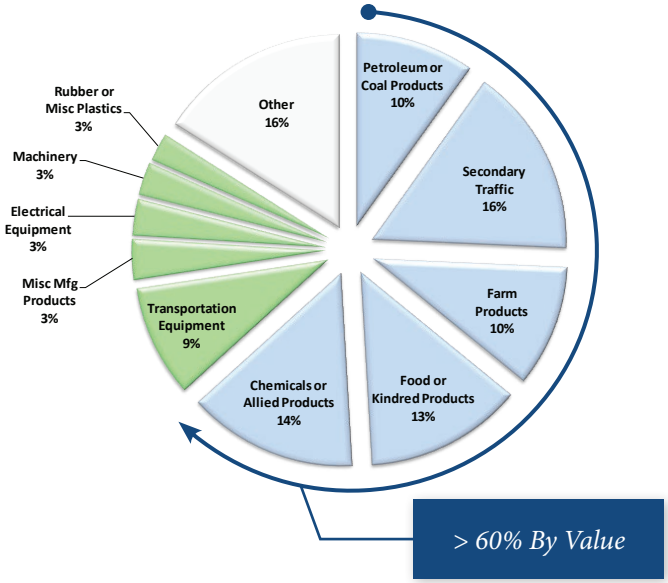
95% east of the Mississippi…
Proportion of Delmarva's domestic trade that generally occurs east of the Mississippi River.

Over 80% by truck…
Proportion of goods moved to, from, or on the peninsula by truck; with the remainder split between rail, water, and pipeline, plus nominal amounts of typically low weight/high value cargo by air.

Over 60% in 5 core groups…
Proportion of Delmarva's freight that can be classified by weight or value into just 5 core commodity groups including petroleum or coal products, secondary traffic, farm products, food or kindred products, and chemicals or allied products (*Exhibit ES.4*).

Exhibit ES.4 – Delmarva's Core Commodity Groups





Existing Freight Transportation System

The existing multimodal freight transportation system (*Exhibit ES.5 and Exhibit ES.6*) on the Delmarva Peninsula is comprised of key highway, rail, port, waterway, air, and pipeline assets across the regional project area. *Chapter 4* of the plan draws from existing sources and inventories to summarize that system and its assets by mode while also beginning to identify freight mobility issues, emphasis areas, or related insights for subsequent investigation. The plan approaches the overall freight transportation system from a multimodal corridor perspective, encompassing six key freight corridors (*Exhibit ES.7*) that capture the majority of Delmarva's freight traffic while also connecting to the most significant urbanized areas, multimodal hubs or related freight system assets. It additionally identifies local freight zones as smaller hubs of activity requiring connectivity to the broader freight corridors and capturing secondary highway/rail connections, local industries, and intra-county goods movements.

Rail operations:

- CSX Transportation
- Norfolk Southern
- Maryland and Delaware Railroad
- Delaware Coast Line Railroad
- Bay Coast Railroad (and carfloat)
- East Penn Railroad
- Wilmington & Western Railway

Key waterborne freight systems:

- Port of Wilmington
- Delaware River
- Chesapeake & Delaware Canal
- M-95 Marine Highway
- Surrounding regional ports
- Port of Salisbury
- Wicomico, Nanticoke, and Pocomoke Rivers

Key airborne freight potential:

- Dover Air Force Base/Air Cargo Ramp
- Wilmington-Philadelphia Regional Airport
- Salisbury-Ocean City-Wicomico Regional Airport
- Other Business Class General Aviation sites

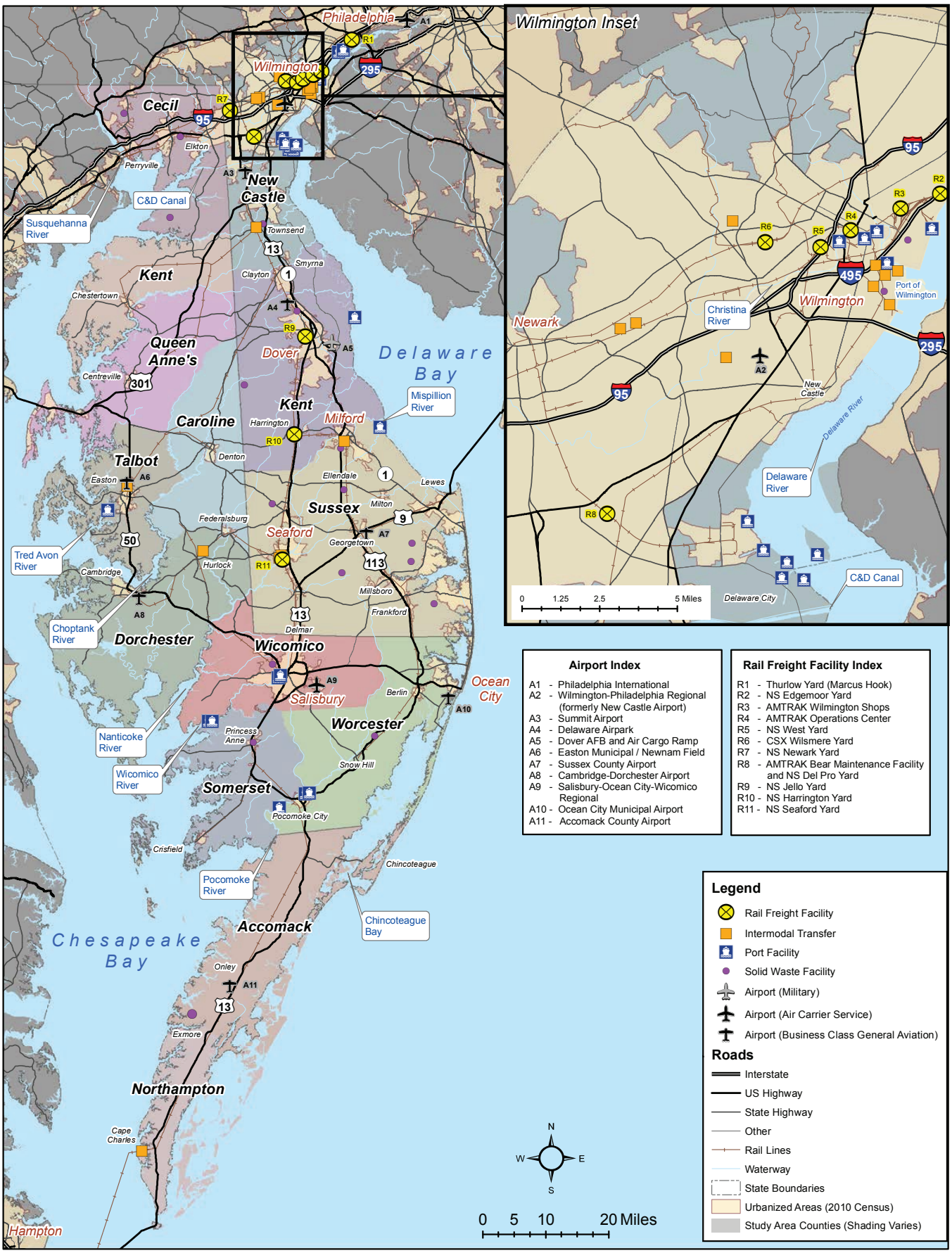
Key pipeline assets:

- Various natural gas transmission systems
- Various refined petroleum products systems
- Sunoco expansion via Project Mariner East to Marcus Hook

Multimodal freight corridors (Exhibit ES.7):

- I-95 **Metro** Freight Corridor
- US 301 **Bay** Freight Corridor
- US 50 **Ocean City** Freight Corridor
- US 13/113 and DE 1 **Coastal** Freight Corridor
- US 202 and DE 41 **Piedmont** Freight Corridor
- MD/DE 404 and US 9 **Lewes** Freight Corridor

Exhibit ES.5 – Delmarva's Roadway and Multimodal Freight Transportation Network



Airport Index

- A1 - Philadelphia International
- A2 - Wilmington-Philadelphia Regional (formerly New Castle Airport)
- A3 - Summit Airport
- A4 - Delaware Airpark
- A5 - Dover AFB and Air Cargo Ramp
- A6 - Easton Municipal / Newnam Field
- A7 - Sussex County Airport
- A8 - Cambridge-Dorchester Airport
- A9 - Salisbury-Ocean City-Wicomico Regional
- A10 - Ocean City Municipal Airport
- A11 - Accomack County Airport

