

# Delmarva Freight Plan

## Chapter 6

### Freight Trends, Needs, & Issues





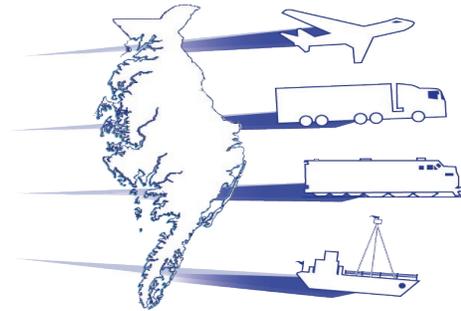
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# Chapter 6

## Freight Trends, Needs & Issues

This chapter serves as a transition from identifying the current state of the Peninsula's freight and goods movement system and related trends, needs, and issues, to preparing for a detailed assessment of that system and potential improvement scenarios in the latter half of this plan. 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 include:

- Economic Vitality
- Freight Connectivity, Mobility, and Accessibility
- Safety and Security
- System Management, Operations, and Maintenance
- Sustainability and Environmental Stewardship



### 6.1 Key Areas

Broadly based on stakeholder insights and background document reviews, freight planning issues for the Delmarva Peninsula can be grouped into key areas of concern or areas of opportunity (*Exhibit 6.1-Exhibit 6.2*). Areas of concern generally reflect mode-specific issues, needs, or questions surrounding major freight movements or freight hubs, specific components of the freight transportation infrastructure, or freight-related policies. Areas of opportunity generally reflect business and industry issues or other economic development trends, including the potential for economic expansion or the potential for “missed” market opportunities depending on the robustness of the available freight and goods movement system.

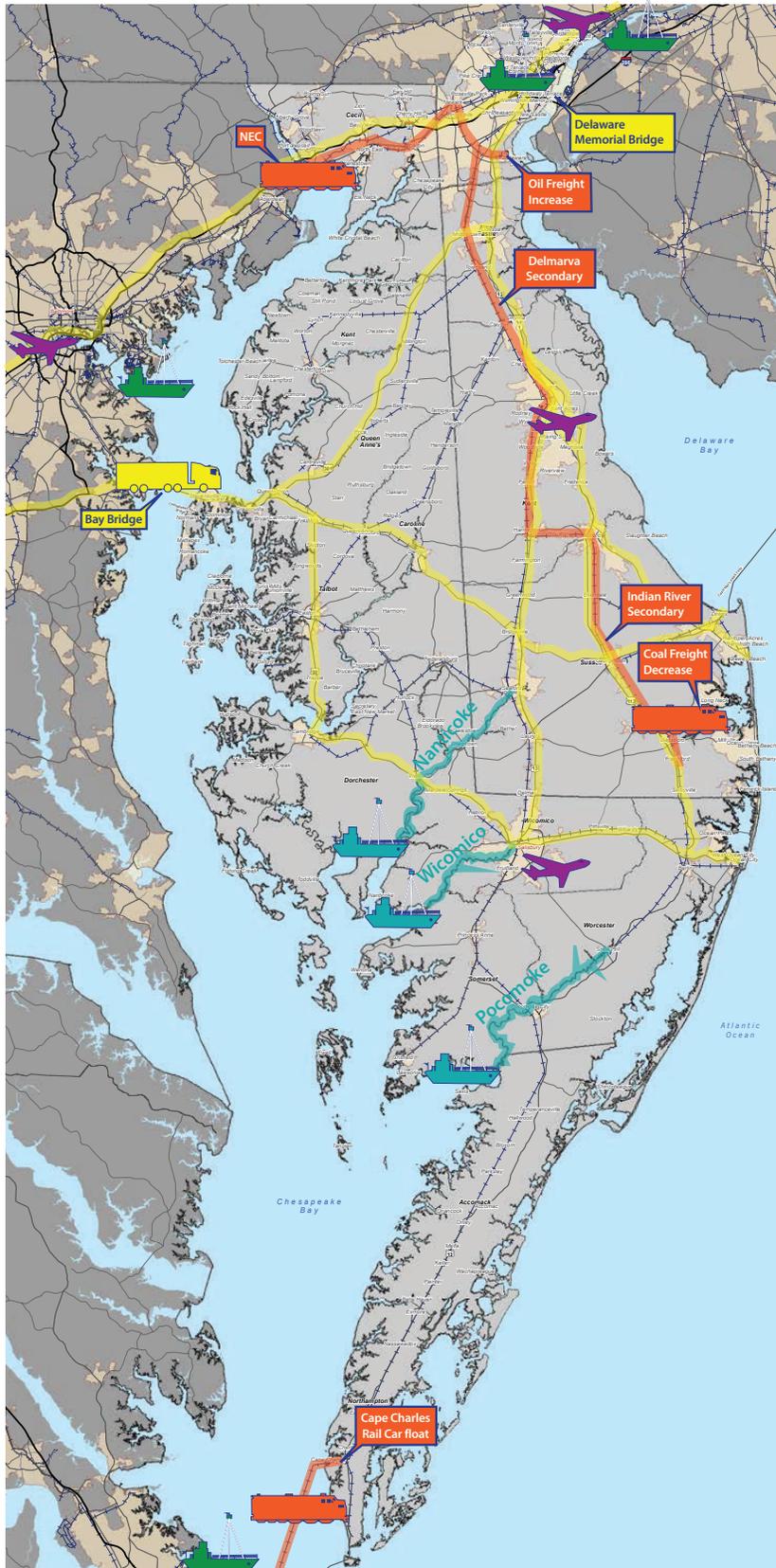
#### *Areas of Concern*

**Motor Freight:** As the dominant mode of freight transportation, planning efforts to maintain or improve the efficiency, connectivity, safety, and cost-effectiveness of motor freight truck travel are clearly justified. Specific motor freight issues include:

- Highway-rail grade crossings and an emphasis on safe and efficient access for all users
- Seasonal or tourist-based congestion and related conflicts with (or impacts to) freight traffic
- Secondary road or bridge conditions and required first/last mile freight access
- Fuel taxes, toll rates, or weight limits and any freight impacts of inconsistencies across states
- Parking and rest areas with adequate capacity and services to support freight traffic

# Freight-Related Areas of Concern\*

\* as identified by project-specific outreach to-date



## Rail

- NEC / Chesapeake Connector
- Delmarva Secondary
- Delaware City Refinery / Oil Freight
- Indian River Secondary / Coal Freight
- Shortline Rail Assets/Service
- Intermodal/Transloading Infrastructure
- 75 Rail Car Capacity
- Cape Charles Rail Car float



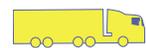
## Ports

- Access to Key Ports (Wilmington, Baltimore, Norfolk, or Philadelphia)
- Post - Panamax
- New Markets



## Inland Waterways

- Nanticoke / Wicomico / Pocomoke Rivers
- Sites for Excess Dredge Materials



## Motor Freight

- Highway - Rail Grade Crossings
- Seasonal / Tourist-Based Congestion
- Secondary Roads / Bridges
- Fuel Taxes / Toll Rates / Weight Limits
- Parking & Rest Areas



## Air Freight

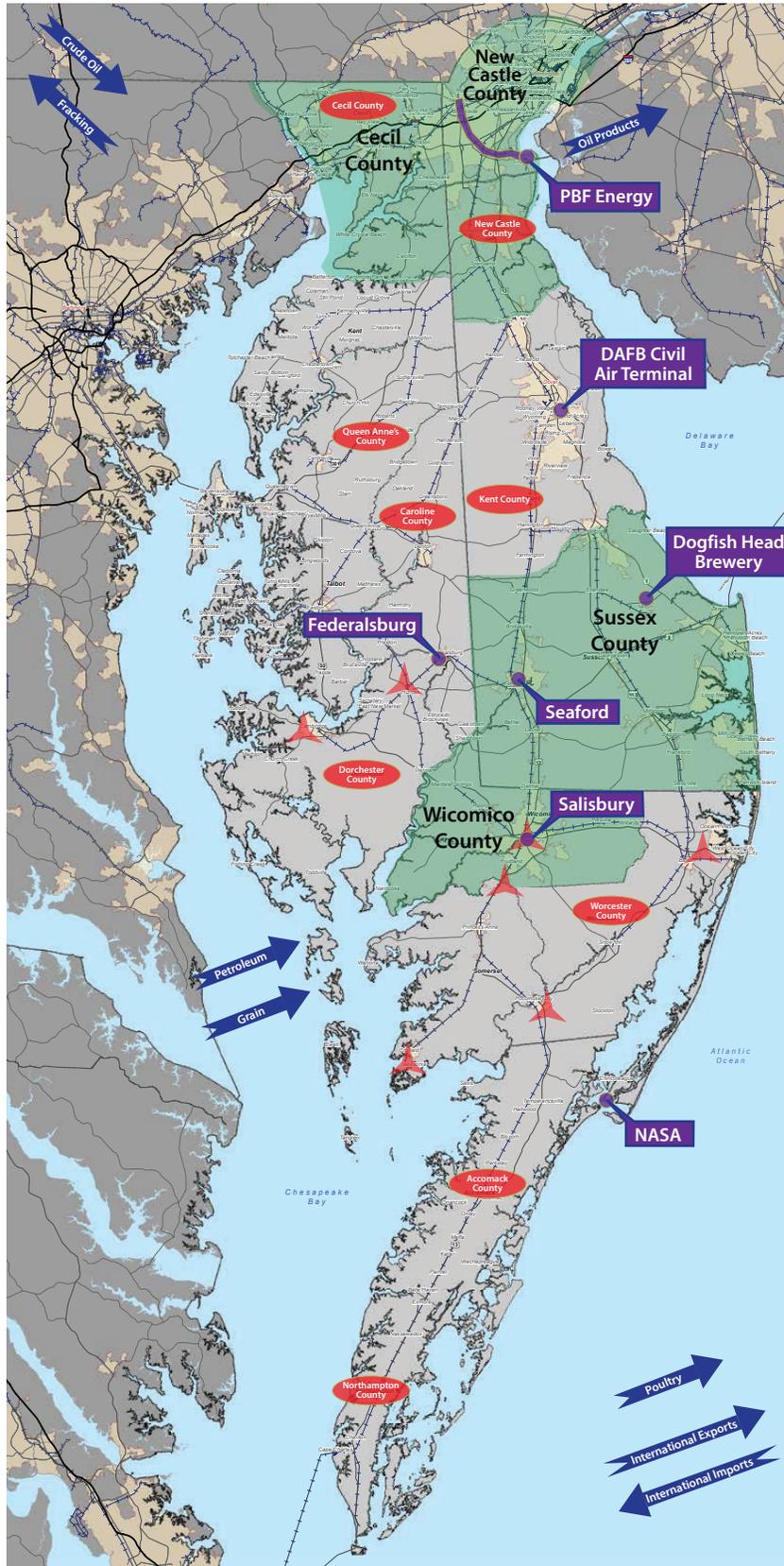
- Access to Key Airports
- Access to DAFB Civil Air Terminal



