2022 Delaware State Freight Plan

DRAFT PLAN

August 6, 2022

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FHWA Approval Letter

Scanned image of FHWA signed approval letter

(pending future review and approval – estimated by November 2022)

This 2022 Delaware State Freight Plan has been prepared by/for the Delaware Department of Transportation (DelDOT) in collaboration with the Wilmington Area Planning Council (WILMAPCO) and Dover/Kent County Metropolitan Planning Organization (Dover Kent MPO), as well as the University of Delaware's Institute for Public Administration (IPA).

It has been prepared in accordance with federal requirements for state freight plans as expanded under the 2021 Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL), per details in 49 U.S.C. §70202.

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Acronyms / Abbreviations (A-D)

33N	Delaware Airpark (FAA Identifier)
AET	All Electronic Tolling
AAR	American Association of Railroads
BCR	Bay Coast Railroad
BIL	Bipartisan Infrastructure Law (2021) (also referred to as IIJA)
BLS	U.S. Bureau of Labor Statistics
BMC	Baltimore Metropolitan Council
BTS	Bureau of Transportation Statistics
C&D Canal	Chesapeake & Delaware Canal
CAT	Civil Air Terminal
CAV	Connected and Automated Vehicle(s)
CDAC	Central Delaware Aviation Complex
CEI	Carload Express Inc.
CLF	Common Look and Feel
CMV	Commercial Motor Vehicle
CRFC	Critical Rural Freight Corridor
CRFF	Critical Rural Freight Facility
CSX	CSX Corporation
CTP	DelDOT Capital Transportation Program
CUFC	Critical Urban Freight Corridor
CVEU	Commercial Vehicle Enforcement Unit
CVISN	Commercial Vehicle Information Systems and Networks Program (see ITD)
DAFB	Dover Air Force Base
DC	Distribution Center
DCR	Delmarva Central Railroad
DelDOT	Delaware Department of Transportation
DelTRAC	DelDOT Integrated Transportation Management System
DE2P	Port of Wilmington/Terminal Avenue Intermodal Connector
DMTA	Delaware Motor Transport Committee
DNREC	Delaware Department of Natural Resources and Environmental Control
DOD	U.S. Department of Defense
DOV or KDOV	Dover Air Force Base (FAA Identifier)
Dover Kent MPO	Dover/Kent County Metropolitan Planning Organization
DPC	Delaware Population Consortium
DPP	Delaware Prosperity Partnership
DRBA	Delaware River & Bay Authority
DSP	Delaware State Police
DSPC	Diamond State Port Corporation
DTA	Delaware Transportation Authority
DVRPC	Delaware Valley Regional Planning Commission
DWTC	Delmarva Water Transport Committee
DZ	Dilemma Zone

Acronyms / Abbreviations (E-M)

EIA	U.S. Energy Information Administration
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
ESPN	East Penn Railroad
EV	Electric Vehicle **FAA** Federal Aviation Administration
FAF5	Freight Analysis Framework Version 5
FAST Act	Fixing America's Surface Transportation Act (2017)
FFM	First/Final Mile (Freight Network)
FG	Freight Generation
FHWA	Federal Highway Administration
FIS	Freight Intensive Sector
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FTG	Freight Trip Generation
FTZ	Foreign Trade Zone
FY	Fiscal Year
GED	Delaware Coastal Airport (FAA Identifier)
GPS	Global Positioning System
HOS	Hours of Service
HRGX	Highway-Rail Grade Crossing Safety Program
IIJA	Infrastructure Investment and Jobs Act (2021) (also referred to as BIL)
ILG	Wilmington Airport (FAA Identifier)
IPA	University of Delaware's Institute for Public Administration
I.T.	Industrial Track
ITD	Innovative Technology Deployment Program (formerly CVISN)
ITMS	Integrated Transportation Management System
ITS	Intelligent Transportation Systems
JUA	Joint Use Agreement
KDOV	DAFB Civil Air Terminal (FAA Identifier)
KEVY	Summit Airport (FAA Identifier)
kTONS	Kilotons (1000 tons)
LOTTR	Level of Travel Time Reliability
LRTP	Long Range Transportation Plan
MAP-21	Moving Ahead for Progress in the 21st Century Act (2012)
MARAD	USDOT Maritime Administration
MCSAP	Motor Carrier Safety Assistance Program
MDDE	The Maryland and Delaware Railroad
MDOT	Maryland Department of Transportation
MHC	Mobile Harbor Crane
MLLW	Mean Lower Low Water
MPO	Metropolitan Planning Organization
MT CO_2e	Metric Tons of Carbon Dioxide Equivalent
MTP	Metropolitan Transportation Plan

Acronyms / Abbreviations (N-S)

NAICS	North American Industry Classification System
NBI	National Bridge Inventory
NCFRP	National Cooperative Freight Research Program
NEC	Northeast Corridor
NFSP	National Freight Strategic Plan
NHFN	National Highway Freight Network
NHFP	National Highway Freight Program
NHPP	National Highway Performance Program
NHS	National Highway System
NMFN	National Multimodal Freight Network
NOFO	Notice of Funding Opportunity
Non-FIS	Non-Freight Intensive Sectors
NPMS	National Pipeline Mapping System
NS	Norfolk Southern Corporation
OA	Operating Administration
OEA	Office of Economic Adjustment
OLDCC	Office of Local Defense Community Cooperation
OLRC	Office of the Law Revision Counsel
OOPS	DelDOT Oversize/Overweight Permit System
ORT	Open Road Tolling
OS/OW	Oversize/Overweight
OST	Office of the Secretary of Transportation
PDD	Personal Delivery Device
PennDOT	Pennsylvania Department of Transportation
PHFS	Primary Highway Freight System
PMA	Protect-Manage-Accommodate (Framework)
PRISM	Performance Registration and Information Systems Program
PV	Photovoltaic
RoRo	Roll-On/Roll-Off
RTP	Regional Transportation Plan
S/WMPO	Salisbury/Wicomico Metropolitan Planning Organization
SCTG	Standard Classification of Transported Goods (Commodity Code)
SF	Square Feet
SGR	State of Good Repair
SLR	Sea Level Rise
SR	State Route
STG	Service Trip Generation
STR	Share the Road
STRACNET	Strategic Rail Corridor Network (for Department of Defense Domestic Operations)
STRAHNET	Strategic Highway Network (for Department of Defense Domestic Operations)
STS	Ship-to-Shore
S/WMPO	Salisbury/Wicomico Metropolitan Planning Organization
SWOT	Strengths, Weaknesses, Opportunities, and Threats (Analysis)

Acronyms / Abbreviations (T-Z)

TADS	Tire Abnormality Detection System
TAZ	Traffic Analysis Zone
TBD	To Be Determined
TCI	Transportation and Climate Initiative
TETC	The Eastern Transportation Coalition
TEU	Truck Enforcement Unit (agency context)
TEU	Twenty-Foot Equivalent Unit (container measurement context)
TIP	Transportation Improvement Program
TMC	Transportation Management Center
TMT	Transportation Management Team
TOMP	Transportation Operations Management Plan
TPM	Transportation Performance Management
TRB	Transportation Research Board
TRS	Traffic Responsive Signalization
TTR	Travel Time Reliability
TTTR	Truck Travel Time Reliability (Index)
TWIS	Truck Weigh & Inspection Station
UAS	Unmanned Aircraft System
UAV	Unmanned Aerial Vehicle
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USDOT	United States Department of Transportation
VTTI	Virginia Tech Transportation Institute
VWS	Virtual Weigh Station
WCUS	Waterborne Commerce of the United States
WILMAPCO	Wilmington Area Planning Council
WIM	Weigh in Motion
WWRC	The Wilmington & Western Railway
WZIC	Work Zone Information Communication
ZEV	Zero Emission Vehicle
$M	Million Dollars

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2022 Delaware State Freight Plan

EXECUTIVE SUMMARY

August 6, 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.

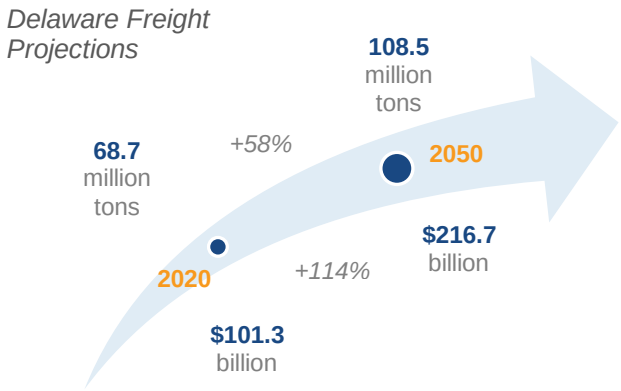
DelDOT Freight Website:
https://deldot.gov/Business/freight/index.shtml

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. Many of these resources are available through DelDOT's freight website and include efforts such as the Delaware Truck Bottleneck Identification (2022), 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), 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.

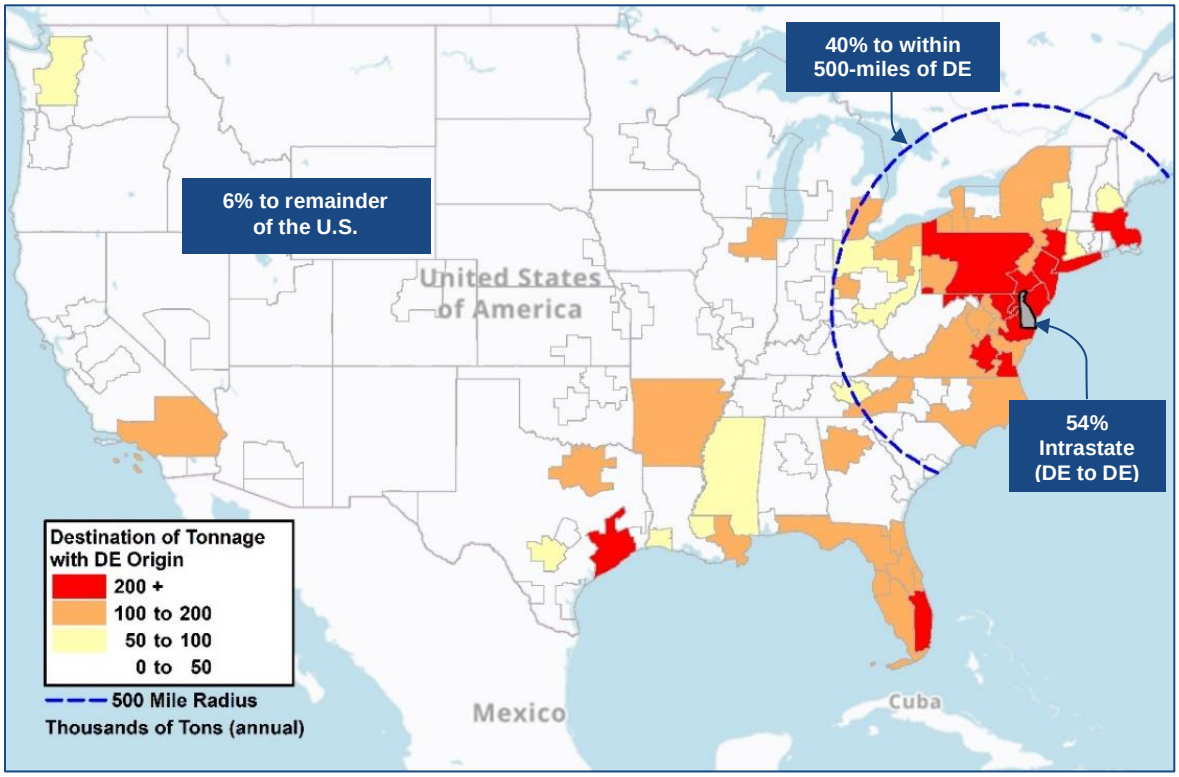
High-Tonnage Commodities

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

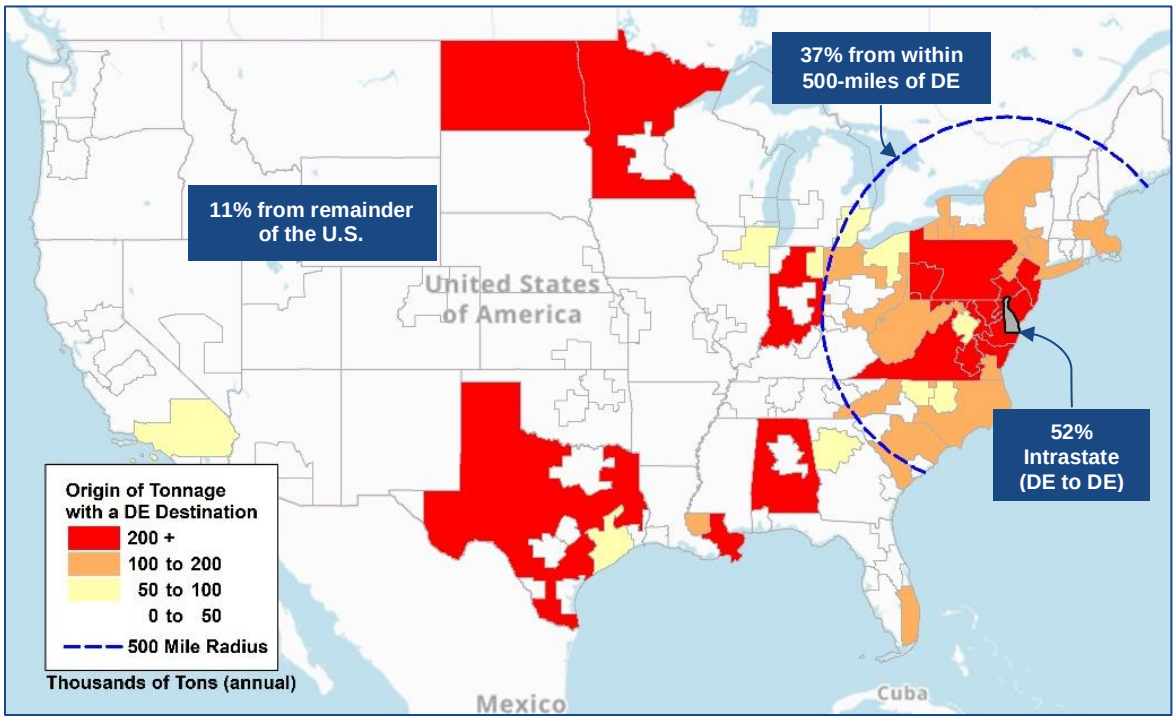
High-Value Commodities

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.

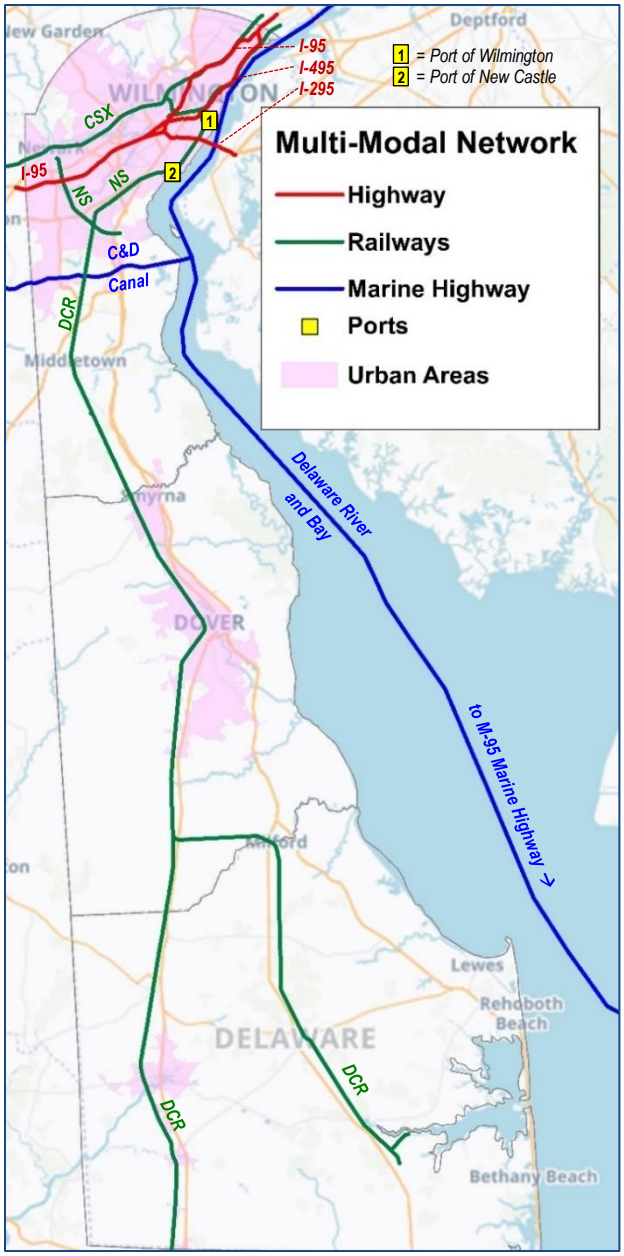
Railroads: include 236 miles of freight rail lines in Delaware with two Class I operators via Norfolk Southern (NS) and CSX, plus short line freight rail via Delmarva Central Railroad (DCR), the Maryland and Delaware Railroad Company (MDDE), and the East Penn Railroad (ESPN). The state and regional energy, 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.

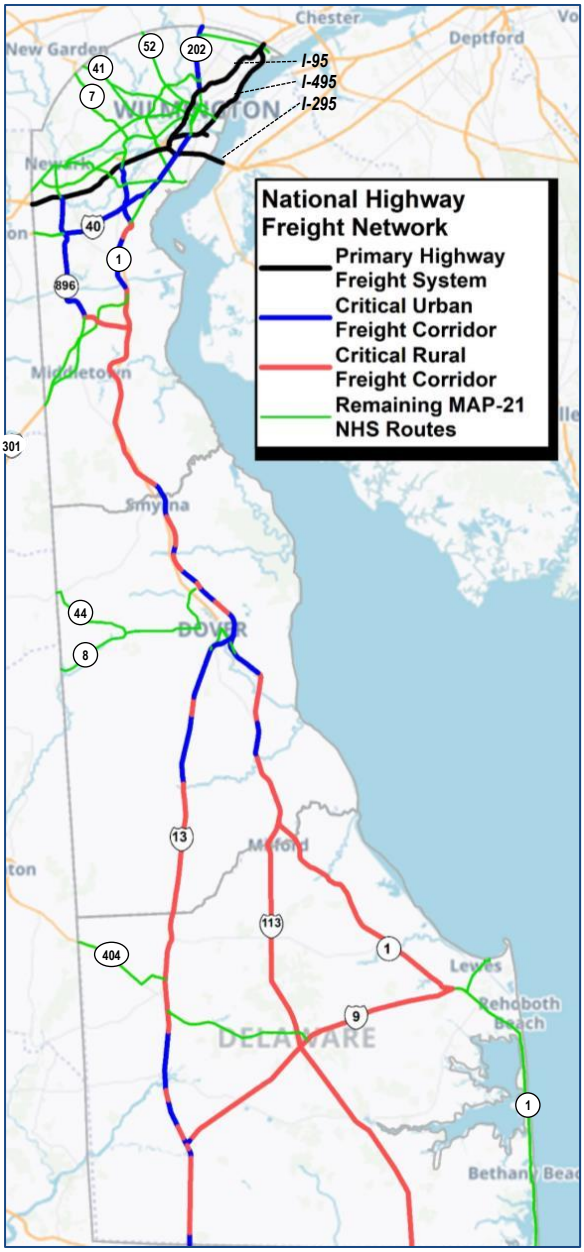
Airport Operations: primarily involve business class activities and corporate aircraft operations in Delaware. Scheduled air carrier service operates through Wilmington Airport (New Castle), while business class general aviation services are available through Summit Airport (Middletown), Delaware Airpark (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 suppor 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.

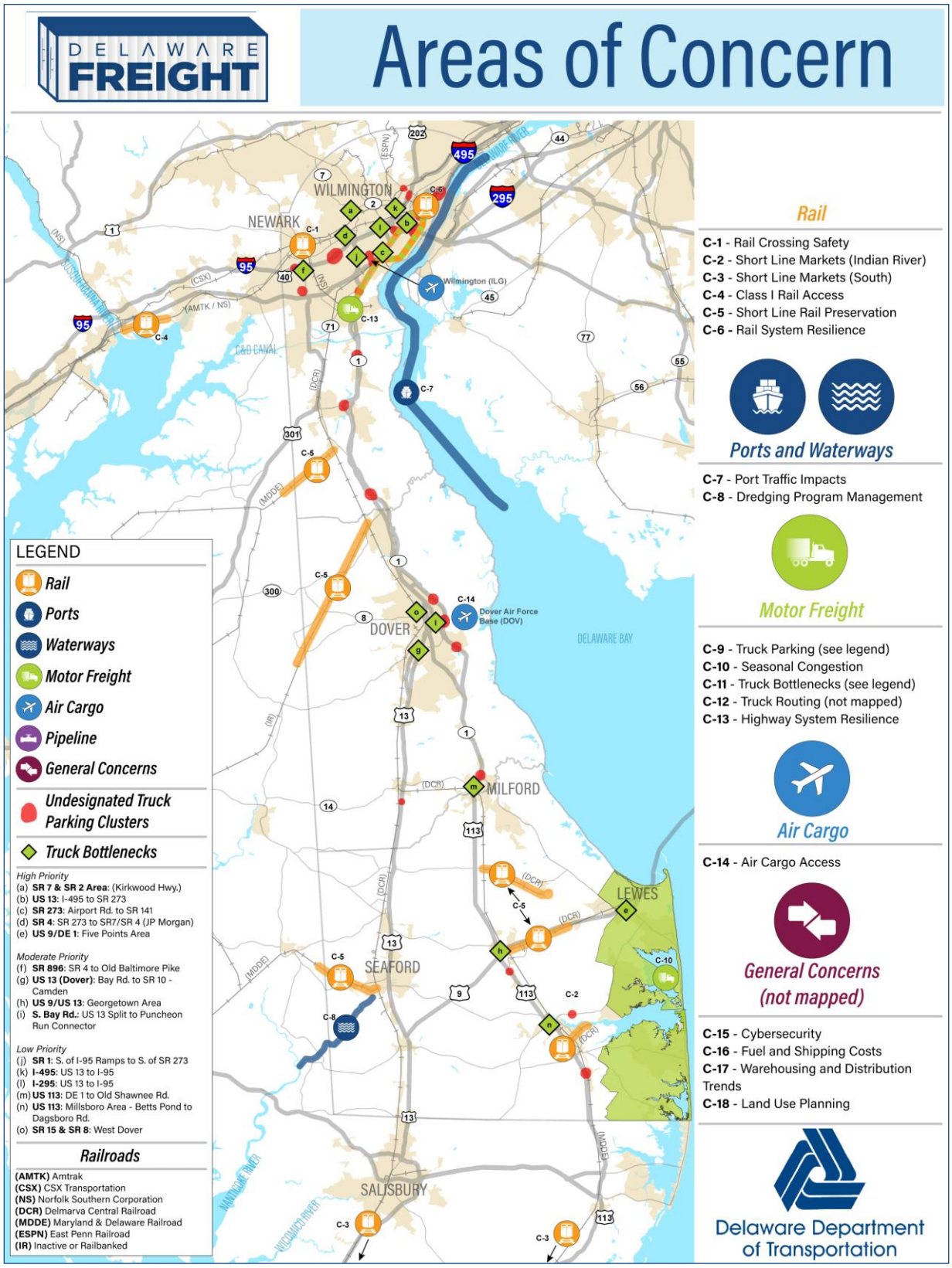
Military Freight

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.

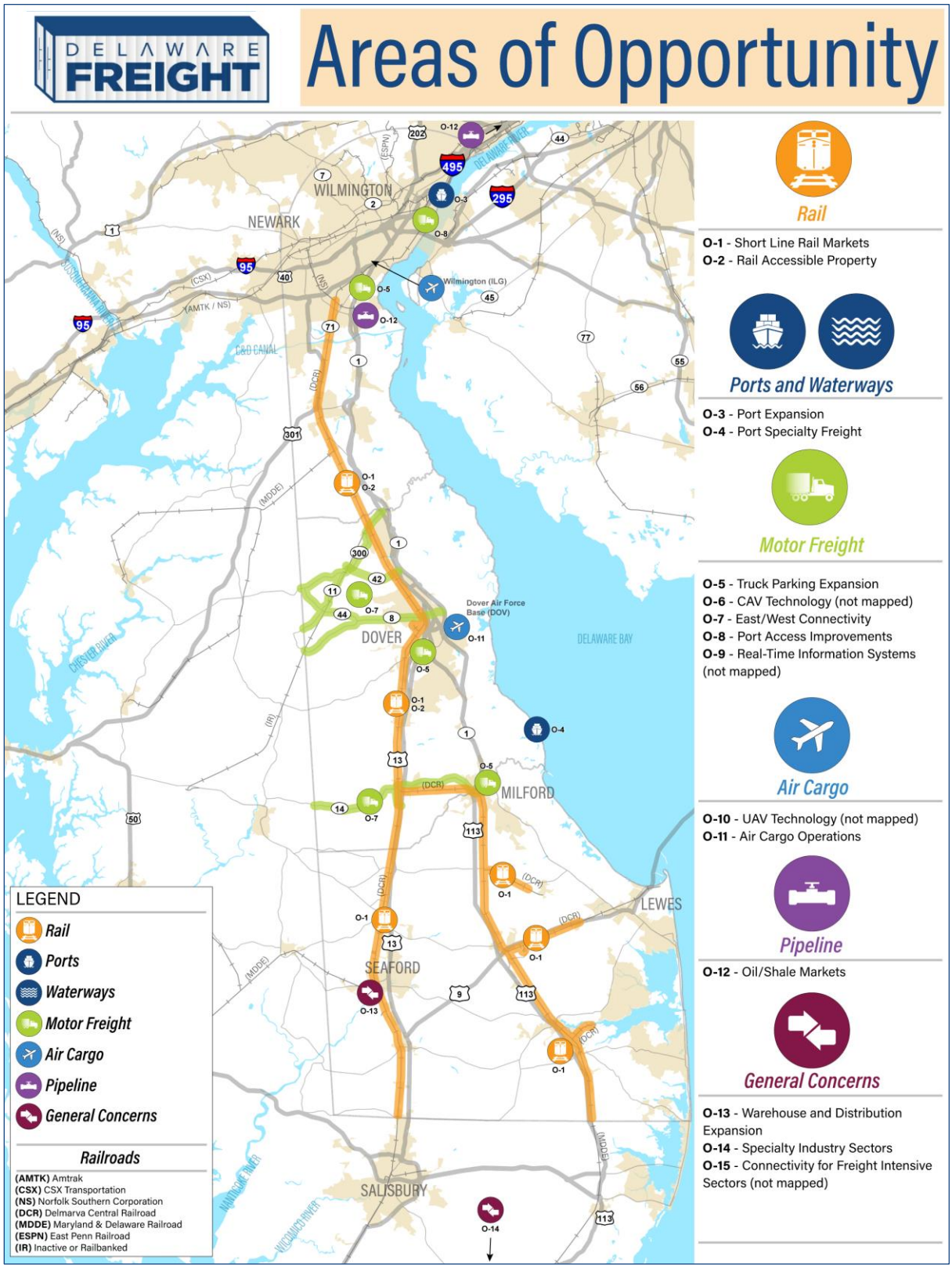
Freight Resilience and Environmental Impacts

