2022 Delaware State Freight Plan

DRAFT EXECUTIVE SUMMARY

September 16, 2022

Executive Summary

INTRODUCTION

The Delaware Freight Plan is a compilation of statewide transportation planning insights that focus on improving Delaware's multimodal freight transportation systems to enhance economic opportunities within the state and the surrounding regions, while also upholding federal requirements for the development of state freight plans.

Delaware's freight network and related multimodal transportation systems provide critical connections for the movement of goods across the state, regionally, and nationwide. These systems encompass roads, rail lines, seaports, inland waterways, air cargo operations, pipelines, freight transfer centers, and a wide range of supporting programs. The movement of freight is a critical component of our region's economy, and the Delaware Department of Transportation (DelDOT) is committed to providing and enhancing freight-related transportation infrastructure.

Freight Plan Purpose

The Delaware Freight Plan assesses freight transportation system details, needs, and opportunities in order to identify key projects, strategies, and other planning-related actions that will maximize the efficiency and reliability of Delaware's current and projected freight transportation networks with a focus on five overarching freight goals related to:

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

Collaborative Development

The 2022 update to the Delaware Freight Plan was completed by DelDOT in collaboration with the Wilmington Area Planning Council (WILMAPCO), Dover/Kent County Metropolitan Planning Organization (Dover Kent MPO), and Salisbury/Wicomico Metropolitan Planning Organization (S/WMPO), as well as the University of Delaware's Institute for Public Administration (IPA). Current updates include compliance with the latest federal freight planning requirements introduced in November 2021 by the Infrastructure Investment and Jobs Act (IIJA) with details per 49 U.S.C. §70202. Plan content was also aligned to mesh with federal freight policy goals in the National Freight Strategic Plan, as well as statewide overarching transportation planning goals in Delaware Long Range Transportation Plan.

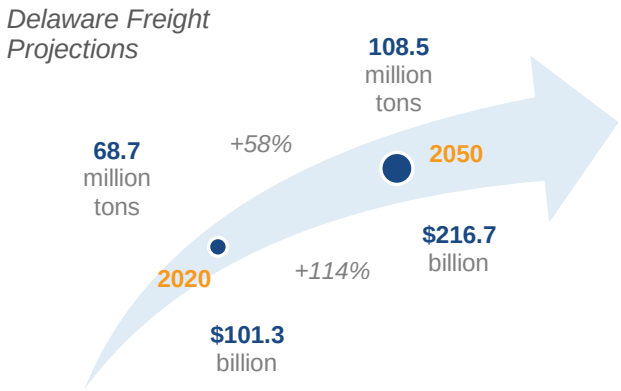
DelDOT Freight Website:
https://deldot.gov/Business/freight/index.shtml

Plan development further included broader collaboration involving federal, state, county, and local agencies and the private sector operating within Delaware. This process included monthly meetings of the Delmarva Freight Working Group, bi-annual Delaware Freight Summits, and related plan presentation, polling, and review opportunities. The plan also incorporates, either directly or by reference, numerous recent or ongoing freight studies that are valuable resources in the pursuit of the state's freight goals. Most resources are available through DelDOT's freight website and include efforts such as the Statewide Truck Parking Study (2021), First/Final Mile Network Development Study (2021), Port of Wilmington Area Alternatives Study (2021), Dover Air Cargo Freight Access Study (2019), Harrington Multimodal Freight Terminal Feasibility Study (2021), Delaware Truck Bottleneck Identification (2018) and related bottleneck project updates (2020/2022), and many others.

FREIGHT AND THE ECONOMY

In 2020, approximately **68.7 million tons** of freight worth **$101.3 billion** (FAF5) moved to, from, or within Delaware.

Identifying what moves, in what quantities, by which modes, and to/from where reveals the goods movement patterns, trends, and needs that are critical for supporting supply chain efficiencies and a lower cost of goods for businesses and consumers throughout the state, region, and nation. Delaware freight insights were determined based on Federal Highway Administration (FHWA)'s Freight Analysis Framework Version 5 (FAF5) database for 2020-2050.



Population and Employment

Delaware's population and employment trends are important drivers for the state's economy and related freight needs. As the geographic location of future growth shifts, so will the corresponding demand for freight and goods. Population projections for 2020-2050 reflect an overall 30-year increase of 12.5%, reaching more than 1.1 million persons in the state by 2050. Employment for the same timeframe will increase by 5.6%, adding more than 25,000 net new jobs. The highest levels of both population and employment growth are expected to occur in Sussex County.

Freight Intensive Sector (FIS) Industries

Delaware's FIS industries are especially dependent on efficient freight and goods movement systems to be competitive within the marketplace and reflect around 40% of Delaware's total employment. Delaware's FIS employment hubs typically overlap areas of higher population and relate directly to the truck trips generated by or attracted to those areas. In New Castle County with 37% FIS employment, significant activities include manufacturing, oil and gas extraction, transportation and warehousing, hospitality, and food services. In Kent County with 36% FIS employment, manufacturing, warehousing, and moderate agriculture activity prevail, alongside a sizeable influence from Dover Air Force Base. In Sussex County with 56% FIS employment, agriculture and large-scale poultry operations are dominant, alongside the influence of retail trade and peak-season tourist activities.

Freight Modes

Trucks carry more than 68% of all Delaware freight.

Domestic Partners

90% of Delaware's freight tonnage and 66% of value move between the nearest Mid-Atlantic states (PA, MD, NJ, VA, WV).

Freight Distance Bands

94% of freight shipments from (and 89% to) Delaware move within just 500-miles of the state.