Rail Freight Facility Index

- R1 - Thurlow Yard (Marcus Hook)
- R2 - NS Edgemoor Yard
- R3 - AMTRAK Wilmington Shops
- R4 - AMTRAK Operations Center
- R5 - NS West Yard
- R6 - CSX Wilsmere Yard
- R7 - NS Newark Yard
- R8 - AMTRAK Bear Maintenance Facility and NS Del Pro Yard
- R9 - NS Jello Yard
- R10 - NS Harrington Yard
- R11 - NS Seaford Yard

Legend

- Rail Freight Facility
- Intermodal Transfer
- Port Facility
- Solid Waste Facility
- Airport (Military)
- Airport (Air Carrier Service)
- Airport (Business Class General Aviation)

Roads

- Interstate
- US Highway
- State Highway
- Other
- Rail Lines
- Waterway
- State Boundaries
- Urbanized Areas (2010 Census)
- Study Area Counties (Shading Varies)

Exhibit ES.6 – Delmarva's Rail Network

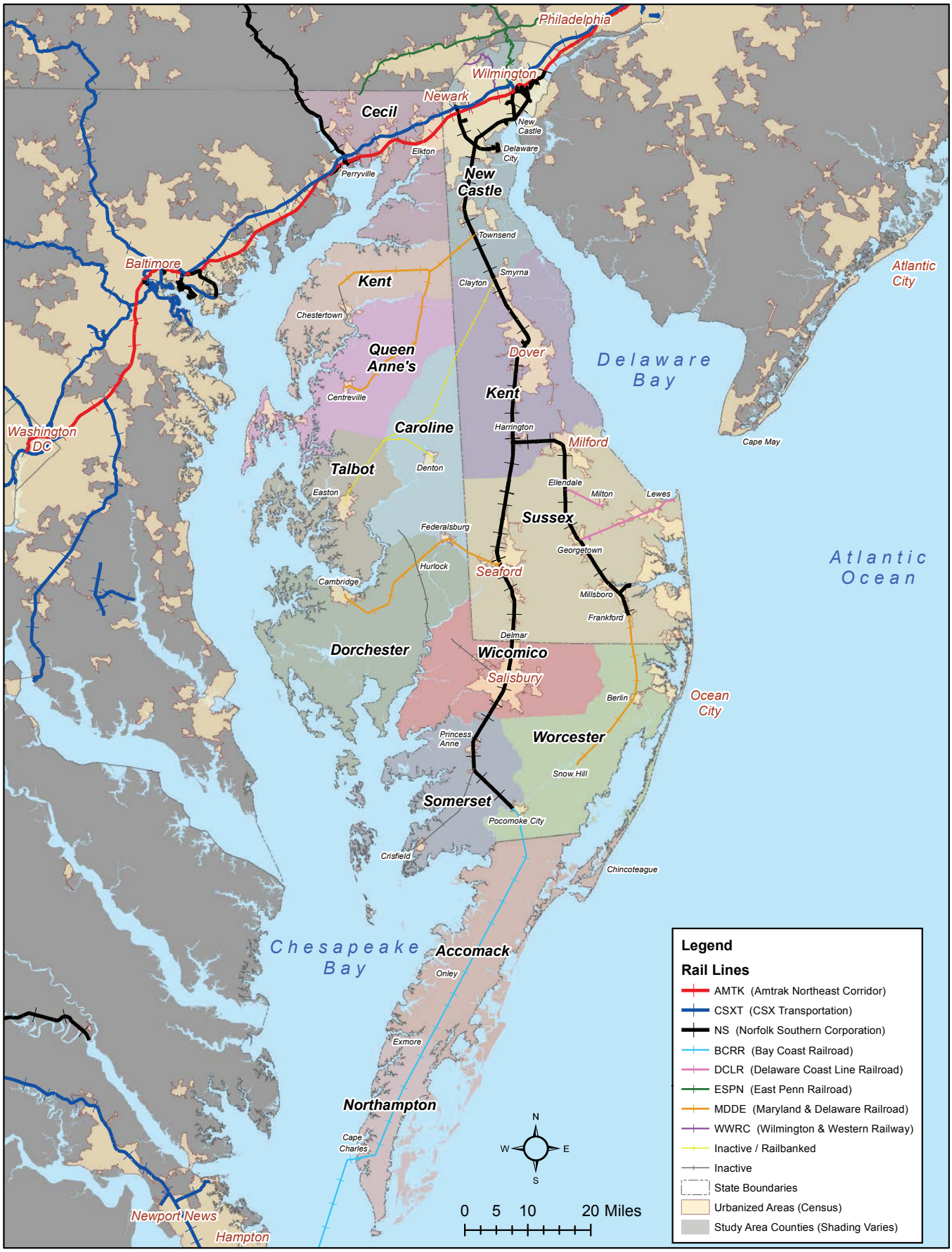
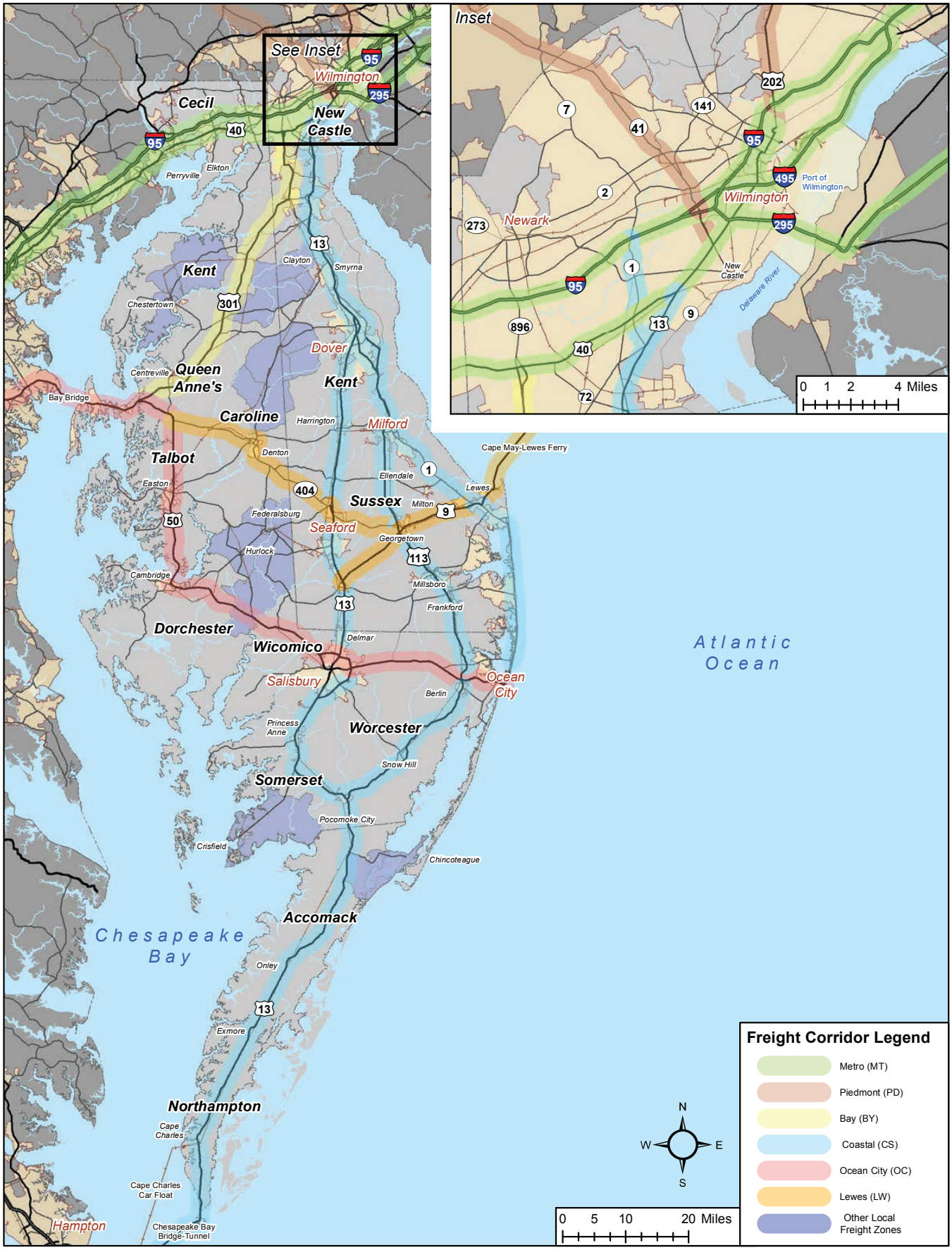


Exhibit ES.7 – Delmarva's Major Freight Corridors and Local Freight Zones



Existing Freight Planning Resources

Several existing freight programs and planning/coordination efforts involving federal, state, county, and local agencies and the private sector operate across the Delmarva Peninsula. Such efforts help to support, enhance, and expand freight and goods movement opportunities locally, regionally, and beyond. Targeted programs for mode-specific rail/port/airport planning efforts or for Commercial Vehicle Information Systems Network (CVISN) assets focus almost exclusively on freight infrastructure and operations, while broader programs such as trade zone designations or each state's transportation improvement program yield indirect opportunities and benefits. While not intended to be all-inclusive, *Chapter 5* of the plan highlights key freight institutions, coordination activities, project funding and revenue sources, and existing capital plans or programs relevant to the overall context of the freight plan.