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

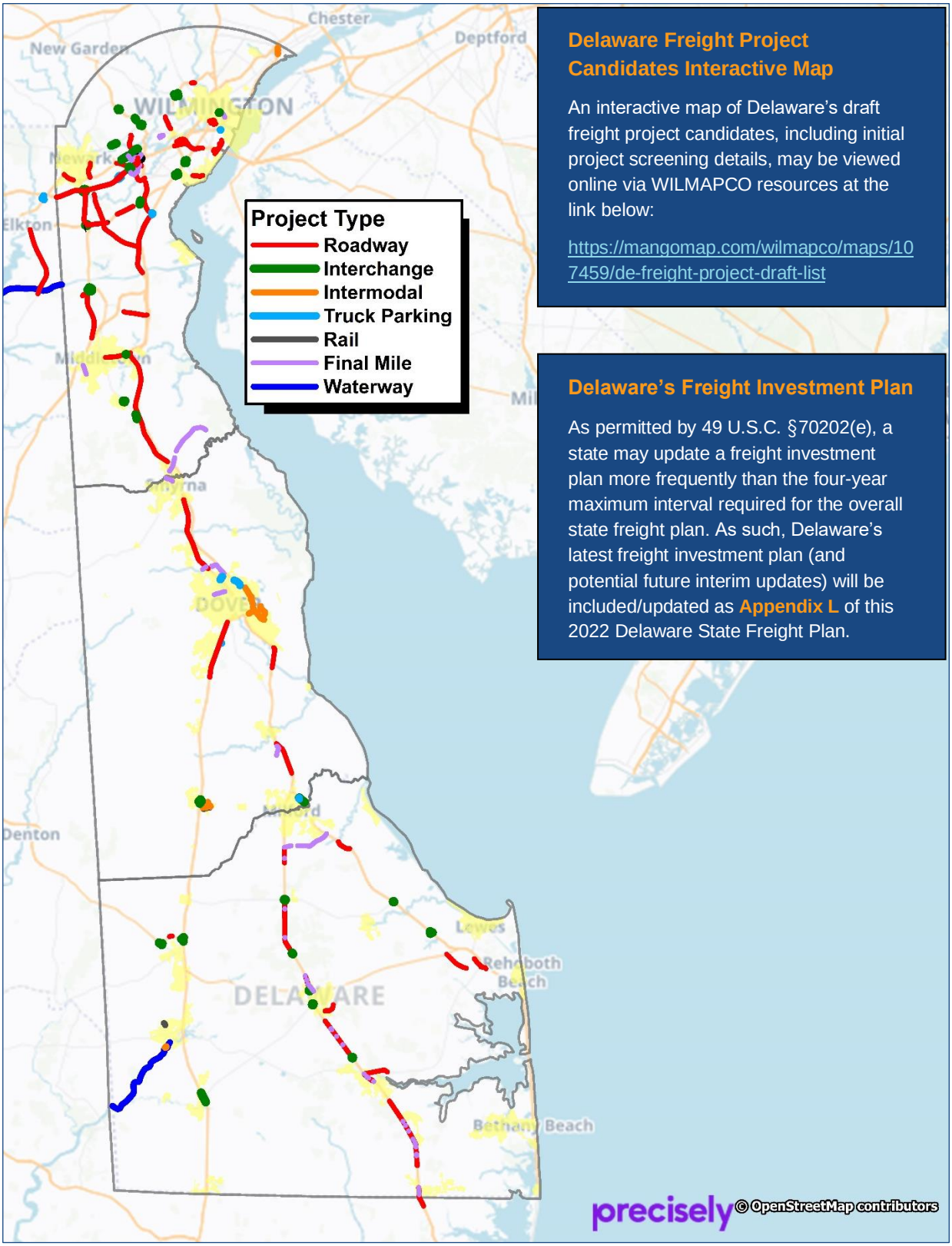
The Delaware Freight Plan incorporates a system for screening projects in DelDOT's CTP and similar sources to help determine if they qualify as freight relevant projects and/or potential use of freight related project funding. An initial set of approximately 120 projects were screened from Delaware's 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:

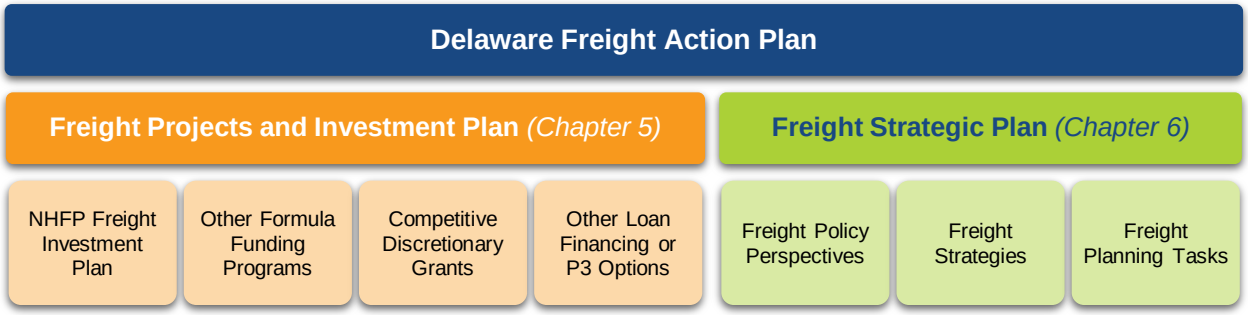
https://mangomap.com/wilmapco/maps/107459/de-freight-project-draft-list

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 pespectives 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
☐ 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.

2022 Delaware State Freight Plan

DRAFT PLAN

August 6, 2022

1 Introduction

1.1 FREIGHT PLAN OVERVIEW

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.

This 2022 update to the Delaware Freight Plan has been completed by the Delaware Department of Transportation (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 (**Exhibit 1-1** and **Appendix A**).[1] This update builds upon prior iterations of the state freight plan that were completed in 2015 and 2017.[2]

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

The Delaware Freight Plan supports a regional perspective of freight flows and needs affecting the state; involves direct coordination with the state's metropolitan planning organizations (MPOs); and incorporates insights from other public/private agency and stakeholder partners through a series of freight working group meetings and freight forums. This approach supports consistency with other area planning efforts while targeting freight-specific issues relevant to the local and regional economies. The overall plan content (by chapter) focuses on accomplishing the following:

- **Chapter 1:** Support freight-specific planning goals (**Exhibit 1-2**) that align within federal freight policies and broader statewide long range transportation planning (LRTP) goals while leveraging agency/stakeholder collaboration and existing freight-related resources.
- **Chapters 2-3:** Summarize background details related to Delaware-specific freight flows, economic influences, and multimodal freight transportation networks.
- **Chapter 4:** Assess freight-related performance, trends, needs, and opportunities, including new emphasis areas per IIJA federal freight planning guidelines.
- **Chapters 5-6:** Identify freight-relevant projects and funding opportunities, as well as broader freight strategies and priority tasks to continue collaborative freight planning efforts among freight stakeholders and regional, state, and local partners.

Exhibit 1-1: Delaware Freight Plan Alignment compared to Federal Freight Planning Requirements

FEDERAL REQUIREMENTS FOR STATE FREIGHT PLANS		2022 DELAWARE FREIGHT PLAN (by Chapter)					
Relative to previous guidance under the 2015 Fixing America's Surface Transportation Act (FAST Act), the 2021 IIJA expands to include **17 federally required elements** for a state freight plan (versus 10 requirements under FAST Act). IIJA also requires a **4-year update cycle** for state freight plans (versus 5 years under FAST Act) and an **8-year forecast period** (versus 5 years under FAST Act) to better align with other typical transportation planning or programming periods.		Introduction	Freight and the Economy	Freight Network	Freight Performance, Trends, and Needs	Freight Projects and Investment Planning	Freight Strategic Plan
		1	2	3	4	5	6
1	Freight System Trends, Needs, and Issues		●		●		
2	Freight Policies, Strategies, and Performance Measures	○			●		●
3	Multimodal Freight Facilities and Network		○	●	○		
4	Alignment with National Freight Policy and Goals	●				●	●
5	Innovative Technologies and Operational Strategies				●		
6	Asset Preservation and Improvements				●		
7	Freight Bottlenecks, Mobility Issues, and Mitigation				●		
8	Freight Induced Congestion and Mitigation				●		
9	Freight Investment Plan					●	○
10	Truck Parking Facilities Assessment (IIJA)				●		○
11	Supply Chain Cargo Flows (IIJA)		●		●		
12	Commercial Ports Inventory (IIJA)		○	●	●		
13	Multi-state Freight Compact Consideration (IIJA)				●		○
14	E-Commerce Impacts (IIJA)		○		●		○
15	Military Freight Considerations (IIJA)			○	●		
16	Freight Resilience and Environmental Impacts (IIJA)				●		○
17	State Freight Advisory Committee	Roles fulfilled via monthly **Delmarva Freight Working Group** meetings, active involvement of Delaware's MPOs throughout plan development, and broader review/discussion opportunities at statewide freight forums in June 2021, December 2021, and June 2022.					

Legend:

● = primary coverage; ○ = secondary coverage

(IIJA) = new requirements introduced by IIJA that build onto the 10 previous requirements under FAST Act.

See **Appendix A** for additional federal freight planning requirements/references with links to applicable U.S. Code.

Exhibit 1-2: Delaware Freight Plan Goals compared to Relevant Federal and State Policy Goals

NATIONAL FREIGHT STRATEGIC PLAN (NFSP) → Federal Freight Policy Goals [3]

Safety	Infrastructure	Innovation

DELAWARE LRTP → Statewide Overarching Transportation Planning Goals [4]

Safety and Security	Economic Vitality	Connectivity	Quality of Life	System Preservation
System Management and Operations	Resiliency and Reliability	Environmental Stewardship	Travel and Tourism	Customer Service and Communication

DELAWARE FREIGHT PLAN → Statewide Freight Specific Planning Goals

Safety and Security

Ensure the safe and secure movement of people and goods while limiting the potential for incidents that may cause harm or disrupt the network operations.

Sample Objectives: crash prevention, oversize/overweight (OS/OW) monitoring, truck parking capacity/availability, incident response planning, hazardous material tracking, cargo screening

Economic Vitality

Promote and strengthen the economic vitality of Delaware with an excellent multimodal freight transportation network that meets the needs of a diverse and growing economy.

Sample Objectives: industry-specific supply chain needs, import/export opportunities, freight land use compatibility, preservation of multimodal options

Freight Connectivity, Accessibility, and Mobility

Improve freight network connections, accessibility, and mobility to increase options for the movement of freight and enhance the integration of the state's multimodal transportation systems.

Sample Objectives: roadway freight networks, first/final mile networks, congestion mitigation, peak tourist season access, highway-rail crossing needs, multimodal opportunities (rail, air, port, barge)

System Management, Operations, and Maintenance

Preserve and enhance the state's multimodal freight transportation systems to support freight travel and commerce while adapting to the future's changing needs and integrating innovative strategies and technology that increase efficiency and safety during both normal and emergency situations.

Sample Objectives: state-of-good repair programs, dredging programs, freight enforcement technologies, all-electronic tolling, traffic responsive signal systems, truck parking technologies

Resilience, Sustainability, and Environmental Stewardship

Provide resilient and reliable freight transportation systems while protecting and enhancing the environment through sustainable best practices, integration of environmental considerations into planning and design, and responsible energy consumption.

Sample Objectives: truck idling regulations, truck stop electrification, spills control, sea-level rise adaptation planning, community/livability enhancements, first/final mile route resilience

1.2 FREIGHT STAKEHOLDERS AND PARTNERSHIPS

Several existing freight programs and planning/coordination efforts involving federal, state, county, and local agencies and the private sector operate within Delaware, notably including monthly meetings of the Delmarva Freight Working Group and bi-annual Delaware Freight Summits. Collectively, the participants, topics, and activities that are involved through the working group meetings and summits fulfill the general roles and responsibilities of a Statewide Freight Advisory Committee as outlined within the federal requirements for state freight plans per IIJA and 49 USC §70201 (**Appendix A**).[5]

The **Delmarva Freight Working Group** collaborates monthly to discuss agency updates and overarching freight planning activities, priorities, project initiatives, and specific freight needs or issues affecting the state. Group discussions also focus on activities directly related to updating the statewide freight plan, and to prepare for and facilitate the Delaware Freight Summits.

The **Delaware Freight Summits** are a larger public forum typically held bi-annually in the summer and winter. While attendees and topics vary, participation generally reflects a broad spectrum of public and private sector freight interests, as well as overall networking and collaboration opportunities that extend well beyond the summit itself. Topics and presentations since the prior update of the Delaware Freight Plan have encompassed a wide range of interests spanning rail, truck, and port activities; logistics and workforce perspectives; freight network prioritization; congestion and performance reporting; local, regional, and global market and supply chain trends; industry-specific freight perspectives; and other freight-relevant topics affecting Delaware.[6] The 2022 freight plan update specifically was coordinated via three separate summits held in June 2021, December 2021, and June 2022 (**Appendix B**).

Delmarva Freight Working Group Participants

- University of Delaware IPA
- DelDOT
- Delaware MPOs (WILMAPCO, Dover Kent MPO, and S/WMPO)
- Delaware Counties (New Castle, Kent, and Sussex)
- Maryland Department of Transportation (MDOT)
- Federal Motor Carrier Safety Administration (FMCSA)
- Federal Highway Administration (FHWA)
- Guest Speakers and Consulting Partners

Beyond the freight-specific meetings and summits noted above, overall planning, collaboration, management, operation, and maintenance of Delaware's transportation networks generally rely on a broad group of public/private sector resources. Typical state agencies or organizations having roles and responsibilities that influences various aspects of the state's multimodal freight transportation systems include (but are not limited to) those listed on the following page (**Exhibit 1-3**). Beyond these entities, private freight transportation owners/operators, logistics companies, business/industry partners, and other key stakeholders throughout Delaware and the surrounding regions also obviously play a critical role in multimodal freight activity in the state. In addition to their own internal operations, such stakeholders are typically well-represented via topics and participation at the Delaware Freight Summits.

Exhibit 1-3: State Agencies and Organizations with Freight Relevant Roles

Agency/Stakeholder	Freight Relevant Roles
DelDOT Divisions/Offices	
DelDOT Office of the Secretary	Leadership and long-range transportation plan support
DelDOT Division of Planning	Transportation planning and permitting process oversight; inter/intra-agency support via land use data, data collection, analysis, and advice
DelDOT Division of Maintenance & Operations	Road network maintenance and state-of-good-repair (SGR) programs
DelDOT Division of Transportation Solutions	Transportation system design, construction, and maintenance support
DelDOT Division of Finance	Transportation budgeting, funding, programming, and grant support
DelDOT Division of Motor Vehicles	Commercial drivers' licensing, truck registrations, toll network operation
DelDOT Office of Aeronautics	Public use airport system planning, coordination, and improvements
Delaware Transit Corporation (DTC)	Ownership/oversight of public transit systems/services including various passenger rail, freight rail, or airport facilities within the state
Delaware Transportation Authority (DTA)	Operation of toll facilities along the Delaware Turnpike (tolled portions of I-95) and SR 1; administration of Delaware's Transportation Trust Fund
Other State/Corporate Agencies	
Delaware River & Bay Authority (DRBA)	Multi-state agency operating Delaware Memorial Bridge, Wilmington Airport (ILG), Delaware Airpark (33N), and DAFB Civil Air Terminal (DOV)
Diamond State Port Corporation (DSPC)	Ownership of the Port of Wilmington; note that as of 2018, Port operations are handled via concession agreement by GT USA Wilmington, LLC, a subsidiary of Gulftainer
Delaware State Police (DSP)	Commercial Vehicle Enforcement Unit (CVEU), Truck Enforcement Unit (TEU), Motor Carrier Safety Assistance Program (MCSAP)
Other Public/Private Groups	
Delmarva Water Transport Committee (DWTC)	Dredging, safe navigation, and maintenance of rivers, bays, and harbors on the Delmarva Peninsula for waterborne commerce
Delaware Motor Transport Association (DMTA)	Advocacy, educational programs, alerts, and other support for Delaware's trucking industry
The Eastern Transportation Coalition (TETC)	Coalition of states focused on connecting public agencies to increase regional transportation safety and efficiency, including freight initiatives
Transportation & Climate Initiative (TCI)	Coalition of states focused on developing a clean energy economy and reducing carbon emissions from the transportation sector

1.3 FREIGHT PLANNING RESOURCES

Ongoing freight planning activities in Delaware have continued to expand since completion of the prior (2017) state freight plan. These activities provide additional data, insights, and action planning details affecting various elements of Delaware's multimodal freight transportation systems that are, and will continue to be, valuable resources in the pursuit of the state's freight goals. Such resources have provided a broader understanding of key freight flows and supply chains; evaluated specific truck, rail, water, and air cargo issues; explored freight system performance, needs, and opportunities; coordinated needs across broader planning efforts; and highlighted policy or planning needs to support safe, efficient, and environmentally sound freight movements. Though not all inclusive, many of these resources are linked through DelDOT or MPO content located online, including notable studies as listed below.[7]

Delaware Truck Bottlenecks Identification (2018 and 2020) [8]

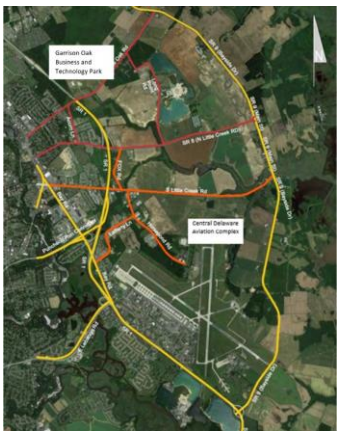
This overall assessment of truck bottlenecks throughout Delaware was completed in coordination with federal Transportation Performance Management (TPM) reporting requirements that began under MAP-21. Recent updates identified 15 highway segments in the state that significantly affect freight mobility and reliability. Bottlenecks were ranked high/medium/low using a data-driven process and included a review and description of relevant project/study initiatives along the congested corridors.

Dover/Kent County MPO Rail/Freight Zoning Study (2018 and 2022) [9]

This MPO-led study focused on a review of 13 municipal and Kent County's state-certified comprehensive plans to gauge their level of inclusion of rail freight information and related planning insights. Study products included interactive web mapping to explore land use and potential rail freight development opportunities. Recommendations aimed at supporting existing federal, state, and regional freight plan goals and objectives; linking local transportation initiatives articulated in comprehensive plans with available federal and state transportation funding; and identifying future economic initiatives requiring follow-up studies. While the initial study was completed in 2018, additional updates and refinements are underway as of 2022.

Innovation in Motion: The Delaware Long Range Transportation Plan (2019 plus annual updates) [10]

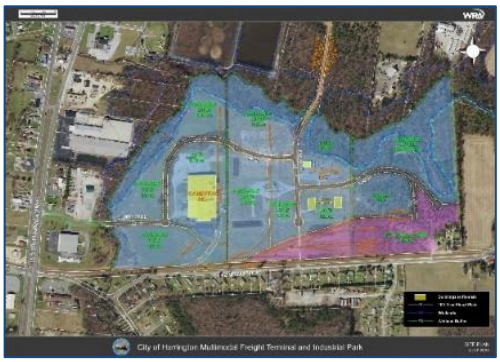
In 2019, DelDOT launched the Delaware Long Range Transportation Plan (LRTP) "Innovation in Motion" website. The LRTP has a 20-year outlook and aims to express Delaware's continually changing transportation environment by conveying land use patterns, demographics, travel patterns, preferences, and technology. All these variables together contribute to Delaware's transportation network.



Dover Air Cargo Freight Access Study (2021) [11]

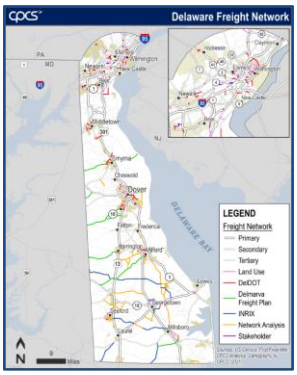
This study examined possible transportation improvements and roadway recommendations needed to support economic growth on the east side of SR 1 from Dover Air Force Base (DAFB) to the north of White Oak Road.

Harrington Multimodal Freight Terminal Feasibility Study (2021) [12]



This site-specific study explored development opportunities for a new multimodal freight terminal and rail-served industrial park in Harrington, Delaware, adjacent to the Delmarva Central Railroad (DCR) Indian River Branch. Study results included a preferred alternative site plan, cost implications, and identification of next steps to pursue opportunities for future funding, design, and construction.

Delaware First/Final Mile Freight Network Development (2021) [13]

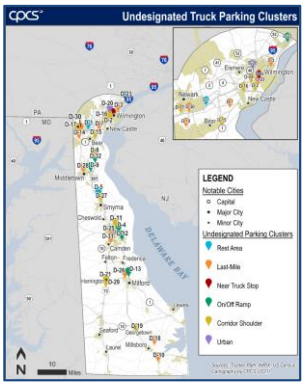


This targeted study inventories key first/final mile truck locations in Delaware that link mainline routes with truck-generating or freight handling facilities. Notable clusters of activity are typically found near manufacturing facilities, retail centers, distribution centers, warehouses, ports, intermodal terminals, and farms. Study results include data-driven screening and expansion of a state-specific first/final mile roadway network, coupled with an evaluation of potential needs and issues based on five major categories relating to institutional, land use, mobility, safety, and condition considerations. Planning recommendations included guidance and support for policies, partnerships, projects, and programs that would help to prioritize and improve the network.

Planning for Freight-Related Development – Summary and Checklist (2021) [14]

Relative to an expanding network of warehouses, distribution centers, and e-commerce activities, Delaware has explored key planning considerations for freight-related development. Products include a summary checklist to help determine what general types of freight and land use impacts may need to be considered in local planning or economic development work.

Delaware Statewide Truck Parking Study (2021) [15]

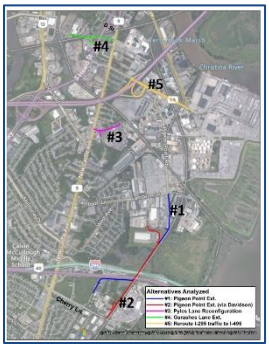


This statewide study inventories all truck parking within the state (authorized and unauthorized) and explores needs and methods to effectively improve the availability for drivers. Results identify potential information and technology improvements, as well as site-specific truck parking capacity improvements at existing and private sites, other state-owned facilities, and along roadway shoulders.

Salisbury Port Feasibility Study (2021) [16]

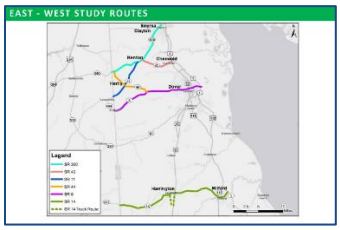
This study explored the feasibility of developing a multi-user river port facility along the Wicomico River in Salisbury, Maryland. Though located just south of Delaware, the potential opportunities for port terminals in this location could support supply chains for fuel, aggregate, and agricultural products across the southern Delmarva Peninsula, including activities in Sussex County, Delaware.

Port of Wilmington Area Alternative Study (2022) [17]



A collaborative effort between WILMAPCO and DelDOT, this project seeks to evaluate and recommend a series of improvements to truck circulation in and around the Port of Wilmington. The analysis will evaluate the recommendation of previous studies and port expansion plans including sources such as the Route 9 Corridor Master Plan, 2008 Southbridge Circulation Study, and 2028 Wilmington Comprehensive Plan.

Kent County East/West Truck Freight Routes Study (2022)



This Dover Kent MPO study analyzes existing east-west freight related truck traffic patterns and needs generally west of Dover with a focus on access between the Maryland/Delaware border and SR 1. Study efforts aim to identify deficiencies that impact freight movements to help develop recommendations for improved traffic flow in key east-west freight corridors in Kent County.

Delaware Truck Restrictions Database (2022)

This ongoing DelDOT initiative is working toward the compilation of an overall truck restrictions database to support truck, freight, and general system planning and operations, including OS/OW vehicle planning, routing, and permitting efforts throughout the state.

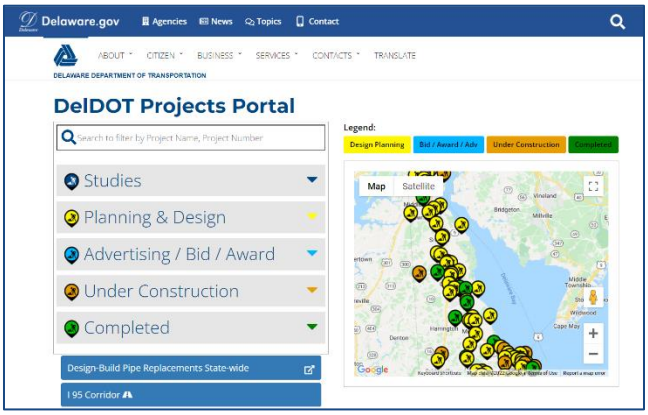
Dover Air Force Base Compatible Use Study (2023) [18]

DelDOT is sponsoring this community-driven, cooperative strategic planning study with DAFB, Kent County, Dover Kent MPO, City of Dover, and other state and local agencies. This cooperative planning initiative will address land use compatibility planning around DAFB that supports the installation's mission and operational and training environments, community growth and development in the surrounding area, and resident quality of life. The study area encompasses a five-mile radius surrounding DAFB and will potentially explore land use parcels that are suitable for mixed use purposes. The study is supported through a grant from the Office of Local Defense Community Cooperation (OLDCC), previously the Department of Defense Office of Economic Adjustment (OEA), and study completion is anticipated for March 2023.

Annual DelDOT Highway-Rail Grade Crossing Safety Program (annual)

On an annual basis, DelDOT performs a data-driven network screening process to identify public highway-rail at-grade crossing locations for study to evaluate the need for, and feasibility of, safety improvements that could be funded with federal Railway-Highway Crossings Program (Section 130) funds. A multitude of rail crossing improvements are considered as part of this program including the installation of flashers, cantilevers, automatic gates, signing, striping, and railroad preemption/interconnection. Potential safety improvements are selected and prioritized for design and implementation based on available funding.

Site-Specific Project Planning



In addition to the state or area wide studies listed above, ongoing transportation planning and programming efforts in Delaware include site-specific projects that provide both general transportation and freight-specific benefits. Since the prior plan update, for example, the West Dover Connector project opened in 2017, providing a grade-separated crossing over Norfolk Southern rail lines and enhancing connections to US 13 and SR 1 from the west side of Dover for all users, including trucks. More recent project examples include the Park Avenue Relocation project in Georgetown, which establishes a continuous US 9 Truck Bypass from US 113 to US 9 east of Georgetown, thus eliminating most of the truck traffic through downtown Georgetown. The multi-phase project is slated for construction through 2025. Details on these and other project efforts are available online throughout the DelDOT Projects Portal.[19]

2 Freight and the Economy

2.1 FREIGHT FLOWS

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

Understanding freight flows in Delaware is an important step toward determining if the state's freight transportation system can accommodate current and future levels of freight demand. Identifying what moves, in what quantities, by which modes, and to/from where will begin to reveal 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 (**see sidebar**), including the following:

- **Growth:** From 2020 through 2050, freight tonnage is expected to increase by 58% to 108.5 million tons, while value will increase 114% to $216.7 billion (**Exhibit 2-1**).
- **Mode:** Truck is the dominant freight mode in Delaware, carrying approximately 68% of all freight (**Exhibit 2-2**).
- **Mid-Atlantic Partners**: Approximately 90% of the total freight tonnage and 66% of the total freight value originating/terminating in Delaware move between the nearest Mid-Atlantic states (PA, MD, NJ, VA, WV).
- **Domestic Origins-Destinations**: Approximately 94% of freight shipments from Delaware (and 89% to Delaware) move within just 500-miles of the state, including more than half as intrastate movements that begin and end within Delaware directly (**Exhibit 2-3** and **Exhibit 2-4**).

  The 500-mile distance noted above may be considered a reasonable breakpoint at which other modes (specifically rail) just begin to be cost competitive with trucking.[20] This same threshold may also be close to the window in which a truck driver is able to travel within a typical 11-hour limit per federal "hours of service" (HOS) regulations.[21] As such, trucking is understandably a dominant and competitive mode for this majority portion of Delaware's domestic freight movements.