Foreign Imports/Exports

2020 foreign trade included 9 million tons worth $11.8 billion.

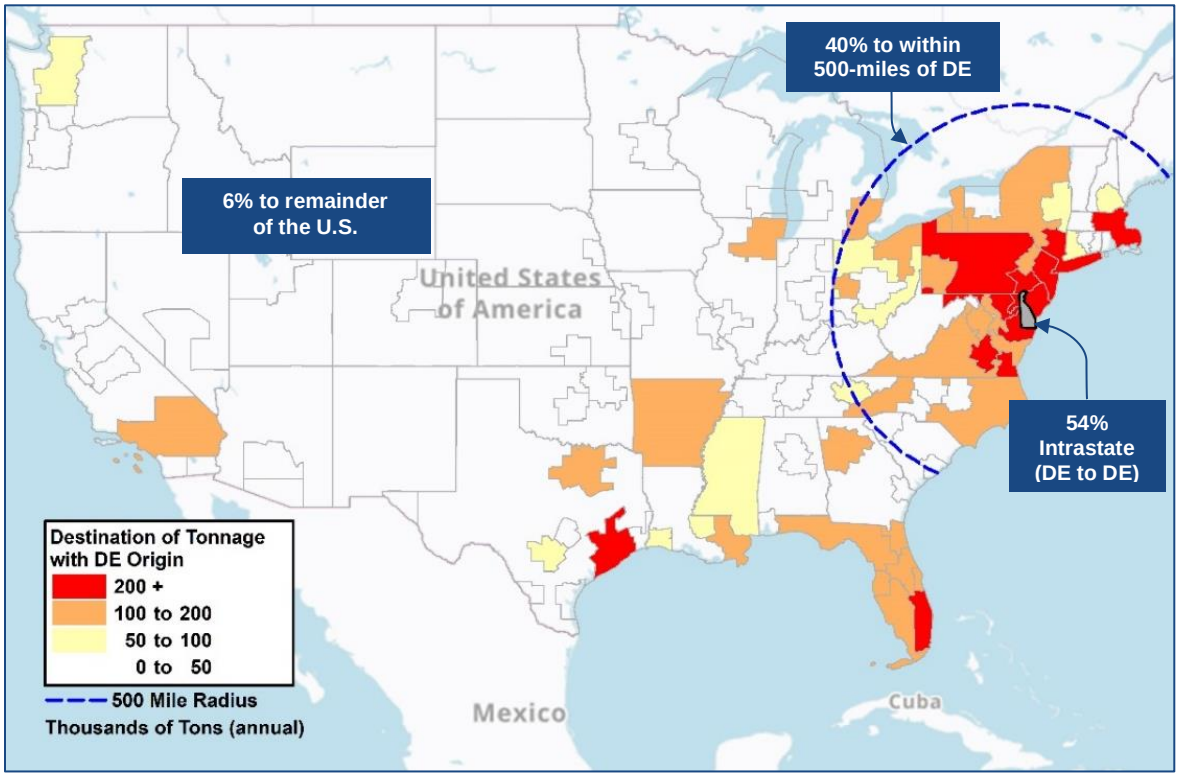
High-Tonnage Commodities

Agricultural products, crude petroleum, other foodstuffs, gravel, coal/petroleum products, gasoline, mixed freight, basic chemicals.

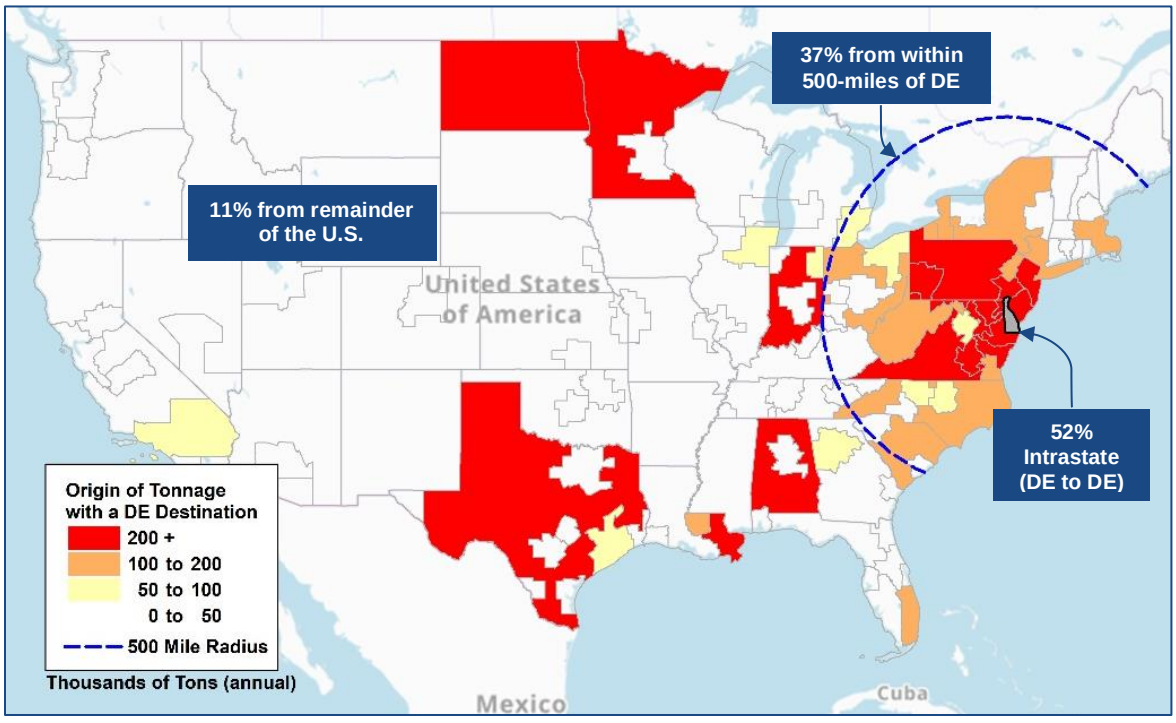
High-Value Commodities

Pharmaceuticals, mixed freight, electronics, manufactured products, plastics/rubber, basic chemicals.