Effective multi-jurisdictional coordination is critical on the Delmarva Peninsula where freight "knows no boundaries" across the separate systems, regulations, and requirements of the peninsula's 3 states, 14 counties, multiple MPOs, numerous local jurisdictions, and a wide variety of other public/private partners or freight stakeholders. To help facilitate this coordination, WILMAPCO, DelDOT, and MDOT have spearheaded efforts since 2011 to hold periodic meetings of a Delmarva Freight & Goods Movement Working Group, as well an annual Delmarva Freight Summit that, to-date, has been attended by over 200 unique attendees.

Future Opportunities:

Freight planning resources and program references in the Delmarva Freight Plan show a snapshot in time. Subsequent planning and decision-making should remain flexible in order to react to unknown future changes potentially involving MAP-21, the proposed GROW AMERICA act[1], TIGER grant resources, the Projects of National & Regional Significance (PNRS) program, public-private partnership opportunities, programmatic funding levels, or other federal/state freight program modifications.

Existing Capital Plans:

Reviews of existing capital plans/programs identified over 50 projects on the peninsula as anticipated project commitments having potential freight benefits or implications. Such reviews laid the groundwork for compiling future Trendline scenario assumptions and supporting project screening/prioritization efforts later in the plan.

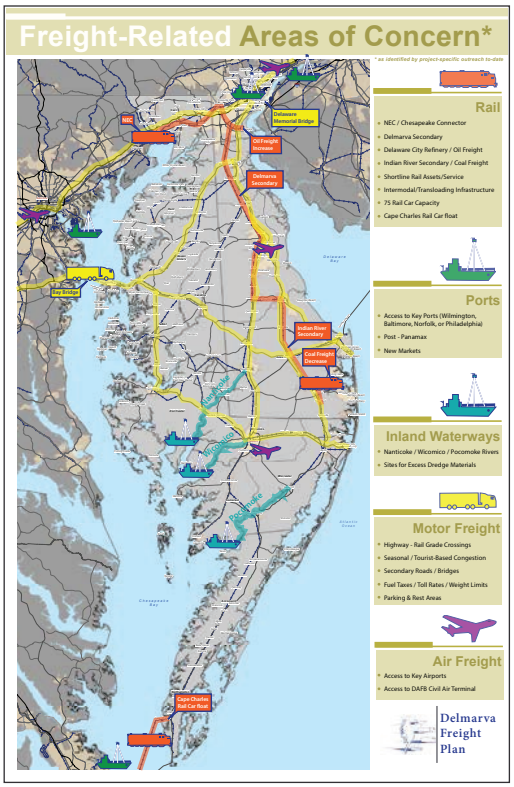
[1] http://www.dot.gov/grow-america

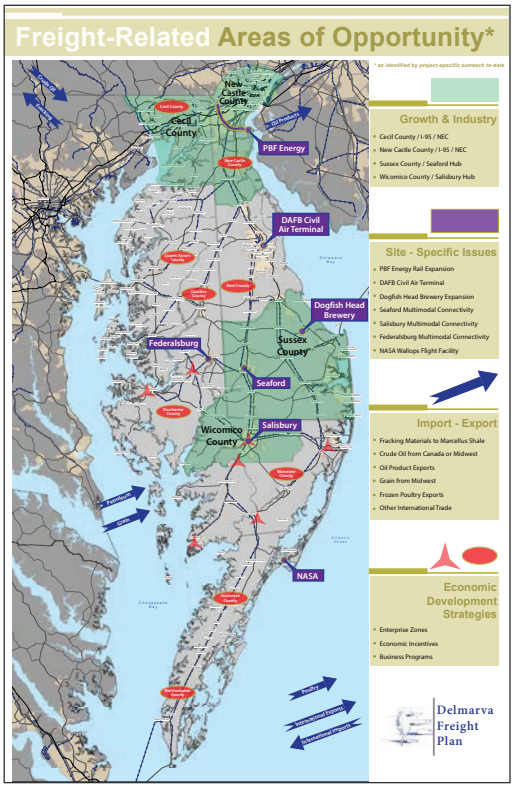
Freight Trends, Needs, and Issues

Chapter 6 of the plan serves as an important transition from identifying the current state of the peninsula's freight and goods movement system to preparing for a detailed assessment of that system and potential improvement scenarios. This transition includes a high-level summary of key areas of concern and areas of opportunity, as well as a more detailed look at unique issues within focus areas corresponding to the plan's categorical goals that encompass:

- **Economic Vitality**…with a focus on issues ranging from site-specific industry needs, key supply chains, or import/export opportunities; to freight land use compatibility and preservation of multimodal options.
- **Freight Connectivity, Mobility, and Accessibility**…with a focus on issues ranging from roadway freight network designations or first/last mile connections; to congestion and conflicts in urban areas, during peak tourist seasons, or at critical at-grade rail crossings.
- **Safety and Security**…with a focus on issues ranging from general crash prevention and oversize/overweight truck enforcement; to evacuation planning, hazardous materials tracking, or cargo screening and Homeland Security support.
- **System Management, Operations, and Maintenance**…with a focus on issues ranging from expansion in CVISN, all-electronic tolling, traffic responsive signal systems, or truck parking; to dredge funding shortfalls or excess dredge material disposal site needs.
- **Sustainability and Environmental Stewardship**…with a focus on issues ranging from truck idling regulations, truck stop electrification, or spills control; to Sea-Level Rise (SLR) adaptation planning or community/livability issues and first/last mile freight conflicts.

Insights from the overall review of freight trends, needs, and issues play a direct role in the freight plan's subsequent action steps (1) by way of inputs into the project-specific screening and prioritization methods and (2) in the formation of the plan's guiding principles and general policy perspectives.



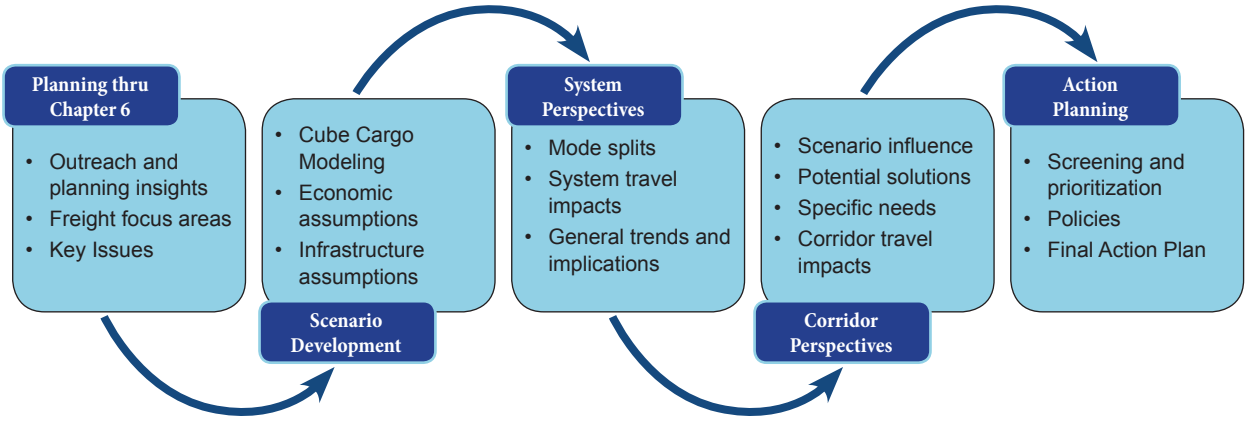


Future Freight Planning Scenarios

Chapter 7 of the plan evaluates future freight planning scenarios to explore "what-if" questions relative to key economic or infrastructure factors impacting freight on the peninsula. Each scenario assumes a combination of changes that to varying degrees may be within an agency's control (e.g. transportation investments) or beyond an agency's control (e.g. regional economic influences). Evaluating how such changes might impact the freight transportation system helps to describe futures to which the DOTs, MPOs, and other stakeholders can better prepare to react, ultimately fostering more informed decision-making, effective infrastructure planning, and relevant policy guidance. The overall scenario planning process (*Exhibit ES.8*) combines qualitative stakeholder and freight study insights with quantitative commodity details and the project's Cube Cargo commodity flow model to compare scenarios such as:

- *2010 Baseline versus 2040 Trendline* – reflecting freight demands and conditions today as compared to projected changes in future year 2040 assuming "status quo" growth and an essentially identical freight transportation network.
- *2040 Multimodal Constraint versus 2040 Multimodal Enhancement* – exploring freight and travel conditions under a loss or reduction of key rail, barge, or other multimodal infrastructure, versus an improvement or expansion of the same.
- *Trendline Growth versus Accelerated Growth* – exploring changes in freight demand with future population, household, and employment assumptions consistent with today's growth expectations, versus a more expansive future economic climate with added growth and targeted industry or market surges.