Freight Analysis Framework

Produced by the Bureau of Transportation Statistics (BTS) and Federal Highway Administration (FHWA), the Freight Analysis Framework (FAF5) integrates data from various sources to summarize freight movements across states and metropolitan areas, including:

- **Tonnage** – weight of freight in thousands of tons (kTons)
- **Value** – dollar value of freight in millions of dollars ($M)
- **Origin-Destination** – the geographic beginning (origin) and ending (destination) of a freight movement
- **Mode** – The method of transportation used for a freight movement, including truck, rail, water, air, pipeline, and multiple modes and mail
- **Commodity** – the type of freight, material, or goods being transported based on two-digit Standard Classification of Transported Goods (SCTG) codes

Source: FAF5, https://faf.ornl.gov/faf5/

- **Foreign Imports/Exports:** Delaware foreign import/export trade in 2020 amounted to more than 9 million tons of freight worth $11.8 billion (FAF5). The state's leading foreign trade partners by FAF5 region include Rest of Americas (e.g., South and Central America), Europe, Southwest and Central Asia (e.g., Saudi Arabia, India), and Canada (**Exhibit 2-5** and **Exhibit 2-6**).

- **High-Tonnage Commodities:** Delaware's top 12 commodities by tonnage account for 75% of the state's total freight (**Exhibit 2-7**). The leading overall movements include more than 7.0 million tons of agricultural products and 6.7 million tons of crude petroleum. Notable movements inbound to Delaware also include other foodstuffs, gravel, and a variety of coal/petroleum products (referenced in the FAF5 freight data as coal-n.e.c. or "not elsewhere classified"). Notable movements outbound include gasoline, mixed freight, and basic chemicals.

- **High-Value Commodities:** Delaware's top 12 commodities by value account for 74% of the state's total freight (**Exhibit 2-8**). The leading overall movement includes $18.3 billion of pharmaceuticals, which alone reflects 18% of the state's total freight value. Notable movements inbound to Delaware also include mixed freight, electronics, and manufactured products. Notable movements outbound include mixed freight, plastics/rubber, and basic chemicals.

Multimodal Significance

A review of Delaware's freight activity quickly reveals the significance of a vibrant multimodal freight transportation system to support the state's economy and its role in regional and national supply chains. While truck is often the dominant mode for overall freight, critical multimodal movements among just a few of the state's top commodities include the following:

- **Agricultural Products** rely on truck, rail, barge, and international shipping, including the Port of Wilmington as North America's largest banana port and the nation's leading gateway for imports of 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 lighter-weight / higher-value goods account for much of the state's air freight and "multiple mode/mail" shipments that may involve truck to air/rail/ship transfers as well as commercial shipping companies such as UPS or FedEx.

Exhibit 2-1: Delaware Freight Tonnage and Value (2020-2050) [22]

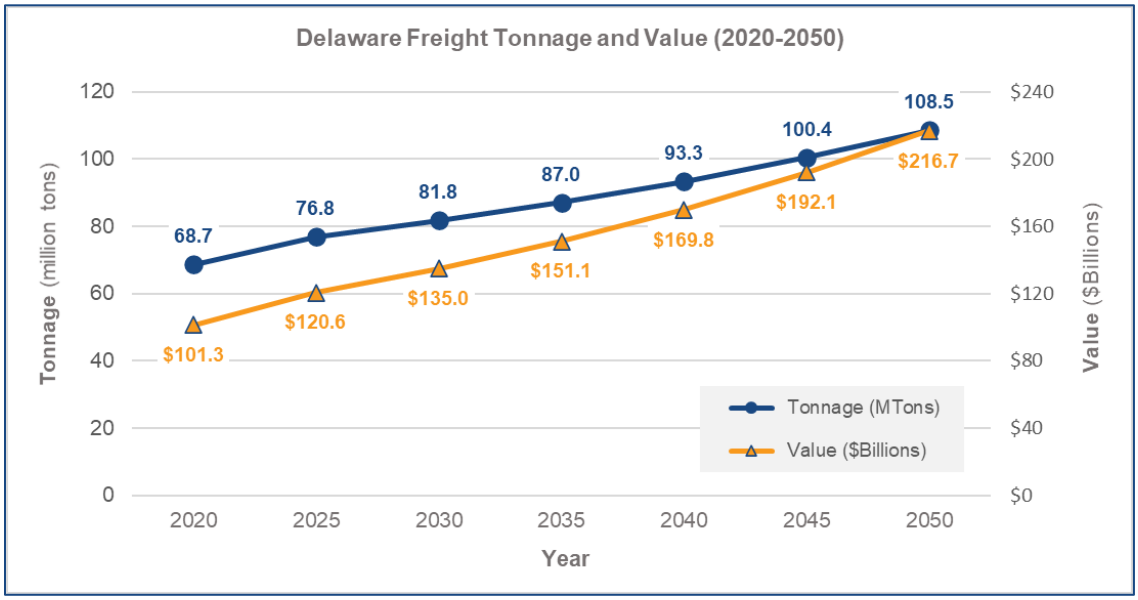


Exhibit 2-2: Delaware Freight Mode Shares (2020) [23]

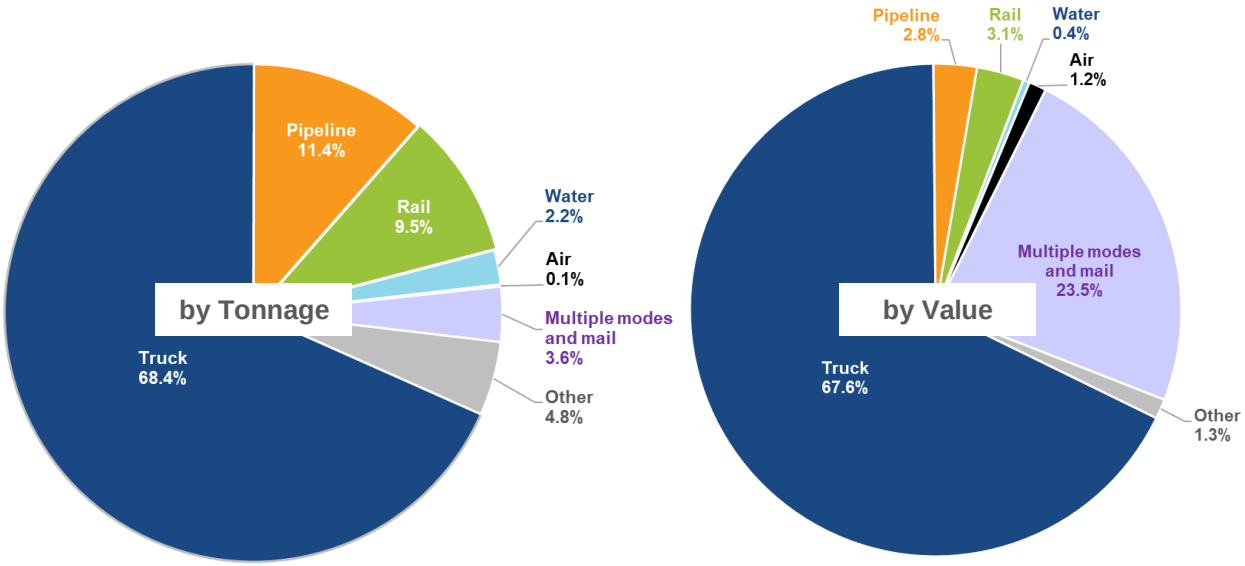


Exhibit 2-3: Delaware Domestic Freight Destinations (2020) [24]

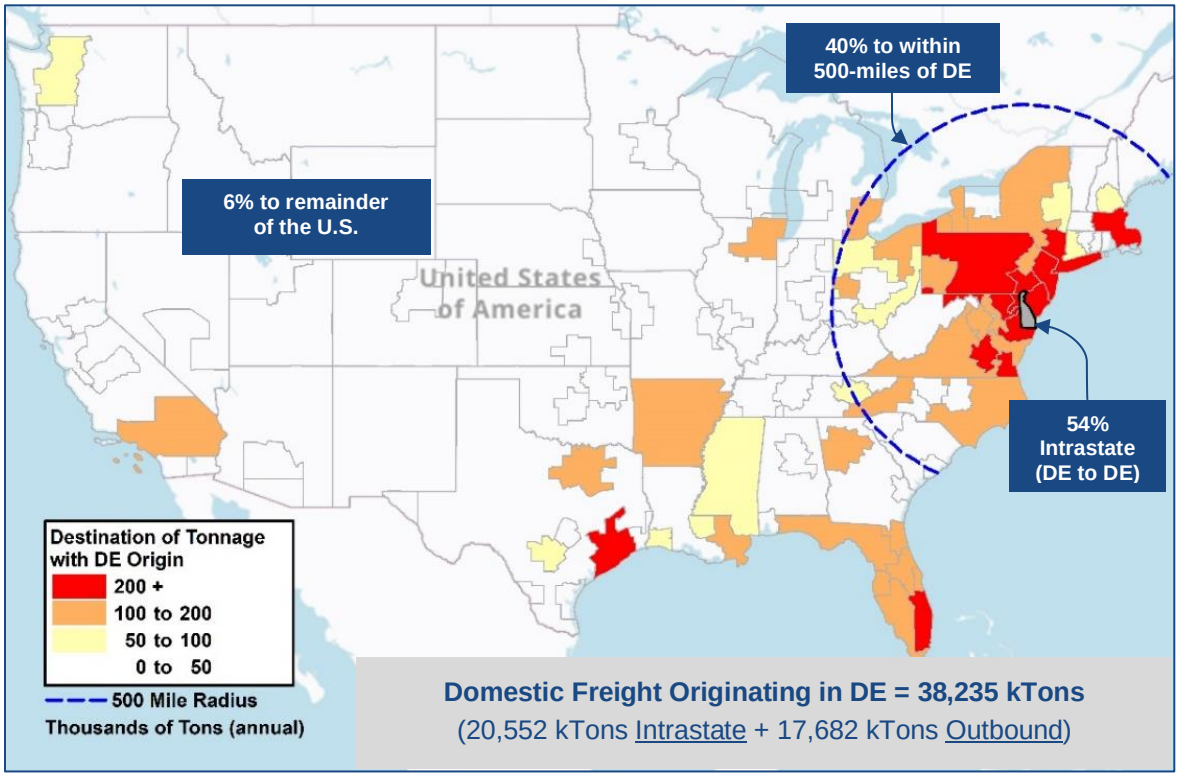


Exhibit 2-4: Delaware Domestic Freight Origins (2020) [25]

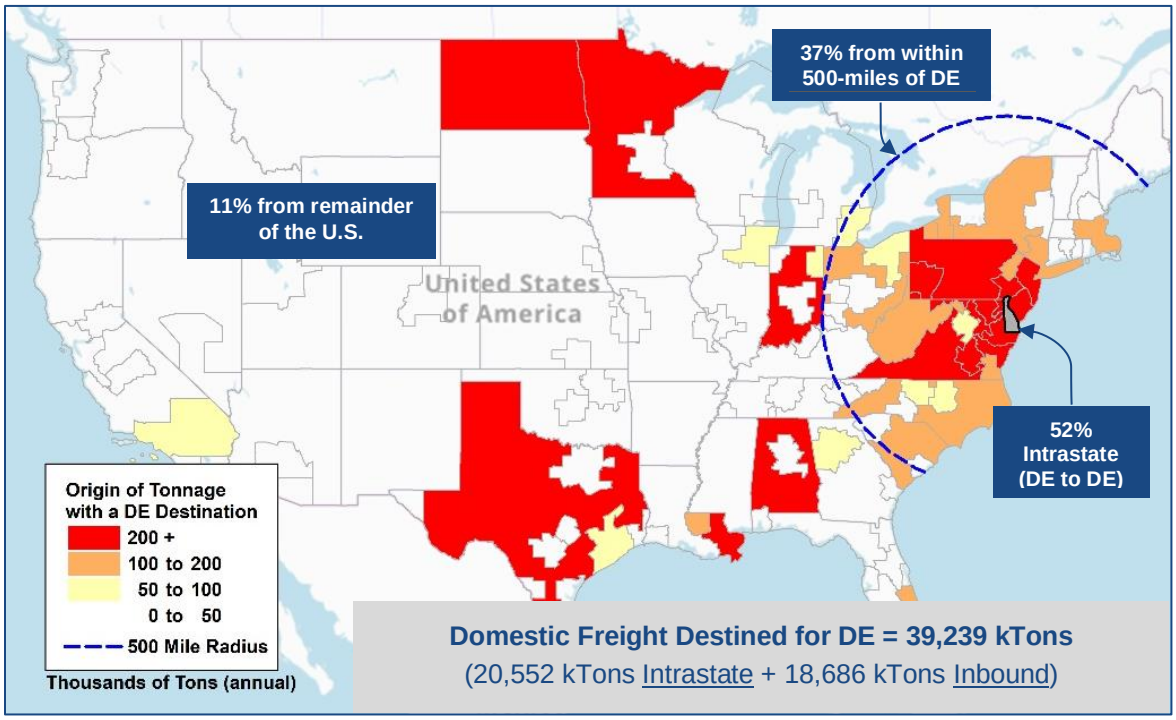


Exhibit 2-5: Delaware Foreign Trade by Tonnage (2020) [26]

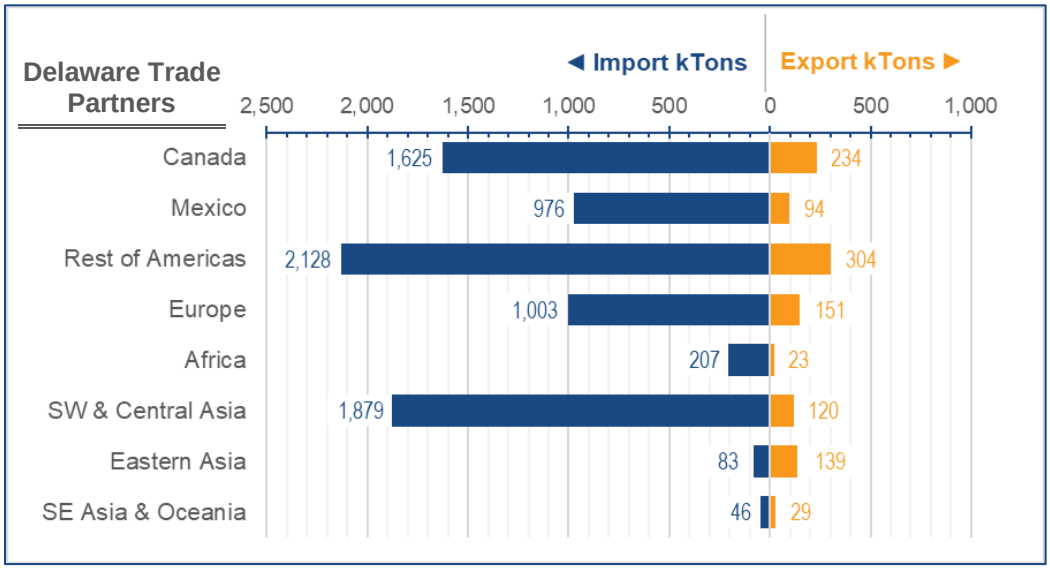


Exhibit 2-6: Delaware Foreign Trade by Value (2020) [27]

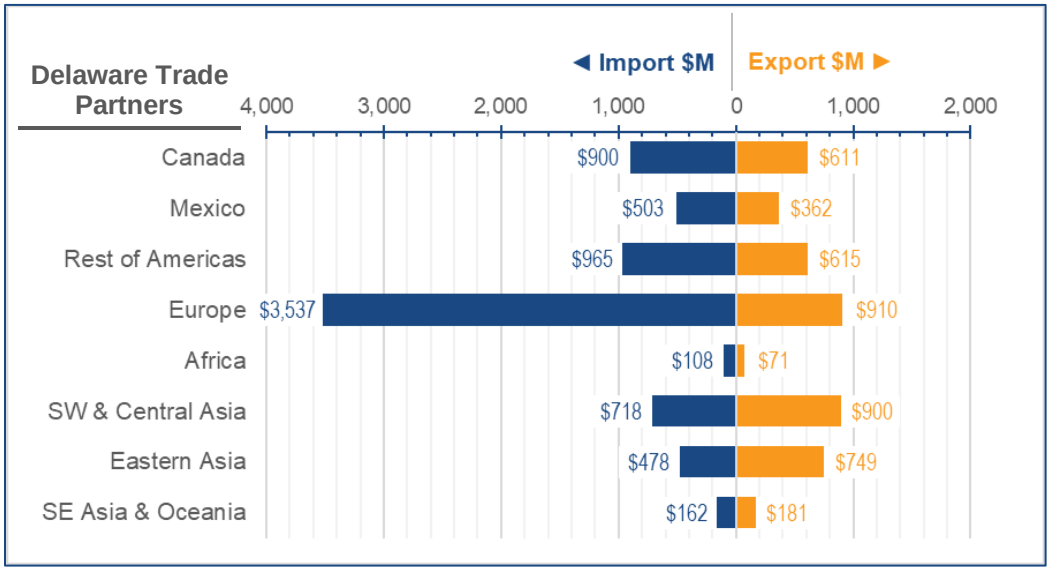
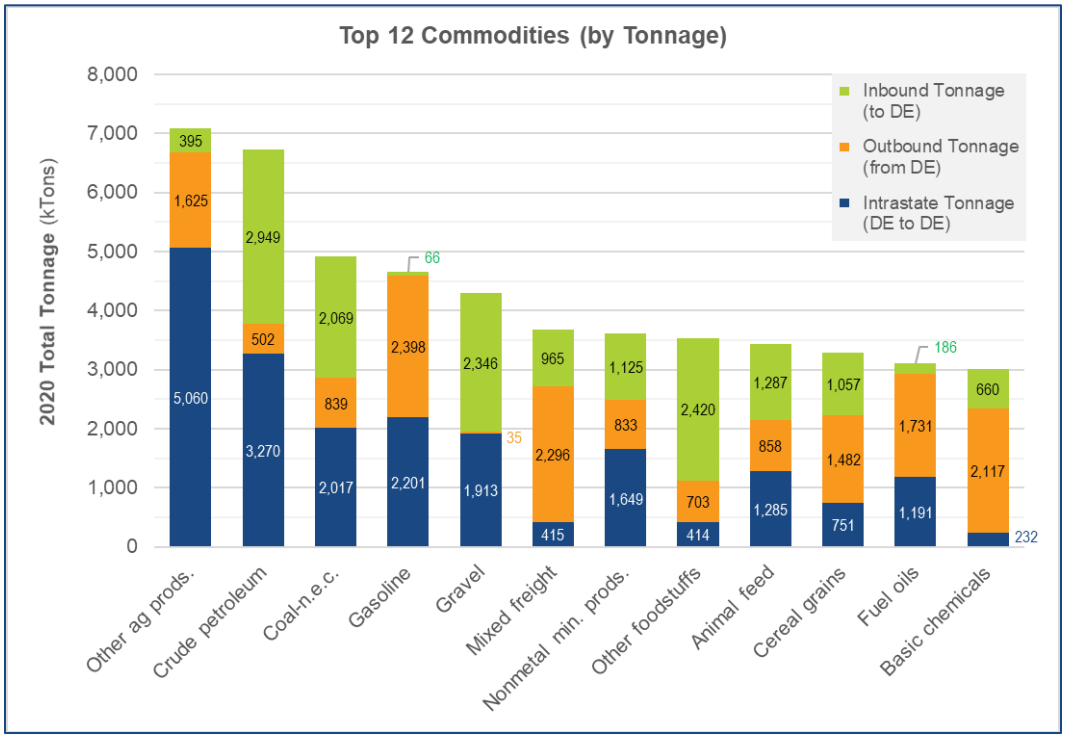
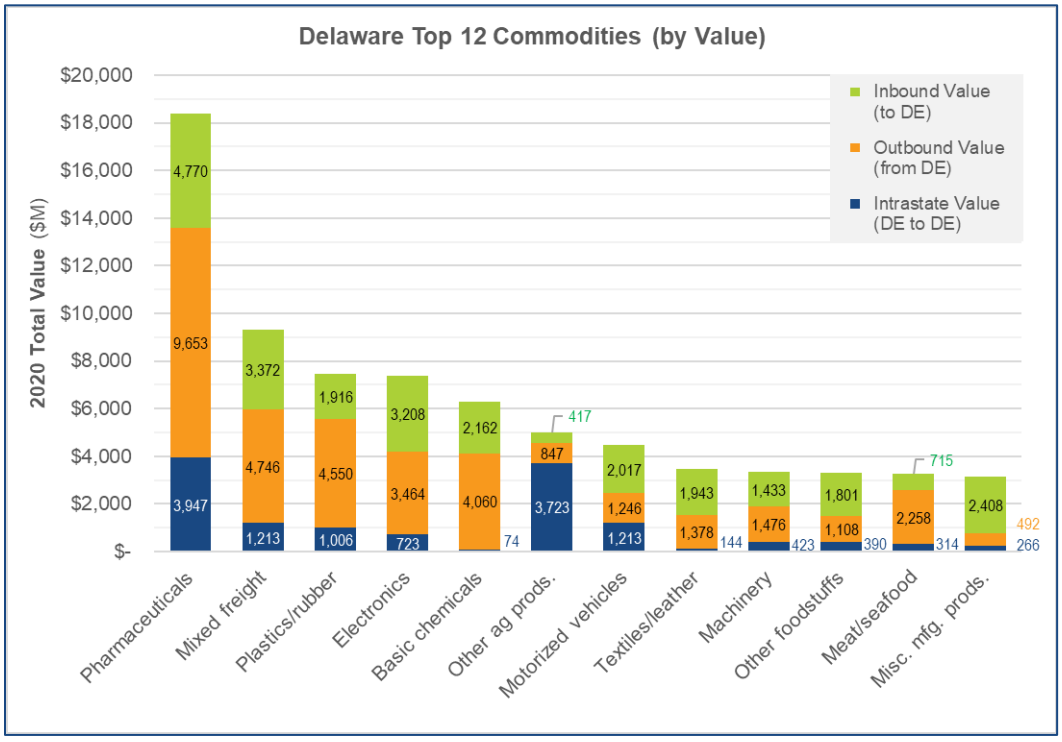


Exhibit 2-7: Delaware Top 12 Commodities by Tonnage (2020) [28]



Note: Coal-n.e.c. generally includes a variety of coal and petroleum products "not elsewhere classified," which can include lubricating oils and greases, liquefied natural gas, propane, butane, coke, petroleum asphalt, and other products.

Exhibit 2-8: Delaware Top 12 Commodities by Value (2020) [29]

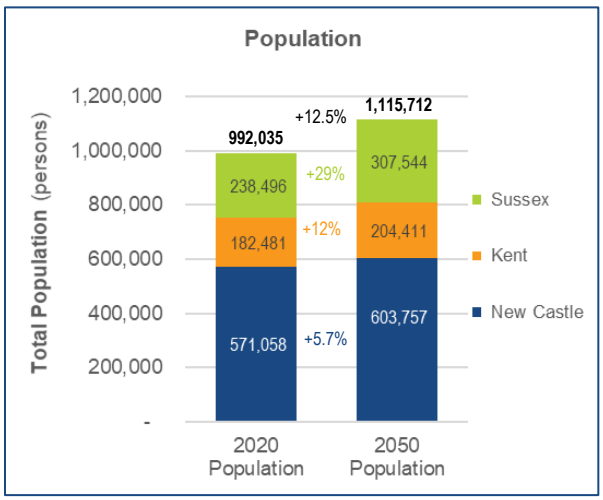


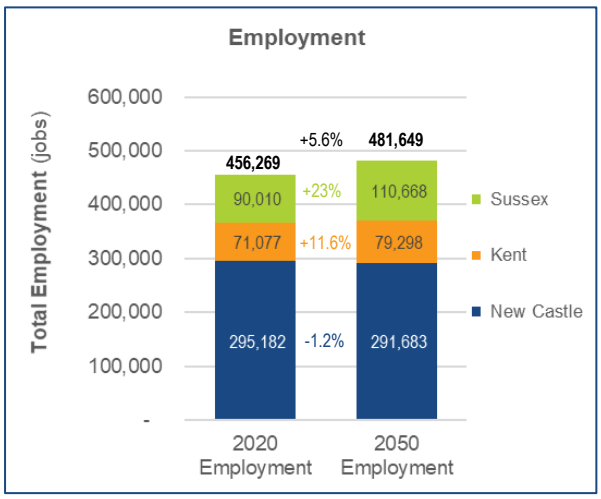
2.2 POPULATION AND EMPLOYMENT

Delaware's population and employment trends are important drivers that influence the state's overall economy and related freight and goods movement needs. As population and employment continue to increase, and as the geographic location of future growth shifts to different areas, so will the corresponding demand for freight and goods.

- **Historic Growth** – Based on U.S. Census data, Delaware's total population in 2020 recorded 989,948 persons, reflecting a 10.1% increase since 2010. At the county level over the same 2010-2020 timeframe, the highest population growth was recorded in Sussex County (+20.4%) followed by Kent County (+12.0%) and New Castle County (+6.0%).
- **Future Population Growth** – 2020-2050 projections from the Delaware Population Consortium (DPC) show the state's total population surpassing 1.0 million persons as of 2022 and continuing to increase to more than 1.1 million persons by 2050, reflecting an overall 30-year increase of 12.5% or 123,000 additional persons (**Exhibit 2-9**). Similar to census-based trends from the prior decade, the DPC projections for 2020-2050 also show the highest levels of growth in Sussex County (+29%) followed by Kent County (+12%) and New Castle County (+5.7%).
- **Future Employment Growth** – Employment details from the 2020-2050 DPC projections show the state's employment growth will be somewhat slower than population but will still add more than 25,000 net new jobs (+5.6%) by 2050 (**Exhibit 2-9**). Similar to population trends, the highest levels of employment growth are anticipated in Sussex County with approximately 21,000 new jobs by place of work (+23%), and Kent County with just over 8,000 new jobs (+11.6%). Employment in New Castle County, however, is forecast to decrease slightly over the next 30 years (-1.2%) due to a variety of factors.

Exhibit 2-9: Delaware Population, Employment, and Growth (2020-2050) [30]





2.3 FREIGHT INTENSIVE INDUSTRIES

A closer assessment of Delaware's employment details can further an understanding of where freight demands and truck activity are more predominant throughout the state. Relevant details include key employment locations or clusters (based on traffic analysis zones or TAZs) as well as employment by industry sector, particularly for Freight Intensive Sectors (FIS). Though FIS industries often capture much of the heavy cargo that is traditionally thought of in the context of freight planning, all sectors of the economy generate various types of freight activity, but each does so in different amounts. NCFRP has classified typical freight activities and contribution levels for FIS and non-FIS industries (**Exhibit 2-10**) based on the following:

Freight Intensive Sectors (FIS)

Based on guidance from the National Cooperative Freight Research Program (NCFRP), **FIS** may be described as industry sectors within the economy where the production and consumption of cargo is central to the activity performed by the establishment, as compared to Non-Freight Intensive Sectors (**non-FIS**) where the cargo itself is of secondary importance. Nationwide, about 45% of industry establishments and half the employment correspond to FIS.

Source: NCFRP Research Report 37.