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# Freight-Related Areas of Opportunity\*

\* as identified by project-specific outreach to-date



## Growth & Industry

- Cecil County / I-95 / NEC
- New Castle County / I-95 / NEC
- Sussex County / Seaford Hub
- Wicomico County / Salisbury Hub

## Site - Specific Issues

- PBF Energy Rail Expansion
- DAFB Civil Air Terminal
- Dogfish Head Brewery Expansion
- Seaford Multimodal Connectivity
- Salisbury Multimodal Connectivity
- Federalsburg Multimodal Connectivity
- NASA Wallops Flight Facility

## Import - Export

- Fracking Materials to Marcellus Shale
- Crude Oil from Canada or Midwest
- Oil Product Exports
- Grain from Midwest
- Frozen Poultry Exports
- Other International Trade

## Economic Development Strategies

- Enterprise Zones
- Economic Incentives
- Business Programs



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**Rail:** As a critical mode for the transport of petroleum, coal, grain, stone, and several other key commodities, and particularly in the face of ongoing changes in natural resource and energy production markets, there is an apparent need to maintain and enhance the region's rail infrastructure to help ensure continued access to safe, cost-efficient rail service. Specific rail freight issues include:

- NEC rail freight delays or access constraints
- Chesapeake Connector project emphasis and potential benefits
- Delmarva Secondary operations or cost-efficiencies in light of potential coal freight reductions
- Indian River Secondary operations and the direct impact of potential coal freight reductions
- Delaware City Refinery and the direct or indirect impacts of increased oil freight railcars
- Preservation of short line rail assets and service
- Need for increased intermodal and transloading infrastructure
- 75 railcar capacity and related issues pertaining to access, cost efficiencies, or economies of scale
- Cape Charles Rail Car Float and potential system redundancy or resilience needs

**Ports:** Vital to international imports/exports as well as major economic influences and supply chains, port interests and related freight planning efforts center on issues such as:

- Efficient access to key ports including Wilmington, Baltimore, Norfolk, or Philadelphia
- Effect of Post-Panamax traffic on freight volumes or patterns on/around the peninsula
- New import/export market opportunities and related effects on overall freight traffic

**Inland Waterways:** As an effective means for transporting petroleum, grain, aggregates, or other commodities, barge movements are a crucial multimodal link in key regional supply chains. Inland waterway issues appear to center on appropriate funding, scheduling, and logistical support for dredging and channel maintenance, including:

- Dredging for continued access along the Nanticoke, Wicomico, and Pocomoke Rivers
- Dredging for continued operation of the C&D Canal
- Identification of suitable sites for excess dredge materials

**Air Freight:** Transport of typically high-value, time-sensitive shipments by air fulfills a unique role in the overall freight and goods movement system. Local air freight considerations include a focus on:

- Access to major air hubs just outside the peninsula (e.g., Baltimore, Philadelphia)
- Access to key airports and business/corporate activities on the peninsula
- Access and development opportunities for Dover AFB Air Cargo Ramp

## *Areas of Opportunity*

**Growth and Industry:** Economic insights indicate that much of the anticipated future growth opportunities will overlap with existing developed areas and business/industry hubs. Key areas span the following:

- New Castle, Kent, and Sussex Counties in Delaware
- Cecil and Wicomico Counties in Maryland
- Emphasis along the I-95/Northeast Corridor
- Emphasis around localized hubs including Seaford, Delaware; and Salisbury, Maryland

**Economic Development Strategies:** As an effort to bolster local economies, counties and cities across the peninsula offer various incentives to spur development, employment, and innovation. Thus, in addition to the geographical areas noted above, future growth opportunities may overlap any designated Enterprise Zones, HUB Zones, or other areas offering such incentives or business programs (detailed per [Chapter 2](#)).

**Site-Specific Issues:** In addition to general growth activity, site-specific opportunities and direct/indirect development impacts are anticipated in various locations including, but not limited to, the following:

- PBF Energy’s expansion of refining operations and related rail-traffic at Delaware City Refinery
- Potential development opportunities for DAFB Air Cargo Ramp (formerly Civil Air Terminal)
- Dogfish Head Brewery expansion in Milton, Delaware
- Seaford, Delaware, hub activities and multimodal truck/rail/water opportunities
- Salisbury, Maryland, hub activities and multimodal truck/rail/water/air opportunities
- Federalsburg, Maryland, hub activities and multimodal truck/rail opportunities
- NASA Wallops Flight Facility and potential space/aerospace or related technology influences

**Import/Export Activities:** Recent or potential future changes in import/export opportunities link the peninsula with broader supply chains at the regional, national, and international levels. Unique interests include, but are not limited to, the following:

- Export of fracking sand, chemicals, etc., to Marcellus or other shale oil/gas extraction areas
- Import of crude oil from Canada, North Dakota, or other Midwest areas
- Export of oil products domestically or internationally via expanded regional refinery operations
- Import of grain from Midwest or other areas in support of poultry or agribusiness expansions
- Export of frozen poultry products to international markets
- Other international trade increases or changes in trade patterns via local/regional port access

## 6.2 Economic Vitality

Delmarva’s Economic Vitality goal overlaps national freight policy guidance to improve the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness. Focus areas on the peninsula include efforts to ensure mode choice and competition; preserve land use compatibility adjacent to freight infrastructure; recognize growth areas and secondary traffic/population-based freight patterns; support specific economic activities or targeted industries; and enhance regional port access.

### *Supply Chain Positioning*

Chapters 2 and 3 of this plan devoted much attention to the economic details that drive freight movements on the peninsula and overarching highlights are again listed here. These perspectives are exceptionally important in terms of informing the overall freight and scenario planning efforts – including future alternatives development, route improvements, modal support, etc. – with respect to broader economic interests and potential benefits in regional supply chain positioning.

**System Efficiencies:** Streamlining of transportation regulations, diversification of logistical plans, and support for efficient multimodal options and multimodal geographical hubs are anticipated to become even more critical for the ongoing economic and trade potential of the region.

**Growth Opportunities:** Industry-specific growth opportunities – such as expansion in agribusiness or chemical products, promulgation of Delmarva agriculture and value-added food products, or growth in international trade through regional ports – require an efficient and well-maintained multimodal transportation system to minimize the potential for “missed” opportunities.

**Core Commodity Groups:** Though the specific types of freight moving in the region vary widely, five core commodity groups make up almost two-thirds of the peninsula’s freight, including petroleum or coal products, secondary traffic, farm products, food or kindred products, and chemicals or allied products.

**Key Supply Chains:** Exceptional supply chain interests generally encompass the peninsula's top commodity groups and span energy, agriculture, poultry and agribusiness, food products, chemical products, and retail industries, as well as construction, transportation equipment, and manufacturing industries.

## *Land Use Issues*

**Land Use Compatibility:** Land use policies, decisions, and related factors influence the potential relationships or conflicts that may occur between existing/future developments and the freight movements that must serve or pass by the local communities. In support of economic growth and development opportunities, state and regional planning interests include the preservation of critical freight infrastructure and freight-oriented land uses in key industrial areas and adjacent to rail corridors.

**Local Land Use Decisions:** Despite state and regional interests, land use decisions typically fall under the jurisdiction of county or municipal governments that are not aware of or do not give priority to freight interests. Local decisions, therefore, may lead to residential encroachment or land use incompatibilities in freight-critical areas that slowly erode the feasibility or local economic benefits of operating or expanding freight-centric industries in those areas. Such decisions may also increase residential and freight community conflicts, both real and perceived, often based on unrealistic expectations from one or both sides of the issue with regard to noise, aesthetics, truck or rail traffic impacts, etc.