Exhibit ES.8 – Scenario Planning Process



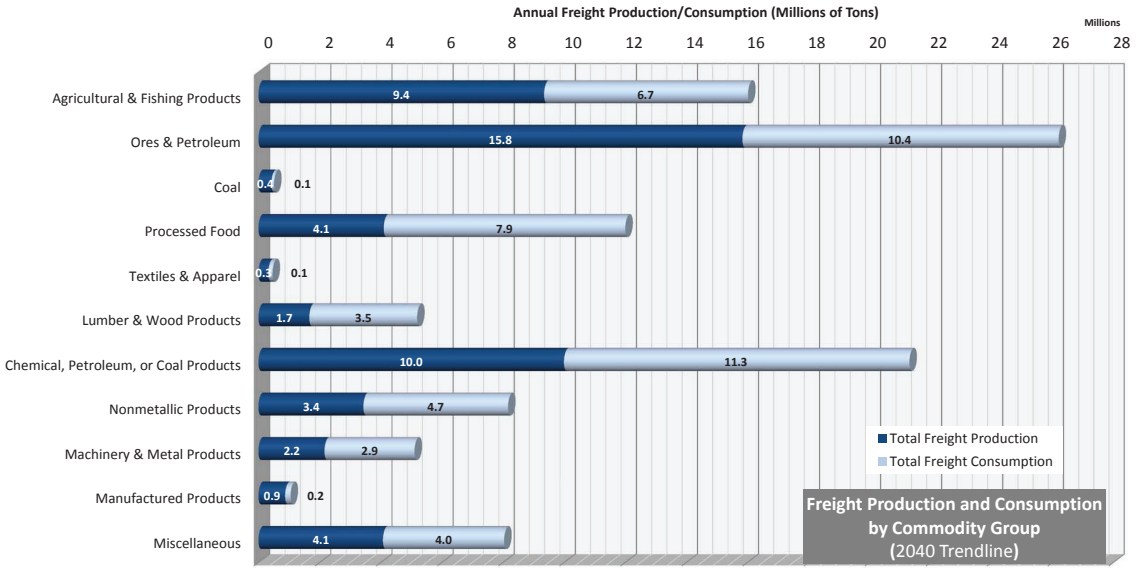
Recent market changes have impacted the volume and pattern of major rail flows onto the peninsula, which raises unique scenario planning questions related, for example, to the impacts of substantial increases in oil traffic to areas in northern New Castle County, alongside massive reductions in coal traffic to areas farther south in Sussex County.

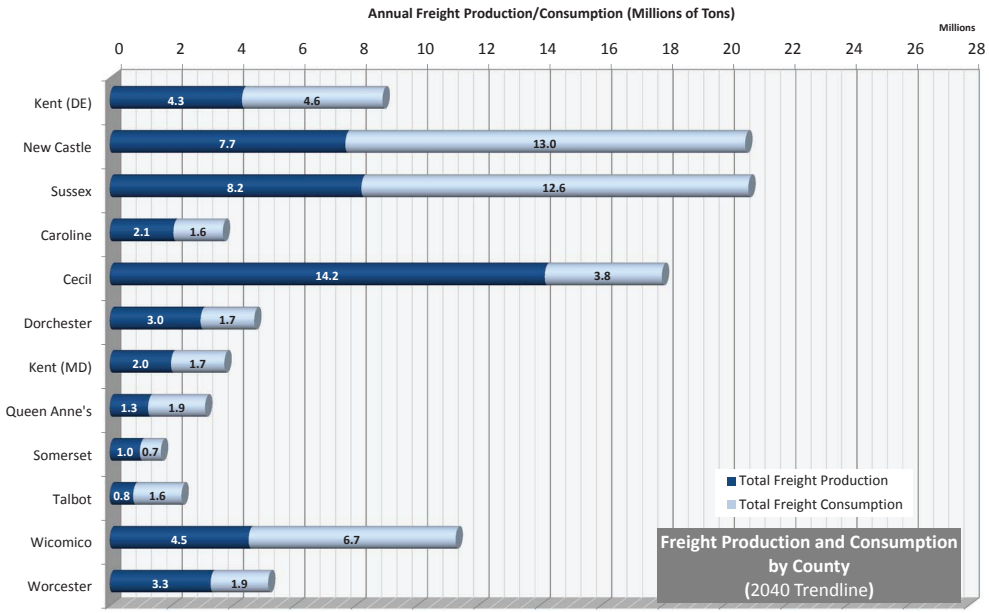
The collective influence of the peninsula's waterborne freight systems also raise unique scenario planning questions related, for example, to broader issues involving expansion of the Panama Canal, interests in the M-95 Marine Highway system, or concerns with dredge related funding shortfalls and excess dredge material disposal sites that could impact the peninsula's river barge capacity.

2040 **Trendline Growth** reflects up to 30% increase in population and employment (versus 2010 levels on the peninsula) and a 70-80% increase in annual freight estimates (*Exhibit ES.9*).

2040 **Accelerated Growth** reflects up to 38% increase in population and employment (versus 2010 levels on the peninsula) and essentially doubles the 2010 freight estimates, resulting in 14% additional freight growth beyond Trendline levels.

Exhibit ES.9 – 2040 Trendline Freight Estimates





The overall scenario planning and modeling insights (including sample results per *Exhibit ES.10 through Exhibit ES.12*) help to inform subsequent action planning steps and the development of proposed project/policy guidance in a variety of ways. Potential benefits of the plan's approach and related insights include:

- *Example 1 – they help to explore system-wide impacts of unknown futures.* Reviews of system level tons by mode and truck VHT by scenario, for instance, indicate that maintaining or improving efficient multimodal systems may have a limited potential to change the mode split of freight today, but will be a vital part of managing future freight increases while securing industry-specific needs and economic competitiveness on the peninsula.
- *Example 2 – they help to support corridor-specific policy interests.* Corridor assessments under the Multimodal Constraint scenario, for instance, reveal sensitivities to the scenario's reduction in barge and rail opportunities that yield up to a 17% increase in truck VMT or VHT along US 50 alone, or an equivalent increase in truck transportation costs of approximately $36 million per year. Such extremes emphasize the critically of preserving multimodal barge and rail access to Seaford, Salisbury, and other areas throughout the southern peninsula.
- *Example 3 – they help to identify bottlenecks and project candidates.* Model-based truck volume, truck VHT, and level-of-service output, for instance, was compiled using 3D GIS to visually represent truck bottleneck locations across the peninsula, which helped to supplement a list of potential areas of concern and the development of candidate project locations that were subsequently incorporated into the plan's project screening and prioritization process.