- **Freight Generation (FG)** is the amount of cargo generated by a commercial establishment, with dominant examples relating to agriculture, quarrying, or manufacturing.
- **Freight Trip Generation (FTG)** is the number of freight vehicles trips generated by a commercial establishment, with dominant examples relating to wholesale/retail trade or food services.
- **Service Trip Generation (STG)** is the number of service trips generated by a commercial establishment, including notable volumes of traffic from a wide variety of technicians and service providers for many non-FIS industries such as professional services, healthcare, or education. These trips often involve vans, pickups, or single unit trucks that occupy curb/delivery space for extended periods, often directly influencing urban freight delivery and parking needs.[31]

Delaware's FIS industries are especially dependent on efficient freight and goods movement systems to be competitive within the marketplace. The state's FIS employment (based on number of jobs) has hovered around 40% of Delaware's total employment over the past decade, with Food Services gaining a larger portion over the last 11 years (**Exhibit 2-11**). From a location perspective, 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 (**Exhibit 2-12**). Notable activity by county includes the following:

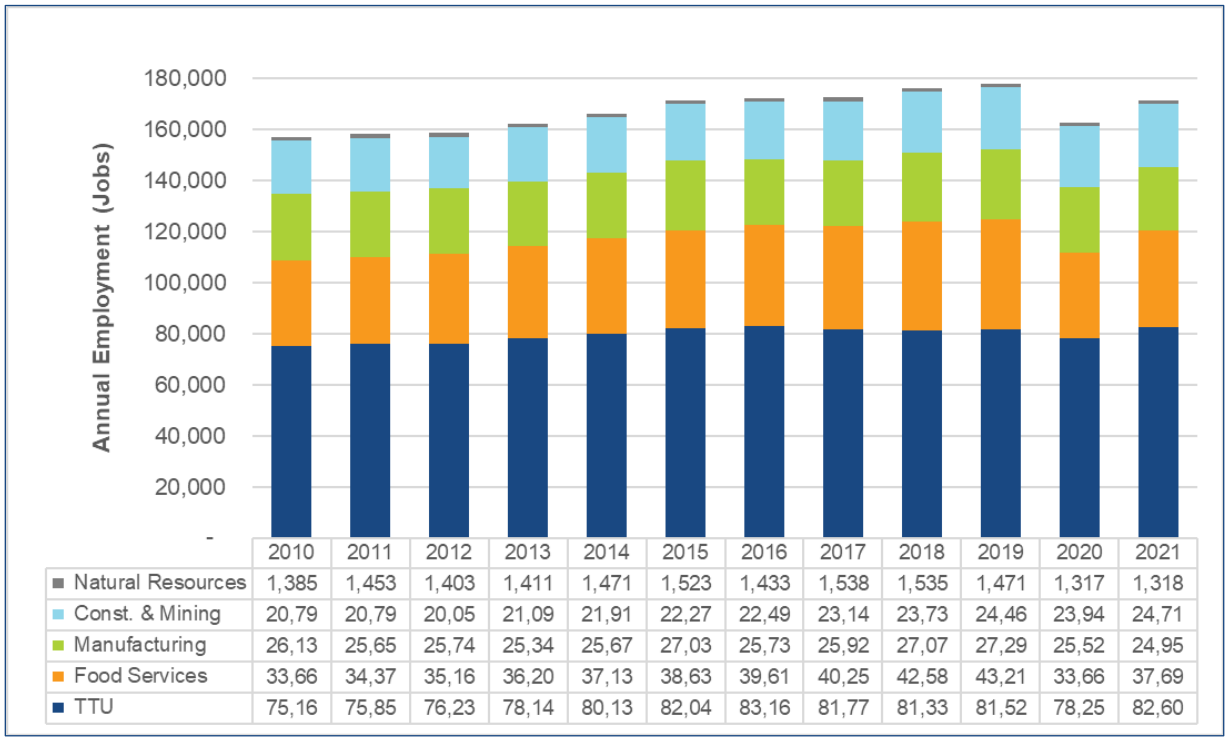
- In **New Castle County** (with 37% FIS employment), manufacturing, oil and gas extraction, transportation and warehousing, hospitality, and food services all contribute to the most significant FIS activities.
- In **Kent County** (with 36% FIS employment), manufacturing and warehousing are prevalent, plus moderate farming and agriculture activity. Employees of Dover Air Force Base (DAFB) also contribute to a sizable portion of the job market.
- In **Sussex County** (with 56% FIS employment), agriculture is the dominant industry due to the availability of farmland and the significance of Delaware's large-scale poultry farming operations. Along the eastern side of Sussex County, farming collides with retail trade and peak-season tourist activities as tourists gravitate to beaches along the Atlantic coast.

Exhibit 2-10: Typical Freight Contributions by Industry Sector [32]

NAICS	Description	Freight Generation (FG)	Freight Trip Generation (FTG)	Service Trip Generation (STG)
	Freight Intensive Sectors (FIS)			
11	Agriculture, Forestry, Fishing, and Hunting	+++	+	+
21	Mining, Quarrying, and Oil and Gas Extraction	+++	+	+
22	Utilities	++	+	+
23	Construction	+++	+	+
31-33	Manufacturing	++	++	+
42	Wholesale Trade	++	+++	++
44-45	Retail Trade	++	+++	++
48-49	Transportation and Warehousing	++	++	++
72	Accommodation and Food Services	++	+++	++
	Non-Freight Intensive Sectors (non-FIS)			
51	Information	+	+	++
52	Finance and Insurance	+	+	++
53	Real Estate and Rental and Leasing	+	+	++
54	Professional, Scientific, and Technical Services	+	+	+++
55	Management of Companies and Enterprises	+	+	++
56	Administrative and Waste Services	+	+	++
61	Educational Services	+	+	++
62	Health Care and Social Assistance	+	+	++
71	Arts, Entertainment, and Recreation	+	+	++
81	Other Services (except Public Administration)	+	+	++

Table Legend: +++ = major contributor; ++ = mid-level contributor; + = small contributor

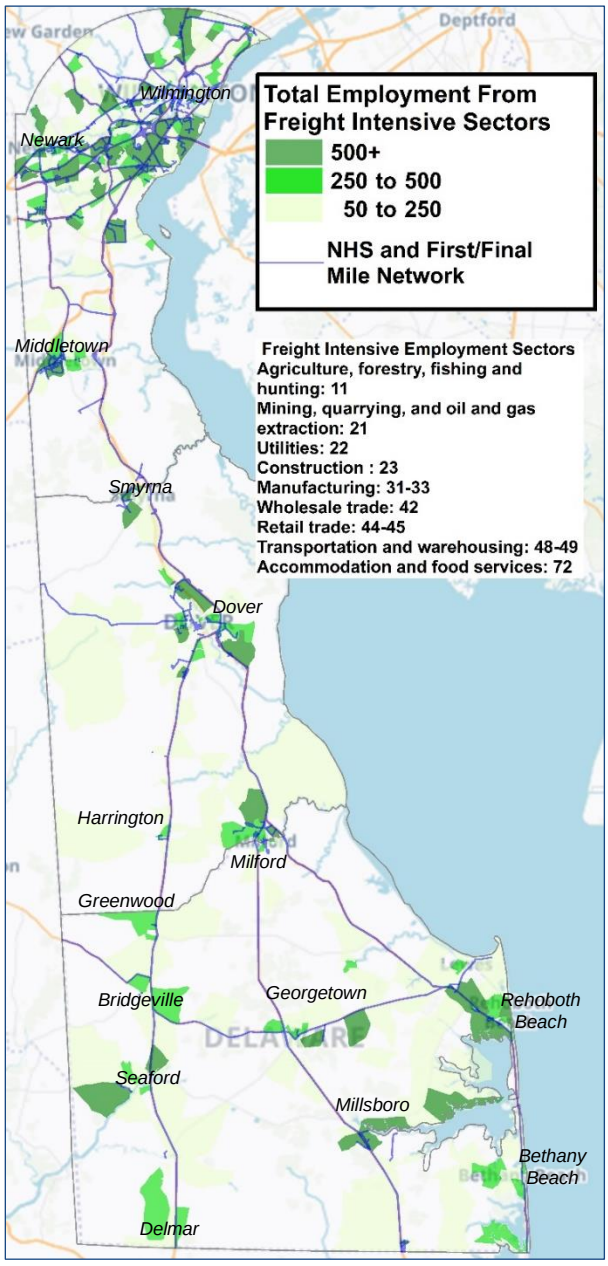
Exhibit 2-11: Delaware FIS Employment by Industry Sector (2010-2021) [33]



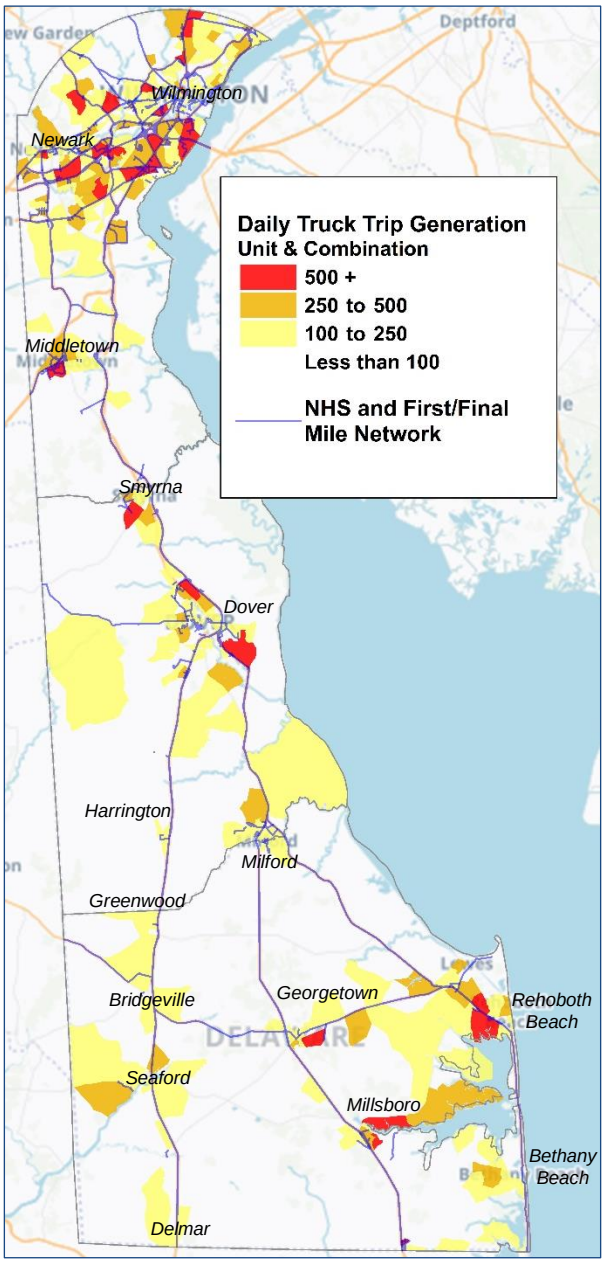
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Natural Resources	1,385	1,453	1,403	1,411	1,471	1,523	1,433	1,538	1,535	1,471	1,317	1,318
Const. & Mining	20,79	20,79	20,05	21,09	21,91	22,27	22,49	23,14	23,73	24,46	23,94	24,71
Manufacturing	26,13	25,65	25,74	25,34	25,67	27,03	25,73	25,92	27,07	27,29	25,52	24,95
Food Services	33,66	34,37	35,16	36,20	37,13	38,63	39,61	40,25	42,58	43,21	33,66	37,69
TTU	75,16	75,85	76,23	78,14	80,13	82,04	83,16	81,77	81,33	81,52	78,25	82,60

Exhibit 2-12: Delaware FIS Employment and Truck Trip Generation Areas (2020) [34]

FIS EMPLOYMENT



TRUCK TRIP GENERATION



3 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.

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.

3.1 FEDERALLY DESIGNATED NETWORKS

Essentially all parts of Delaware's transportation network support freight and goods movement to varying degrees. Facilities range from nationally significant corridors and multimodal facilities to first/final mile access via local roads. At a broad level, however, the most significant portions of the network that support state, regional, and national freight flows are apparent in a snapshot of facilities included on the federally designated freight networks consisting of the interim National Multimodal Freight Network (NMFN) and the National Highway Freight Network (NHFN) (**Exhibit 3-1**).

3.1.1 National Multimodal Freight Network (NMFN)

The 2016 initial (interim) NMFN was introduced by the FAST Act under 49 U.S.C. §70103 (**Appendix A**).[35] Elements in Delaware included: (1) I-95, I-495, and I-295; (2) 188 route miles of freight rail lines operated by CSX Corporation (CSX), Norfolk Southern Corporation (NS), and The Delmarva Central Railroad Company (DCR); (3) the Port of Wilmington and major port operations in New Castle; (4) Delaware River/Bay and the Chesapeake & Delaware (C&D) Canal; and (5) connection to the M-95 Marine Highway Corridor that includes the Atlantic Ocean coastal waters and Atlantic Intracoastal Waterway.

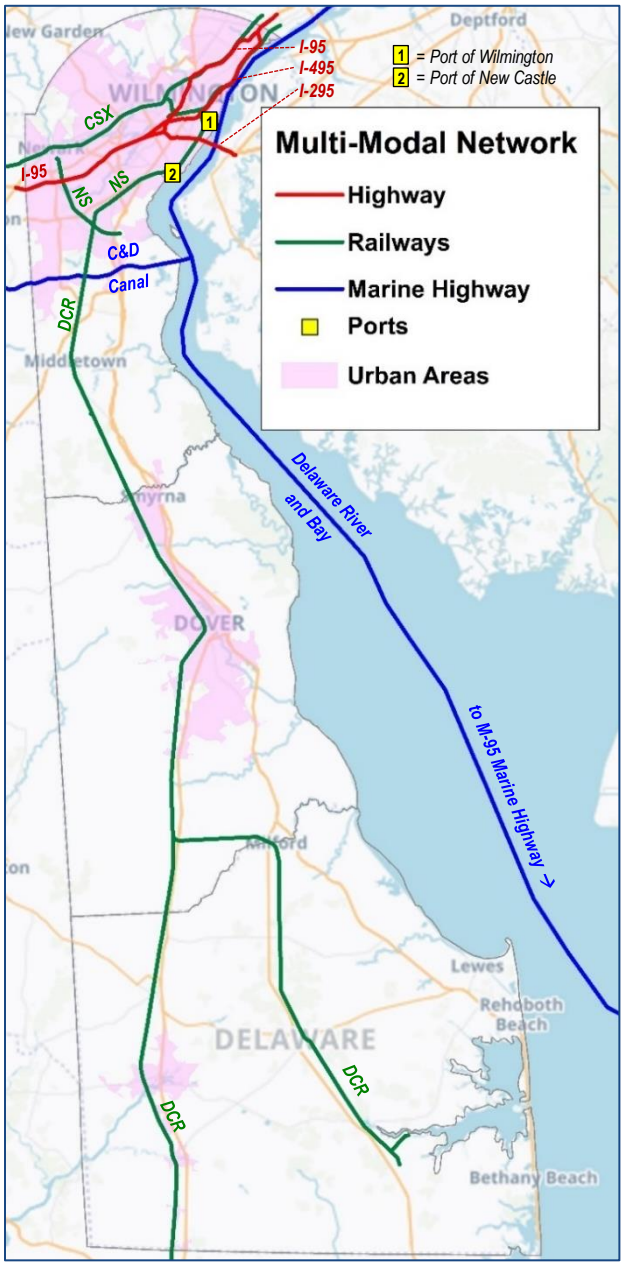
Federal criteria also allow states the flexibility to designate additional Multimodal Critical Rural Freight Facilities (CRFF) based on specific eligibility criteria (**Appendix A**). To date, however, Delaware has not proposed any CRFF additions, although rural connectivity has been enhanced by way of corridor designations that have been added to the state's highway freight networks (discussed below).

3.1.2 National Highway Freight Network (NHFN)

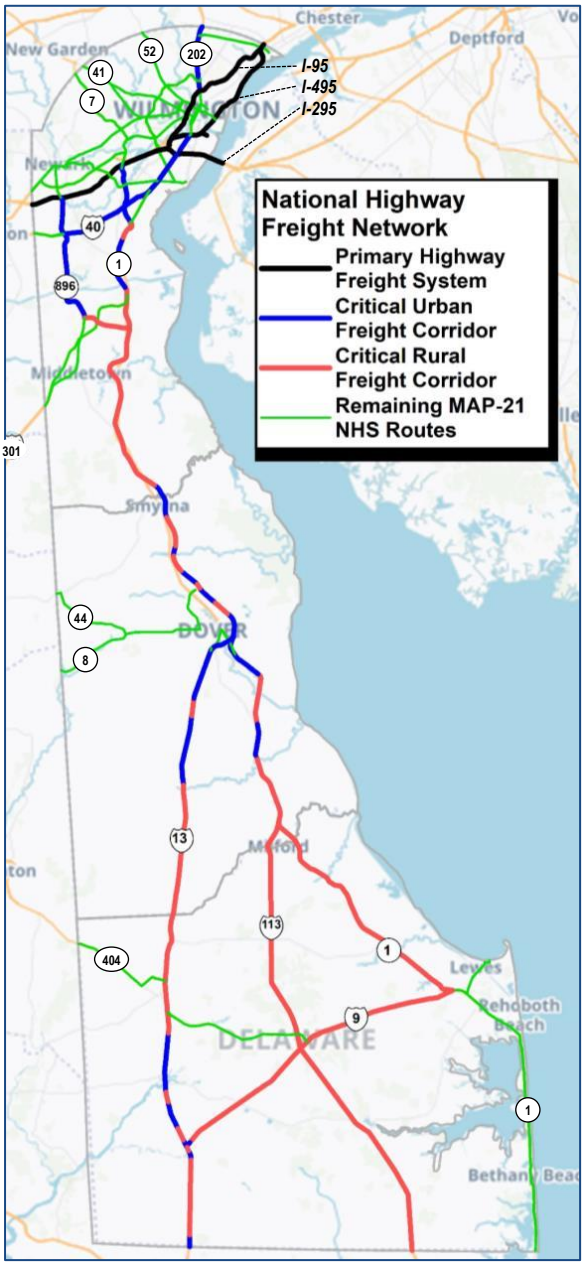
Focusing on the highway system, the FAST Act repealed the former MAP-21 based Primary Freight Network and National Freight Network, replacing it with the NHFN, which has been carried forward for ongoing refinements under the 2021 enactment of the IIJA.[36] The NHFN consists of four subsystems of roadways (detailed in **Chapter 3.2**) that in Delaware collectively include all of I-95, I-495, and I-295 within state limits; an Intermodal Connector along Terminal Avenue between I-495 and the Port of Wilmington; and a set of Critical Rural Freight Corridor (CRFC) / Critical Urban Freight Corridor (CUFC) routes (initially designated under the 2017 addendum to the 2015 Delaware Freight Plan) that encompass portions of US 9, US 13, US 40, US 113, and US 202, as well as various Delaware State Route (SR) segments along SR 1 and SR 896.

Exhibit 3-1: Delaware's Federally Designated Freight Networks [37]

NATIONAL MULTIMODAL FREIGHT NETWORK



NATIONAL HIGHWAY FREIGHT NETWORK



3.2 ROADWAYS

Trucks provide the dominant mode of freight transportation to, from, and within Delaware, carrying approximately 68% of the state's total freight (see **Chapter 2.1**). Truck movements are handled by Delaware's interstate, U.S. highway, state route, and secondary route networks, as well as first/final mile connections along county, municipal, or other local roadways. These systems consist of 6,461 public road miles, including 435 miles on the National Highway System (NHS), and 863 bridges.[38]

3.2.1 National Highway Freight Network (NHFN) Subsystems

As introduced in **Section 3.1**, the federally designated NHFN (previous **Exhibit 3-1**) reflects a portion of the overall highway transportation system that consists of the most significant roadways that freight travels on throughout the state. Route and segment limits for the four subsystems of the NHFN in Delaware are detailed in **Appendix C** and generally include the following:

- **Primary Highway Freight System (PHFS)** – is a network of roadways identified by USDOT as the most critical highway portions of the U.S. freight transportation system determined by measurable and objective national data. The PHFS in Delaware includes 41.34 total miles along I-95, I-495, I-295, and the Port of Wilmington/Terminal Avenue intermodal connector (DE2P).[39]

- **Non-Interstate PHFS Routes** – include, at the national level, any interstate not otherwise captured by way of PHFS designation for inclusion on the NHFN. However, this tier does not apply in Delaware, as all of Delaware's interstate mileage is directly included on the PHFS.[40]

- **Critical Urban Freight Corridors (CUFC)** – typically include MPO or state designated public roads in urbanized areas that provide connections between the PHFS and the Interstate System, or freight access to intermodal facilities, logistics centers, manufacturing sites, warehouse industrial land, major freight generators, or other important freight needs. Initial designations in 2017 were limited by FAST Act to a mileage cap of 75 total miles, allocated to US 9, US 13, US 40, US 202, SR 1, and SR 896 (per segment details in **Appendix C**).

- **Critical Rural Freight Corridors (CRFC)** – typically include state designated public roads in rural areas that carry at least 25% trucks or provide access to significant multimodal freight facilities or production areas, including activities related to agriculture, energy, mining, or other important freight needs. Initial designations in 2017 were limited by FAST Act to a mileage cap of 150 total miles, allocated to US 9, US 13, US 113, SR 1, and SR 896 (per segment details in **Appendix C**).

CUFC/CRFC Expansion with New Mileage Allotments

Provisions under the **2021 IIJA** double the previous (2017) caps to allow up to 150 and 300 total miles for Delaware's CUFC and CRFC networks, respectively. As such, future network expansion is anticipated as DelDOT and the state's MPOs coordinate and designate the newly allotted CUFC/CRFC mileage.

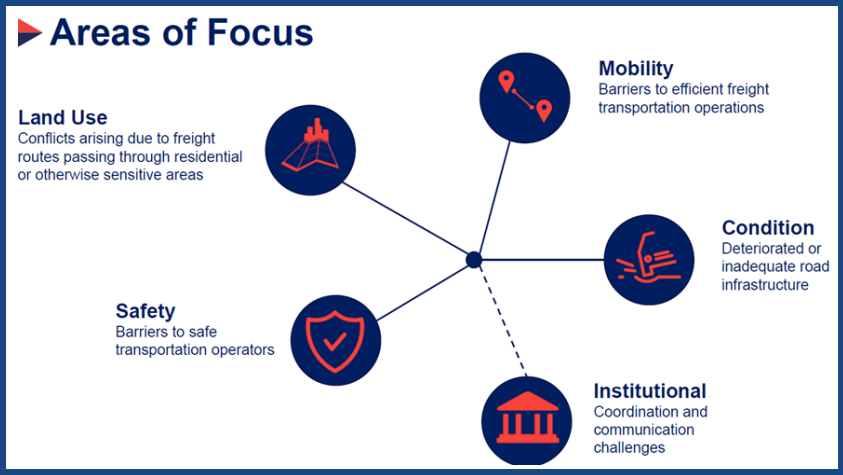
Newly designated routes/segments become a direct part of the NHFN, which potentially enhances future planning opportunities, funding eligibility, or grant competitiveness for those portions of the highway system.

3.2.2 Delaware First/Final Mile Freight Network

While interstates and major arterials garner much of the attention regarding goods movement, lower functional class roads also play a role in linking truck-generating facilities to mainline travel routes, providing crucial first/final mile access for all types of freight. To objectively identify Delaware's most important first/final mile freight connections, DelDOT and the state's MPO partners completed a 2021 study (see below) to revise a state-specific first/final mile network based on data such as freight-related business locations, truck GPS tracking records, and stakeholder feedback. Approximately 294 miles of roadway were identified as first/final mile freight connections that link freight sites throughout Delaware to broader portions of the state's overall roadway system, including linkages with the NHFN and/or the NHS (**Exhibit 3-2**). Of these connections, 76% were classified as collector roads and 21% as local roads.

First/Final Mile Areas of Focus

The *Delaware First/Final Mile Freight Network Development* study grouped needs and issues into five broad categories of problems affecting the state's first/final mile routes. These categories, or areas of focus, were organized to better equip transportation stakeholders to address issues in the future through effective improvements to maintain first/final mile connections while balancing the needs of other transportation users.



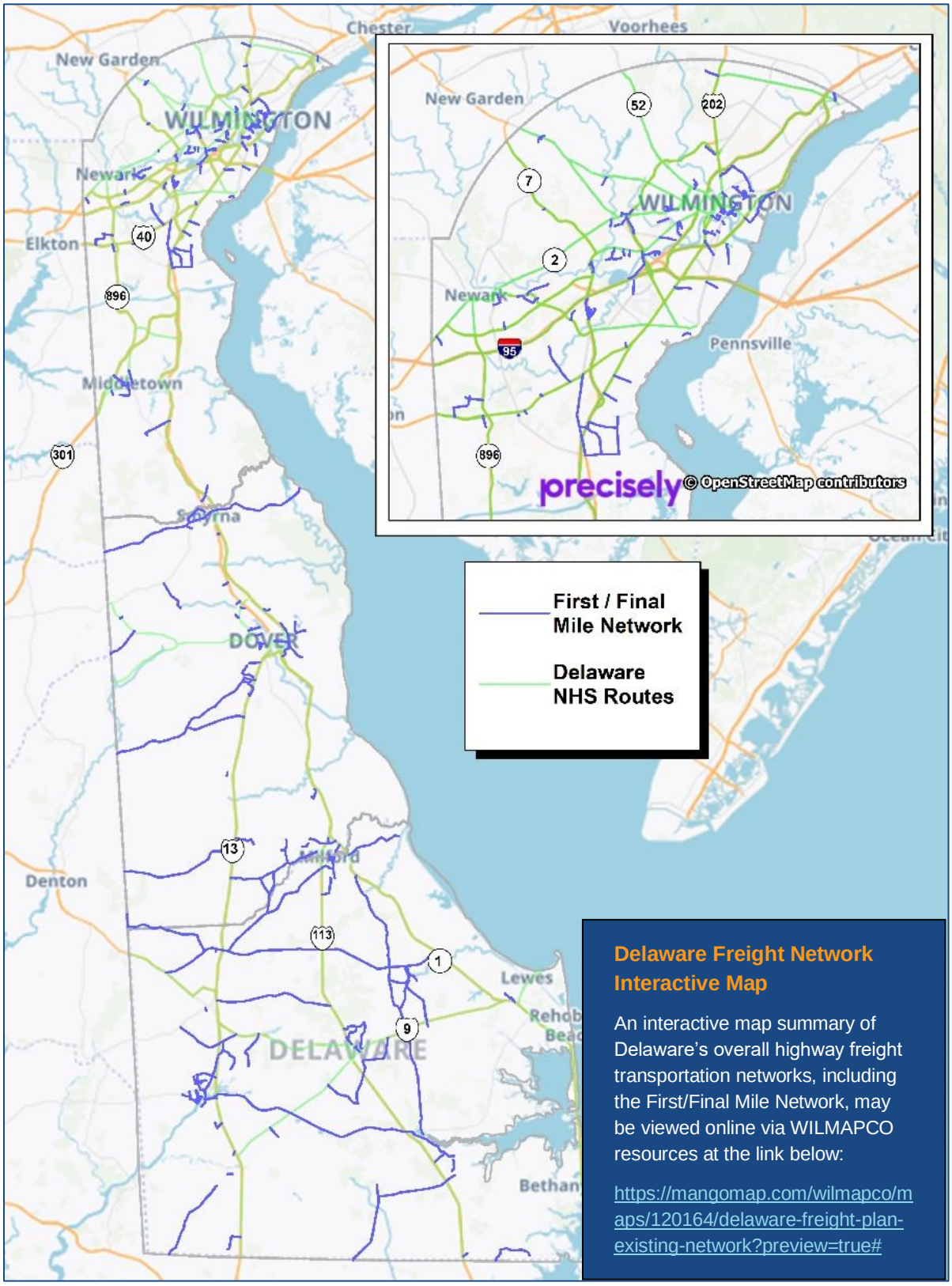
Source: CPCS, http://www.wilmapco.org/freight/First_Final_Mile_Final_Report.pdf.