**Delaware Land Use Oversight:** Delaware specifically is a Home Rule state, and DelDOT does not have jurisdiction over local land use decisions with the exception of certain authorities under State Code to help prevent runway obstructions in public use airport areas. Both DelDOT and WILMAPCO have a particular interest in preserving land use compatibility along critical rail freight corridors but, in areas such as New Castle County, have found these issues to be challenging.

**Maryland Land Use Oversight:** Maryland land use decisions are likewise determined by the individual counties, though with guidance from the Maryland Department of Planning and its Plan Maryland document. Successes in protecting industrial land from residential encroachment have been achieved. For example, in Baltimore City's recent zoning overhaul, a Maritime Industry Zoning Overlay District was preserved, thus protecting industrial land uses around the Port of Baltimore.

## *Hidden Impacts*

**Freight-Dependent Industry Migration:** There is concern regarding a general migration of freight-dependent businesses off the peninsula, as some counties opt to focus more on non-freight related economic development (i.e. health care, biotech, tourism and recreation). Coupled with changes in freight markets, such migration elevates fears regarding the viability of certain freight services. For example, in order to sustain cost-efficient rail services and justify reinvestments in rail infrastructure, there is a need for additional businesses throughout the region that are reliant on rail transportation.

**Reduced Modal Options:** Aging infrastructure, maintenance needs, funding constraints, land use conflicts, or similar factors that may negatively affect any existing mode of freight transportation on the Peninsula could have serious implications on the area's broader economic prospects. In the peninsula's rail network, for example, the Seaford Swing Bridge has been identified as essential to NS Delmarva operations, yet the bridge is well over 100 years old with questionable track structure, electronics, and technology. In the peninsula's water network, there are ongoing concerns regarding inadequate dredge funding, a failure to secure sites for excess dredge materials, or delayed completion of channel maintenance. Failures or shortcomings in the existing rail or water networks could reduce or eliminate rail or barge travel along portions of the overall freight transportation network, resulting in immediate impacts to local businesses and supply chain. A short-term increase in truck traffic and related conflicts would be inevitable, and a potential long-term impact of reduced or relocated economic opportunities would be likely.

## 6.3 Freight Connectivity, Mobility and Accessibility

Delmarva's Freight Connectivity, Mobility, and Accessibility goal overlaps national freight policy guidance to reduce congestion on the freight transportation system. Focus areas on the peninsula include efforts to recognize broader mobility improvements in light of the region's unique seasonal or tourist-based congestion patterns; enhance connectivity to/from the peninsula as a region with limited geographical points of access; and support strategic multimodal improvements to broaden freight system accessibility and efficiency.

### *Network Connectivity*

**Primary Freight Network (PFN):** The draft initial designation of MAP-21's PFN includes very limited coverage on the Delmarva Peninsula, capturing only the interstate system through Cecil and New Castle Counties, and US 50/301 entering via the Chesapeake Bay Bridge (see details per [Exhibit 4.3](#)). As such, it is vital that each state, in cooperation with area stakeholders and planning partners, diligently self-define the critical components within the region's multimodal freight system.

**Peninsula-Specific Freight Network:** Separate from federal PFN designations, effective planning must focus on a more complete version of the overall peninsula-specific freight network. This Delmarva Freight Plan lays the groundwork for such a network by broadly defining major north/south and east/west corridors, local freight zones, and freight gateways (see [Chapter 4](#) and [Exhibit 4.26-Exhibit 4.32](#)).

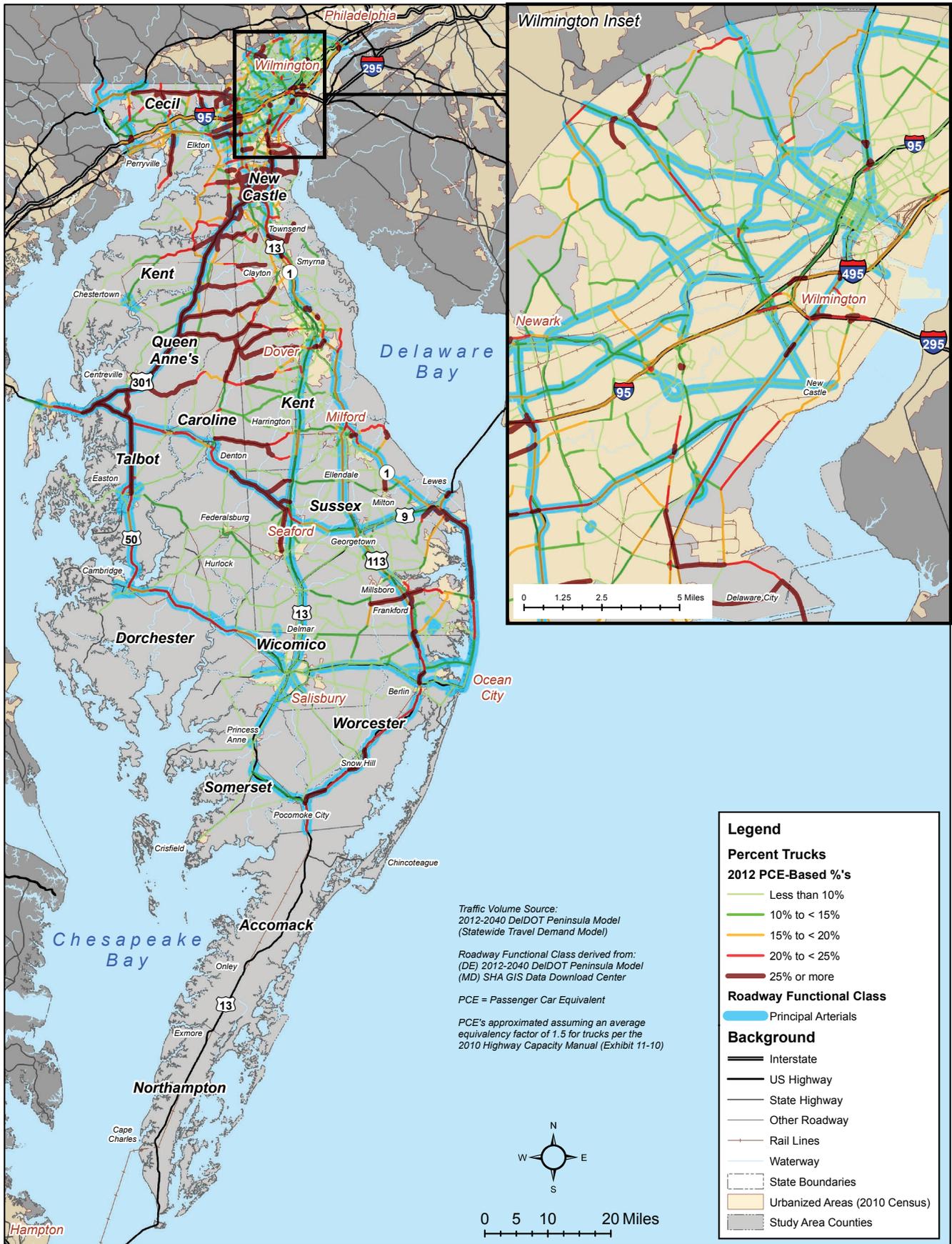
**Critical Rural Freight Corridors (CRFC):** States may designate CRFC routes based on criteria specified under Section 1115 of MAP-21 (see details per [Chapter 4](#)). These criteria consider truck percentages along rural principal arterials, access to energy areas, and other connectivity issues relative to substantial freight generating facilities. A cursory review of estimated truck percentages ([Exhibit 6.3](#)) indicates that some rural segments along the following principal arterials may meet the 25% truck criteria required for CRFC designation:

- US 50 (between the Bay Bridge and Salisbury)
- US 301 (between the Bay Bridge and Middletown)
- MD/DE 404 (between the Bay Bridge and Seaford)
- US 113 (between Frankford and Pocomoke City)

**Other Rural Truck Routes:** Stakeholder feedback generally noted that truck traffic appears to overload the area's rural roads. Such concerns likely stem from trucks serving the peninsula's expansive agriculture, poultry, and food products industries, coupled with several east/west rural connections (e.g., between US 301 and US 13/DE 1), service to and from local freight zones (see previous [Exhibit 4.26](#)), or first/last mile travel to specific freight generating sites. Such routes include a mix of minor arterials, collector roads, and local roads that, barring the presence of major local freight generators or very specific connectivity issues, would not typically qualify for CRFC designation. Rural routes that carry a higher proportion of trucks ([Exhibit 6.3](#)) include:

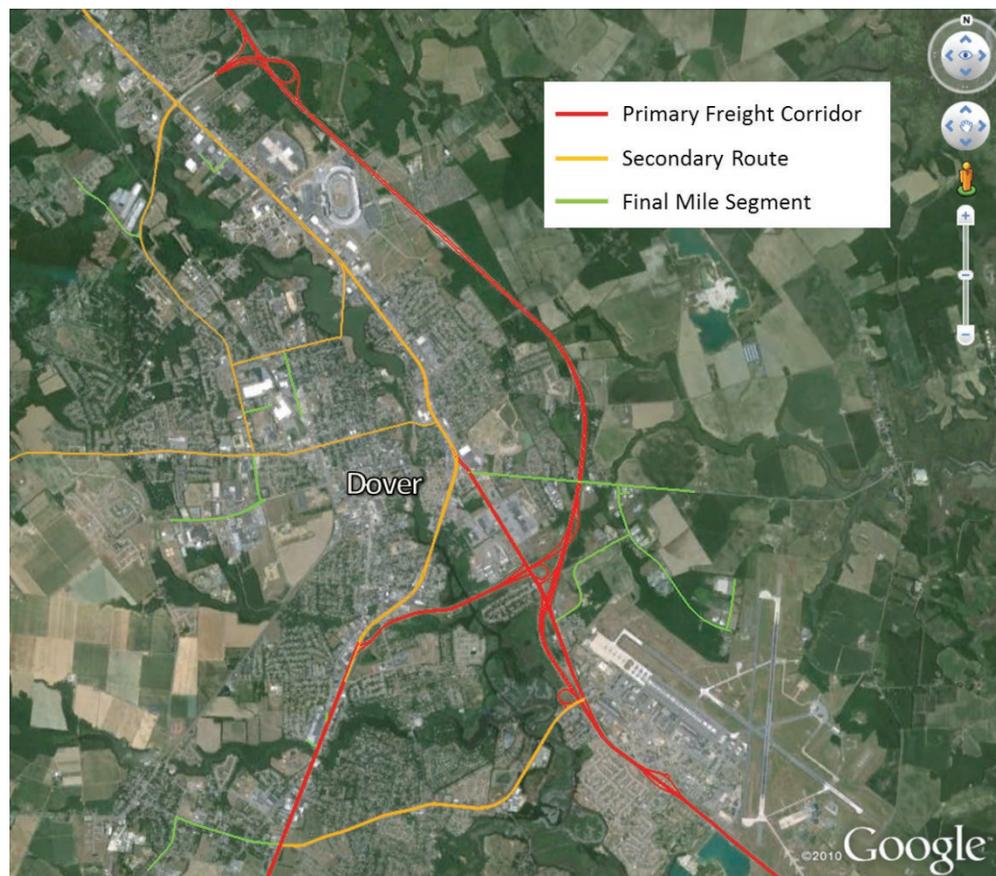
- MD 213/290 and Sassafra Caldwell Rd/Caldwell Corner Rd (between Galena and Townsend)
- MD 291 and DE 6 (from US 301 toward Clayton and Smyrna)
- MD 300 and DE 300 (from US 301 toward Smyrna)
- MD 302 and DE 8/11/44 (from US 301 toward Smyrna/Dover)
- MD 304/311 and DE 10 (from US 301 toward Dover)
- MD 317 and DE 14 (from MD 404 toward Harrington)
- DE 36 (from DE 404 toward Greenwood)
- DE 26 (from DE 30 toward Dagsboro)

Exhibit 6.3 – Estimated 2012 Truck Percentages (in Passenger Car Equivalents)



**First/Last Mile Facilities:** At a more detailed-level and in a manner that will supplement the corridor-based perspectives referenced above, WILMAPCO has recently undertaken a focused effort toward inventorying critical first/last mile facilities (also referred to as “final mile” segments) throughout Delaware (*Exhibit 6.4*). These facilities often include lesser routes (i.e., collectors or local roads versus interstates or arterials) on which freight/passenger vehicle conflicts and negative public perception of truck traffic may be much greater while regular maintenance activities, geometric design standards, or the potential for roadway or safety improvements may be much lower. Each connection, however, is necessary for local businesses and industries to survive. WILMAPCO’s inventories will help to further an understanding of the locations, roles, needs, and importance of the area’s first/last mile facilities.

*Exhibit 6.4 – Sample WILMAPCO First/Last Mile Inventory (Dover Area)*



Source: WILMAPCO Statewide Freight Priority Network (DRAFT);  
<http://www.wilmapco.org/delmarva/>

**Multimodal/Intermodal Connections:** While the peninsula offers a broad selection of modal options, some stakeholder feedback indicated that the existing infrastructure is not entirely accommodating in terms of switching between modes or fostering competition between different modes. For example:

- Local drayage services and linkages for rail or airborne cargo may be needed.
- Multimodal truck/rail/water transfer options may be limited.
- Required economies-of-scale may constrain rail access or cost-effectiveness for smaller industries.
- Rail schedules and delays may not be conducive to time-sensitive or perishable product deliveries.

## Traffic Congestion

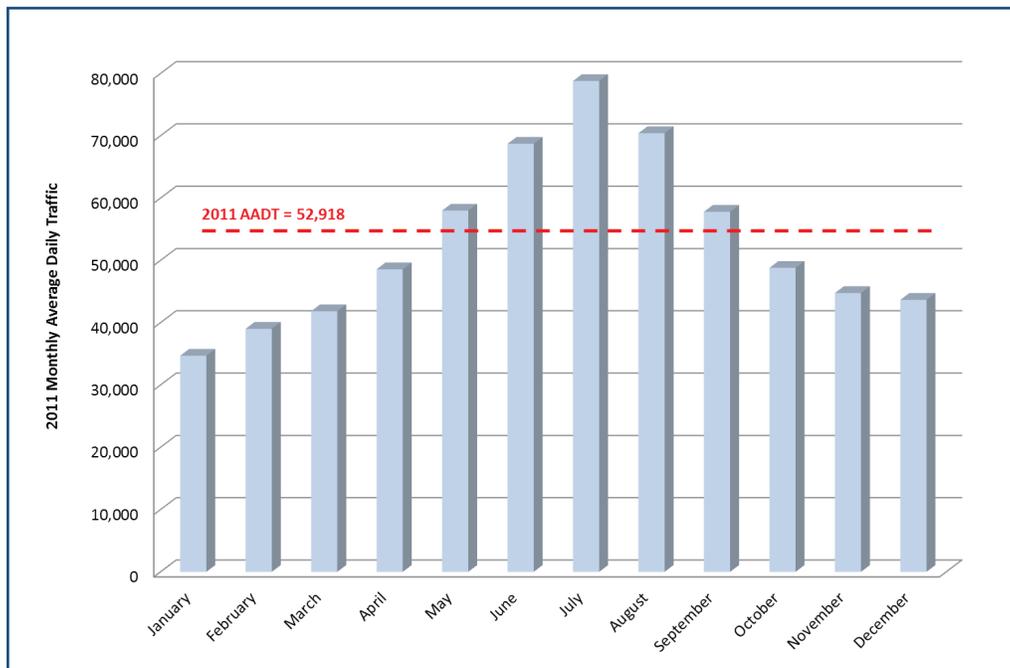
**General Traffic Congestion:** Though DelDOT, MDOT, VDOT, and many other agencies work tirelessly toward addressing the region's worst congestion issues, the flow of goods movement is inevitably affected by recurring congestion (i.e., peak period commuter or peak seasonal tourist traffic) as well as non-recurring congestion (i.e., related to construction, traffic incidents, or special events). While not exclusive to urban areas, urban area congestion is often worse due to higher traffic volumes, more prevalent commuter peaks, bottlenecks near city/town centers, or frequent first/last mile traffic.

**Regional Metropolitan Area Congestion:** Motor freight entry/exit points for the Delmarva Peninsula are, on a broader basis, associated with travel through or around Philadelphia, Baltimore, Washington, D.C., and Norfolk. These major metropolitan areas each experience their own substantial levels of traffic congestion, construction impacts, crash incidents, major special events, or other factors that influence travel delays or the reliability/predictability of trip planning. Such factors through these major metropolitan areas can, therefore, substantially impact regional freight movements on and off the peninsula, further emphasizing the importance of a broad regional perspective in freight planning.

**Urban Area Congestion:** Previous exhibits (*Exhibit 4.9-Exhibit 4.12*) demonstrated that pockets of congestion during peak travel periods are, not surprisingly, found in many of the peninsula's urban areas or city/town centers. Notable pockets today include areas feeding the I-95 corridor, the Chesapeake Bay Bridge, and throughout Wilmington-Newark, Dover, and Salisbury. Future congestion is expected to increase in virtually all locations and will additionally impact Townsend, Seaford, and Georgetown, among others. While both recurring and non-recurring congestion will delay first/last mile freight movements and local deliveries, frequent delays may also contribute to undesirable truck diversions to secondary or local routes as drivers attempt to avoid congestion along main roads. Incident-related congestion that results in closures or detours may also have significant implications on freight routing, again diverting trucks to less than ideal corridors and potentially increasing conflicts with other business or residential areas.

**Peak Seasonal Conflicts:** Tourism is a major industry on the peninsula, and peak season traffic can more than double in some locations versus off-season flows (*Exhibit 6.5*). Impacts are especially prevalent for major access points at the Chesapeake Bay Bridge or along I-95, and along primary routes to coastal resort areas from Lewes, Delaware to Ocean City, Maryland. Increased traffic volumes and congestion directly obstruct freight movements, while increased consumer demands and a higher seasonal population require more goods to be delivered. Such issues affect both pass-thru and peninsula-bound freight along regional and local corridors; likely influence broader logistics, warehousing, or inventory tactics; and affect first/last mile deliveries in the resort areas (e.g., food, beverage, or propane deliveries delayed in beach traffic).