Exhibit ES.10 – Relevant Freight Planning Interests by Corridor

Corridor Insights, Issues, or Sensitivities	Metro	Bay	Ocean City	Coastal	Piedmont	Lewes
Truck Cost Sensitivity to Accelerated Scenario*	+3% $37M	+34% $75M	+11% $25M	+38% $395M		
Truck Cost Sensitivity to Constraint Scenario*			+16% $36M			+25% $13M
Development patterns or warehousing shifts	✓					
Regional alternate routes or system redundancy		✓		✓		
Peak season traffic, tourism and freight conflicts			✓	✓		✓
Community and freight access conflicts	✓	✓			✓	✓
Multi-jurisdictional cooperation	✓				✓	✓
Oversize or special freight movements	✓			✓		
Technology advancements (ITS, VWS, autonomous vehicles)	✓	✓		✓		

** shown as a % increase and equivalent $ value increase in truck costs based on VHT and VMT changes vs. the 2040 Trendline*

Exhibit ES.11 – System Level Tons by Mode

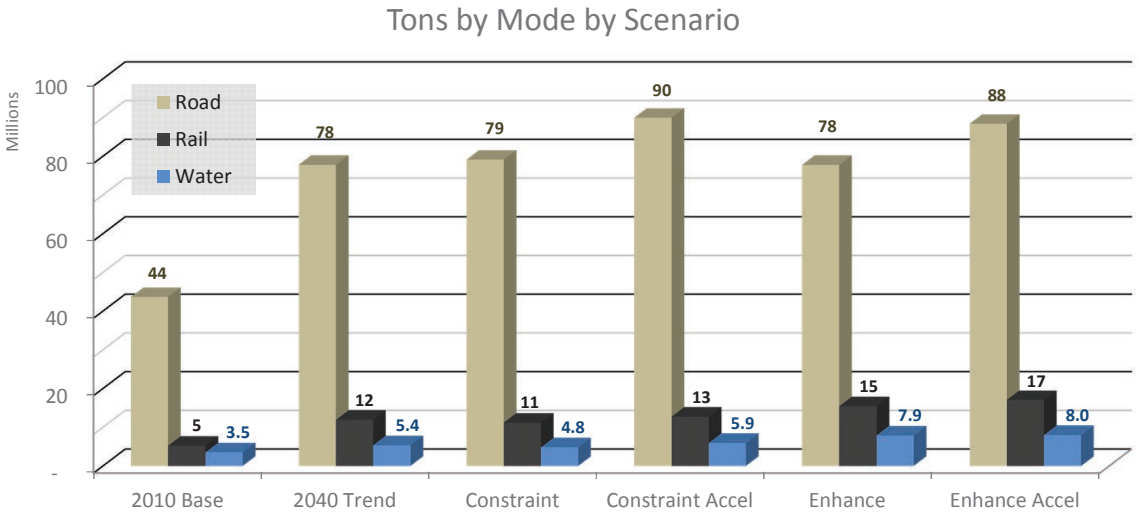
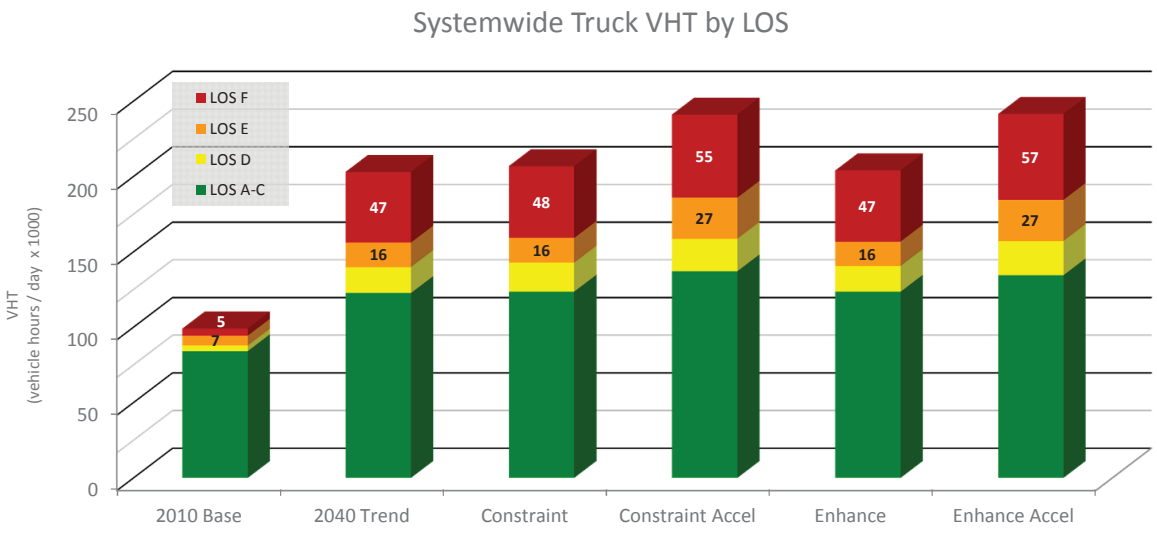


Exhibit ES.12 – System Level Truck VHT by Level of Service



Freight Project Guidance

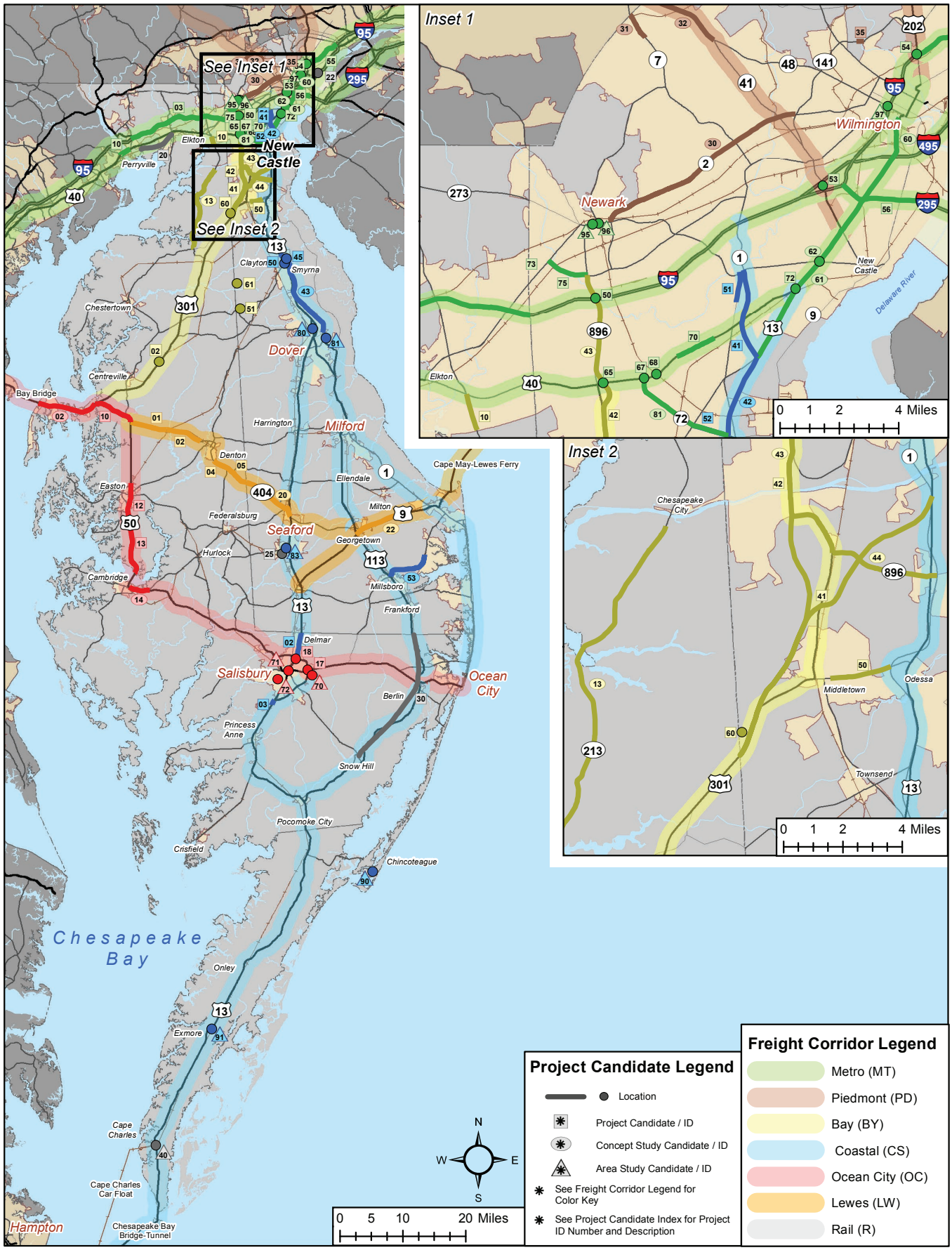
Building on the plan's summaries of freight trends, needs, issues, and scenario planning insights, closing efforts focus on a compilation of action planning elements that will help to support freight and goods movement opportunities and transportation systems throughout the Delmarva region. These elements include projects, policies, or other actions that may be referenced individually or integrated within the broader planning programs and strategies that are managed by the peninsula's federal, state, MPO, and other public/private partners tasked with overseeing their respective operations, systems, or jurisdictions.