Truck Parking and Motor Freight Support Systems

Truck transportation in Delaware would not function effectively without also having a variety of motor freight support systems in place. **Truck parking**, for example, plays a critical role in how well the highway freight networks can accommodate safe and efficient truck travel relative to hours-of-service regulations, rest periods, fuel and driver services, or refuge during inclement weather. **Permitting and enforcement** activities often rely on efficient permitting systems, truck weigh and inspection stations (TWIS), or virtual weigh station (VWS) technologies. **Urban goods delivery** can be affected by curbside parking and loading zone restrictions, delivery timeframes, or other local land use, truck route, or ordinance influences.

Details are addressed in **Chapter 4** of this plan in the context of freight performance, trends, and focus areas.

Exhibit 3-2: Delaware's First/Final Mile Freight Network



Delaware Freight Network Interactive Map

An interactive map summary of Delaware's overall highway freight transportation networks, including the First/Final Mile Network, may be viewed online via WILMAPCO resources at the link below:

https://mangomap.com/wilmapco/maps/120164/delaware-freight-plan-existing-network?preview=true#

3.3 RAILROADS

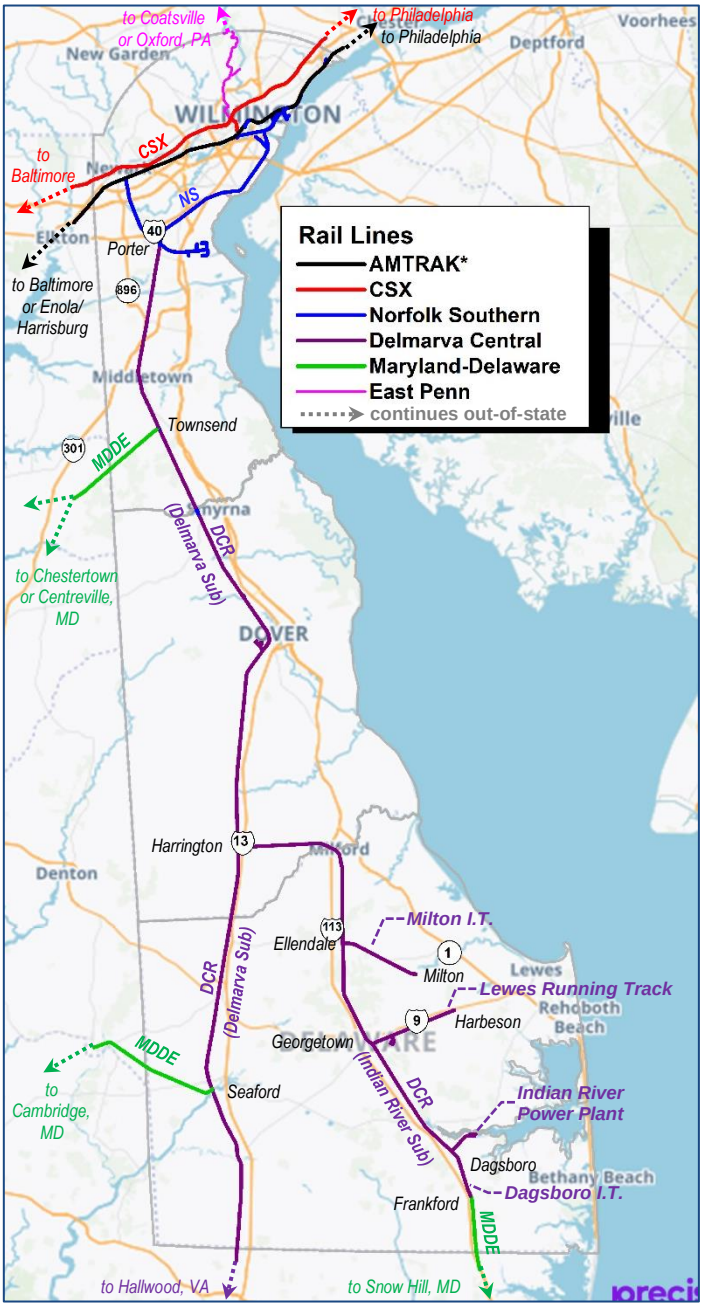
Railroad operations throughout Delaware provide efficient transportation options for raw materials, natural resources, agricultural products, and other types of freight across the state, all of which play a vital role in the region's economy. The energy, agricultural, chemical, and construction industries all rely heavily on rail-based supply chains.

Rail Commodities

Based on 2020 FAF5 data, 73% of the tonnage leaving Delaware via rail consists of basic chemicals, and 20% consists of other coal/petroleum products (coal-n.e.c.).

Entering Delaware, 78% of the rail tonnage consists of crude petroleum, and 8% consists of other food related products.

Exhibit 3-3: Delaware's Freight Rail Lines



Rail freight operations in Delaware include 236 miles of freight rail lines (**Exhibit 3-3**).[41] Operators include two Class I railroads via NS and CSX, plus three Class III (short line) freight operators via DCR, MDDE, and ESPN (**Exhibit 3-4**). The Wilmington & Western Railway (WWRC) also runs short line operations in Delaware along approximately 10 miles of track between Wilmington and Hockessin; however, the route no longer serves freight movements and operates as a scenic/tourist railroad.

While NS and CSX provide the major source of regional/national rail access to and from New Castle County, the DCR essentially serves as the primary rail trunkline through the remainder of the state into Kent and Sussex counties. Having taken over the former Delmarva Secondary lines from NS in 2016, portions of the former Bay Coast Railroad in 2018, and portions of the former Delaware Coastline Railroad in 2019, the DCR has worked to continually expand and enhance short line rail access and services throughout the state.

Exhibit 3-4: Delaware's Freight Rail Operators [42]

Railroad	Description
Class I Railroads	
Norfolk Southern Corporation (NS)	**Operating Miles**: 82 miles (in DE) (36 miles owned track, plus 46 miles under trackage rights). **Summary:** In addition to Class I service via the broader NS network, Delaware connections include direct access to automotive facilities at the Port of Wilmington, and to the Delaware City Refinery. NS is also the primary freight carrier that links with the DCR (as well as the MDDE via the DCR) to provide freight rail access throughout the broader Delmarva Peninsula. http://www.nscorp.com/
CSX Transportation (CSX)	**Operating Miles**: 42 miles (in DE) (21 miles owned track, plus 21 miles under trackage rights) **Summary**: CSX runs freight rail service through New Castle County as part of a larger system linking Philadelphia, Baltimore, and beyond. Local connections occur in the Wilmington area, including connections to the Port of Wilmington. http://csx.com/
Class III (Short Line) Railroads	
The Delmarva Central Railroad Company (DCR)	**Operating Miles**: 188 miles (in DE, MD, and VA) **Summary**: DCR is a subsidiary of Carload Express Inc. (CEI) that runs from near Porter, DE southward to Hallwood, VA (the Delmarva Sub) and from Harrington, DE to Frankford, DE (the Indian River Sub). Additional branches include the Milton Industrial Track (I.T.), Lewes Running Track, Dagsboro I.T., and a connection to the Indian River Power Plant. The DCR interchanges with NS in northern DE, and with the MDDE at Townsend, Seaford, and Frankford, DE. https://www.carloadexpress.com/railroads/delmarva-central-railroad/
The Maryland & Delaware Railroad Company (MDDE)	**Operating Miles**: 120 miles (in DE and MD) **Summary**: MDDE links with DCR at three locations in Delaware to provide short line rail services that extend into several counties on Maryland's Eastern Shore, supporting the Delmarva agriculture and poultry industries and the movement of chemical and industrial products. Operations include the Chestertown, Centreville, Seaford, and Snow Hill Lines. http://www.mdde.com/
East Penn Railroad (ESPN)	**Operating Miles**: 110 miles (in DE and PA) **Summary**: ESPN is a subsidiary of Regional Rail, LLC, that interchanges with CSX in Wilmington and connects northward into southeastern PA, including transload locations in Avondale and Oxford. Current Delaware traffic typically includes limited hauls of scrap metal. https://www.regional-rail.com/east-penn-railroad-llc/

Delaware Rail-Trails

The consolidation of short line access and freight rail operations in Delaware has seen a corresponding expansion in rail-trail and other tourist opportunities. For example, short line services formerly operated by the Delaware Coastline Railroad between approximately Georgetown and Lewes now terminate (via the DCR's current Lewes Running Track) at approximately Harbeson. East of Harbeson, approximately 10 miles of track have been converted into the Georgetown-Lewes Trail, adding to the state's current rail-trail opportunities that cover approximately 48 miles and 12 rail-trails statewide (as reported by the Rails-to-Trails Conservancy, Delaware Rail-Trail Stats, https://www.railstotrails.org/our-work/united-states/delaware/#state).

3.4 PORTS AND WATERWAYS

3.4.1 Port of Wilmington

The focal point of Delaware's international port activity occurs at the Port of Wilmington, which is a full-service, deep-water port and marine terminal strategically located on 308 acres at the confluence of the Delaware and Christina Rivers. The Port is owned by the Diamond State Port Corporation (DSPC) and operated by GT USA Wilmington, LLC under a 50-year concession agreement signed in 2018.[43] The Port has a diverse cargo portfolio and handled more than 6.8 million tons of cargo in 2019.[44]

Port facilities include 10 total berths, including a floating berth, petroleum berth, and auto/RoRo berth (**Exhibit 3-5**). Water access is located along the Delaware River with a controlling depth of 45 feet mean lower low water (MLLW), and along the Christina River with 38 feet MLLW between the Delaware River and the upper end of the Port's turning basin.[45] Other key infrastructure and Port features include:

- a 4,000-foot marginal wharf
- four 50-ton ship-to-shore (STS) gantry cranes and two 100-ton mobile harbor cranes (MHCs)
- 800,000 square feet (SF) of on-dock cold storage/refrigerated warehouse space
- two state-of-the-art dry cargo warehouses totaling 250,000 SF with rail sidings
- over 50 acres of container storage space
- on-dock staging for 40 rail cars with a rail cargo width capacity up to 12'-6"
- over 40 acres of outside storage space and expertise with multimodal movements, RoRo, High and Heavy capability, and local heavy lift rigging & hauling contractors to facilitate special project cargos such as rocket booster cores, CO2 storage tanks, brewery tanks, wind turbine blades, large generators, construction equipment, and ship building materials[46]

Fresh Fruits and Juices

The Port of Wilmington is North America's largest banana port with trade by Dole Fresh Fruit Company and Chiquita Fresh North America.

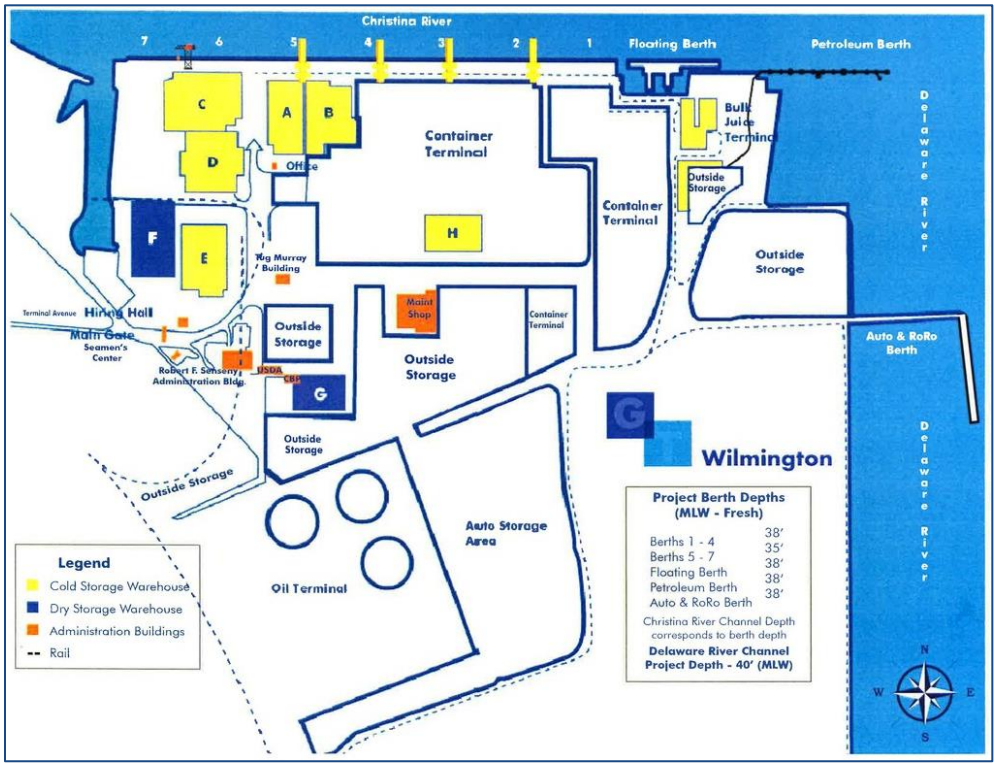
The Port is also the nation's leading gateway for imports of fresh fruit and produce with diverse shipments that include Chilean winter fruit, Moroccan clementines, Argentine apples and pears, Peruvian grapes, and New Zealand kiwifruit.

Additionally, the Port's Citrosuco facility is North America's largest bulk juice storage terminal with a total storage capacity of over 10 million gallons.

Source: GT USA Wilmington, LLC, https://www.portofwilmington.com/cargo-portfolio.html

Historically, the largest shares of the Port's freight tonnage are split between containerized goods (33%), dry bulk and breakbulk goods (32%), and liquid bulk shipments (29%); and the remainder consists of RoRo cargo or other general project cargos.[47] The seasonality of key trades is also a significant factor in the Port's volume fluctuations throughout a typical year. Summer months tend to see lower volumes, while winter brings an increase in various types of trade based on the Port's strategic location and trade partners. For example, winter freight increases may be based on the Port's handling of South American fruit during that region's harvest season; imported industrial salt that will be stockpiled for treating winter road conditions; or inbound steel destined for Midwest mills that shifts to Delaware due to winter navigation restrictions through more northern ports in the Great Lakes areas.

Exhibit 3-5: Port of Wilmington Layout [48]



Berth	Depth	Cargo Users
1-2	38’	Chiquita, Bulk, General Refrigerated Cargoes
2-3	38’	Dole, Bulk, General Refrigerated Cargoes
4	38’	Bulk, General Refrigerated Cargoes
5	35’	General Refrigerated Cargoes
6	35’	Refrigerated Cargoes, Clementines
7	35’	General Refrigerated Cargoes (Chilean pallets), Bulk
Floating Berth	38’	Citrosuco bulk juice tankers
Petroleum Berth	38’	Magellan tankers and barges
Auto & RoRo Berth	38’	Autos and other RO-RO, Breakbulk (primarily steel)

Other Petroleum and Refinery Influences

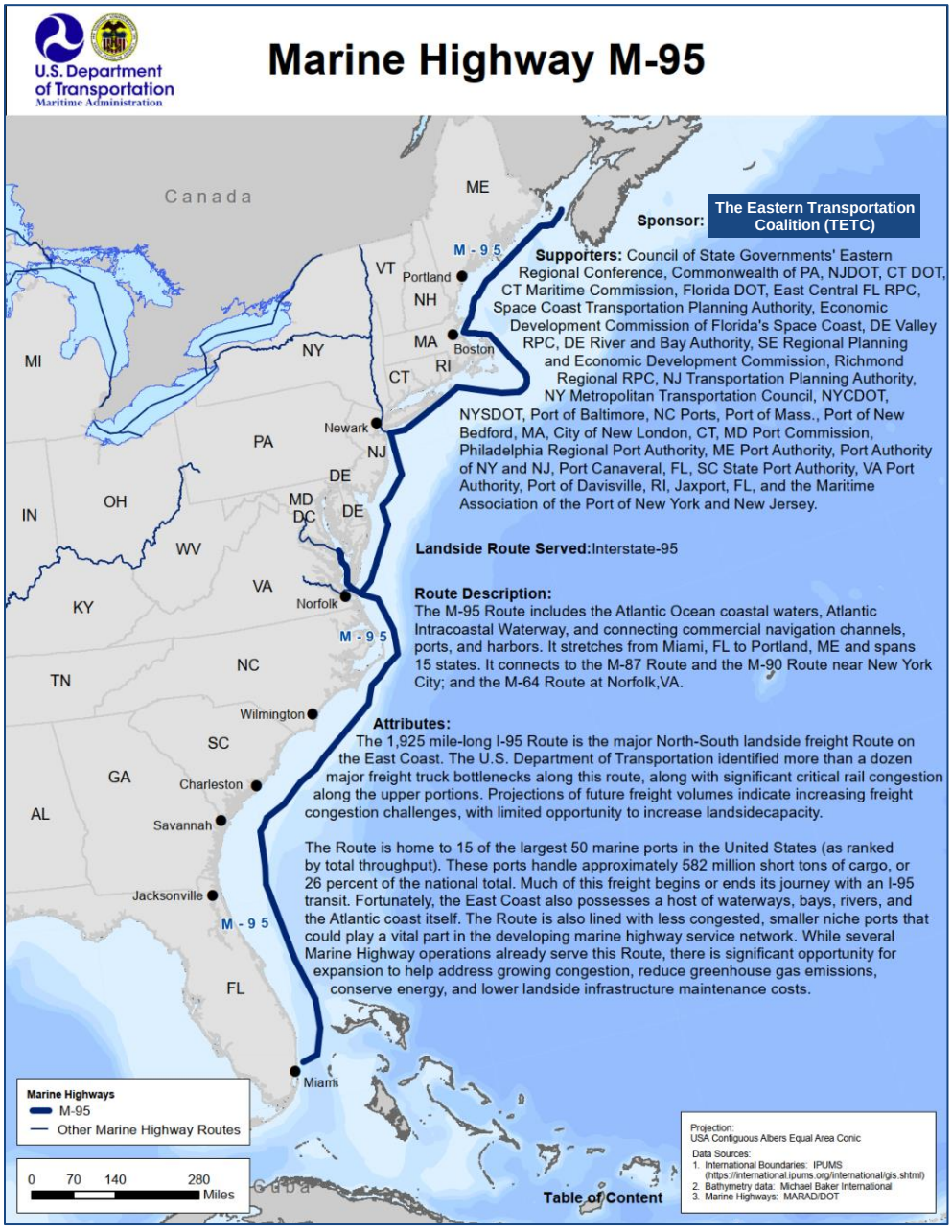
Beyond the Port of Wilmington, additional port and shipping activities in Delaware are also handled at nearby facilities in New Castle and Delaware City. Based on USACE principal ports data compiled as “New Castle, DE”, these activities included more than 9.2 million tons of cargo in 2019, with 94% as crude petroleum or related products such as fuel oils, gasoline, kerosene, lube oils, greases, solvents, and asphalt. Domestic shipments also accounted for 70% of this cargo, potentially relating to the transfer of refined products.

Source: USACE, https://ndc.ops.usace.army.mil/wcsc/webpub/#/report-landing/year/2019/region/1/location/299

3.4.2 M-95 Marine Highway

The USDOT Maritime Administration (MARAD)'s Marine Highway system currently includes 29 all-water "Marine Highway Routes" that serve as extensions of the surface transportation system and promote short sea shipping.[49] Increasing the use of short sea shipping along commercially navigable waterways can offer relief to landside corridors suffering from traffic congestion, excessive air emissions, or other environmental challenges. Accessible from Delaware via the Delaware River/Bay system, the M-95 Marine Highway parallels the Atlantic Coast between Maine and Florida, including connections to most major ports along the east coast, as well as inland waterway connections to the M-87 Marine Highway in New York City and the M-64 Marine Highway in Norfolk, VA (**Exhibit 3-6**).

Exhibit 3-6: M-95 Marine Highway Corridor [50]



3.4.3 Inland Waterways

Commercially navigable waterways in and around Delaware (**Exhibit 3-7**) support a variety of freight movement connections, ranging from major port access via the Delaware River/Bay system and Chesapeake & Delaware (C&D) Canal, to localized freight movements along numerous rivers across the Delmarva Peninsula. The most notable inland waterways serving Delaware are highlighted below, including references (where applicable) to tonnage or system details per available USACE report data.[51]

- **Delaware River/Bay** – Connecting with the Atlantic Ocean, the Delaware River/Bay system provides vital access for waterborne freight that serves Delaware and the surrounding region. Key connections include the Port of Wilmington, multiple port facilities to the northeast in Philadelphia and South Jersey, and to the west (via the Chesapeake & Delaware Canal) the Port of Baltimore. In early 2020, a dredging initiative increased the Delaware River channel depth from 40 to 45 feet across the 102-mile-long channel from Camden, New Jersey, to the Delaware Bay, allowing larger and more heavily ladened ships to access the regional port systems.

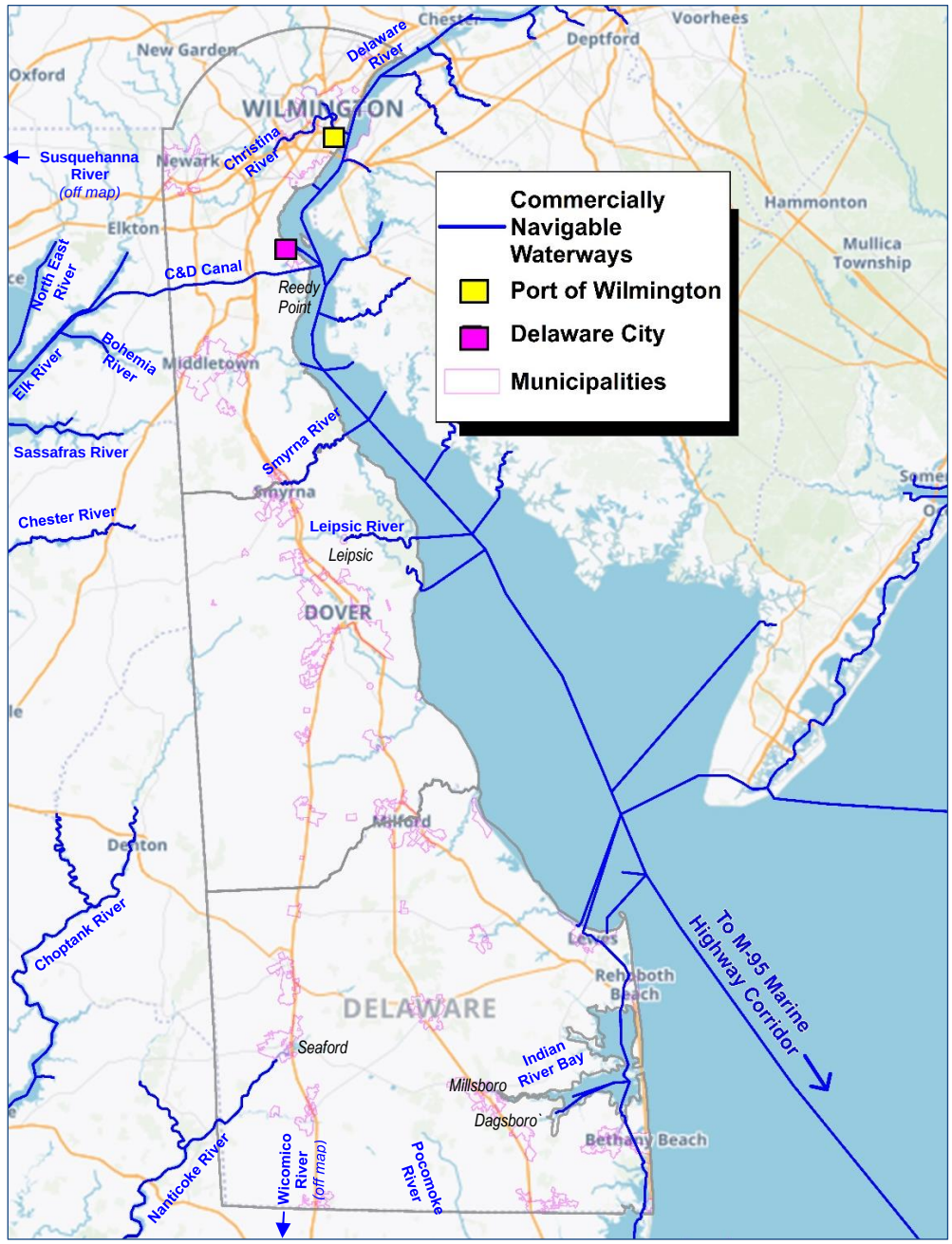
- **Chesapeake & Delaware Canal** – The C&D Canal cuts across New Castle County, DE, connecting the Delaware River at Reedy Point to the Chesapeake Bay at Pooles Island and providing access to the Port of Baltimore. The canal runs approximately 46 miles in length with a channel that is 35 feet deep and 450 feet wide. The USACE Philadelphia District maintains the canal as well as the five high span bridges that cross it (Reedy Point, SR 1, Summit, St. Georges, and Chesapeake City bridges).[52] Per USACE data, more than 8.6 million tons of freight moved along the canal in 2019 with commodities generally reflecting the diversity of freight at the Port of Baltimore, including materials such as coal, petroleum, chemicals, crude materials, manufactured goods, food and farm products, machinery, and waste material.

- **Nanticoke River** – Providing connections through Maryland into Sussex County, DE, the Nanticoke River runs approximately 64 miles total with just 26 miles located in-state. Access in Seaford, DE, provides opportunities for connecting river barge traffic between Delaware and the broader Chesapeake Bay region, including nearby access to Delaware's highway system via US 13. Per USACE data, more than 1.2 million tons of freight moved along the Nanticoke River in 2019 with 85% consisting of sand and gravel, and the remainder made up of fertilizers and a variety of agricultural products including corn, soybeans, animal feed, wheat, and oilseeds.

- **Wicomico River** – Though it does not directly access Delaware, the Wicomico River connects to Salisbury, MD, just seven miles from Delaware's southern border. Per USACE data, more than 1.0 million tons of freight moved along the Wicomico River in 2019 with 60% consisting of gasoline and fuel oils, 29% sand and gravel, and the remainder a mix of alcohols, corn, and soybeans. As noted in **Chapter 1.3** of this freight plan, a 2021 study recently explored the feasibility of developing a multi-user river port facility in Salisbury to enhance supply chains for fuel, aggregate, and agricultural products across the southern Delmarva Peninsula.[53]

- **Other Eastern Shore (MD) Waterways** – Several other rivers across Maryland's Eastern Shore also support freight movement opportunities for the broader Delmarva Peninsula. These include the Pocomoke, Choptank, and Tred Avon rivers, each carrying roughly 100 thousand tons or more per year (2019 USACE) consisting primarily of sand and gravel. The Choptank River also sees periodic shipments of coal and lignite, steel products, and machinery.

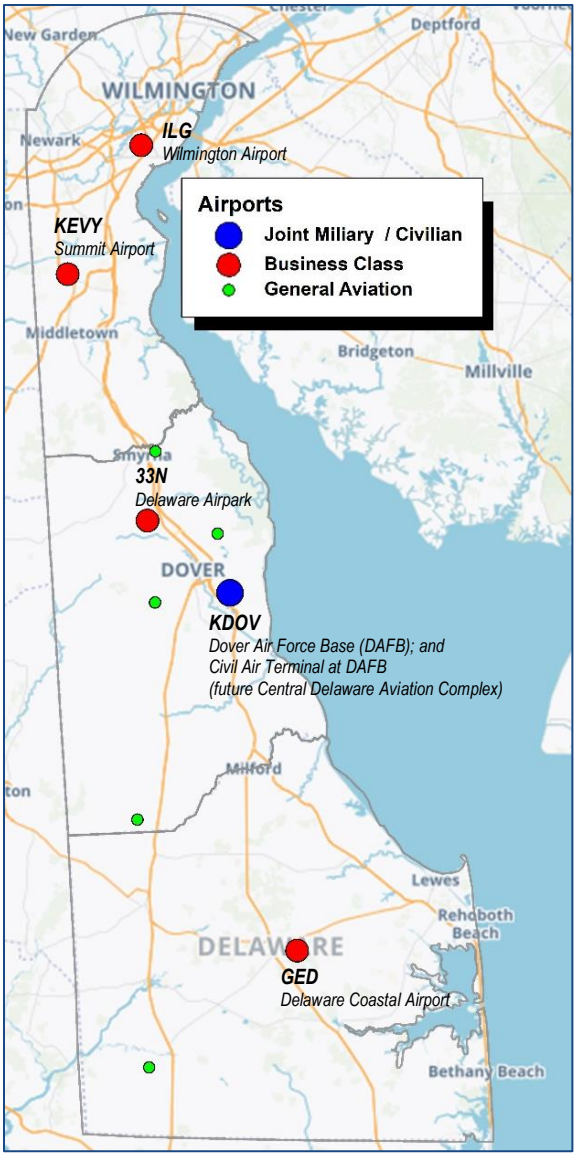
Exhibit 3-7: Key Waterways for Delaware Freight Movement [54]



3.5 AIRPORTS

Air cargo in Delaware primarily involves business class activities and corporate aircraft operations. Scheduled air carrier service with Frontier airlines operates through **Wilmington Airport** (ILG) in New Castle; while business class general aviation services operate through **Summit Airport** (KEVY) in Middletown, **Delaware Airpark** (33N) in Dover, and **Delaware Coastal Airport** (GED) in Georgetown (**Exhibit 3-8**). Joint-use military and civilian operations also occur at **Dover Air Force Base** (DAFB) (KDOV) and the **Civil Air Terminal** at DAFB, which is currently being proposed as the future **Central Delaware Aviation Complex** (CDAC).