*Exhibit 6.5 – Sample Peak Season Traffic Variation (along DE 1)*



Source: DeIDOT Traffic Summary 2011; ATR Station 8076 (DE 1 North of Ocean Outlets); [www.deldot.gov](http://www.deldot.gov)

**Time Sensitive Commodity Impacts:** Considering the peninsula’s expansive agriculture, poultry, and food products industries, excessive congestion is an exceptional concern when it affects freight delivery of time-sensitive or perishable commodities. For example, poultry trucks stuck in summer traffic have contributed to high poultry mortality rates en route to processing.

### *Passenger Linkages and Conflicts*

**Northeast Corridor Freight Access Constraints:** The freight window for moving Norfolk Southern (NS) freight trains down the Port Road Branch and onto/across the NEC/Amtrak passenger lines is normally restricted to hours between 10:00 PM and 6:00 AM. Additional speed restrictions and unscheduled Amtrak maintenance periodically shrink the freight window even further, causing an interruption of NS freight shipments. Delaware and Maryland have been studying a Chesapeake Connector project that would allow for NS trains to cross over Amtrak’s lines without interfering with passenger rail movements.

**At-Grade Rail Crossing Delays:** With the additional rail traffic serving expanded operations at PBF Energy’s Delaware City Refinery, periodic train blockages of at-grade rail/highway crossings have increased, including crossings of major travel routes such as US 40/Pulaski Highway. Crossing delays and secondary impacts to traffic access, diversions, or emergency response planning are some of the issues that could occur when 100-car trains are staged in the Newark area. Lengthy delays can also be problematic in light of a Delaware law that allows trains to block crossings for no more than 10 minutes at a time, with some exceptions for emergencies.

**Air Cargo Ramp Constraints:** Civilian aircraft operations via the Air Cargo Ramp at Dover AFB are constrained by the primacy of the base’s heavy-lift military air transport mission. Limited civilian operations can be accommodated via special-use agreements and pre-approvals. However, recent planning concepts have included a potential goal of obtaining full joint-use access for public/civilian air cargo operations in conjunction with an adjacent Kent County AeroPark development.

## 6.4 Safety and Security

Delmarva's Safety and Security goal overlaps national freight policy guidance to improve related aspects and resilience of the freight transportation system. Focus areas on the peninsula include efforts that recognize the regional/national significance of I-95 and the Northeast Corridor; enhance system redundancy with respect to the peninsula's geographic point of access limitations; and support the unique needs of the regions governmental, military, or international shipping communities.

### *Safety Planning*

**Crash Prevention/Mitigation:** As noted in Chapter 4 and without substantial post-processing or compilation efforts, differences in how crash data may be reported, tracked, or handled by each state on the peninsula introduce difficulties when attempting to apply the data with respect to freight interests across a multi-state area. However, Delaware, Maryland, and Virginia each maintain a state-specific Highway Safety Improvement Program (HSIP). The HSIP programs focus on identifying and prioritizing safety improvements that will reduce highway fatalities and severe injuries, and include related efforts for highway-rail grade crossing improvements. Though not a dedicated freight program, HSIP efforts benefit all roadway users including long-haul, short-haul, and first/last mile trucks.

**Freight Operations and Technology:** Comprehensive coverage of freight-related technology applications such as the Oversize/Overweight (OS/OW) Permit System or CVISN programs help to support safe freight operations and consistent restrictions. Within this realm, stakeholders have expressed a need to enhance and expand the deployment of high-speed weigh-in-motion technology as an alternative means of freight enforcement.

### *Emergency Planning*

**Agency Coordination:** Stakeholders noted that emergency planning and response span jurisdictional boundaries; and ongoing communications, coordination, data-sharing, or related efforts are essential. Larger-scale incidents such as security threats or cargo aircraft crashes, for example, involve incident response at the state and federal levels including the Delaware TMC or Delaware Emergency Management Agency (DEMA), the Maryland Coordinated Highways Action Response Team (CHART) or Maryland Emergency Management Agency, the FBI, Dover AFB, or Homeland Security.

**Evacuation Planning:** Local and broader-scale state or regional evacuation plans are important for select locations or scenarios, as are freight impacts or influences including post-incident supply or recovery operations. Examples include hurricane evacuation planning for coastal areas, or nuclear plant evacuation planning such as for nearby Salem, New Jersey.

**First-Responder Capabilities:** Maintaining and enhancing incident first-responder capabilities are ongoing exercises that must also consider the changing nature of commodity types or patterns throughout the region. Key commodities and anticipated growth areas include a variety of petroleum products, chemical products, or related hazardous materials. Additional freight traffic, such as railcars to the Delaware City Refinery, may also increase incident-related risks or conflicts if not properly addressed.

**Land Use Considerations:** From a land use perspective, an increase in freight traffic or freight-related conflicts and delays may affect normal travel times within a community as well as emergency response times or routes and, therefore, may require community-specific mitigations. Flooding, storms, or other natural disasters may also trigger freight detours or contingency plans that in turn influence the local land use environment. Emergency response plans for hazardous material incidents or potential man-made disasters (e.g., terrorist attacks) may also require customization based on the local land use environment.

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## *Hazardous Materials*

**Site-Specific Hazardous Material Issues:** Where freight activities involve hazardous materials, planning efforts should continue to monitor and enhance emergency response efforts. Such issues may focus on cargo routing for Dover AFB, the barging of oil and other refined products out of Delaware City, or the monitoring of at-grade rail crossing delays versus petroleum rail traffic in New Castle County.

**Hazardous Materials Tracking:** A partnership with security authorities for tracking of hazardous materials needs to be established considering social and environmental exposure, natural and man-made disasters, anticipated disruptions of traffic and business, and related economic impacts.

**Security Screening:** Exploration of public-private partnership opportunities may help to identify trade-offs, cost benefits, or other interests relative to increasing route or mode options and security screening for the transportation of hazardous materials.

## *Homeland Security*

**Agency Coordination:** With the potential scope of homeland security, it is important that freight planning, implementation, or management/operations efforts be cognizant of (and coordinated with) broader security interests where applicable. Coordination may involve state enforcement and protection agencies or federal agencies such as the Department of Homeland Security (DHS), the Nuclear Regulatory Commission, or Dover AFB. Broader requirements or restrictions may impact routing, tracking, licensing, monitoring, or enforcement of transporters of certain types of materials.

**Cargo Security and Inspection:** With an international port and air presence, cargo security and screening in relationship with the DHS's U.S. Customs and Border Protection (CBP) or Immigration and Customs Enforcement (ICE) agencies are essential. Issues range from basic cargo theft prevention or agricultural screening to broader security interests (e.g., combatting terrorist threats) or humanitarian issues (e.g., human smuggling/trafficking or pandemic threats). From a freight planning and infrastructure perspective, industry-wide research includes a focus on transportation operations, ITS technologies, or other cost-effective mechanisms that state DOTs may be able to use to support security-related efforts.<sup>1</sup>

**Asset Protection:** An improved understanding of freight movements, key transportation infrastructure, pinch points, or critical systems will help to inform regional asset protection and risk assessments, thus benefitting emergency or security planning efforts by local, state, and federal agencies.

## **6.5 System Management, Operations and Maintenance**

Delmarva's System Management, Operations, and Maintenance goal overlaps national freight policy guidance to use advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system while also improving its state of good repair. Focus areas on the peninsula include efforts to enhance policies affecting truck parking and rest areas, weight limits, taxes, tolls, or other motor freight issues; address physical improvements on secondary roads and bridges critical to first/last mile connections; and support dredging operations and the preservation of suitable sites for excess dredge materials.

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<sup>1</sup> Transportation Research Board (TRB) Subcommittee ABE40-2 – Risk and Resilience Assessment and Planning; TRB Research Needs Statement: The Role of Transportation Operations and ITS Technologies in Supporting Homeland Security and Humanitarian Affairs, December 2013, <http://rns.trb.org/dproject.asp?n=35885>.

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## *Jurisdictional Relationships*

**Land Use in Operations Planning:** Land use and freight traffic relationships are important in terms of advanced planning for everyday system operations as well as unexpected circumstances. For example, rail crossing delays, truck loading and deliveries, or first/last mile traffic can be influenced by, or can influence, local land use and business activities, potentially affecting the economic potential of an area if conflicts frequently exist. The local land use environment must also be considered in the development of emergency response or contingency planning for unusual events such as floods or storms, hazardous material incidents, or man-made disasters. Ongoing coordination and communication between planning partners and stakeholders, and across jurisdictional boundaries, is crucial to maintaining positive relationships and mutual benefits between freight and land use.

**Infrastructure Ownership:** As certain critical components of the overall freight transportation system are privately-owned – bridges owned by railroads, for example – or span different agency jurisdictions, broad cooperative planning efforts and potential public/private partnership solutions are needed.