Chapter 8 of the plan outlines freight project planning guidance. To develop this guidance, two stages of project assessments were completed:

- **Project screening** was primarily a qualitative exercise that addressed all project candidates in each of the three states across the peninsula. This broad-based assessment aimed to reasonably filter which project candidates could have a greater or lesser potential freight influence versus the specific interests and concerns throughout the Delmarva region (i.e. relative to previously-identified freight focus areas). Assessments were viewed both in general and against the backdrop of a variety of unknown futures (i.e. relative to previously-evaluated future scenarios).
- **Project prioritization** was more of a quantitative exercise that addressed candidates in the state of Delaware only. The prioritization stage, in this case, was directed specifically at supporting future DelDOT and Delaware State planning efforts; whereas Maryland and Virginia interests are subject to separate plans/processes in use by those jurisdictions. In-line with the performance-based objectives of MAP-21, the potential merits of individual projects were rated, scored, and ranked according to a variety of weighted evaluation criteria. Criteria included Cube Cargo model based levels-of-service, daily truck volumes, and congested travel speeds, as well as details involving fatal crash activity or the number of freight generators near the project area.

Roughly 200 project candidates were assessed in the above manner. The resulting screening or prioritization results were used to assign general ratings from "nominal" to "high" and to help establish the relative top priorities and key project or study lists included in the plan. Leading candidates are mapped below (*Exhibit ES.13*) and categorized in the tables that follow.

Exhibit ES.13 – Key Project Candidates Map



Delaware Key Projects w/ Anticipated Commitments

ID	Route/Area	Limits	Description
MT 54	I-95	at US 202	Interchange improvements
MT 56	**I-295**	**I-95 to DE Memorial Bridge**	**Improvements**
MT 75	DE 4	DE 2 to DE 896	Eastbound widening
BY 41	**US 301**	**MD Line to DE 1**	**New 4-lane expressway**
BY 50	DE 299	DE 1 to Catherine St	Widen
CS 51	DE 7	Newtown Rd to DE 273	Widen
CS 52	DE 72	McCoy Rd to DE 71	Widen from 2 to 4 lanes
PD 35	DE 141	Tyler McConnell Bridge	Construct bridge and DE 141 tie-ins

Delaware Key Projects w/ Unfunded Aspirations

ID	Route/Area	Limits	Description
MT 50	**I-95**	**at DE 896**	**Major interchange reconstruction**
MT 53	**I-95**	**at DE 141**	**Phase I and II interchange projects**
MT 55	I-95	US 202 to I-495/DE 2	Widen from 4 to 6 lanes
MT 65	US 40	at DE 896	New interchange
MT 67	US 40	at DE 72	Intersection improvements
MT 68	US 40	at NS Rail Crossing (Bear, DE)	Grade separation
MT 70	US 40	Salem Church Rd to Walther Rd	Widen from 4 to 6 lanes
MT 72	**US 40**	**at US 13**	**New interchange**
BY 42	**DE 896**	**DE 2 to Boyds Corner Rd**	**Signal retiming and/or upgrades**
CS 41	DE 1	Tybouts Corner to DE 273	Widen from 4 to 6 lanes

Delaware Key Projects w/ Planned VWS Focus

ID	Route/Area	Limits	Description
BY 51	DE 300	West of Smyrna	Planned VWS
BY 60	DE 299	West of Middletown	Planned VWS
BY 61	DE 6	West of Smyrna	Planned VWS
CS 45	DE 1	Northbound near Smyrna	Planned VWS
CS 50	US 13	Northbound near Smyrna	Planned VWS

* **BOLD** *text indicates High Priority Rating per screening/prioritization efforts*

Delaware Targeted Studies w/ Corridor or Concept Design Focus

ID	Route/Area	Limits	Study Focus
MT 60	**US 13**	**I-495 to Christiana River**	**Freight management upgrades**
MT 61	**US 13**	**DE 1 to I-495**	**Roadway or capacity upgrades**
MT 62	**US 13**	**at DE 273**	**Interchange feasibility**
MT 81	**DE 72**	**US 40 to US 13**	**Freight management upgrades**
BY 43	DE 896	C&D Canal to US 40	Roadway or capacity upgrades
BY 44	**DE 896**	**US 301 to DE 1**	**Freight management upgrades**
CS 42	**DE 1/US 13**	**DE 72 to DE 71**	**Freight management upgrades**
CS 43	DE 1	Dover (Exit 97) to Smyrna (Exit 119)	Freight management upgrades
CS 53	DE 24	US 113 to DE 23	Freight management upgrades
PD 30	**DE 2**	**DE 273 to DE 141**	**Freight management upgrades**
PD 31	DE 7	Valley Rd to PA Line	Freight management upgrades
PD 32	**DE 41**	**DE 48 to PA Line**	**Freight management upgrades**
LW 20	DE 404	MD Line to US 113	Freight management upgrades
LW 22	US 9/US 9 Tk	US 113 to DE 5	Freight management upgrades

Delaware Targeted Studies w/ Area-wide Focus

ID	Route/Area	Limits	Study Focus
MT 95	Newark	Area study and/or upgrades	Freight management
MT 97	Wilmington	Area study and/or upgrades	Freight management, route signage
CS 80	Dover	Area study and/or upgrades	Freight management
CS 83	Seaford	Area study and/or upgrades	Freight management

Delaware Key Multimodal Candidates

ID	Route/Area	Limits	Description
MT 96	Newark	Area study	Intermodal center feasibility
CS 81	Dover	Area study	Air cargo ramp, Aero Park development
R 20	**NS/NEC**	**Prince to Bacon interlocking**	**Chesapeake Connector**
R 22	NS	Edgemoor Yard	Flood mitigation; raise yard 2-6 feet
R 25	NS	Seaford Rail Bridge	Bridge replacement or modernization

** **BOLD** text indicates High Priority Rating per screening/prioritization efforts*

Maryland Key Project Candidates

ID	Route/Area	Limits	Description
MT 03	**I-95**	**MdTA Section 400**	**Reconstruct and widen**
MT 10	US 40	MdTA Thomas J. Hatem Memorial Bridge	All-electronic tolling; rehab approaches
BY 02	US 301	Bay County Rest Area	Truck parking
BY 10	MD 213	US 40 to Frenchtown Rd	Widen; US 40 intersection improvements
OC 10	**US 50**	**US 50/301 Split to MD 404**	**Divided hwy reconstruct; access control**
OC 12	US 50	MD 322 N/S of Easton	Divided hwy reconstruct
OC 13	US 50	MD 322 S of Easton to Choptank River Br	Access control improvements
OC 17	**US 50**	**at Salisbury Bypass**	**Additional lane from US 50 onto Bypass**
OC 18	**US 50**	**US 50 WB off-ramp at US 13**	**Signalize ramp; improve US 13 NB weave**
CS 02	US 13	Salisbury Bypass to DE Line	Divided hwy reconstruct w/access control
CS 03	US 13	Somerset Co Line to US 13 Bus	Divided hwy reconstruct w/interchanges
LW 01	MD 404	US 50 to MD 404 Bus	Upgrade w/access control
LW 02	MD 404	Queen Anne's Co Line to MD 404 Bus	Reconstruct and widen
LW 04	MD 404	MD 16 (Harmony Rd to Greenwood Rd)	Reconstruct w/access control
LW 05	MD 404	MD 16 (Harmony Rd) to DE Line	Reconstruct w/access control

Maryland Key Study Candidates

ID	Route/Area	Limits	Study Focus
BY 13	MD 213	Basil Ave to MD 290/MD 313	Freight management upgrades
OC 02	**US 50/301**	**Bay Bridge to US 50/301 Split**	**Freight management upgrades**
OC 14	US 50	MD 16 (Church Ck Rd to Mt Holly Rd)	Freight management upgrades
OC 71	Salisbury	Area study	Freight management upgrades

Maryland Key Multimodal Candidates

ID	Route/Area	Limits	Study Focus
OC 70	Salisbury	Area study; Airport Rd to US 50	Airport access study; new connection
OC 72	Salisbury	Area study; Wicomico River	Wicomico River port development study
R 30	MDDE	Frankford to Snow Hill Line	286k rail upgrade

Virginia Key Study Candidates

ID	Route/Area	Limits	Study Focus
CS 90	Accomack Co	Wallops Island/Chincoteague	Freight access study
CS 91	US 13	Accomack and Northampton Counties	US 13 truck parking study
R 40	BCRR	Cape Charles to Pocomoke City	Multimodal service enhancement study

** **BOLD** text indicates High Priority Rating per screening/prioritization efforts*

Freight Policy Guidance and Beyond

Building from the freight project guidance, details in *Chapter 9* of the plan summarize general policy perspectives that will play an equally crucial role in helping to guide the course of freight related activities on the peninsula and highlight future freight actions. This policy guidance generally aims to encompass the previously identified key issues, stakeholder concerns, and focus areas. It also closes with a series of next steps to consider beyond completion of this plan relative to performance monitoring, future updates, or further research.