Delaware Domestic Freight Destinations (2020)



Delaware Domestic Freight Origins



FREIGHT NETWORK

Delaware's freight network includes a multimodal interconnected system of highways, railroads, waterways, airports, and pipelines that collectively provide the means by which materials and products are transported to, from, within, and through the state.

Highways: include the National Highway Freight Network (NHFN) consisting of I-95, I-495, and I-295 within state limits; Terminal Avenue connections to the Port of Wilmington; and state designated Critical Rural Freight Corridor (CRFC) and Critical Urban Freight Corridor (CUFC) routes that currently encompass portions of US 9, US 13, US 113, and US 202, as well as various Delaware State Route (SR) segment along SR 1 and SR 896. Delaware has also identified approximately 294 miles of lower functional class roads as first/final mile freight connections that link truck-generating facilities to mainline travel routes throughout the state.

Delaware's Overall Transportation Network

Public Roads	→	**6,461** miles
Bridges	→	**863**
Freight Railroads	→	**243** miles
Major Water Ports	→	**2**
Waterways	→	**100** miles
Major Airports	→	**2**

Source: USDOT BTS, https://www.bts.gov/sites/bts.dot.gov/files/states2020/Delaware.pdf.

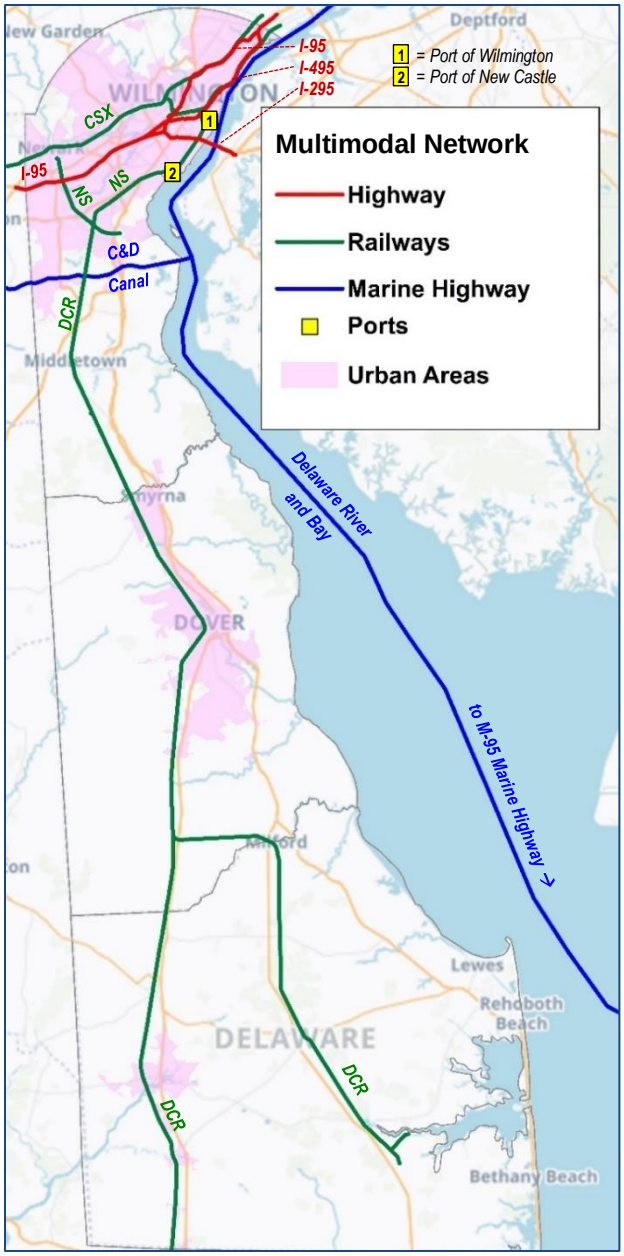
Railroads: include 236 miles of freight rail lines in Delaware with two Class I operators via Norfolk Southern (NS) and CSX, plus short line freight rail via Delmarva Central Railroad (DCR), the Maryland and Delaware Railroad Company (MDDE), and the East Penn Railroad (ESPN). The state and regional energy, agricultural, chemical, and construction industries all rely heavily on rail-based supply chains.

Ports and Waterways: include full-service international operations through the Port of Wilmington, crude petroleum and related products through the Port of New Castle (Delaware City), and broader regional port access and opportunities via the Delaware River/Bay System, Chesapeake and Delaware Canal, and linkage with the USDOT Maritime Administration (MARAD)'s M-95 Marine Highway. Inland waterway networks utilize the Nanticoke River with access to Seaford, the Wicomico River with access to Salisbury (in Maryland, but just seven miles from Delaware's southern border), and nearby access to other Maryland Eastern Shore rivers including the Pocomoke, Choptank, and Tred Avon.