**Management Needs:** To keep pace with anticipated freight growth and the rapid integration of operations and planning in regards to the use of ITS, there is a perceived need at the management level for a more integrated and strategic alignment of statewide activities and other public/private partners to improve and expand freight-related efforts.

**ITS Integration:** While current state freight-related programs focus on weight enforcement (e.g. CVSIN, Pre-Pass, Virtual Weigh-in-Motion), the ITS component is not fully integrated with operations. The lack of integration creates difficulties in funding freight-related initiatives. Interests include a comprehensive approach in terms of reflecting a better inclusion of performance metrics and policies for rural areas, or for truly capitalizing on freight's potential to enhance the economic vitality of the state and the region.

**Proprietary Issues:** Technological solutions including ITS and enforcement-related systems are provided by a limited number of companies. The exclusive or proprietary nature of these systems limits the level of open competition that may otherwise help states to negotiate costs or maintenance services.

## *Truck Policies*

**Hours-of-Service Impacts:** Recent changes in Hours-of-Service (HOS) regulations for truck drivers generally increase constraints on restart limitations, rest breaks, on-duty time, or penalties for motor freight drivers (*Exhibit 6.6*). These changes elevate the importance of providing adequate truck parking, staging, and related access needs in key locations.

**Truck Parking Areas:** Possible truck parking issues or needs, including additional capacity for overnight truck parking and smaller time frame staging areas, were noted for the following locations:

- In Delaware along the I-95 corridor and any of the east/west routes that connect to I-95
- In Kent County, Delaware
- On Maryland's Eastern Shore near the Chesapeake Bay Bridge
- Along US 301 near the Maryland/Delaware line
- Around Salisbury, Maryland
- In and around the Port of Wilmington<sup>2</sup>
- Along US 13 in Accomack and Northampton Counties, Virginia

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<sup>2</sup> WILMAPCO, Port of Wilmington Truck Parking Study, July 2013, [http://www.wilmapco.org/truckparking/Port\\_Final\\_July14.pdf](http://www.wilmapco.org/truckparking/Port_Final_July14.pdf)

*Exhibit 6.6 – Summary of Hours-of-Service (HOS) Regulations (as of July 1, 2013)*

PROPERTY-CARRYING DRIVERS
<b>11-Hour Driving Limit</b> May drive a maximum of 11 hours after 10 consecutive hours off duty.
<b>14-Hour Limit</b> May not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty. Off-duty time does not extend the 14-hour period.
<b>Rest Breaks</b> May drive only if 8 hours or less have passed since end of driver's last off-duty or sleeper berth period of at least 30 minutes. [49 CFR 397.5 mandatory "in attendance" time may be included in break if no other duties performed]
<b>60/70-Hour On-Duty Limit</b> May not drive after 60/70 hours on duty in 7/8 consecutive days. A driver may restart a 7/8 consecutive day period after taking 34 or more consecutive hours off duty. Must include two periods from 1 a.m. to 5 a.m. home terminal time, and may only be used once per week, or 168 hours, measured from the beginning of the previous restart.
<b>Sleeper Berth Provision</b> Drivers using the sleeper berth provision must take at least 8 consecutive hours in the sleeper berth, plus a separate 2 consecutive hours either in the sleeper berth, off duty, or any combination of the two.

Source: USDOT Federal Motor Carrier Safety Administration; <http://www.fmcsa.dot.gov>

**Local Delivery Restrictions:** Truck parking or loading zone access, delivery route or hour restrictions, anti-idling restrictions, or related issues are relevant to discussions in any urban area. Stakeholders have noted specifically that Main Street delivery restrictions in Newark, Delaware, are an issue.

**Agricultural Freight:** Stakeholders have raised concerns regarding rural agricultural trucks, including questions on how to best balance or manage heavy load freight usage versus roadway/pavement conditions, route planning, tracking needs, regulations, or permitting. It was also noted that a unified permitting process for agricultural trucks does not currently exist between Delaware, Maryland, and Virginia.

## *Pavement Management*

**Pavement Management Program:** Consideration of heavy vehicle traffic is typically accounted for in pavement management decision-making. In Delaware, for example, the pavement management program reviews all state-maintained non-suburban roads and associated conditions. Known heavy vehicle traffic on roadways being considered for rehabilitation will affect priority rankings on the rehabilitation list, as well as the selection of treatments or materials to help minimize deterioration.

**Resilience and System Impacts:** Roadway and pavement deterioration versus investments of new construction or maintenance may not be fully analyzed or understood in terms of the resilience of specific structures or the impact on the overall freight transportation system (e.g., in terms of added congestion, detour time, or risk of failure). Such perspectives may help to reduce accelerated deterioration of new or existing pavements and to better manage issues related to permitting, rural truck traffic, heavier trucks, weight limits, or route restrictions.

**Recycled Materials:** When practical, cost effective, and not detrimental to long-term pavement performance, DelDOT allows specified recycled materials in its roadway construction projects. Locations in need of some structural rehabilitation may also be considered for full-depth reclamation or cold-in-place recycling which utilizes in-place materials to rebuild the roadway structure.

## Technologies and ITS

**ITS Monitoring for Freight Activity:** Transportation operations must begin to include freight ITS systems on a broader corridor or regional perspective for effective monitoring, control, information gathering, and integration with planning and the private sector. Proper monitoring will help to reduce or respond to potential impacts of freight traffic increases including, for example, daily travel delays, detour route issues, or incident/emergency planning approaches.

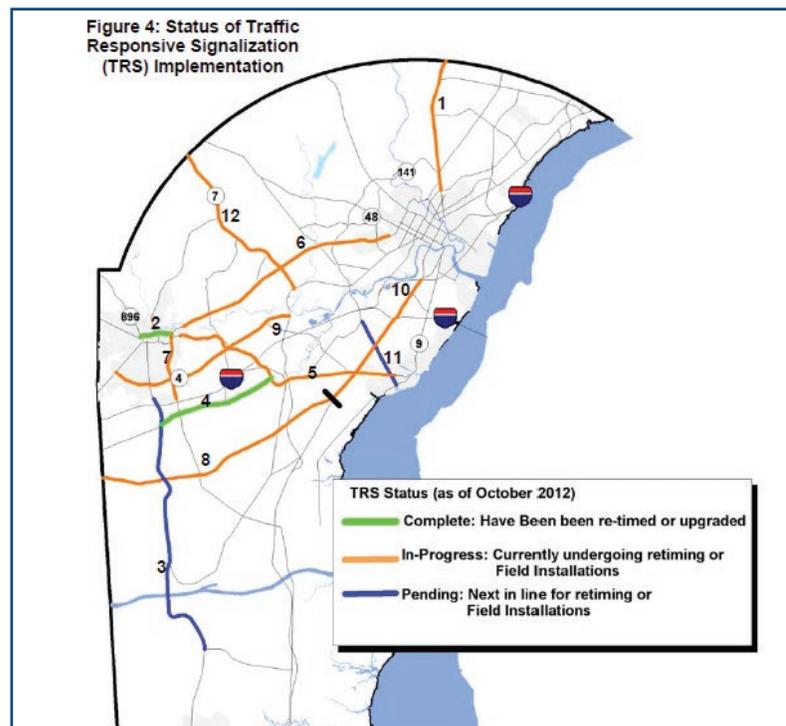
**ITS Monitoring for Safety/Security:** As previously detailed under Safety/Security discussions, ITS and related technologies support efforts including overweight permitting, security screening, and cargo inspection.

**Weight and Safety Enforcement:** Stakeholders have noted that continued research and “high speed” technologies are needed for enforcement programs. Specifically in the realm of weight and safety enforcement, DelDOT will be constructing additional Virtual Weigh Stations (VWS) initially located across southern New Castle County, while MDOT has installed VWS technology at several locations along freight routes on the Eastern Shore, including on the Bay Bridge (see previous *Exhibit 4.25*). The added VWS systems will greatly enhance commercial weight and safety enforcement, and programs may expand in the future, potentially capturing, for example, the I-95/495 corridors or portions of Sussex County.

**All Electronic Tolling (AET):** Freight implications and benefits will also be included in locations under consideration for AET systems. Maryland, for example, is implementing AET on toll facilities owned by MdTA. The US 40 Thomas J. Hatem Memorial Bridge’s toll plaza will be the first to have its cash tolls eliminated and replaced with electronic tolling sometime in 2014.

**Traffic Responsive Signalization (TRS):** TRS is a method of traffic signal management that uses advanced technology (including special signal controllers, traffic sensors, and computer algorithms) to adjust traffic signal timings based on current demands and directional traffic volumes. This method can react to fluctuating traffic volumes in order to reduce signal-related congestion and delays for all vehicles along a corridor, including trucks and related freight or delivery activities. Ongoing efforts through DelDOT, DelDOT’s TMC, and WILMAPCO have focused on planning or implementing the latest TRS technologies along several key corridors including, for example, various routes in New Castle County (*Exhibit 6.7*). Future expansions are likely in other areas throughout the state.