Guiding Principles

Guiding principles summarize an overall direction or approach toward fostering effective freight planning on the Delmarva Peninsula, including key actions to:

- Align with strategic freight goals (*Exhibit ES.14)* that support National Freight Policy
- Enhance peninsula-specific freight focus areas summarized by this plan
- Integrate freight-related project planning insights summarized by this plan
- Foster multi-jurisdictional freight coordination

Freight Advisory Groups:

Continued planning efforts should build upon the recent successes of the Delmarva Freight Summit meetings, Delmarva Freight and Goods Movement Working Group meetings, and other activities that have fostered open and proactive discussions between public and private freight stakeholders, industries, interest groups, infrastructure owners, and local communities. Though the specific needs and interests of the various players may not always align, their potential abilities to successfully influence the peninsula's future are clearly intertwined.

Planning vs. Programming:

The freight plan is not a formal programming document, does not have authority to commit priorities or funding for any jurisdiction, and makes no attempt to supplant any broader transportation planning requirements or processes of the state, MPO, or other transportation entities serving the peninsula. However, insights from the freight plan's screening/prioritization efforts and policy guidance perspectives should serve as valuable references in terms of potentially supporting or enhancing future decision-making by such entities within their respective processes and regardless of jurisdiction.

Exhibit ES.14 – Strategic Freight Goals for the Delmarva Peninsula

Economic Vitality

Improve the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness

- *Support efforts to preserve existing multimodal freight-transportation infrastructure to ensure mode choice and competition between modes*
- *Support efforts to preserve land use compatibility adjacent to freight infrastructure throughout the peninsula*
- *Support strategically-located or planned improvements that recognize existing and projected population concentrations, employment and development, and related secondary traffic/population-based freight patterns*
- *Support efforts that address changes in economic activities (local, regional, national, or global) or growth in targeted industries*
- *Support efforts to enhance access to and from major regional ports and international shipping opportunities in multiple surrounding states*

Freight Connectivity, Mobility & Accessibility

Reduce congestion on the freight transportation system

- *Enhance freight mobility through broader transportation improvements that recognize the unique seasonal or tourist-based congestion aspects of travel to, from, and within the Delmarva Peninsula*
- *Enhance freight network connectivity with an emphasis on the unique needs and constraints related to serving the Delmarva Peninsula's limited geographical points of access*
- *Enhance opportunities for accessing and utilizing the freight transportation network on the peninsula through strategic multimodal infrastructure improvements*

Safety & Security

Improve the safety, security, and resilience of the freight transportation system

- *Support improvements that recognize the criticality and regional/national freight significance of I-95 and the Northeast Corridor*
- *Support improvements that enhance system redundancy with respect to I-95 and the Northeast Corridor and with respect to the geographical point of access limitations of the peninsula*
- *Support improvements that recognize the presence and unique needs of the region's governmental, military, or international shipping communities*

System Management, Operations & Maintenance

Improve the state of good repair of the freight transportation system

Use advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system

- *Enhance policies and opportunities related to truck parking and rest areas, weight limits, taxes, tolls, or other motor freight issues*
- *Support efforts to address physical improvements on secondary roads and bridges critical to motor freight access throughout the peninsula*
- *Support efforts to maintain or enhance dredging operations and the identification and preservation of adequate disposal sites for excess dredge materials*

Sustainability & Environmental Stewardship

Reduce adverse environmental and community impacts of the freight transportation system

- *Support improvements that recognize the unique relationships between consumer demand and commodity flows on the peninsula with respect to seasonal or tourist-based variability and quality of life*
- *Support efforts to improve the flexibility and resiliency of the freight transportation system to meet changing global energy demands or sources*

Bold	*- National Freight Policy Goals*
Italics	*- Focus details for Delmarva Peninsula*

General Policy Perspectives

General policy perspectives recommend that freight planning agencies and stakeholders on the Delmarva Peninsula consider actions that help to address the region's key freight issues or concerns from a focus area perspective and including:

Economic Vitality:

- Focus on regional supply chain positioning
- Support trade and market expansion opportunities
- Enhance regional port access and opportunities
- Consider area-specific strategies and opportunities
- Discuss land use issues and implications
- Reflect market access and logistics trends or needs

Freight Connectivity, Mobility, and Accessibility:

- Detail the peninsula's roadway freight network, building on classification efforts to-date
- Formalize the peninsula's road way freight network, by federal/state program where applicable
- Enhance multimodal/intermodal connections and access to key freight hubs
- Manage traffic congestion and access
- Minimize freight/passenger conflicts

Safety and Security:

- Integrate freight interests throughout safety planning activities
- Integrate freight interests throughout emergency planning activities
- Focus on overweight and hazardous materials
- Support Homeland Security efforts relative to peninsula-specific freight activities

System Management, Operations, and Maintenance:

- Strengthen jurisdictional relationships and collaboration
- Review and monitor truck policies and peninsula-wide implications or inconsistencies
- Consider truck traffic needs or impacts during roadway maintenance/construction
- Expand the use of technologies in freight system management and operations
- Explore long-term solutions to waterway dredging needs on the peninsula

Sustainability and Environmental Stewardship:

- Implement strategies to reduce freight's impact on air quality
- Support efforts to research and manage freight's relationship with water resources
- Investigate freight issues relative to Sea-Level Rise (SLR) adaptation planning
- Balance freight operations and key community, land use, or quality of life issues

Beyond the Freight Plan

Effective freight planning must continue beyond the research, analyses, projects, and policies summarized throughout this document. The exact course of future efforts will inevitably vary depending on changes in statutory requirements, local or regional freight and industry trends, technological developments, or other such influences; and specific planning activities will involve agencies, stakeholders, and planning partners at all levels. Key follow-up actions summarized below focus on anticipated needs relative to freight system performance monitoring, strategic implementation actions, and future plan enhancement options.

Freight System Performance Monitoring:

MAP-21 establishes performance measurement and performance monitoring as key features to support decision-making processes that will help to invest resources in projects that collectively will make progress toward the achievement of national planning goals in seven overall areas, including freight movement and economic vitality. Research and technical efforts in this Delmarva Freight Plan lay the groundwork toward complying with these provisions; however, subsequent efforts will also be needed to manage five key challenges:

- Statutory schedule, including finalization of relevant requirements by USDOT
- Multi-state challenges, including efforts to ensure data consistency/availability
- Performance measure refinements, reflecting subsequent trends or lessons learned
- Performance target refinements, reflecting formal requirements and state interests
- Impacts of regional influences on system performance, or realistic progress monitoring

Performance Measures:

An initial set of performance measures (*Exhibit ES.15*) was compiled for monitoring the freight environment on the Delmarva Peninsula generally, and in the state of Delaware specifically. However, finalizing the baseline values for proposed measures that have been noted as To-Be-Determined (TBD) will require additional coordination, data details, documentation of future implementation trends, or integration with broader non-freight related planning efforts (e.g., tracking congestion or bridge/pavement conditions) beyond the confines of this freight plan. It is anticipated that DelDOT Planning, their MPO planning partners, and other participants involved with the Delmarva Freight & Goods Movement Working Group contain the necessary personnel and resources to champion future efforts to fill-in and/or refine the initial set of measures proposed here.

Performance Targets:

MAP-21 further requires the establishment of performance targets in relation to the performance measures, integration of the targets within state and MPO planning processes, and periodic reports on progress in relation to the targets. While this plan proposes an initial set of performance measures, it does not attempt to establish the corresponding set of performance targets. As with finalization of the measures themselves, it is anticipated that setting such targets will be an ongoing effort (at least until the final USDOT ruling) by DelDOT planning, their MPO planning partners, and other participants involved with the Delmarva Freight & Goods Movement Working Group.