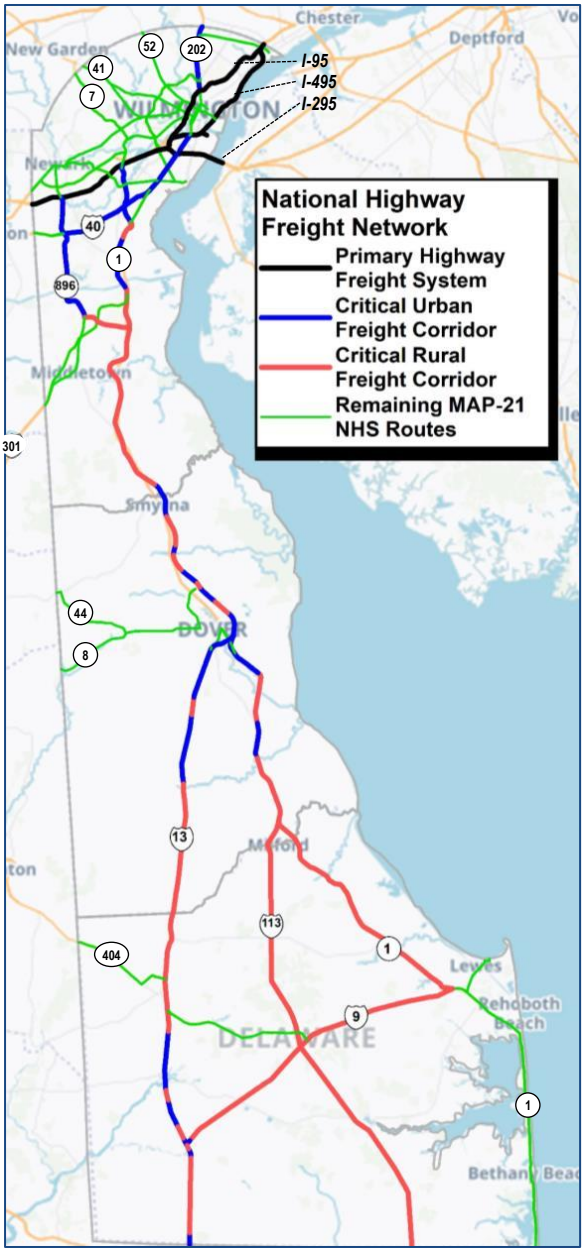
Airport Operations: primarily involve business class activities and corporate aircraft operations in Delaware. Scheduled air carrier service operates through Wilmington Airport (New Castle), while business class general aviation services are available through Summit Airport (Middletown), Delaware Airpark (Dover), and Delaware Coastal Airport (Georgetown). Joint-use military and civilian operations also occur at Dover Air Force Base (DAFB) and the Civil Air Terminal at DAFB, which is currently being proposed as the future Central Delaware Aviation Complex (CDAC).

Pipelines and Energy: cover a diverse set of energy resources that include petroleum, natural gas, electricity, renewable energy, and coal. Pipeline networks in the state include 387 miles of natural gas pipeline plus localized distribution networks, and 44 miles of petroleum pipeline with connections to refinery operations in Delaware City and aviation fuel storage facilities at DAFB. Broader energy assets also include movement of petroleum and petroleum products by truck, rail, barge, and ship; as well as other equipment and materials for power generating sites, wind farms, and solar panels.

National Multimodal Freight Network in Delaware



National Highway Freight Network in Delaware



Multimodal Significance

A vibrant multimodal freight transportation system supports Delaware's economy and regional/national supply chains. While truck is often noted as the dominant mode, multimodal options in Delaware are also vital.

- **Agricultural Products** rely on truck, rail, barge, and international shipping, including the Port of Wilmington as North America's largest banana port and leading gateway for fresh fruit and produce.
- **Crude petroleum and gasoline** shipments rely on tanker vessels and tanker barges along the Delaware River and Christina River, as well as significant rail and pipeline shipments.
- **Pharmaceuticals, plastics/rubber, and electronics** or other light-weight / high-value goods account for much of the state's air freight and truck to air/rail/ship transfers via commercial shipping companies.

FREIGHT EMPHASIS AREAS, CONCERNS, AND OPPORTUNITIES

Technology and Operations

From permitting, weight, and safety enforcement, to connected and automated vehicles, multiple DelDOT Divisions, programs, and MPO partners are engaged in technology initiatives and operations that influence the state's freight system.

Asset Preservation and Improvement

Delaware's asset management efforts track bridge and pavement conditions statewide, plus other details such as shoulder availability along the first/final mile freight network, highway-rail grade crossing needs, and dredging programs.

Freight Congestion

Congestion and reliability details are regularly monitored through Delaware truck bottleneck analyses, county-specific Transportation Operations Management Plans (TOMPs), federal performance reporting, and related efforts.

Truck Parking

The Delaware Statewide Truck Parking Study (2021) engaged with the trucking community, identified overnight parking hotspots and shorter-term staging needs, and proposed solutions via policies, programs, and a truck parking project toolkit.

Supply Chains

Agriculture and chemical products were explored in 2014/2015 via supply chain studies, and similar "deep-dive" interests may consider freight-intensive sectors, pharmaceuticals, e-commerce, or energy within the updated freight action plan.

Commercial Ports

The Port of Wilmington plays a critical role in Delaware's trade activities, while other port opportunities support refinery operations, fuel storage at DAFB, and access to the M-95 marine highway, Nanticoke River, and other rivers.