Exhibit 3-8: Delaware's Airports



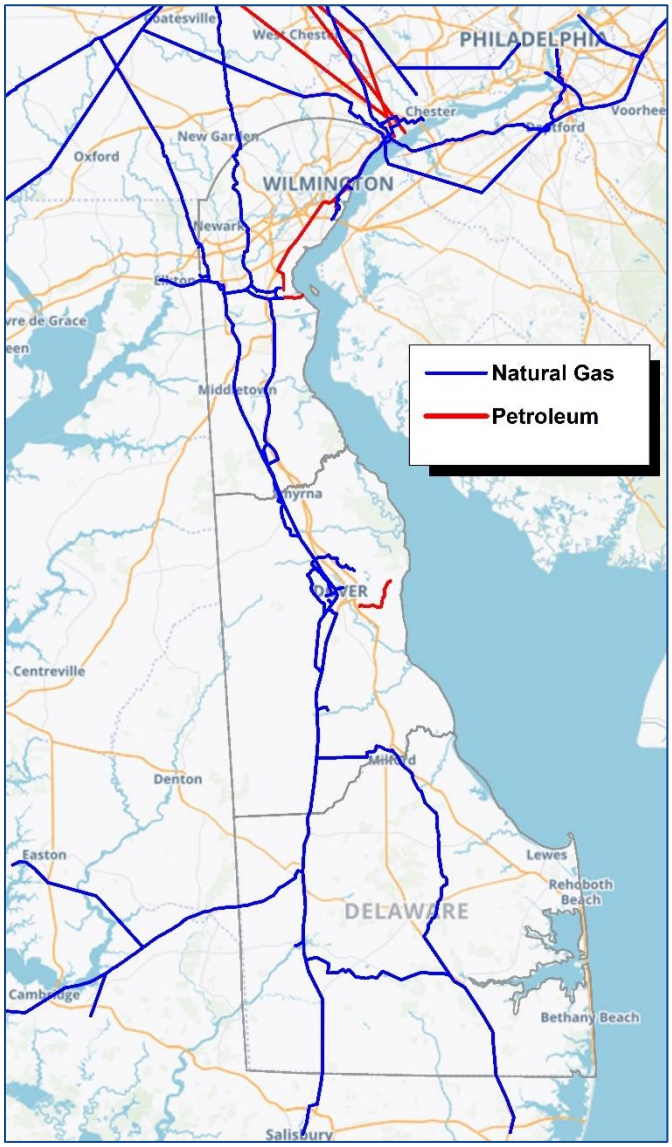
Given Delaware's proximity (and interstate connections) to major airport operations throughout the surrounding region, including air cargo facilities near Washington, D.C., Baltimore (MD), Philadelphia (PA), Newark (NJ), and New York City (NY), the potential opportunities for direct large-scale air cargo access within Delaware may be limited. However, aircraft landing fees are typically much less expensive in Delaware, and multiple initiatives are actively being explored to enhance air cargo opportunities and encourage businesses to expand their operations within the state.

The most notable of potential air cargo expansion efforts relates directly to opportunities through the Civil Air Terminal (or future CDAC) at DAFB. Currently, civilian operations at this facility are limited due to prior clearance requirements. Existing joint use agreements are set to expire near the end of 2022, and DelDOT is actively engaged in negotiating a new agreement (see **Chapter 4.10** for details). Both the City of Dover and Kent County are actively supporting opportunities to realize the full economic potential of the CDAC. As evidenced by a 2021 Dover Air Cargo Freight Access Study for Dover Kent MPO, this support extends to investments in the nearby Garrison Oak Business and Technology Center (Garrison Oak) and the identification of roadway improvements to facilitate local truck access and connectivity to SR 1 to enable the continued growth of both Garrison Oak and the CDAC.[55]

3.6 PIPELINES AND ENERGY INFRASTRUCTURE

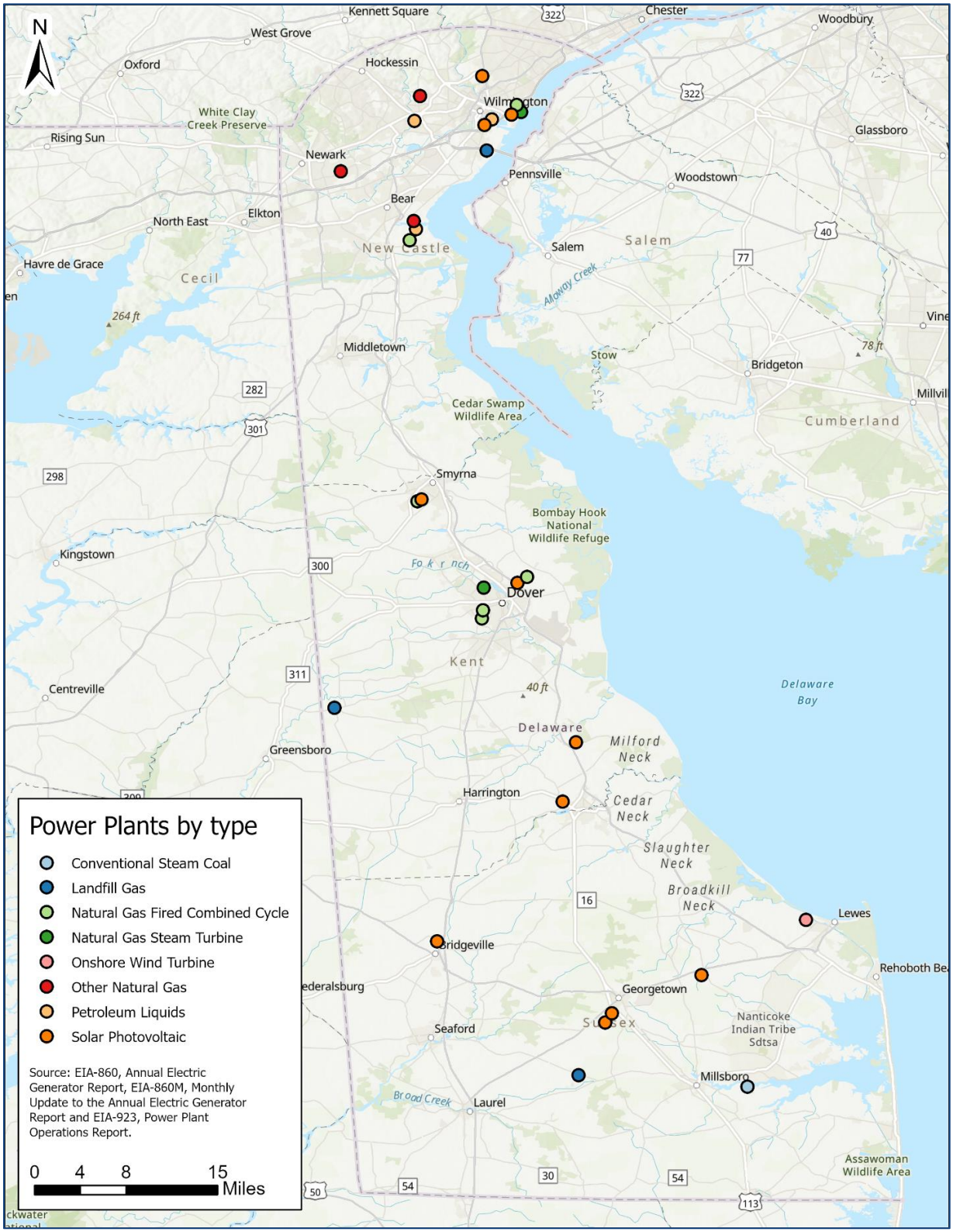
Delaware relies on a diverse set of energy resources that include petroleum, natural gas, electricity, renewable energy, and coal. Based on publicly accessible details from the National Pipeline Mapping System (NPMS) and the U.S. Energy Information Administration, key infrastructure supporting overall pipeline transport and power generation throughout the state are highlighted below.[56]

Exhibit 3-9: Delaware's Pipeline Networks



- Natural gas distribution includes 387 miles of gas pipeline throughout Delaware (**Exhibit 3-9**). Additional privately-owned assets and localized distribution networks (not available via NPMS) will also influence first/final mile gas distribution.
- Petroleum distribution includes 44 miles of petroleum pipeline (**Exhibit 3-9**), primarily connected with Delaware's lone oil refinery located in Delaware City, as well as localized supply connections used for fuel storage at DAFB.
- Beyond pipeline assets and considering Delaware's multimodal infrastructure, significant amounts of petroleum and petroleum products are also transported by truck, rail, barge, and ship, both domestically and internationally.
- Whether based on deliveries related to fuel (e.g., petroleum, gas, coal) or equipment (e.g., machinery, solar panels, wind turbine blades), all power generating sites generally fall into the "freight intensive sector" category (as discussed in Chapter 2.3). Power generation sites throughout Delaware are located in **Exhibit 3-10**.
- Delaware currently has only one wind power plant – a utility-scale 2-megawatt wind turbine located at the University of Delaware's satellite campus in Lewes.[57]
- Delaware has 11 solar photovoltaic power plants located throughout the state (**Exhibit 3-10**).

Exhibit 3-10: Delaware's Power Generating Sites [58]



4 Freight Performance, Trends, and Needs

Understanding how well Delaware's freight transportation systems perform, as well as the key **freight relevant trends, needs, or programs** that potentially influence that performance, are critical steps toward identifying the solutions needed to effectively maintain and enhance freight transportation opportunities throughout the state.

State Freight Planning Collaboration

Beyond technical details, the summary of Delaware's freight trends, performance issues, needs, and related action planning efforts is equally informed by collaborative information sharing and review/feedback opportunities that span state and regional organizations, as well as private and public sector interests.

The Delmarva Freight Working Group plays a lead role in facilitating collaborative freight planning opportunities in Delaware. This group is an ongoing transportation planning and economic development partnership coordinated by the University of Delaware's Institute for Public Administration (IPA) alongside DelDOT and the state's MPO partners at WILMAPCO, Dover Kent MPO, and S/WMPO. The Delmarva Freight Working Group enhances awareness and understanding of freight planning programs; advances research and planning for freight and goods movement; highlights freight industry issues, needs, and opportunities; and encourages public-private partnership and networking. Group efforts in 2020-2022 (see **Appendix B**) that directly helped to inform and guide updates to the Delaware State Freight Plan included:

- Delmarva Freight Working Group Meetings (monthly)
- Delmarva Freight Summit (annual)
- Delmarva Winter Freight Forum (annual)
- Delmarva #FreightFriday interviews via IPA's First State Insights podcast

Members of the Delmarva Freight Working Group also actively support Delaware freight planning from a regional perspective through participation in other multi-jurisdictional discussions with the Maryland Department of Transportation (MDOT), Pennsylvania Department of Transportation (PennDOT), Delaware Valley Regional Planning Commission (DVRPC) and DVRPC Freight Task Force Meetings, Delmarva Water Transport Committee (DWTC), and The Eastern Transportation Coalition (TETC), among others.

4.1 FREIGHT EMPHASIS AREAS

One unique challenge to freight transportation planning is the significant breadth and depth of topics, influences, programs, and interests that overlap any number of freight-related discussions. This diversity extends to public and private interests at all levels, including federal, state, and local agencies; divisions within any given agency; public and private freight operators; all manner of businesses, industries, and logistics; community leaders and the general public; and beyond. Capturing all possible topics and details that somehow relate to, affect, or are affected by freight within a single plan is simply not realistic.

As such, ongoing communications and collaborative/cooperative efforts at all levels are crucial to effective freight planning and its relationship with (or among) broader initiatives. In support of such efforts, and directly in sync with various details included under the latest IIJA-based state freight planning requirements (per 49 U.S.C. 70202), this plan summarizes key insights across ten "freight emphasis areas" as highlighted in **Exhibit 4-1**. Detailed data, program references, and relevant discussions for each freight emphasis area are compiled separately in **Appendix D** of this plan.

Exhibit 4-1: Delaware Freight Emphasis Areas [59]

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 suppor 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.

4.2 FREIGHT AREAS OF CONCERN

Freight areas of concern reflect mode-specific issues, needs, or uncertainties surrounding freight movements or freight hubs, specific components of the freight transportation infrastructure, or freight related trends or policies. Based on stakeholder feedback (including polling input from the Delaware Winter Freight Forum), such concerns typically vary in terms of their relative urgency and/or importance. Topics that were noted as both highly urgent and highly important include, for example, operational issues such as truck parking or truck routing, safety issues pertaining to railroad crossing conflicts or cybersecurity, and land use planning issues that may reflect a combination of needs such as freight access, development opportunities, or development conflicts. Other topics that have been noted as important, but less urgent, appear to focus on broader operations and maintenance needs, such as short line railroad preservation and dredging programs.

Freight areas of concern in Delaware and their potential influence on the state's overarching freight goals are summarized on **Exhibit 4-2** and **Exhibit 4-3**.

4.3 FREIGHT AREAS OF OPPORTUNITY

Freight areas of opportunity reflect a slightly different perspective with an emphasis on business and industry issues, economic development trends, and areas where implementing or advancing specific programs or project improvements will help to foster growth while also addressing other needs. Such opportunities often relate to enhancing market access or key development sites, leveraging the benefits of various freight relevant technologies, or expanding the use and efficiency of multimodal freight transportation options in the state.

Freight areas of opportunity in Delaware and their potential influence on the state's overarching freight goals are summarized on **Exhibit 4-4** and **Exhibit 4-5**.

	*Truck / Motor Freight*		*Waterways*		*General Concerns*
	*Rail*		Air Cargo		*Undesignated Truck Parking Clusters*
	*Ports*		*Pipeline*		*Truck Bottlenecks*

Exhibit 4-2: Delaware Freight Areas of Concern (Map)

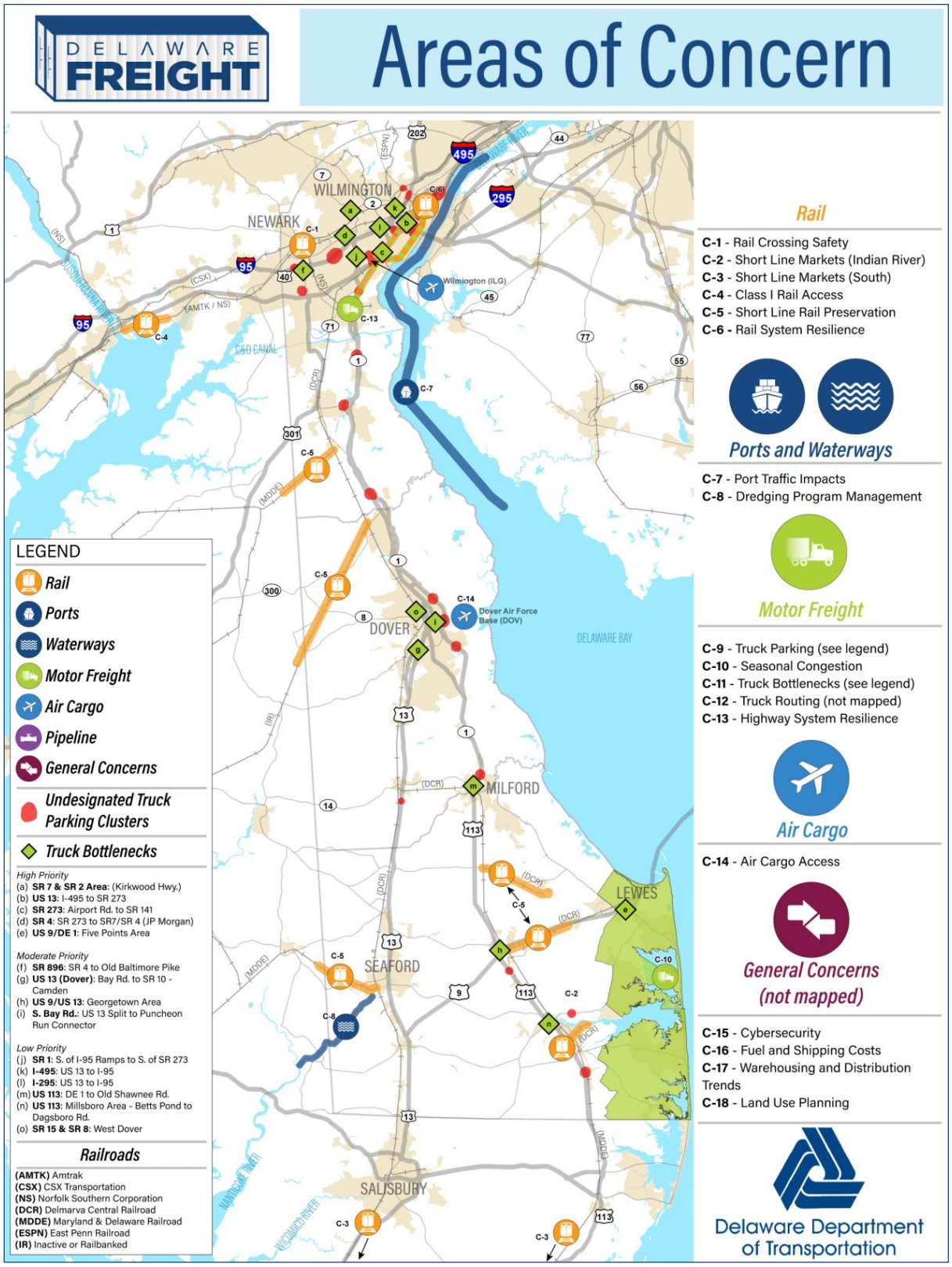


Exhibit 4-3: Delaware Freight Areas of Concern (Details)

	RAIL	S&S	Econ	CMA	O&M	RSE
C-1	**Rail Crossing Safety** Vehicle and pedestrian conflicts at rail crossing locations (e.g., through the City of Newark)	●			○	○
C-2	**Short Line Rail Markets (Indian River)** Indian River Secondary operations and the direct impact of potential coal freight reductions		●	○	○	○
C-3	**Short Line Rail Markets (South)** Preservation of rail markets south of Delaware, especially with the ending of operations for Bay Coast Railroad (BCR) and a loss of system connectivity with closure of the Cape Charles Rail Car Float		○	●	○	○
C-4	**Class I Rail Access** NEC freight delays and access constraints to the Delmarva Peninsula. Chesapeake Connector project emphasis and potential benefits	○	○	●	○	○
C-5	**Short Line Rail Preservation** Preservation of short line rail assets and service	○	○	○	●	○
C-6	**Rail System Resilience** Impacts of sea-level rise on existing rail lines, especially in/around the City of Wilmington	○		○	○	●
	PORTS AND WATERWAYS	S&S	Econ	CMA	O&M	RSE
C-7	**Port Traffic Impacts** Effect of Post-Panamax traffic and Delaware River Main Channel Deepening on freight volumes. Additional container traffic with future port expansion (e.g., at Edgemoor, DE or around Philadelphia, PA)		●	○	○	
C-8	**Dredging Program Management** Dredging for continued river access (e.g., the Nanticoke) and identification of suitable sites for excess dredge materials		○	○	●	○
	MOTOR FREIGHT	S&S	Econ	CMA	O&M	RSE
C-9	**Truck Parking** Overnight truck parking in undesignated areas, as detailed in the 2021 *Statewide Truck Parking Study*	●	○		●	○
C-10	**Seasonal Congestion** Seasonal or tourist-based congestion and related conflicts with (or impacts to) freight traffic, particularly with population growth in Southern Delaware	○	○		●	○

Legend: ● = **primary** goal influence; ○ = **secondary** goal influence; relative to the overall freight plan goals that include:

S&S = Safety & Security; **Econ** = Economic Vitality; **CMA** = Freight Connectivity, Accessibility, and Mobility; **O&M** = Systems Mgmt., Operations, and Maintenance; **RSE** = Resilience, Sustainability, and Environmental Stewardship

Exhibit 4-3: Delaware Freight Areas of Concern (Details) (Continued)

	MOTOR FREIGHT (Continued)	S&S	Econ	CMA	O&M	RSE
C-11	**Truck Bottlenecks** Congestion and delays that significantly affect freight mobility and reliability, including findings from the 2018 and 2020 *Truck Bottlenecks Identification* efforts	○	○		●	○
C-12	**Truck Routing** Areawide truck routing/information needs/issues, both physical and digital	○		○	●	
C-13	**Highway System Resilience** Impacts of sea-level rise on the existing roadway system, especially along several final-mile delivery segments near the coastline and in/around the City of Wilmington	○		○	○	●
	AIR CARGO	S&S	Econ	CMA	O&M	RSE
C-14	**Air Cargo Access** Truck impacts to local roads serving Garrison Oak and the Central Delaware Aviation Complex (CDAC)	○	○	●		
	GENERAL CONCERNS	S&S	Econ	CMA	O&M	RSE
C-15	**Cybersecurity** Cybersecurity within the supply chain and potential ripple effects on various transportation modes (e.g., as influenced by recent examples of cyber-attacks), particularly with expansion of future freight technologies	●	○		○	
C-16	**Fuel and Shipping Costs** With 75% of goods moving in Delaware via trucks, rising fuel prices cause increased shipping costs resulting in higher costs for goods		●		○	
C-17	**Warehousing and Distribution Trends** Impacts of e-commerce expansion and related demands on the road network, final-mile network, and in the area of new distribution facilities (e.g., Amazon in Seaford, DE)		●	○	●	○
C-18	**Land Use Planning** Enhance efforts to identify and reduce or manage the potential impacts of freight facility expansion (and any related negative public perceptions) beginning in the earliest phases of land use planning		●	○	○	●

Legend: ● = **primary** goal influence; ○ = **secondary** goal influence; relative to the overall freight plan goals that include:

S&S = Safety & Security; **Econ** = Economic Vitality; **CMA** = Freight Connectivity, Accessibility, and Mobility; **O&M** = Systems Mgmt., Operations, and Maintenance; **RSE** = Resilience, Sustainability, and Environmental Stewardship

Exhibit 4-4: Delaware Freight Areas of Opportunity (Map)

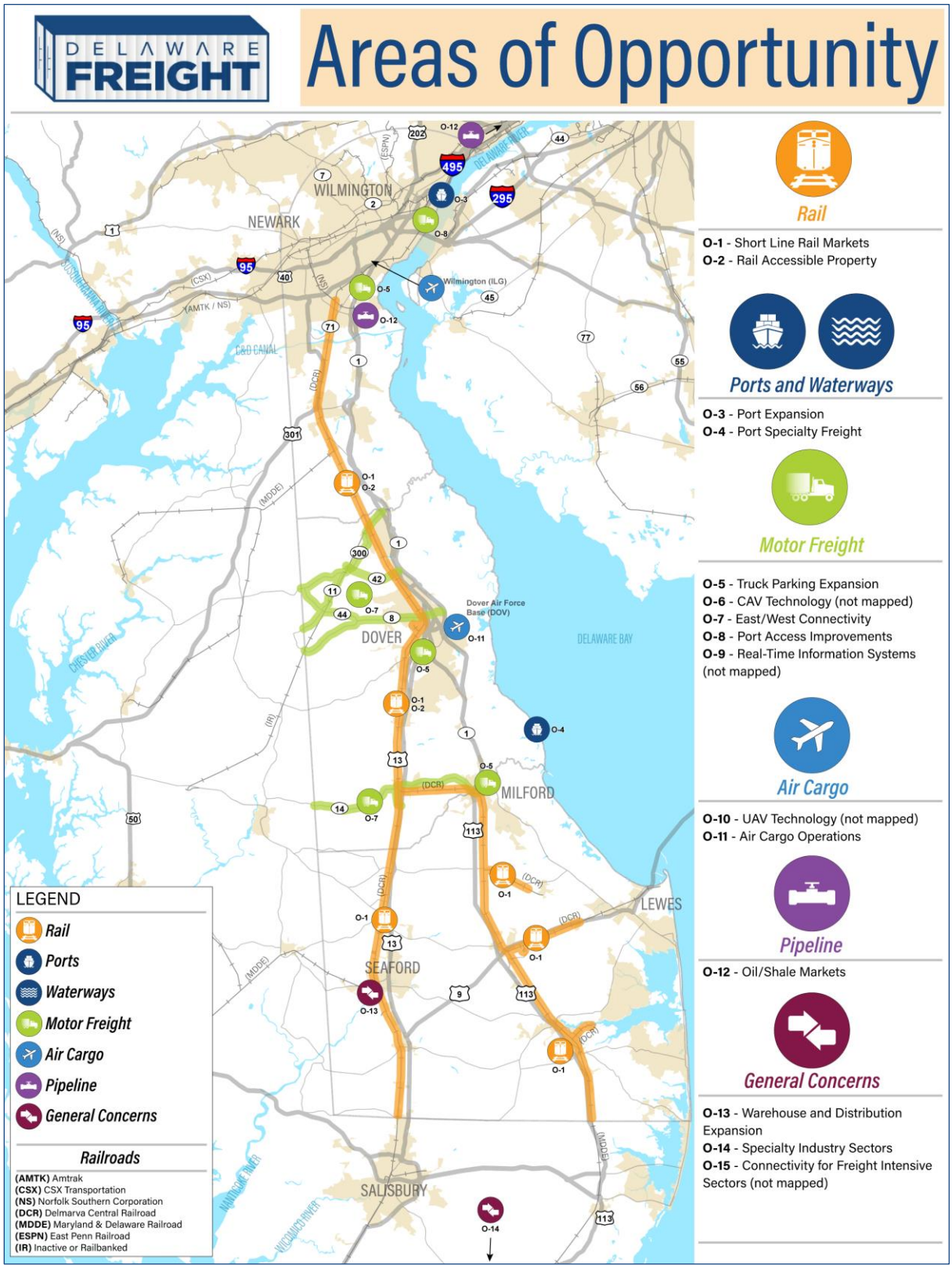


Exhibit 4-5: Delaware Freight Areas of Opportunity (Details)

	RAIL	S&S	Econ	CMA	O&M	RSE
O-1	**Short Line Rail Markets** Facilitate continued growth in businesses using rail along the Delmarva Secondary, with potential benefits including reduced truck volumes, less congestion, lower road maintenance costs, and system redundancy		●	○	○	○
O-2	**Rail Accessible Property** Leverage the 2018 *Rail Freight Zoning Study* and its inventory of properties with zoning suitable for future commercial, manufacturing, or industrial sites that could promote/support economic growth		●	○		
	PORTS AND WATERWAYS	S&S	Econ	CMA	O&M	RSE
O-3	**Port Expansion** Leverage expansion of the Port of Wilmington in Edgemoor (first phase of operation planned for 2023)		●	○	○	○
O-4	**Port Specialty Freight** Consider use of Big Stone Anchorage to support offshore wind development component staging, assembly, and float-out capabilities		○	●	○	○
	MOTOR FREIGHT	S&S	Econ	CMA	O&M	RSE
O-5	**Truck Parking Expansion** Advance truck parking facilities recommended in the 2021 *Delaware Statewide Truck Parking Study*	●	○	●	○	○
O-6	**CAV Technology** Plan for connected and automated vehicle (CAV) technology, including infrastructure development to facilitate Level 4 autonomy (i.e., trucks operating without a human driver under limited conditions)	●			●	
O-7	**East/West Connectivity** Leverage ongoing studies to improve east/west connections between Kent County, DE, and US 301 in Maryland (e.g. Routes 300, 8, 44, 11, 42, and/or 14)	○	○	●	○	○
O-8	**Port Access Improvements** Advance recommendations from the *Truck Access Improvements in the Port of Wilmington Area* study		○	●	○	○
O-9	**Real-Time Information Systems** Continue planning and application of DelDOT's Truck Parking Information and Work Zone & Incident Communications Systems to provide drivers information in a safe and non-intrusive manner	○			●	

Legend: ● = **primary** goal influence; ○ = **secondary** goal influence; relative to the overall freight plan goals that include:

S&S = Safety & Security; **Econ** = Economic Vitality; **CMA** = Freight Connectivity, Accessibility, and Mobility; **O&M** = Systems Mgmt., Operations, and Maintenance; **RSE** = Resilience, Sustainability, and Environmental Stewardship

Exhibit 4-5: Delaware Freight Areas of Opportunity (Details) (Continued)

		S&S	Econ	CMA	O&M	RSE
	AIR CARGO					
O-10	**UAV Technology** Prepare for emergence of unmanned aerial vehicles (UAVs or drones), including collaboration with logistic companies and key Delaware industries (e.g., pharmaceuticals) to move low-weight/high-value deliveries	○	○	●	○	○
O-11	**Air Cargo Operations** Leverage recommendations, truck connections, and opportunities from the *Dover Air Cargo Freight Access Study* to support growth at Garrison Oak and the Central Delaware Aviation Complex (CDAC)	○	○	●	○	○
	PIPELINE	S&S	Econ	CMA	O&M	RSE
O-12	**Oil/Shale Markets** Leverage the potential for export of oil/shale products domestically or internationally via expanded regional refinery and pipeline operations		●	○		
	GENERAL OPPORTUNITIES	S&S	Econ	CMA	O&M	RSE
O-13	**Warehouse and Distribution Expansion** Leverage potential regional hubs for warehouse/distribution expansion, such as Seaford, DE		●	○	○	○
O-14	**Specialty Industry Sectors** Leverage opportunities related to specialty industry sectors such as space/aerospace and related technology influences linked with NASA Wallops Flight Facility		●	○	○	
O-15	**Connectivity for Freight Intensive Sectors** Emphasize freight connectivity for areas/industries in Freight Intensive Sectors (FIS) (40% of all employment in Delaware) that are highly dependent on goods movement for marketplace competitiveness		○	●	○	

Legend: ● = **primary** goal influence; ○ = **secondary** goal influence; relative to the overall freight plan goals that include:

S&S = Safety & Security; **Econ** = Economic Vitality; **CMA** = Freight Connectivity, Accessibility, and Mobility; **O&M** = Systems Mgmt., Operations, and Maintenance; **RSE** = Resilience, Sustainability, and Environmental Stewardship

4.4 FREIGHT AREAS OF UNCERTAINTY

Freight areas of uncertainty acknowledge that despite the best of plans, critical factors that potentially influence freight demands, trends, supply chains, or other aspects of the multimodal freight transportation system are often simply beyond the state's control. External driving forces that could radically shift freight needs and priorities at any time could be influenced by unexpected economic factors, private industry decisions, unanticipated growth, global conflicts, pandemics, sea-level rise, or other unknown futures.