Exhibit ES.15 – Performance Monitoring Measures

Measures for Economic Vitality	Baseline Data	Background Assumptions
Population level	**1.39M**	2010, 14-county basis w/ 902,823 in DE + 442,296 in MD + 45,553 in VA
Employment level	**504k**	2010, 14-county basis w/ 359,026 in DE + 130,865 in MD + 14,461 in VA
Source: TBD in conjunction w/ broader planning programs; baseline data above from freight plan Exhibit 7.4 and related scenario planning efforts		
Delmarva freight total tonnage	**69.6M**	2011, 12-county basis w/ 28.8M inbound + 28.0M outbound + 12.8M internal; not incl. 87.2M pass-thru
Delmarva freight total value	**$74.6B**	2011, 12-county basis w/ 33.2B inbound + 31.5B outbound + 10.0B internal; not incl. 252.7B pass-thru
Delmarva freight inbound/outbound freight ratio (by weight)	**1.03**	2011, 12-county basis w/ 28,884,251 inbound vs. 27,954,253 outbound
Source: TBD in conjunction w/ future commodity data updates; baseline data above from freight plan Exhibits 3.1-3.2 and related Transearch, Waybill, and FAF data summaries		
Port of Wilmington annual cargo tonnage	**5.6M**	2011 basis w/ 5,628, 807 tons
Port of Wilmington foreign cargo tonnage	**4.4M**	2011 basis w/ 1,246,918 domestic + 4,381,889 foreign
Port of Wilmington foreign import/export ratio	**3.68**	2011 basis w/ 3,446,432 imports + 935,457 exports
Source: USACE Navigation Data Center or Diamond State Port Corporation; baseline data above from freight plan Exhibit 4.17 and related USACE principal ports data summaries		
Waterborne freight tonnage along freight-significant river systems	**2.3M**	2011 basis w/ 1,064,830 via Wicomico River + 653,357 via Nanticoke River + 569,650 via Pocomoke River
Inbound/outbound freight ratio along freight-significant river systems	**1.39**	2011 basis w/ 1,329,807 inbound vs. 958,030 outbound via the Wicomico, Nanticoke, and Pocomoke Rivers
Source: USACE Navigation Data Center or Delmarva Water Transport Committee; baseline data above from freight plan Exhibit 4.18 and USACE waterborne commerce data summaries		

Measures for Freight Connectivity, Mobility, and Accessibility	Baseline Data	Background Assumptions
Travel time and/or delay in freight-significant corridors	**TBD**	-
Travel time and/or delay between benchmark destinations	**TBD**	-
Source: TBD pending future coordination w/ broader state or MPO planning programs; refer also to freight plan Exhibit 7.9 and other Chapter 7 system or corridor-specific modeling summaries		
Truck share of Delmarva freight total tonnage	**83%**	2010 basis vs. 10% rail + 7% river barge; does not reflect air, pipeline, or major regional port shipping
Source: TBD in conjunction w/ future commodity data updates; baseline data above from freight plan Exhibit 7.8 and related scenario planning efforts		
Daily Truck VMT	**5.3M**	2010 basis for truck miles traveled per model run data
Daily Truck VHT	**93k**	2010 basis for truck hours traveled per model run data
Percent of truck VHT at LOS E/F	**11%**	2010 basis for truck hours traveled at LOS E/F vs. total truck VHT per model run data
Daily system truck delay	**5.5k**	2010 basis for system truck delay hours per model run data
Percent of road mileage at congested speeds < 60% of free-flow speeds	**5%**	2010 basis per model run data for typical weekday PM peak periods
Source: DelDOT Cube Cargo / Cube Voyager model; baseline data above from freight plan Chapter 7 and related scenario planning efforts; additional corridor details available throughout Chapter 7		
Percent of rail network capable of supporting 286k	**TBD**	-
Port of Wilmington average truck turn-around time	**TBD**	-
Source: TBD pending future coordination (e.g., w/ state rail agencies, rail owner/operators, Diamond State Port Corporation)		

Exhibit ES.14 - Performance Monitoring Measures (Continued)

Measures for Safety and Security	Baseline Data	Background Assumptions
Number of total crashes involving large trucks	TBD	-
Number of fatal crashes involving large trucks	18	3-year average (2011-2013), 14-county basis w/ annual fatal counts per NHTSA FARS data
Number of persons injured in crashes involving large trucks	TBD	-
Source: TBD pending future coordination (e.g., w/ state crash reporting programs and available system data); baseline fatal crash counts from online NHTSA FARS database		
Number of total crashes at public highway-rail crossings	8	3-year average (2011-2013), 14-county basis w/ annual crash counts per FRA WBAPS data
Number of public highway-rail crossing improvements implemented	TBD	-
Source: TBD pending future coordination (e.g., w/ state rail agencies or rail owners/operators); baseline crash counts from online FRA Web Accident Prediction System		
Number of commercial vehicle inspections performed	TBD	-
Source: TBD pending future coordination (e.g., w/ applicable state agencies or enforcement personnel)		

Measures for System Management, Operations, and Maintenance	Baseline Data	Background Assumptions
Pavement conditions summary	TBD	-
Bridge conditions summary	TBD	-
Source: TBD pending future coordination w/ broader state or MPO planning programs		
Number of VWS or WIM sites added (or in operation)	TBD	-
Number of truck parking spaces available	TBD	-
Number of traffic signals updated or retimed	TBD	-
Source: TBD pending future coordination (e.g., w/ applicable state agencies and/or MPOs, as well as progress tracking subsequent to this freight plan)		
Dredge material placement capacity remaining	TBD	Anticipate a focus on the Nanticoke, Pocomoke, and Wicomico Rivers
Percent of key waterway mileage at federally-authorized depth	TBD	Anticipate a focus on the Nanticoke, Pocomoke, and Wicomico Rivers
Source: TBD pending future coordination (e.g., w/ USACE, Delmarva Water Transport Committee)		
Number (or value) of high/moderate priority freight actions implemented	TBD	Anticipate tracking and/or referencing projects or actions throughout freight plan Chapters 8 and 9
Mileage (or value) of rail enhancements implemented	TBD	TBD
Source: TBD pending future coordination (e.g., w/ state planning or MPOs, state rail agencies, rail owners/operators, as well as progress tracking subsequent to this freight plan)		

Measures for Sustainability and Environmental Stewardship	Baseline Data	Background Assumptions
Number (or value) of emissions reducing actions implemented	TBD	-
Source: TBD pending future coordination (e.g., w/ applicable state agencies or the Mid-Atlantic Diesel Collaborative)		

Strategic Implementation Actions:

To support the implementation of projects, policies, or related activities outlined by this plan while also generally continuing to advance the state of freight planning on the peninsula, a number of strategic follow-up planning actions will be required. As with previous discussions on performance monitoring, it is anticipated that the peninsula's state, MPO, or regional planning partners and efforts through the Delmarva Freight & Goods Movement Working Group will be able to identify the necessary personnel and resources to champion such actions including, but not limited to, the following:

- Encourage the State Freight Advisory Committee
- Finalize performance measures
- Set initial performance targets
- Prepare for performance reporting
- Refine future performance monitoring details
- Track future implementation details
- Enhance integration within statewide planning processes
- Inform future funding and implementation decisions
- Maintain compliance with federal freight planning revisions

Future Plan Enhancement Options:

To further advance the state of freight planning on the peninsula while also maintaining or enhancing key components relative to future plan updates, a number of additional freight planning enhancements may also be considered. Whereas the previous list of strategic implementation actions focused primarily on management, application, or integration of the plan; the potential enhancements discussed here focus more on discrete add-on components that would supplement or expand the scope of the current plan including, but not limited to, the following:

- Maintain future commodity flow data
- Maintain the Cube Cargo model
- Investigate additional freight planning scenarios
- Study key supply chains
- Study potential expansion of CVISN's VWS coverage
- Study potential expansion of CVISN's enforcement coverage
- Evaluate strategies for compiling multistate crash data
- Integrate dashboard summaries
- Develop a mapping and data platform to summarize Delmarva's freight environment

Closing

The Delmarva Freight Plan was aimed at supporting key national freight planning goals in compliance with MAP-21, while also providing a broad assessment of local and regional freight planning needs. This approach was paired with the development of a Cube Cargo commodity flow model to support ongoing and future planning efforts in the region, alongside customized freight scenario testing to help inform decision-making in the face of unknown futures. The plan further included a comprehensive project screening and prioritization process to help evaluate projects having the most potential to influence the freight system, while also providing data-oriented elements that may be used to help pursue freight-specific funding options for those projects. Capping these efforts were generalized summaries of freight policies, performance monitoring needs, strategic implementation actions, and future plan enhancement options that will ultimately help to support the region's freight planning efforts now, tomorrow, and into the future.

While completion of this plan may be considered a milestone amongst freight planning activities on the Delmarva Peninsula, it is undoubtedly not an end. Rather it should serve as a catalyst that helps to continue the momentum of a renewed emphasis on freight and goods movement planning that must continue well beyond the confines of this document.