Multistate Coordination

DelDOT actively works with their adjacent state and regional/MPO partners to support collaborative freight perspectives for the broader Delmarva Peninsula, into Pennsylvania, and via multistate organizations such as TETC and DWTC.

E-commerce

Warehousing and distribution expansion will enhance Delaware's logistics and supply chain opportunities, but efforts such as the state's First/Final Mile Network Study (2021) must help to balance this with community and transportation needs.

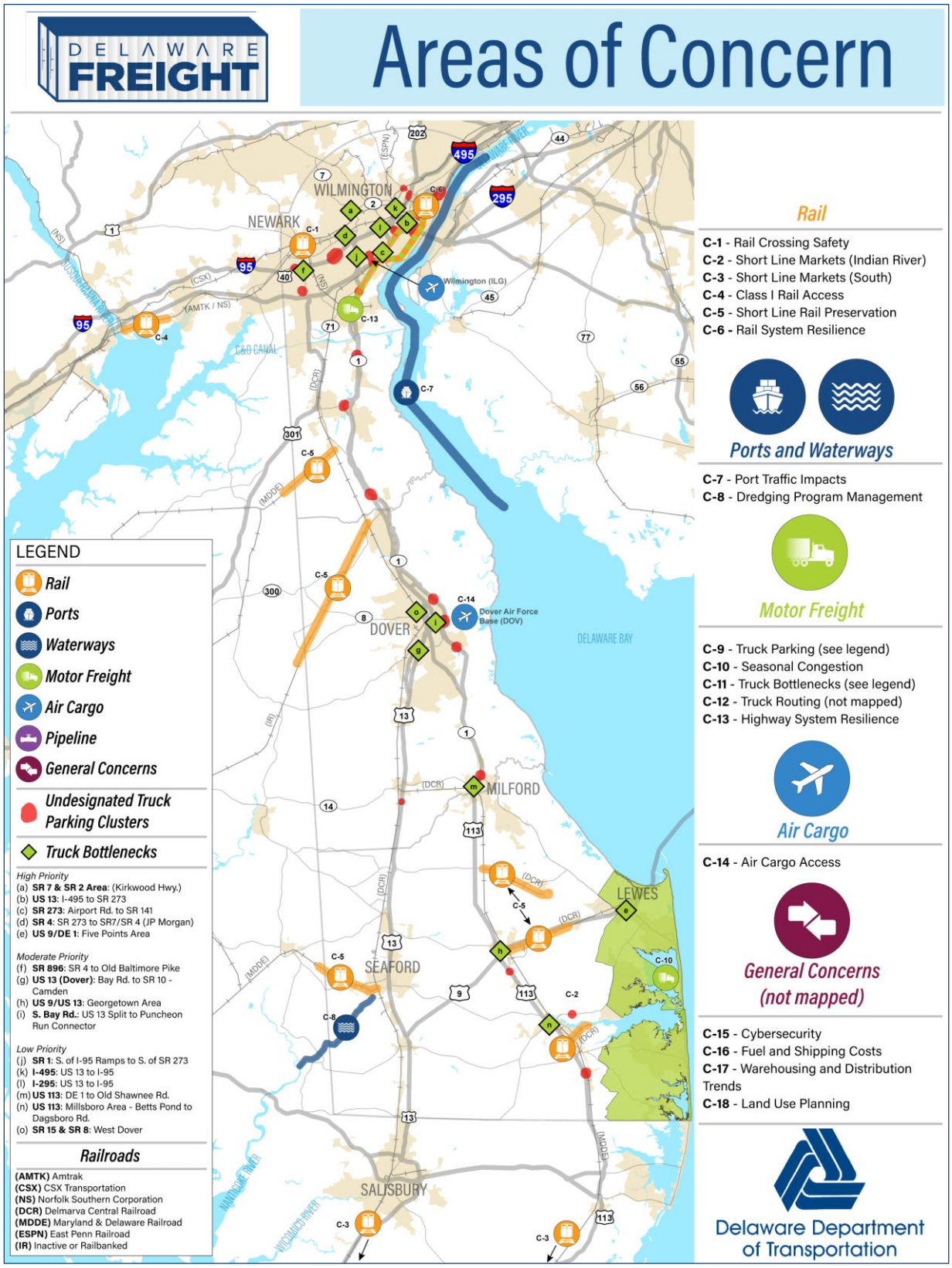
Military Freight

Dover Air Force Base is home to the Department of Defense's largest aerial port and a critical hub of military activity in Delaware, with access via the Strategic Highway Network, as well as influence in joint use civilian cargo opportunities.