In light of these uncertainties, this plan also incorporates perspectives based on high-level qualitative reviews of three future freight planning scenarios that focus on "**Growth**", "**Technology**", and "**Resilience**", detailed in **Appendix E**. This approach explores the freight implications of each scenario alongside action plan opportunities that may help to manage or mitigate potential impacts. Key findings determined, for example, that projects that aligned favorably (per screening efforts detailed in **Chapter 5**) with enhancing the NHFN, the first/final mile network, or reducing impacts to environmental justice communities would all provide notable benefits under all scenarios. This linkage between long-term scenario planning insights and short-term project screening efforts provides an additional reference to help balance competing project/strategy interests, limited funding resources, or other prioritization issues as part of ongoing freight planning efforts beyond the completion of the current plan update.

5 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.

5.1 FREIGHT PROJECT CANDIDATES

Based on a review of Delaware's typical transportation planning and programming resources (see sidebar), as well as other public/private partner resources such as rail, port, or airport strategic plans, projects that are currently in-progress or moving through the planning and development phase cover a broad set of potential benefits relevant to freight transportation. These benefits may include direct freight influences, such as improvements for truck parking or truck bottleneck needs, or the implementation of multimodal rail, port, or air projects. Several types of projects may also provide indirect freight influences, such as the improvement of background congestion, safety, or connectivity along corridors that are also frequently traveled by trucks or used to access multimodal facilities. Key areas of focus include a variety of project types such as interstate, road, interchange, intersection, first/final mile, and parking improvements; as well as intermodal or multimodal improvements spanning rail, port, airport, or related assets.

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**)

Highway-oriented projects inherently represent a significant part of the state's transportation planning and programming emphases from the resources listed above. Intermodal and multimodal projects are also critical, but these candidates often span or overlap other programs, agencies, public/private investments, and/or the outcomes of targeted studies (such as those referenced previously in **Chapter 1.3** of this plan). At a high-level, key potential sources or project candidates for all freight modes include typical "truck" or "highway" improvements from the CTP and related resources noted above, as well as the following details:

- **Truck Bottleneck Improvements:** Efforts to address truck bottlenecks play a particularly important role in the state's overall freight action plan. Not only do they directly align with federal requirements, they also often yield broader freight mobility benefits relative to truck connectivity and accessibility needed for other modes of freight transportation. To this end, DelDOT and their MPO planning partners have leveraged efforts from the *Delaware Statewide Truck Bottleneck Analysis* (described in **Appendix D** and **Appendix F**) to overlay and potentially prioritize project candidates that would directly help to improve the state's worst bottlenecks. Truck bottleneck improvement projects are compiled in **Appendix G**.

- **Rail Projects:** Rail project candidates may include annual improvements covered under DelDOT's Highway-Rail Grade Crossing Safety Program (HRGX), in relation to rail safety grant opportunities, or in coordination with private resources such as maintenance or improvement efforts via the rail owners/operators directly. Long-term opportunities may also include coordination of interests with Delmarva Central Railroad to add rail capacity/extensions in relation to the former BASF Polymer Plant in Seaford, develop a new Multimodal Freight Terminal in Harrington, or implement a new Seaford Barge-to-Rail Intermodal Terminal. Outcomes from the *Dover/Kent County MPO Rail/Freight Zoning Study* (2018 and 2022) may also introduce future project opportunities relative to the preservation or development of rail-relevant land use parcels.

- **Port Projects:** Improvements for the Port of Wilmington will involve program coordination through the Diamond State Port Corporation (DSPC) (port owner) and GT USA Wilmington, LLC (port operator). Potential "inside the gate" port projects may rely on details from the Port's Strategic Master Plan (2016 or future updates), which have been compiled for reference in **Appendix H**. Other "near-port" project candidates may also focus on port access improvements that were the focus of the *Port of Wilmington Area Alternative Study* (2022), which evaluates a series of possible improvements to enhance truck circulation in and around the Port.

  Ongoing coordination for port project candidates (or other waterway related candidates) should also include a thorough review of potential opportunities to leverage discretionary grant programs through USDOT and MARAD, including (but not limited to) port-specific opportunities through Port Infrastructure Development Program Grants (PDIF) or Marine Highway Program Grants.

- **River/Barge Projects:** Channel improvements, river dredging, and related projects will involve coordination with USACE managed projects or similar efforts, including large-scale programs focusing on the Delaware River/Bay system and the Chesapeake & Delaware Canal. Coordination of efforts may also involve tracking through regular meetings of the Delmarva Water Transport Committee (DWTC). Long-term opportunities for other inland waterways may also overlap study outcomes or interests related to the Nanticoke River via the Seaford Barge-to-Rail Intermodal Terminal mentioned previously, as well as the Wicomico River via the *Salisbury Port Feasibility Study* (2021) that explores freight access just south of Delaware.

- **Airport Projects:** Airport improvements will involve program coordination through the Delaware River & Bay Authority (DRBA) for Wilmington ILG, or corresponding partners for other airports throughout the state. Future project improvement candidates may also be identified as follow-up to previously referenced studies, including the *Dover Air Cargo Freight Access Study* (2021) and the *Dover Air Force Base Compatible Use Study* (2023).

5.2 FREIGHT PROJECT SCREENING

Considering the extent of freight needs throughout Delaware, alongside limited programmatic funding resources and the highly competitive nature of various grant opportunities, it is important to filter any list of project candidates to help determine which ones best fit into a "freight" category and potentially qualify for (and make the best use of) freight related project funding. To this end, DelDOT, along with WILMAPCO, Dover/Kent MPO, Salisbury-Wicomico MPO, and the University of Delaware, coordinated to develop 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.

The screening methodology incorporates a mixture of data, mapping, and qualitative insights through 15 criteria (**Exhibit 5-1**). Several criteria directly relate to IIJA freight emphasis areas, including an emphasis on truck bottleneck reduction, protection of environmental justice (EJ) communities, air quality improvements, and consideration of climate change effects such as sea-level rise (SLR). The criteria also cover a balanced view of the potential freight benefits of any given project alongside a general sense of project readiness or eligibility with respect to factors such as prior study documentation, planning/programming status, project type, and cost.

An initial set of approximately 120 projects were screened from Delaware's CTP and related planning/programming resources. Draft results are included in **Appendix I** and available for review via online mapping tools (**Exhibit 5-2**). It is anticipated, however, that the list of project candidates and screening details will continue to evolve as a working tool to be used/referenced on an ongoing basis as part of broader planning/programming efforts beyond just this latest update to the freight plan.

Exhibit 5-1: Delaware Freight Project Screening Criteria

Project Screening Criteria		Detail	Input
1	**Study Status**	Is the project associated with a completed study?	identify study if/as applicable, or No
2	**NHFN**	Where is the project in relation to the National Highway Freight Network (NHFN)?	PHFS, CUFC, CRFC, Other NHS
3	**STRAHNET**	Is the project located along the Strategic Highway Network (STRAHNET)	Yes, No
4	**TOMP Congestion**	Is the project located along one of the congestion hotspots in DelDOT TMC's Traffic Operations Management Plans (TOMP)?	Yes, No
5	**DE Truck Bottleneck**	Is the project located within one of the 15 Delaware Statewide Truck Bottlenecks (by relative ranking)?	Low, Moderate, High, or No
6	**First/Final Mile Network**	Is the project located along a designated First/Final Mile Network route or provide direct access to one?	Yes, No
7	**DE State Strategies**	Where is the project located in relation to the 2020 Delaware Strategies (map) for Policies and Spending?	Investment Level 1, 2, 3, 4, or n/a
8	**CTP/LRTP Status**	Project status within DelDOT CTP/MPO Long Range Plans	identify status/ source, or n/a
9	**EJ Community**	To what degree does the project relate to an EJ community based on minority/low-income concentrations?	High, Moderate, or n/a based on % [(a)]
10	**EJ Air Quality**	To what degree does the project relate to an EJ air quality issue based on diesel particulate matter concentrations?	High, Moderate, or n/a based on % [(a)]
11	**SLR**	Is the project located within a four-foot inundation area for Sea Level Rise (SLR)?	Yes, No
12	**Project Key Focus**	What is the project type or key focus?	Identify type as applicable [(b)]
13	**Regional Impact**	Does the project yield a potential regional impact?	Direct, Indirect, Final Mile, or nominal
14	**IIJA Project Eligibility**	What is the project's potential eligibility with respect to funding or grant resources under IIJA Program(s)?	TBD [(c)]
15	**Project Cost Range**	What is the cost range for project construction or implementation?	TBD [(c)]

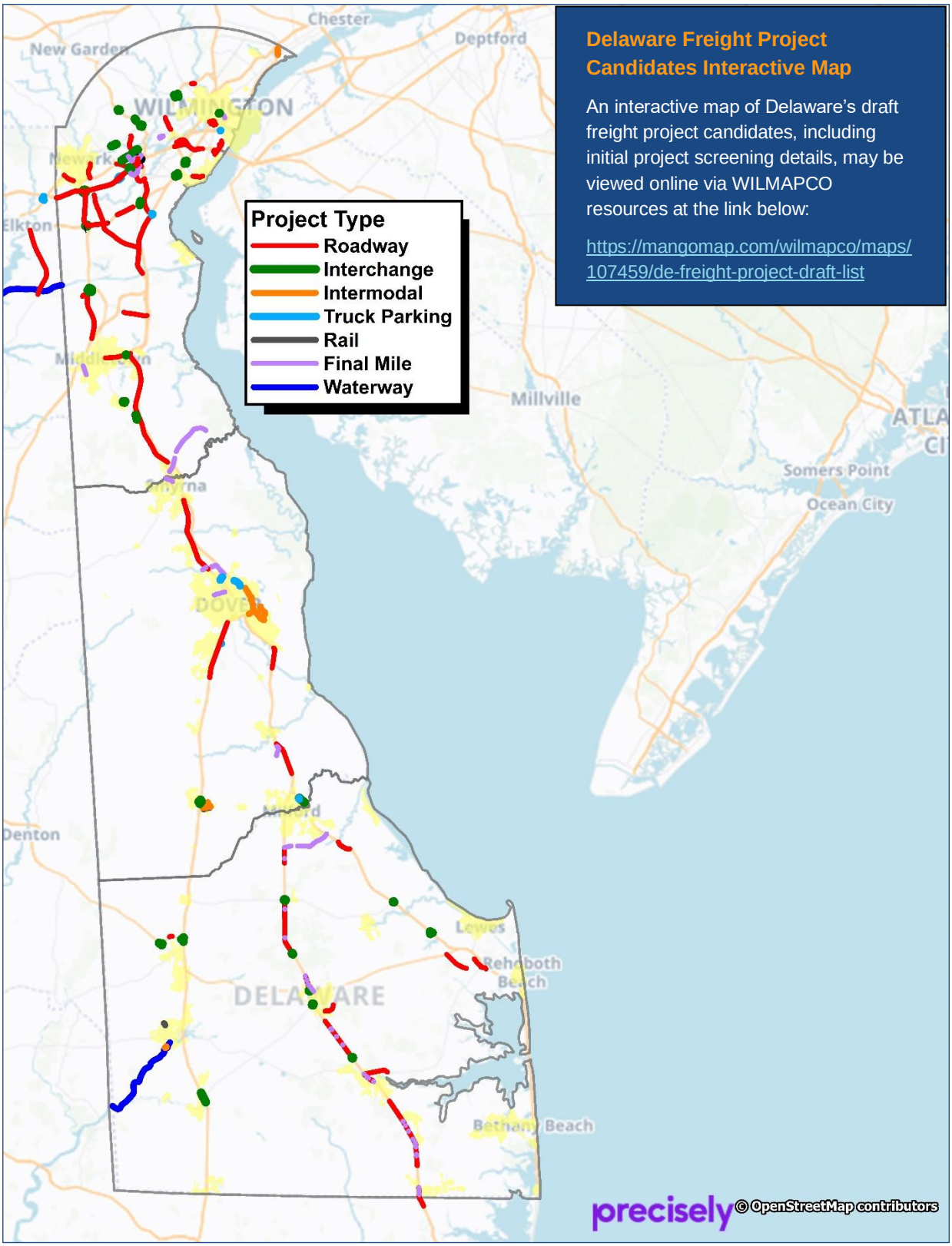
Table Notes:

(a) High = 80-100th percentile; Moderate = 60-80th percentile; Low or n/a = less than 60th percentile.

(b) Key focus types generally include intermodal, interstate, road, intersection, interchange, parking, final mile, other.

(c) Screening input details are to be determined (TBD) pending ongoing project planning/programming coordination.

Exhibit 5-2: Delaware Freight Project Candidate Mapping



5.3 FREIGHT PROJECT FUNDING RESOURCES

5.3.1 Federal Programs

Transportation funding administered through USDOT, DelDOT, and MPO planning partners can draw from a wide variety of federal investment sources. At a broad level, these sources cover four general types of programs as described below per USDOT's new *DOT Navigator* website.[60]

- **Discretionary Grant Funding Programs:** USDOT administers competitive discretionary grant programs through its operating administrations (OAs) and the Office of the Secretary of Transportation (OST). Each OA (e.g., Federal Highway Administration, Federal Transit Administration) solicits applications through a Notice of Funding Opportunity (NOFO) and selects projects based on program eligibility, evaluation criteria, and Departmental or program priorities.

- **Formula Grant Funding Programs:** Most federal transportation funding flows through formula grants. Formula grant programs allocate funding to recipients based on formulas set by Congress. DOT distributes these funds to States, Federally recognized Tribal recipients, and transit agencies. The funds may be further allocated to localities at State, Tribal, or agency discretion.

  Among the largest formula funding programs are the Federal-Aid Highway Program, which apportions funding to state DOTs by formula, and the Urbanized Area Formula Grants (Section 5307) that fund transit capital and operating assistance. Formula Grants for Rural Areas (Section 5311) provide capital, planning, and operating assistance to States and Federally recognized Tribes to support public transportation in rural areas.

- **Loan Financing Programs:** Credit assistance programs leverage Federal funds to attract private and other non-Federal co-investment for transportation projects. This can take the form of secured (direct) loans, loan guarantees, and lines of credit. The Build America Bureau manages DOT's financing programs. The Federal Highway Administration (FHWA) Center for Innovative Finance Support also houses helpful resources related to USDOT's financing options.

- **Public-Private Partnerships (P3s):** P3s involve collaboration between one or more government agencies and private-sector companies to leverage public and private resources to develop and execute a project. This model allows for greater private participation in project delivery and can bring creativity, efficiency, and innovative solutions to address complex transportation issues.

Collectively, the IIJA "allocated funding to over 350 distinct programs across more than a dozen federal departments and agencies."[61] Program focus areas, eligibility, funding levels, and timeframes vary widely and are extensively detailed online (see sidebar). Program groups are generally available for roads, bridges, and major projects; passenger and freight rail; public transportation; airports and FAA facilities; ports and waterways; safety; electric vehicles, buses, and ferries; clean energy and power; water; resilience; environmental remediation; and broadband.

Federal Funding Program Details

Considering the breadth and dynamic nature of potential funding resources, summaries from the official White House and USDOT sources have been compiled for ease of reference in **Appendix J**, as well as corresponding details available online:

https://www.whitehouse.gov/build/

https://www.transportation.gov/dot-navigator

5.3.2 Delaware Apportionments and Opportunities

Based on IIJA funding programs (**Appendix J**) and state-specific details (**Appendix K**), five-year (FY 2022-2026) formula funding estimates for Delaware are anticipated to include (but are not limited to) the following:[62]

- **$1.4 billion** in highway/bridge formula funds
- **$27 million** to reduce transportation-related emissions
- **$31 million** to increase the resilience of the state's transportation system
- **$15 million** for highway safety traffic programs to improve driver behavior and reduce deaths/injuries from motor vehicle-related crashes
- **$9.2 million** to augment commercial motor vehicle (CMV) safety efforts to reduce CMV crashes through the Federal Motor Carrier Safety Administration (FMCSA)'s Motor Carrier Safety Assistance Program (MCSAP) formula grant
- **$186 million** to improve public transportation options across the state
- **$18 million** to support the expansion of an Electric Vehicle (EV) charging network in the state
- **$6 million** for infrastructure development for airports including airside and landside needs; improving runways, taxiways, and airport towers; terminal development; and noise reduction

Beyond formula-based programs, other funding opportunities under the IIJA also include the ability for Delaware to compete for additional national funding through a variety of discretionary grant programs, including those highlighted in **Appendix J** and **Appendix K**. Specific funding allocations, project obligations, and competitive grant candidate interests are all subject to change as part of broader ongoing transportation planning and programming efforts. Coordinated and collaborative efforts between DelDOT, the Delaware Department of Finance, the state's MPO planning partners, and other agency/stakeholder interests will continue to track, plan for, and obligate funds as needs and resources change over time.

5.3.3 National Highway Freight Program Funding

As referenced at the outset of this chapter, one explicit requirement that must be addressed by a state freight plan is the development of a freight investment plan with a list of priority projects and a description of how funds made available to carry out the NHFP (23 U.S.C. §167) would be invested and matched. The NHFP was initially established under the FAST Act to improve the efficient movement of freight on the NHFN (described in **Chapter 3** of this plan) and support several goals (**Exhibit 5-3**).

Exhibit 5-3: National Highway Freight Program Goals [63]

Per **23 U.S.C. §167(a), (b)**, the National Highway Freight Program shall improve the efficient movement of freight on the National Highway Freight Network (NHFN) and support goals that include:
Investing in infrastructure and operational improvements that strengthen economic competitiveness, reduce congestion, reduce the cost of freight transportation, improve reliability, and increase productivity.
Improving the safety, security, efficiency, and resiliency of freight transportation in rural and urban areas.
Improving the state of good repair of the NHFN.
Using innovation and advanced technology to improve NHFN safety, efficiency, and reliability.
Improving the efficiency and productivity of the NHFN.
Improving State flexibility to support multi-State corridor planning and address highway freight connectivity.
Reducing the environmental impacts of freight movement on the NHFN.

As of February 2022, the five-year sum of estimated NHFP apportionments for all states amounted to approximately $7.1 billion total for FY 2022-2026, or between $1.374 billion to $1.487 billion annually.[64] For Delaware, specifically, the corresponding five-year NHFP total anticipates just over $30 million for FY 2022-2026, or between $5.8 million to $6.3 million annually. As part of broader planning and programming efforts, DelDOT will consider the expenditure of its NHFP resources with respect to the applicable program goals and eligible project uses (see Eligibility summary on the following page).

5.4 FREIGHT INVESTMENT PLAN

Delaware's freight investment plan for NHFP funding (see sidebar and **Appendix L**) is ultimately based on consideration of the freight project candidates, screening results, and funding programs/opportunities highlighted throughout this chapter, 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 must be fiscally constrained and include 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'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.

National Highway Freight Program Funding Eligibility

As detailed in **23 U.S.C. §167(h)(5)**, NHFP funds must contribute to the efficient movement of freight on the National Highway Freight Network and be identified in a freight investment plan included in the state's freight plan. A state may also obligate up to 30% of its total NHFP apportionment each fiscal year for freight intermodal or freight rail projects. Specific eligible project uses also include:

i. Development phase activities, including planning, feasibility analysis, revenue forecasting, environmental review, preliminary engineering and design work, and other preconstruction activities.

ii. Construction, reconstruction, rehabilitation, acquisition of real property (including land relating to the project and improvements to land), construction contingencies, acquisition of equipment, and operational improvements directly relating to improving system performance.

iii. Intelligent transportation systems and other technology to improve the flow of freight, including intelligent freight transportation systems.

iv. Efforts to reduce the environmental impacts of freight movement.

v. Environmental and community mitigation for freight movement.

vi. Railway-highway grade separation.

vii. Geometric improvements to interchanges and ramps.

viii. Truck-only lanes.

ix. Climbing and runaway truck lanes.

x. Adding or widening of shoulders.

xi. Truck parking facilities eligible for funding under section 1401 of MAP–21 (23 U.S.C. §137).

xii. Real-time traffic, truck parking, roadway condition, and multimodal transportation information systems.

xiii. Electronic screening and credentialing systems for vehicles, including weigh-in-motion truck inspection technologies.

xiv. Traffic signal optimization, including synchronized and adaptive signals.

xv. Work zone management and information systems.

xvi. Highway ramp metering.

xvii. Electronic cargo and border security technologies that improve truck freight movement.

xviii. Intelligent transportation systems that would increase truck freight efficiencies inside the boundaries of intermodal facilities.

xix. Additional road capacity to address highway freight bottlenecks.

xx. Physical separation of passenger vehicles from commercial motor freight.

xxi. Enhancement of the resiliency of critical highway infrastructure, including highway infrastructure that supports national energy security, to improve the flow of freight.

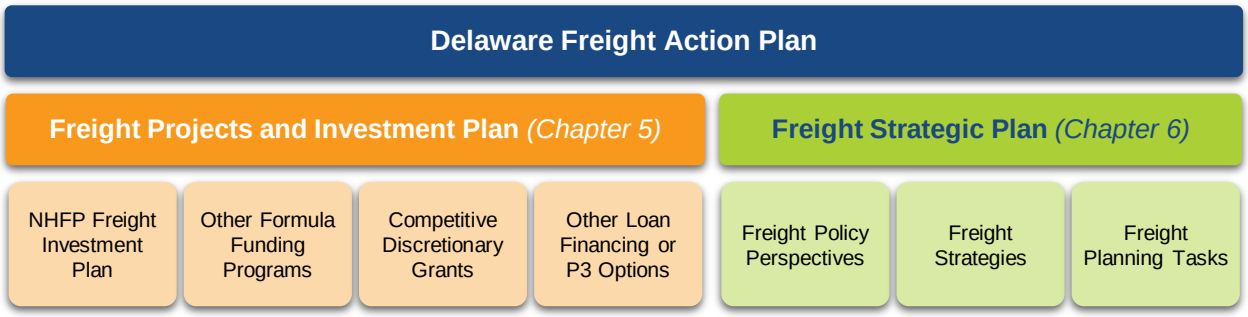
xxii. A highway or bridge project, other than a project described in clauses (i) through (xxi), to improve the flow of freight on the National Highway Freight Network.

xxiii. Any other surface transportation project to improve the flow of freight into and out of a facility described in subparagraph (B).

As detailed in **23 U.S.C. §167(h)(6)**, NHFP funds may also be used for other eligible costs for carrying out diesel retrofit or alternative fuel projects; conducting analyses and data collection related to the NHFP; developing and updating performance targets to carry out this section; and reporting to the Administrator to comply with the freight performance target under 23 U.S.C. §150.

6 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 pespectives 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.



6.1 FREIGHT POLICY PERSPECTIVES

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

In parallel with Delaware's freight vision and goals, key values or guiding principles within the state's overall policy perspectives on freight and freight planning include an emphasis as follows:

VALUE | Strategic Growth

Providing a well-planned multimodal freight system with efficient and reliable connections to major markets helps to stimulate local and regional economies by creating opportunities for companies to locate and grow in intentionally planned regions throughout Delaware, consistent with established Delaware Strategies for Policies and Spending. This pattern of growth includes leveraging appropriately located intermodal facilities and logistics centers where lower operating and transportation costs can be achieved outside of major urban areas, while also protecting Delawares' communities and rural areas.[65]

VALUE | Freight Intensive Sector Planning

Ongoing planning efforts and decision-making should include an emphasis on understanding and enhancing the key Freight Intensive Sectors (FIS) that contribute to high-density freight generating clusters throughout Delaware.

VALUE | Multimodal Efficiency

As freight activity continues to increase, it is important to consider the role of all modes of transport, including roads, rail lines, ports and navigable waterways, and airports. Prioritizing investments across all modes will make the system more efficient.