*Exhibit 6.7 – WILMAPCO Traffic Responsive Signalization Corridors*



Source: WILMAPCO Congestion Management System updates;  
<http://www.wilmapco.org/cms/>

## *Waterway Dredging*

**Federally-Allocated Funding for Dredging:** Funding constraints relative to dredging operations has the potential to dramatically change supply chains and related business, industry, or economic factors. Constraints are particularly challenging for waterways that transport less than one-million tons annually (e.g., the Pocomoke River). Below that threshold, a river falls onto a shortlist of locations competing for scarce leftover (versus designated) federal funds. There is concern that the tonnage-based formula for allocating federal funds can be problematic in that tonnage alone may not truly reflect other major economic drivers such as fishing, tourism, or light-weight special transports (e.g., wind turbine components). Delayed dredging may contribute to a further decline in barge traffic, which further reduces tonnage and subsequently accelerates a downward spiral of additional funding and travel constraints. The Pocomoke River, for example, is thought to be at a critical point for dredging to maintain barge travel that carries a large supply of aggregate materials for state road construction. If such barges were restricted, impacts would include a direct increase in industry costs and truck deliveries, as well as a possible increase in the material costs for future roadway projects.

**Excess Dredge Material Sites:** Identification of sites to store or dispose of excess dredge materials is crucial to dredging operations along the region's inland waterway systems. Though dredging is a federally-mandated maintenance activity, county agencies are typically responsible for procuring property that will be ready, open, and suitable per USACE requirements to handle the excess dredge materials. Locating suitable sites can be a complicated and time-intensive process. Difficulties include finding sites in close proximity to the planned dredging area, avoiding off-limits wetland areas, and encountering delays or public resistance often related to inflated property values, costly leasing agreements, or environmental concerns based on false or incomplete assumptions. While procurement of a former golf course property has recently provided a longer-term solution for the Nanticoke River, the Wicomico and Pocomoke Rivers and C&D Canal have not been as fortunate. Most recently, agencies have struggled to identify a new site specifically for the lower section of the Wicomico River in time for the 2015 dredging cycle. Technical and programmatic assistance from DelDOT, MDOT, or focused organizations such as DWTC are essential to continuing the excess dredge material site location process.

## **6.6 Sustainability and Environmental Stewardship**

Delmarva's Sustainability and Environmental Stewardship goal overlaps national freight policy guidance to reduce adverse environmental and community impacts of the freight transportation system. Focus areas on the peninsula include efforts to support improvements that balance consumer demands and freight flows with seasonal or tourist-based variability and quality of life; and enhance the flexibility and resiliency of the freight transportation system to meet changing global energy demands or sources.

### *Air Quality Issues*

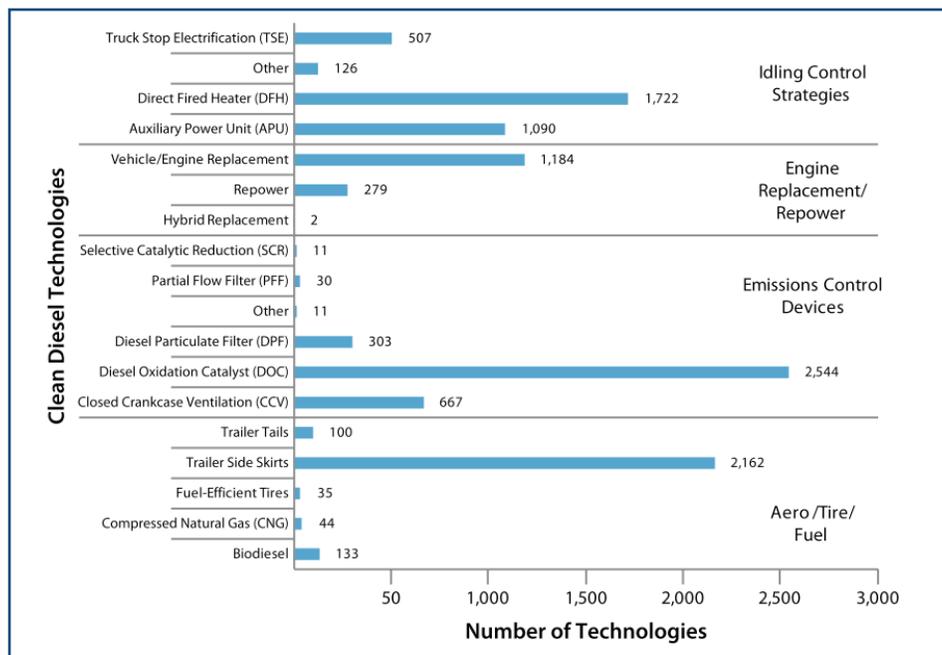
**Emissions Control and Monitoring:** Stakeholders noted that the Air Quality Control Program and police truck enforcement activities are not fully integrated or equipped in specific locations or facilities to help maximize a reduction of emissions for climate change plans. Additional testing, filters, rest area improvements, or similar may be needed to enhance or expand emissions control and monitoring.

**Truck Idling Regulations:** Anti-idling efforts aim to reduce truck emissions to the benefit of improving air quality and protecting public health. Each state on the peninsula places different limits on the amount of time a heavy duty motor vehicle may operate when not in motion. Barring special exemptions, idling restrictions range from 3 minutes in Delaware, to 5 minutes in Maryland, to 10 minutes for diesel vehicles (3 minutes for all other vehicles) in commercial or residential urban areas in Virginia.<sup>3</sup>

**Truck Stop Electrification (TSE):** Stakeholders have supported interest in TSE sites in which drivers utilize fee-based parking/rest area equipment to provide heat, air conditioning, electricity, or other connections for in-cab operations without having to idle the truck engines. TSE facilities are currently in operation along I-95 at the Pilot Flying J Travel Plaza in Elkton, MD; along I-95 at the Delaware Welcome and Travel Center in Christiana, DE; and along US 13 at the Smyrna Rest Area.

**Truck Efficiencies:** Advancements in truck and fuel technologies are important when considering any environmental or air quality issues as modern truck fleets are continually becoming cleaner. Emission rates for trucks have fallen based on the use of ultra-low sulfur fuels, engine and emissions control technologies, and fleet turnover and modernization efforts. Various clean diesel technologies have also been a recent focus of grant programs administered by the U.S. Environmental Protection Agency (EPA) as part of the Diesel Emissions Reduction Act (DERA) (*Exhibit 6.8*). The U.S. Department of Energy Clean Cities Program has provided grant funding to the Maryland Energy Administration for over 100 idle reduction and energy efficient engine retrofits.

*Exhibit 6.8 – Technologies Used in the FY 2009/2010 DERA Grant Program*



Source: EPA; Second Report to Congress: Highlights of the Diesel Emissions Reduction Program, December 2012.

<sup>3</sup>American Transportation Research Institute (ATRI); Compendium of Idling Regulations; November 2013; [http://www.atri-online.org/research/idling/ATRI\\_Idling\\_Compndium](http://www.atri-online.org/research/idling/ATRI_Idling_Compndium)

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## *Water Resource Issues*

**Dredging-Related Issues:** While dredging operations and the need to identify suitable sites for excess dredge materials have been noted previously as topical concerns, the placement of excess dredge materials may also encounter water, wetlands, or other environmental issues that are an inherent part of the overall dredge management process.

**Spills Control:** Spills control on the peninsula is exceptionally critical given the importance of the area's water environments (e.g., the Chesapeake Bay) versus common commodities (e.g., petroleum, petroleum products, chemical products). Specific areas of concern may focus on barge lightering operations in the Delaware River, or on increasing Delaware City refinery traffic.

**Sea-Level Rise (SLR):** SLR Adaptation Planning on the peninsula has been a focus of several agencies including, for example, the Delaware Department of Natural Resources and Environmental Control (DNREC), the Maryland Commission on Climate Change, or WILMAPCO by way of a July 2011 transportation vulnerability assessment. Planning efforts recognize a need to conduct and track vulnerability assessments of key infrastructure that may be impacted by flooding, inundation, or storm impacts as a result of future sea-level rise. From a multimodal freight perspective, potential infrastructure impacts include critical freight-carrying roadway segments, bridges, low-lying rail lines, tunnels, port facilities, or navigable channels.

## *Community Issues*

**Land Use Conflicts:** As previously noted under discussions for Land Use Issues, appropriate policies, planning, oversight, and decision-making are important to ensuring land use compatibility between freight and non-freight uses, including existing or future community development activities. Intentionally minimizing potential conflicts and balancing freight, economic, and community needs with a myriad of quality of life issues is not, however, an easy task with a clearly defined path forward.

**First/Last Mile Conflicts:** As previously noted under discussions for Network Connectivity, first/last mile facilities are necessary for local businesses and industries to survive, but often include collectors and local roads on which freight/passenger vehicle conflicts and negative public perception of truck traffic may be much greater. Likewise, truck access to local communities requires a balancing act of serving main street, school or residential needs while simultaneously accommodating local business/industry access and deliveries that are crucial for community and regional livelihoods.

**Port Conflicts:** As hubs of freight activity, ports and surrounding communities are often affected by increased levels of truck traffic, truck noise, or pollution. The EPA, in fact, has recently focused on port activities as part of their Ports Initiative, including efforts intended to build a more sustainable ports system, create healthy air quality for communities, and reduce climate risk.<sup>4</sup> Specifically on the peninsula, the Southbridge Community near the Port of Wilmington has experienced truck traffic conflicts that have been the subject of recent traffic study and planning efforts with WILMAPCO, the South Wilmington Planning Network, and other planning partners and stakeholders.