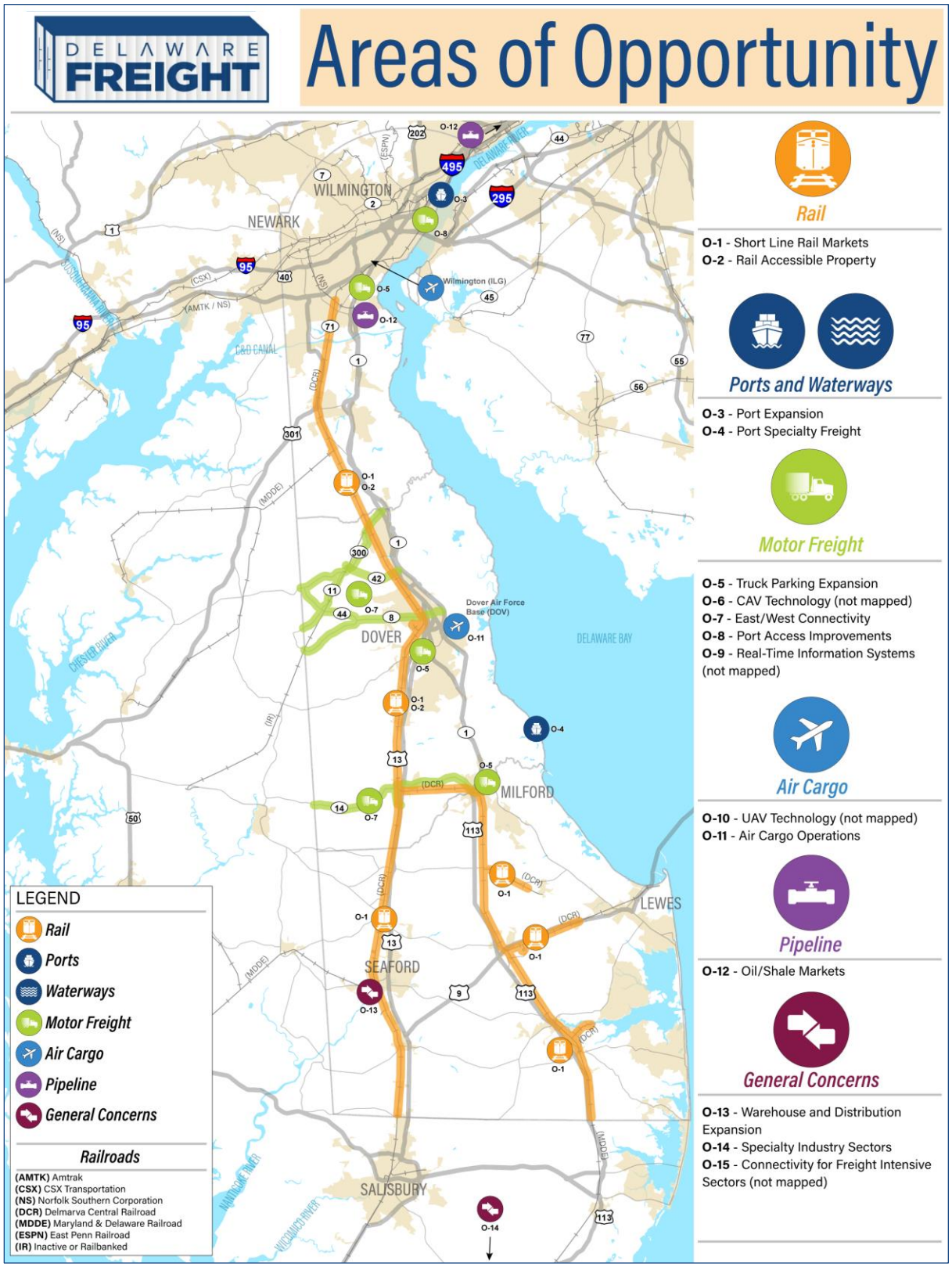
Freight Resilience and Environmental Impacts

DelDOT's Transportation Resiliency and Sustainability program focuses on initiatives related to climate change and sea level rise, electrification, alternative energy, and quality of life, all of which can be related to various freight issues.

Delaware Freight Areas of Concern



Delaware Freight Areas of Opportunity



FREIGHT PROJECTS AND INVESTMENT PLAN

Among the core federal requirements for state freight plans outlined by 49 U.S.C. §70202, states must provide a comprehensive plan for the immediate and long-range planning activities and investments of the state, which includes an explicit requirement to develop a freight investment plan with a list of priority projects and a description of how funds made available to carry out the National Highway Freight Program (NHFP) (23 U.S.C. §167) would be invested and matched.

Typical Delaware Transportation Planning/Programming Resources

Candidates for freight project investments in Delaware can come from several different sources, most of which generally allocate funding via public entities and broader transportation planning/programming resources, including:

- DelDOT Capital Transportation Program (**CTP**)
- DelDOT National Highway Freight Program (**NHFP**) Allocations
- WILMAPCO Transportation Improvement Program (**TIP**)
- WILMAPCO Regional Transportation Plan (**RTP**)
- Dover/Kent MPO Metropolitan Transportation Plan (**MTP**)

Freight Project Candidates

Highway-oriented projects inherently represent a significant part of the state's transportation planning and programming emphases. Intermodal and multimodal projects are also critical, but these candidates often overlap other programs, agencies, public/private investments, and/or the outcomes of targeted studies. At a high-level, key potential sources or project candidates for all freight modes include improvements from the CTP and related resources, as well as other program details related to truck bottleneck improvements, rail projects, port projects, river/barge projects, and airport projects.

Freight Project Screening

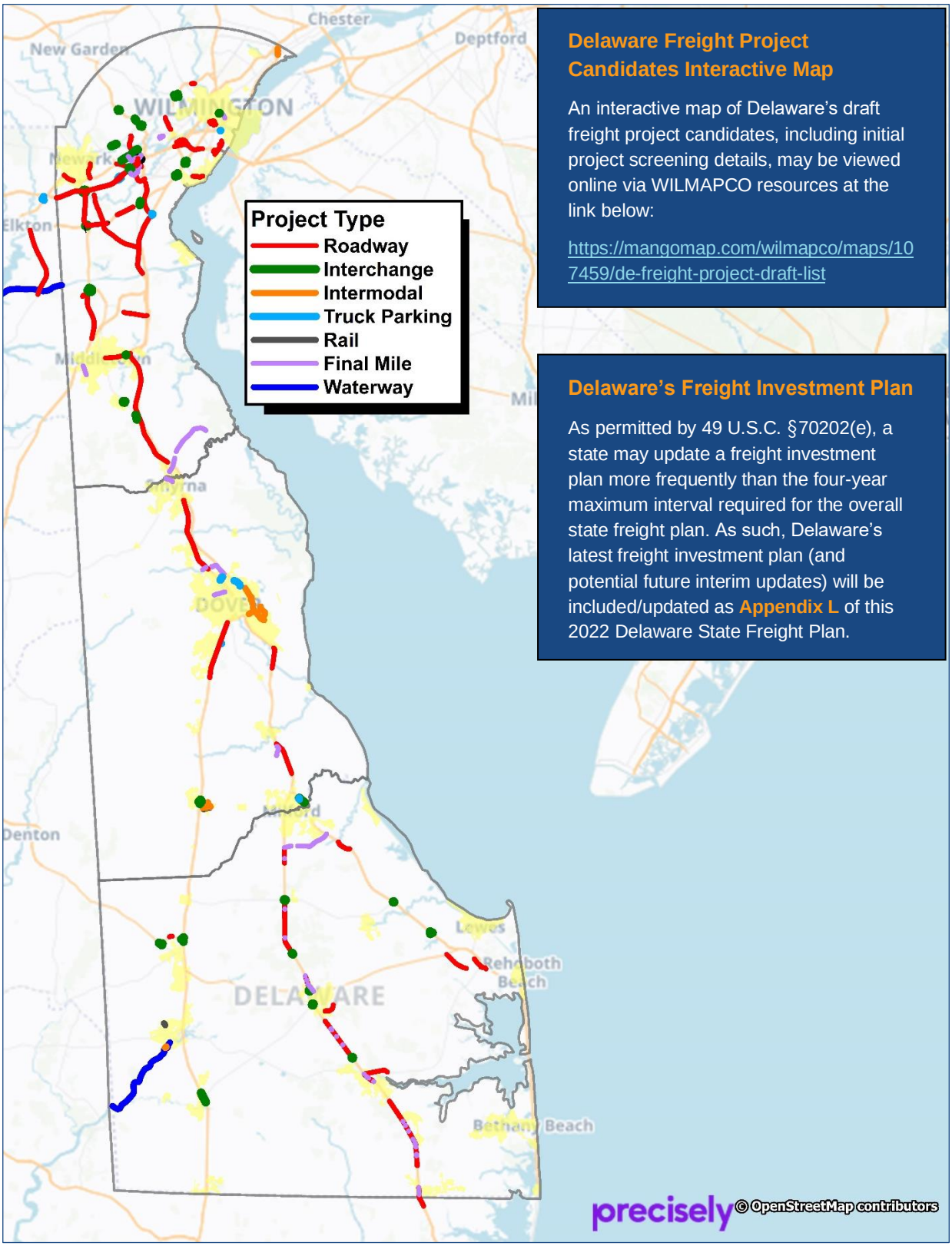
The Delaware Freight Plan incorporates a system for screening projects in DelDOT's CTP and similar sources to help determine if they qualify as freight relevant projects and/or potential use of freight related project funding. An initial set of approximately 120 projects were screened from Delaware's CTP and related planning/programming resources (refer to the map and online resource link on the following page). It is anticipated that the project candidates and screening details will continue to evolve as a working tool to be referenced as part of broader planning/programming efforts beyond the freight plan.

Freight Investment Plan

Delaware's freight investment plan for NHFP funding (see **Appendix L** within the overall freight plan) is ultimately based on consideration of the freight project candidates, screening results, and funding programs/opportunities highlighted throughout the plan, in combination with broader planning/programming efforts throughout the state and related agency/stakeholder coordination.

As required by 49 U.S.C. §70202(c), the freight investment plan is fiscally constrained and includes a project (or an identified project phase) only if funding for completion of the project (or phase) can reasonably be anticipated to be available within the time period of the freight investment plan.

Delaware Freight Project Candidate Mapping



Delaware Freight Project Candidates Interactive Map

An interactive map of Delaware's draft freight project candidates, including initial project screening details, may be viewed online via WILMAPCO resources at the link below:

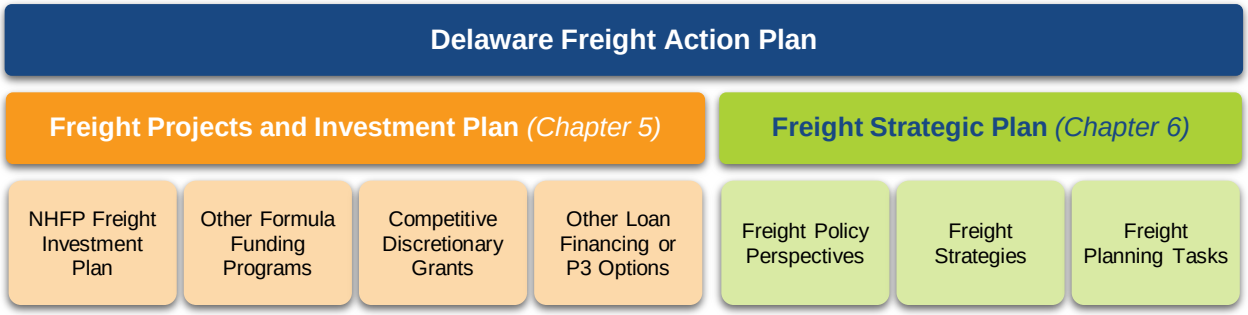
https://mangomap.com/wilmapco/maps/107459/de-freight-project-draft-list

Delaware's Freight Investment Plan

As permitted by 49 U.S.C. §70202(e), a state may update a freight investment plan more frequently than the four-year maximum interval required for the overall state freight plan. As such, Delaware's latest freight investment plan (and potential future interim updates) will be included/updated as **Appendix L** of this 2022 Delaware State Freight Plan.