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<sup>4</sup><http://www.epa.gov/otaq/ports/ports-initiative.htm>

## *Other Environmental Planning*

From a planning perspective there is interest on preserving the peninsula's rail and barge networks and increasing rail/barge dependent customers to help justify and enhance the local viability of those modes. From an environmental perspective and in terms of truck traffic or congestion impacts there are clearly benefits to moving large tonnages of freight by more energy-efficient rail or barge options versus the dramatically higher number of trucks that would be needed to carry the same loads. A recent study for the U.S. Department of Energy (DOE)<sup>5</sup> indicates, for example, that rail uses approximately 1/10th the amount of energy (per ton-mile of freight) as a similar movement by truck.<sup>6</sup>

Subsequent chapters of this Delmarva Freight Plan transition into scenario planning efforts that attempt to gain insights into potential mode-shift benefits or impacts under different sets of future assumptions. While an ideal finding would identify practical opportunities to influence truck-to-rail mode shifts, it is understood that realistically affecting such shifts faces several constraints. Research by Cambridge Systematics for the same U.S. DOE study noted above identifies several constraining factors:

- While opportunities may exist to reduce energy usage and greenhouse gas (GHG) emissions by improving the efficiency of truck, rail, and water freight operations, research suggests that truck-to-rail mode shift possibilities are mostly limited to freight moving in the 250 to 750 mile range.
- Despite any mode-shift potential in the mileage range noted above, it is also clear that “service differentiation limits opportunities for shifting freight from one mode to another, because the different modes are not perfect substitutes for one another.” Peninsula-specific examples of this constraint would include first/last mile rural agricultural traffic, truckloads of live poultry, or perishable fruit leaving the Port of Wilmington, all of which occur almost exclusively via truck freight.
- The study further indicates that “major mode shifts are unlikely without substantial changes in costs or strong regulatory measures.” Such measures may include fuel pricing and taxes, user fees, truck hour-of-service regulations, truck size/weight limits, as well as infrastructure and operational improvements. Many of these policies require changes or legislation at the federal level and can only be influenced, but not controlled, at the local, state, or regional level.

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<sup>5</sup>Cambridge Systematics for the U.S. Department of Energy, Transportation Energy Future Series: Freight Transportation Modal Shares: Scenarios for a Low-Carbon Future, March 2013.

<sup>6</sup>Based on British thermal unit (Btu) energy estimates (listed in the above reference) of 4 Btu per ton-mile for truck versus 0.4 for rail and 0.5 for water.

## 6.7 Summary Perspective

Issues presented in this chapter were organized within focus areas corresponding to the plan's categorical goals; summary lists are presented below (*Exhibits 6.9-6.10*). Subsequent chapters will detail various performance measure, modeling, and scenario planning assumptions to help assess the impact and/or influence of these issues. This assessment, coupled with related considerations documented throughout this plan, will ultimately support the development and selection of freight policy and project assumptions to create the recommended action plan.

*Exhibit 6.9 – Freight Planning Issues (Overview)*

<b>Economic Vitality</b>	
1	<b>Supply Chain Positioning</b>
2	<b>Import/Export Opportunities</b>
3	<b>Land Use Issues</b>
4	<b>Site-specific Issues</b>
5	<b>Hidden Impacts</b>
<b>Freight Connectivity, Mobility and Accessibility</b>	
6	<b>Truck Network Connectivity</b>
7	<b>Multimodal Network Connectivity</b>
8	<b>Traffic Congestion</b>
9	<b>Passenger Linkages and Conflicts</b>
<b>Safety and Security</b>	
10	<b>Safety Planning</b>
11	<b>Emergency Planning</b>
12	<b>Hazardous Materials</b>
13	<b>Homeland Security</b>
<b>System Management, Operations and Maintenance</b>	
14	<b>Jurisdictional Relationships</b>
15	<b>Truck Policies</b>
16	<b>Pavement Management</b>
17	<b>Technologies and ITS</b>
18	<b>Waterway Dredging</b>
<b>Sustainability and Environmental Stewardship</b>	
19	<b>Air Quality Issues</b>
20	<b>Water Resource Issues</b>
21	<b>Community Issues</b>
22	<b>Other Environmental Planning</b>

Exhibit 6.10 – Freight Planning Issues (by Focus Area)

<b>Economic Vitality</b>	
<b>1</b>	<b>Supply Chain Positioning</b>
a.	Growth areas (anticipated or incentivized)
b.	System efficiencies
c.	Core commodity groups*
d.	Key supply chains*
<b>2</b>	<b>Import/Export Opportunities</b>
a.	Import of Midwest/Canadian crude
b.	Import of Midwest/other grain
c.	Export of fracking support materials
d.	Export of oil products
e.	Export of frozen poultry
f.	International trade pattern changes
<b>3</b>	<b>Land Use Issues</b>
a.	Land use compatibility
b.	Local land use decisions
c.	State land use oversight
<b>4</b>	<b>Site-specific Issues</b>
a.	Freight hubs or Local Freight Zones
b.	PBF Energy Refinery
c.	Dover AFB Air Cargo Ramp
d.	Dogfish Head Brewery
e.	NASA Wallops Flight Facility
<b>5</b>	<b>Hidden Impacts</b>
a.	Freight-dependent industry migration
b.	Reduced Modal Options
c.	Delmarva Secondary (vs. coal or oil freight)
d.	Indian River Secondary (vs. coal freight)
e.	Post-Panamax influence

<b>Freight Connectivity, Mobility and Accessibility</b>	
<b>6</b>	<b>Truck Network Connectivity</b>
a.	Primary Freight Network
b.	Peninsula freight network
c.	Critical Rural Freight Corridors*
d.	Other rural truck routes*
e.	First/last mile facilities
f.	Secondary road/bridge conditions
<b>7</b>	<b>Multimodal Network Connectivity</b>
a.	Rail accessibility
b.	Rail schedules/delays
c.	Rail cost effectiveness/economies of scale
d.	Cape Charles Rail Carfloat
e.	Access to regional air hubs
f.	Access to peninsula-specific air hubs
g.	Access to key ports
h.	Local drayage services
i.	Multimodal transfer options
<b>8</b>	<b>Traffic Congestion</b>
a.	General traffic congestion
b.	Regional metropolitan area congestion
c.	Urban area congestion
d.	Peak seasonal conflicts
e.	Time sensitive commodity impacts
<b>9</b>	<b>Passenger Linkages and Conflicts</b>
a.	NEC freight access constraints
b.	Chesapeake Connector
c.	At-grade rail crossings
d.	Air Cargo Ramp constraints

Exhibit 6.10 – Freight Planning Issues (by Focus Area) (Continued)

Safety and Security	
<b>10</b>	<b>Safety Planning</b>
a.	Crash prevention/mitigation
b.	Freight operations and technology
<b>11</b>	<b>Emergency Planning</b>
a.	Agency coordination
b.	Evacuation planning
c.	First-responder capabilities
d.	Land use considerations
<b>12</b>	<b>Hazardous Materials</b>
a.	Site-specific hazardous material issues
b.	Hazmat tracking
c.	Hazmat security screening
<b>13</b>	<b>Homeland Security</b>
a.	Agency coordination
b.	Cargo security and inspection
c.	Asset protection

System Management, Operations and Maintenance	
<b>14</b>	<b>Jurisdictional Relationships</b>
a.	Land use in operations planning
b.	Infrastructure ownership
c.	Management needs
d.	ITS integration
e.	Proprietary issues
<b>15</b>	<b>Truck Policies</b>
a.	Hours-of-service impacts
b.	Truck parking and rest areas*
c.	Local delivery restrictions
d.	Agricultural freight
e.	Motor freight costs (fuel, tolls)
f.	Motor freight weight limits
<b>16</b>	<b>Pavement Management</b>
a.	Pavement management program
b.	Resilience and system impacts
c.	Recycled materials
<b>17</b>	<b>Technologies and ITS</b>
a.	ITS monitoring for freight/rail activity
b.	ITS monitoring for safety/security
c.	Weight and safety enforcement
d.	All Electronic Tolling (AET)
e.	Traffic Responsive Signalization (TRS)
<b>18</b>	<b>Waterway Dredging</b>
a.	Federally-allocated funding for dredging
b.	Excess dredge material sites
c.	Site-specific dredging issues*

Exhibit 6.10 – Freight Planning Issues (by Focus Area) (Continued)

<b>Sustainability and Environmental Stewardship</b>	
<b>19</b>	<b>Air Quality Issues</b>
a.	Emissions control and monitoring
b.	Truck idling regulations
c.	Truck Stop Electrification (TSE)
d.	Truck efficiencies
<b>20</b>	<b>Water Resource Issues</b>
a.	Dredging-related issues
b.	Spills control
c.	Sea-Level Rise (SLR)
<b>21</b>	<b>Community Issues</b>
a.	Land use conflicts
b.	First/last mile conflicts
c.	Port conflicts
<b>22</b>	<b>Other Environmental Planning</b>
a.	Modal shifts and barge usage
b.	Modal shifts and rail usage

\* See Chapter 6 details for candidate types, routes, locations, etc.