FREIGHT STRATEGIC PLAN

Delaware's overall freight strategic plan moves beyond the project-specific focus of the freight investment plan to also encompass a broader set of freight policy perspectives and strategies, as well as detailed task lists that will guide the ongoing, procedural, and short-term/long-term freight planning actions to be prioritized by DelDOT and their MPO planning partners.



Freight policy perspectives include the high-level **vision**, **goals**, and **values** or guiding principles that support the advancement of freight related activities in Delaware in a consistent strategic direction. These perspectives include maintaining consistency with current and overlapping freight relevant guidance that may also be found across other plans and programs at the state level, notably including Delaware's Long Range Transportation Plan (Innovation in Motion).

VISION / GOALS

Coordinating with freight partners across the Delmarva Peninsula, Delaware can achieve a safer, more efficient multimodal freight system that will strengthen the regional economy and create new jobs.

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

VALUES / GUIDING PRINCIPLES

Freight **strategies** subsequently begin defining the general plan of action required to move Delaware toward its freight vision and goals. These actions, in turn, will be supported or implemented by way of the more specific **freight planning and implementation tasks** that are critical to the state's ongoing freight planning initiatives. These tasks reflect the priority "to-do lists" for DelDOT and their MPO planning partners to focus on as they continue to implement and advance freight-relevant actions.

Delaware Freight Planning Strategies Summary

Safety and Security	Economic Vitality	Freight Connectivity, Accessibility, and Mobility
Crash Prevention	Regional and Multi-Jurisdictional Collaboration	Freight Network Refinements
Truck Parking Enhancements	Delaware Market Expansion Support	Multimodal Improvement Priorities
OS/OW Vehicle Enforcement	Regional Supply Chain Studies	Multimodal Expansion and Connectivity
Incident Management Planning	Multimodal Freight Transportation Options	Congestion Management
Hazardous Materials Planning	Air Cargo Opportunities	Highway-Rail Crossing Upgrades
Homeland Security Planning	Freight Land Use Preservation	Marine Highway Opportunities
	Freight and Community Impact Planning	

System Management, Operations, and Maintenance	Resilience, Sustainability, and Environmental Stewardship
Truck Data Monitoring	Public Outreach and Education
Freight Infrastructure Maintenance	Community Planning Considerations
Freight Network Improvements	First/Final Mile Route Resilience
Periodic Signal Optimization	Flooding and SLR Vulnerability Assessments
Truck Traffic Management during Construction	Air Quality Improvement Opportunities
Dredged Material Management	Climate Action Plan Support
Freight Relevant Technology Systems	
Connected and Automated Vehicle Monitoring	

Delaware Freight Planning and Implementation Task Summary

Ongoing Tasks *(annual or intermittent updates or monitoring)*	**Procedural Tasks** *(require formal agency/stakeholder coordination)*
☐ Annual Programs - Truck Traffic Trend Analysis	☐ DelDOT CTP Enhanced Prioritization Criteria Updates
☐ Annual Programs - Rail Preservation and Safety	☐ Network Refinements - CUFC/CRFC Expansion
☐ Project Planning/Programming Coordination	☐ Network Refinements - National Network Updates
☐ Funding and Discretionary Grant Pursuits	☐ Network Refinements - NHS and STRAHNET Updates
☐ Inter-Agency Coordination and Communications	☐ Network Refinements - NMFN and CRFF Updates
Short-Term Tasks *(within the next 4 years)*	**Long-Term Tasks** *(deferred beyond the next 4 years)*
☐ Delaware Freight Restrictions Database	☐ Traffic Incident Management (TIM) Best Practices
☐ Truck Parking Information Systems	☐ Freight/Supply Chain Study – Coal and Petroleum Products
☐ Truck Parking Data Updates	☐ Feasibility Studies – DE Senate Resolution 10
☐ Freight/Supply Chain Study – FIS Industry Clusters	☐ Reginal Truck Crash Dataset
☐ Freight/Supply Chain Study – Pharmaceuticals	☐ Freight Influence on Pavement Management
☐ Freight/Supply Chain Study – E-Commerce	☐ Freight CAV Pilot Programs
☐ Freight/Supply Chain Study – Renewable Energy	☐ Statewide Freight Regulations Review
☐ Land Use Agency Coordination	
☐ Local Freight Planning Support	
☐ Truck Parking Facilities	
☐ First/Final Mile Freight Network Update	
☐ System Resilience Planning	

It is anticipated that the Delaware State Freight Plan will serve as a “living” resource to be referenced and updated periodically as conditions change – most notably including any details related to the freight projects and investment plan, or the freight planning and implementation tasks in the freight strategic plan. Collectively, DelDOT, their MPO planning partners, and related agencies/stakeholders may pull and modify guidance from this resource in a way that meshes with future updates to other ongoing transportation planning activities throughout the state as these efforts evolve.

Based on federal requirements for state freight plans as revised under the 2021 IIJA and as detailed per 49 U.S.C. §70202(e), state freight plans must be updated “not less frequently than once every four years.” Assuming FHWA approval of this current version of the Delaware State Freight Plan by Fall 2022, the next required update will be needed by no later than Fall 2026.