VALUE | Rail Partnerships and Opportunities

Delaware's freight rail system is considered an environmentally friendly "green" mode of transportation as it reduces highway congestion, improves safety, and uses less energy per ton-mile than other modes. Rail corridors have historically been economic drivers for communities large and small throughout the state. Maintaining, improving, and revitalizing Delaware's rail network should continue to provide new opportunities for industrial and agricultural market growth. To advance the improvements needed for continued success, state partnerships with key rail stakeholders and others are critical.[66]

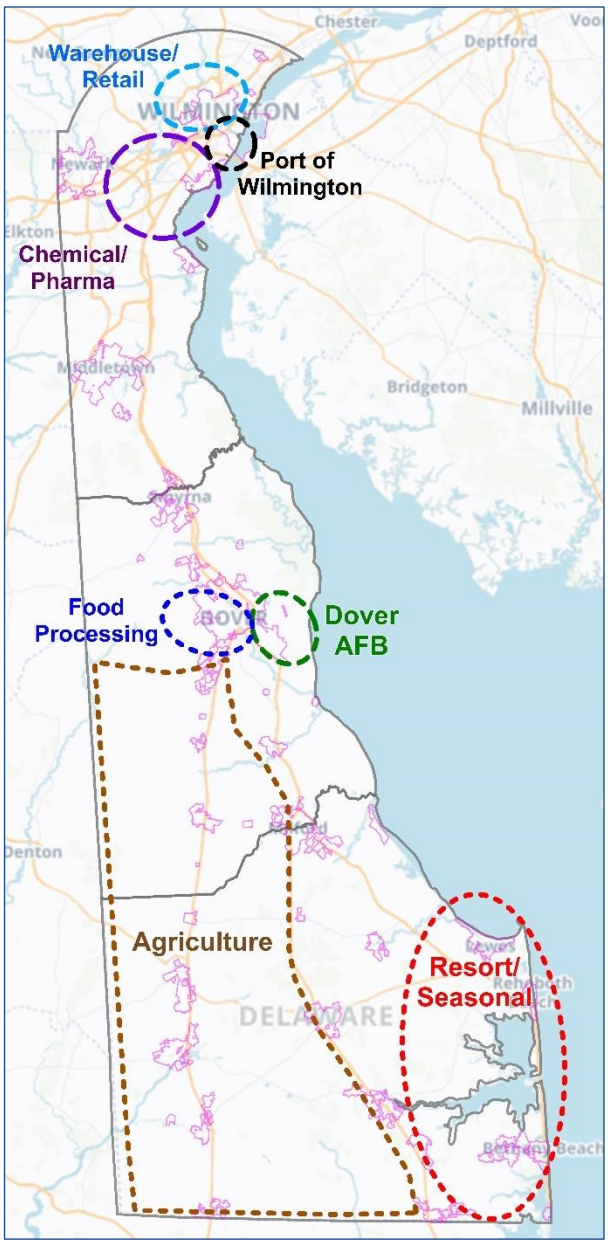
VALUE | Innovation and Technology

The freight industry is transforming how information and communication technologies are applied to optimize global supply chains, placing a premium on the reliability of transportation services. Emerging technological advances in data analysis systems, automatic vehicle and container identification systems, and satellite navigational systems will improve the efficiency of freight movement. Freight automation will have the potential to revolutionize the freight industry and improve the safety and efficiency of freight. In turn, this will increase demand for advanced mechanical and data analysis employees, demanding higher skills and higher pay than traditional freight work.[67] Newer technologies that are also expected to play an increasingly important role in freight transportation include CAV influences, traffic monitoring and enforcement systems, and final mile alternative delivery modes.

VALUE | Regionally Relevant Planning

Freight planning and considerations throughout Delaware must balance statewide priorities alongside regionally relevant freight and industry needs that vary across the state and the broader Delmarva Peninsula. This approach will help to account for the different types of industry and employment trends, supply chain activities, freight types and volumes, and critical freight modes that all contribute to different parts of the state's overall economy. Though not mutually exclusive, vastly different freight pattern influences occur in New Castle County with a heavy presence of chemical and pharmaceutical industries, warehousing and retail trade, and international port activity in New Castle County; versus Kent and Sussex counties with a significant shift to food processing and agriculture, as well as the seasonal influence of resort areas located along Delaware's coastline (**Exhibit 6-1**).

Exhibit 6-1: Regional Freight Variability in Delaware



VALUE | Regional Coordination

While freight transportation system planning will always benefit from effective coordination across jurisdictional boundaries, this fact is exceptionally true in Delaware. The state plays a critical role given its geographic location relative to the broader Delmarva Peninsula, the I-95 corridor and Northeast (rail) corridor, and connections to major metropolitan areas in the surrounding region. Freight interests and challenges also span a wide-ranging set of customers and needs that vary across the agriculture industry, tourism, international port operations, military freight for DAFB, specialty freight for space operations, and many others.

To this end, DelDOT and their MPO planning partners will continue a successful track record of frequent and direct coordination with regional partners via state-sponsored activities such as the Delmarva Freight Working Group, annual Delaware Freight Summits, and annual winter freight forums; as well as out-of-state involvement via the Maryland State Freight Advisory Committee, DVRPC executive committees and freight workshops, Baltimore Metropolitan Council (BMC) freight working group membership, and The Eastern Transportation Coalition (TETC), among others.

6.2 FREIGHT STRATEGIES

Freight strategies in this chapter begin defining the general plan of action required to move Delaware toward its freight vision and goals (per **Chapter 6.1**) and, in turn, will be supported or implemented by way of the more specific planning tasks outlined later (per **Chapter 6.3**). These strategies are organized below (**Exhibit 6-2**) and on the following pages in relation to Delaware's five freight planning goal categories.

Exhibit 6-2: 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	

6.2.1 Safety and Security

Goal: *Ensure the safe and secure movement of people and goods while limiting the potential for incidents that may cause harm or disrupt the network operations.*

STRATEGY | Crash Prevention

Monitor safety records and crash statistics to identify locations with safety concerns within the freight network and prioritize traffic safety improvements.

STRATEGY | Truck Parking Enhancements

Identify and promote the use of overnight truck parking facilities and invest in enhancements to accommodate drivers, while also advancing specific truck parking facilities per DelDOT's 2021 *Delaware Statewide Truck Parking Study*.

STRATEGY | OS/OW Vehicle Enforcement

Continue to foster agency partnerships and leverage technology applications to ensure effective monitoring, management, permitting, and enforcement of oversize/overweight (OS/OW) trucks.

STRATEGY | Incident Management Planning

Continue planning and collaboration through DelDOT's Integrated Transportation Management Program, the DelDOT Transportation Management Center (TMC), and countywide Transportation Management Teams (TMT) to support the development and implementation of incident response plans, including consideration of truck traffic accommodations (e.g., real-time information, temporary truck staging areas, emergency truck parking areas, temporary truck detour/diversion routes) during incidents when needed.

STRATEGY | Hazardous Materials Planning

Foster partnerships to anticipate, screen, monitor and track the safe and secure movement of hazardous materials, and to have contingency plans in place for addressing emergency situations.

STRATEGY | Homeland Security Planning

Continue interagency coordination for managing border (seaport) security, cargo screening and tracking, protecting assets and developing contingency plans, including Transportation Homeland Security details per DelDOT's 2017 *Integrated Transportation Management Strategic Plan*.

6.2.2 Economic Vitality

Goal: *Promote and strengthen the economic vitality of Delaware with an excellent multimodal freight transportation network that meets the needs of a diverse and growing economy.*

STRATEGY | Regional and Multi-Jurisdictional Collaboration

Continue regional and multi-jurisdictional collaboration to better understand (and potentially influence) the evolution of transportation policies, regulations, logistics needs, multimodal freight activities, and other public/private freight trends with a goal of supporting local, regional, national, and import/export freight related economic opportunities.

STRATEGY | Delaware Market Expansion Support

Support broader market and trade opportunities via collaboration with the Delaware Prosperity Partnership (DPP), regional port systems and operators, and the U.S. Foreign Trade Zone (FTZ) program for Delaware (FTZ No. 99).[68]

STRATEGY | Regional Supply Chain Studies

Emphasize efforts to understand and enable efficient supply chain activities and related system operations that contribute to freight-related economic growth statewide, notably including Delaware's Freight Intensive Sector (FIS) industries and potential specific interests in supply chains related to pharmaceuticals, e-commerce, renewable energy, or other high-growth areas.

STRATEGY | Multimodal Freight Transportation Options

Preserve and enhance multimodal freight transportation opportunities and capabilities throughout Delaware, including related infrastructure, accessibility, and connectivity to support economic growth.

STRATEGY | Air Cargo Opportunities

Continue to invest in the growth of the Civil Air Terminal (CAT) at Dover Air Force Base (DAFB), the future Central Delaware Aviation Complex (CDAC), due to increased flexibility of the Joint Use Agreement and in conjunction with studies via the ongoing (2023) *DAFB Compatible Use Study*.

STRATEGY | Freight Land Use Preservation

Coordinate with and educate the region's planning officials on the importance of preserving critical infrastructure and freight-oriented land uses in key freight or rail corridors and industrial areas. Planning and decision-making should aim to minimize residential encroachments while also managing real and perceived conflicts or expectations between the residential and freight communities.

STRATEGY | Freight and Community Impact Planning

Implement a proactive approach to assessing and balancing freight impacts, community needs, and competing interests much earlier in the planning process, including the use of tools such as the Protect-Manage-Accommodate framework for contextualizing freight conflicts (**Exhibit 6-3**) and the local freight planning considerations checklist for freight facilities and truck routes (**Exhibit 6-4**).

State/MPO Support for Local Planning

Collaborative discussions, information-sharing, and related planning support from DelDOT and their MPO planning partners can provide valuable input for local/municipal planners and developers throughout Delaware and support the success of key freight strategies related to "Freight Land Use Preservation", "Freight and Community Impact Planning", and others listed above.

Dover Kent MPO, for example, is proactively involved in Preliminary Land Use Service (PLUS) reviews in Kent County and for the City of Dover and their Development Advisory Committee. MPO staff also provide support to identify plans and upcoming activities that will impact individual development sites, and periodically share available study information with developers when relevant to proposals or sites being considered. Such partnerships are an important collaborative element to successful freight planning from the ground up.

Planning Considerations for Freight-Related Development

How can Delaware "think" about balancing freight with other community needs? Policymakers and agencies must carefully balance a range of competing interests when conflicts emerge and make decisions in the best interest of all of their constituents. In such a context, absolutes are rarely helpful or productive.

On the one hand, freight facilities may not be able to operate on a competitive commercial basis if heavy restrictions or impedances are imposed to assuage non-freight interests. Over time, such facilities may relocate or invest out-of-state or in other jurisdictions, potentially removing a valuable source of employment, tax revenues, and spin-off economic activity that would otherwise benefit the local community and the state.

On the other hand, a community's full economic potential and maximum quality of life may not be achieved if freight impacts such as noise, traffic, emissions, and safety go unaddressed.

Protect-Manage-Accommodate (PMA) Framework: A strategic lens, such as the PMA framework can help agencies contextualize and prioritize which freight conflicts they wish to address (**Exhibit 6-3**).

Freight Planning Considerations Checklist: Early and proactive planning for local freight facilities and truck routes using a checklist review of typical needs and potential conflicts can also support a balanced approach to managing the needs of all users while fostering conditions for positive economic growth. (**Exhibit 6-4**)

Exhibit 6-3: Protect-Manage-Accommodate Framework for Contextualizing Freight Conflicts [69]

Framework	"Protect"	"Manage"	"Accommodate"
Definition	**Protect** freight industries from unreasonable conflicts	**Manage** conflicts in tactical and targeted ways	**Accommodate** freight needs to prevent major issues
Context	Areas where freight industries are dominant; also freight facilities of high importance	Areas where freight and non-freight activities are both significant land uses	Areas where non-freight businesses and/or residential communities are dominant
Examples	Freight clusters Ports, airports, intermodal terminals	Mixed-use areas Freight clusters transitioning to mixed use	Central business districts or small-town downtowns "Stranded" freight facilities (legacy facilities enveloped by communities)

Exhibit 6-4: Planning Considerations Checklist for Freight Facilities and Truck Routes [70]

YES	NO	N/A	Local Freight Planning Consideration
			Freight Network Designation: Is the facility adjacent to an existing freight route identified on Delaware's current highway freight network[(a)] or First/Final Mile[(b)] freight network? If not, what is the likely route trucks will take to reach major highway corridors?
			Truck Route Obstructions: Do the likely truck routes have sharp turns, low clearance restrictions, or other truck obstructions?
			Truck Route Community Conflicts: Do the likely truck routes run through residential areas, or other sensitive areas such as school zones?
			Truck Route Bicycle/Pedestrian Conflicts: Are the likely truck routes designated as bicycle or pedestrian routes?
			Truck Route Congestion: Are there existing congestion problems on the likely truck routes?
			Truck Route Improvement Funding: If infrastructure improvements are needed for the truck route, will the freight facility developer or tenant help fund these improvements?
			Freight Facility Truck Parking: Is truck parking available nearby, or will the developer provide parking?
			Freight Facility Conflicts: Is the facility located adjacent or near to existing or planned residential development, or other sensitive land uses such as schools?

Table Notes:

(a) Refer to the 2022 *Delaware State Freight Plan* (**Exhibit 3-1**) for Delaware's highway freight network, which may be considered as including the state's portion of the National Highway Freight Network (NHFN) consisting of the Primary Highway Freight System (PHFS) plus state-designated Critical Urban Freight Corridors (CUFC) and Critical Rural Freight Corridors (CRFC); plus remaining MAP-21 National Highway System (NHS) routes.

(b) Refer to the 2022 *Delaware State Freight Plan* (**Exhibit 3-2**) for Delaware's First/Final Mile Freight Network, or details per the *Delaware First/Final Mile Freight Network Development Final Report* (August 12, 2021).

(c) It is important to note that this checklist is not intended to be a comprehensive planning resource; rather, it should be incorporated as an initial list of typical considerations as part of the land use planning process for communities that are planning for freight-related developments.

6.2.3 Freight Connectivity, Accessibility, and Mobility

Goal: *Improve freight network connections, accessibility, and mobility to increase options for the movement of freight and enhance the integration of the state's multimodal transportation systems.*

STRATEGY | Freight Network Refinements

Periodically reassess and refine the formally designated freight networks throughout Delaware to match evolving conditions and network allowances. Significant networks include the NHFN and state/MPO-designated CUFC/CRFC; the NMFN and state/MPO-designated multimodal CRFF; the Delaware FFM network; and overall freight mapping or inventories related to the NHS, STRAHNET, rail networks, port locations, and air cargo.

STRATEGY | Multimodal Improvement Priorities

Integrate freight-relevant project screening and prioritization insights from the Delaware State Freight Plan and other applicable sources into broader transportation planning/programming efforts to emphasize multimodal improvements (truck/highway, rail, port, barge/inland waterway, airport).

STRATEGY | Multimodal Expansion and Connectivity

Coordinate with mode-specific plans to expand multimodal/intermodal opportunities and improve freight relevant access, connectivity, and supporting facilities (e.g., truck parking/staging areas) at strategic locations throughout Delaware. Examples include expansion for the Port of Wilmington's planned container facility at Edgemoor, the Harrington truck-rail intermodal yard, the Seaford barge-to-rail intermodal facility, the Central Delaware Aviation Complex at DAFB, and Maryland's Port of Salisbury.

STRATEGY | Congestion Management

Support comprehensive transportation improvements that alleviate traffic congestion in general, and notably along key freight corridors, at identified truck bottleneck locations, in the vicinity of major freight hubs, and during peak season travel conditions. Include operational improvements such as traffic signal optimization or Intelligent Transportation Systems (ITS) where appropriate.

STRATEGY | Highway-Rail Crossing Upgrades

Leverage annual programs and/or grant opportunities to continue monitoring at-grade highway-rail grade crossings and conditions throughout Delaware to develop/prioritize improvements at critical locations.

STRATEGY | Inland Waterway and Marine Highway Opportunities

Explore potential inland waterway and river/barge transportation and freight transfer opportunities, including connectivity to broader marine highway or short-sea shipping opportunities, particularly related to the M-95 Marine Highway and potential MARAD grant programs, and in light of increasing congestion levels along the I-95 corridor and throughout east coast metropolitan areas.

6.2.4 System Management, Operations, and Maintenance

Goal: *Preserve and enhance the state's multimodal freight transportation systems to support freight travel and commerce while adapting to the future's changing needs and integrating innovative strategies and technology that increase efficiency and safety during both normal and emergency situations.*

STRATEGY | Truck Data Monitoring

Monitor and leverage truck traffic data and trends to support decision-making relevant to pavement design/management programs, bridge maintenance programs, or congestion relief strategies, particularly for critical portions of the freight network. Data may include changes in truck traffic volumes, truck traffic patterns, congestion levels via Truck Travel Time Reliability (TTTR) Index reporting, or similar metrics.

STRATEGY | Freight Infrastructure Maintenance

Maintain a state-of-good repair throughout the overall freight network. Roadway and bridge conditions are important factors to keep freight movement operations reliable and efficient. Degraded conditions can result in longer detours on community streets or a relocation of freight-dependent businesses.

STRATEGY | Freight Network Improvements

Prioritize improvements on the freight network within DelDOT right-of-way, including critical routes as well as secondary roads and bridges critical to motor freight access throughout the Delmarva Peninsula.

STRATEGY | Periodic Signal Optimization

Conduct periodic traffic signal re-timing and optimization (every three to five years, or as needed) along key freight corridors, at identified truck bottlenecks, or in the vicinity of FIS industry clusters or major freight generators.

STRATEGY | Truck Traffic Management during Construction

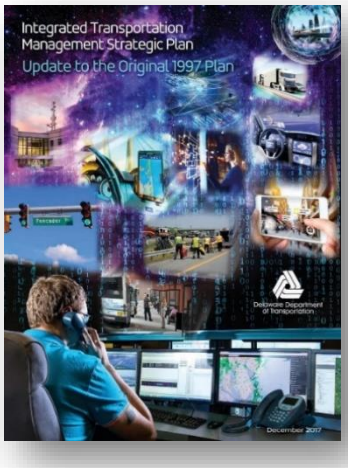
Consider truck traffic needs, impacts, or work zone information system benefits during roadway maintenance and construction activities, recognizing potential freight impacts related to permitting, OS/OW trucks, temporary truck restrictions, route restrictions, rural truck traffic access, or similar.

STRATEGY | Dredged Material Management

Manage and identify new placement sites/capacity and beneficial or innovative use opportunities for dredged material disposal to ensure Delaware's ports and waterways remain open and secure.

STRATEGY | Freight Relevant Technology Systems

Continue monitoring, testing, planning, implementation, and/or operation of new or advanced freight relevant technology systems when and where applicable throughout Delaware (see text box details below).



STRATEGY | Connected and Automated Vehicle Monitoring

The trucking industry is already testing connected and automated vehicle (CAV) technology to increase the efficiency of moving goods. Delaware will continue to monitor these advancements and will implement new technology when and where applicable.

Freight Relevant Advanced Technology Systems

Technology systems in Delaware may include coordination through DelDOT's Integrated Transportation Management Program, the DelDOT Transportation Management Center (TMC), the 2017 Integrated Transportation Management Strategic Plan, as well as other public/private agency partners or in coordination with academia. Technology systems that are currently operating or being tested in Delaware, or that may be considered by DelDOT when and where applicable, include (but are not limited to) the following:

General Transportation Technology Systems

- Intelligent Transportation Systems (ITS)
- Work zone information systems
- Real-time traveler information systems
- Computerized and/or adaptive traffic signal systems
- Transportation weather and flood monitoring and warning systems
- Congestion and mobility management systems
- Incident and event management systems
- Open road or all electronic tolling (ORT/AET)
- Electric Vehicle (EV) technologies

Freight Specific Technology Systems

- Weigh-in-motion (WIM) devices and deployments
- Truck parking information systems (testing/pilot programs and deployments)
- Commercial Vehicle Information Systems Network (CVISN) technologies
- Freight/cargo screening and security systems
- Truck stop electrification and truck EV technologies

Future Disruptive Technologies

- Connected and automated vehicle (CAV) technologies (in general)
- Truck-specific CAV technologies / truck platooning
- Unmanned Aircraft System (UAS) technologies
- Advanced package delivery systems / personal delivery devices (PDD)

6.2.5 Resilience, Sustainability, and Environmental Stewardship

Goal: *Provide resilient and reliable freight transportation systems while protecting and enhancing the environment through sustainable best practices, integration of environmental considerations into planning and design, and responsible energy consumption.*

STRATEGY | Public Outreach and Education

Ensure that freight is a "good neighbor" to communities by continuous education and public outreach.

STRATEGY | Community Planning Considerations

Develop guidance and policy to balance the needs of freight-dependent businesses and communities. This strategy directly overlaps the "Freight and Community Impact Planning" strategy listed under the Economic Vitality goal and would likewise benefit from the use of tools such as the Protect-Manage Accommodate framework for contextualizing freight conflicts (previous **Exhibit 6-3**).

STRATEGY | First/Final Mile Route Resilience

Review and assess Delaware's First/Final Mile Freight Network in relation to other applicable strategies related to freight and network refinements, truck data monitoring, freight and community impact planning, and flooding/sea-level rise vulnerability assessments, and related needs that may influence overall network resilience. Include an overlapping reference to the local freight planning considerations checklist for freight facilities and truck routes (previous **Exhibit 6-4**).

STRATEGY | Flooding and SLR Vulnerability Assessments

Inventory vulnerable freight infrastructure that may be impacted by flooding and sea-level rise (SLR), and prioritize these locations for flood-protection and abatement measures. Portions of the freight network are vulnerable to flooding and SLR. DelDOT's overall asset management and hazard mitigation planning must include considerations for freight accommodations and resilience.

STRATEGY | Air Quality Improvement Opportunities

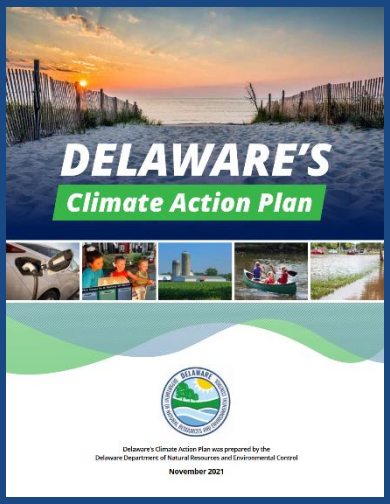
Study, promote, and implement opportunities to improve air quality due to freight movements that contribute to mobile source air pollution. Opportunities may include reducing roadway congestion; integrating fuel-efficiency technology, idling restrictions, or truck stop electrification; and supporting the use of cleaner/alternative fuels for freight vehicles.

STRATEGY | Climate Action Plan Support

Support advancements and implementation of key strategies identified in *Delaware's Climate Action Plan*, notably including the expansion of freight best practices and regulatory actions with an emphasis on reducing the metric tons of carbon dioxide equivalent (MT CO_2e) (see text box details below).[71]

Freight Related Climate Action Planning

Detailed strategies and freight actions from *Delaware's Climate Action Plan* (November 2021) that potentially have a strong influence on freight operations include (but are not limited to) the following:



- Strengthen Delaware's **renewable energy portfolio standards**, which from a freight context may influence freight traffic and access for the construction/expansion of renewable energy sources.
- Ensure that Delaware is prepared for **offshore wind energy opportunities**, which from a freight context may influence the multimodal freight infrastructure needed to support construction, development, and specialty freight movement capabilities to develop offshore wind capacity.
- Improve the **efficiency of freight delivery**, building on existing programs and developing incentives for freight route optimization, last-mile solutions, and mode switching; and to improve marketing of existing and underused incentive programs for fuel switching to accelerate the transition of medium- and heavy-duty vehicles to emission-free technology.
- Promote increased vehicle **fuel efficiency** to support emissions reductions, including adoption of the California Advanced Clean Trucks Program* addressing technology and emissions standards for medium- and heavy-duty vehicles for model years 2024 to 2035.
- Include consideration of freight infrastructure when updating or creating management plans to incorporate **future climate projections**, including long-term infrastructure management plans that include options to protect, retreat, or abandon structures under future climate conditions.

* California Air Resources Board: Advanced Clean Trucks, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks.

6.3 FREIGHT PLANNING AND IMPLEMENTATION TASKS

Building from the vision, goals, values, and general strategies summarized previously, the details outlined in this section present a set of specific freight planning and implementation tasks that are critical to the state's ongoing freight planning initiatives. These tasks can essentially be viewed as 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 beyond the completion of the freight plan itself.

Organizationally, the freight planning and implementation tasks summarized on the following pages have been grouped in terms of:

- **Ongoing** tasks that typically require annual or intermittent updates or monitoring (**Exhibit 6-5**).
- **Procedural** tasks that may require formal agency/stakeholder coordination (**Exhibit 6-6**).
- **Short-Term** tasks that may be prioritized for completion within the next four years (**Exhibit 6-7**).
- **Long-Term** tasks that may be deferred to beyond the next four years (**Exhibit 6-8**).

Exhibit 6-5: Delaware Freight Planning Tasks (Ongoing)

#	ONGOING TASKS *(annual or intermittent updates)*	S&S	Econ	CMA	O&M	RSE
1	**Annual Programs – Truck Traffic Trend Analysis** Utilize Wavetronix data to develop supplemental performance measures and report annual truck volume changes at key locations.			●	●	
2	**Annual Programs – Rail Preservation and Safety** Continue rail corridor preservation, safety improvement, and public education efforts using annual rail program and safety funds.	●		●	●	
3	**Project Planning/Programming Coordination** Reference and incorporate freight-related project planning insights from the Delaware State Freight Plan into broader transportation project planning and programming coordination across DelDOT and their MPO planning partners (CTP/TIP/RTP/MTP). Detailed project/planning reference sources may include the freight plan's project candidate lists and related screening efforts, multimodal project sources, and truck bottleneck projects, as well as reference to the Delaware Statewide Truck Parking Study, Delaware First/Final Mile Network Study, Dover/Kent County rail/land use studies, and other efforts cited throughout the freight plan.	●	●	●	●	●
4	**Discretionary Grant Pursuits** Continue freight project screening, eligibility, and cost compatibility reviews to identify and pursue suitable freight relevant project applications for appropriate IIJA discretionary grant programs.	●	●	●	●	●
5	**Inter-Agency Coordination and Communications** Coordinate inter-agency meetings, training, and mock exercises to optimize communications and data-sharing between jurisdictions within the Delmarva Peninsula.	●	●	●	●	

Legend: ● = **primary** goal influence, relative to the overall freight plan goals that include:

S&S = Safety & Security; **Econ** = Economic Vitality; **CMA** = Freight Connectivity, Accessibility, and Mobility; **O&M** = Systems Mgmt., Operations, and Maintenance; **RSE** = Resilience, Sustainability, and Environmental Stewardship

Exhibit 6-6: Delaware Freight Planning Tasks (Procedural)

#	**PROCEDURAL TASKS** (formal agency/stakeholder/program coordination)	S&S	Econ	CMA	O&M	RSE
6	**DelDOT CTP Enhanced Prioritization Criteria Updates** Coordinate within DelDOT to update terminology and scoring details in DelDOT's Enhanced Project Prioritization Process for the CTP. Specifically, refinements should focus on the "Freight Corridor" criteria, which currently includes an outdated network reference to projects that reside on a "primary or secondary freight corridor". Revisions should consider replacing these references to be consistent with the latest freight network definitions based on the NHFN (including the PHFS, CUFC, and CRFC) and the First/Final Mile Freight Network.			●	●	
7	**Network Refinements – CUFC/CRFC Expansion** Coordinate across DelDOT and MPO planning partners to identify and designate new critical urban/rural freight corridors (CUFC/CRFC) using the new mileage allowances that were doubled under IIJA.		●	●	●	
8	**Network Refinements – NHS and STRAHNET Updates** Coordinate with FHWA to review and formally update applicable federal roadway networks and related mapping to align consistently with the current roadway networks/connections in Delaware. Include reflecting the current alignment of US 301 under the National Highway System (NHS) and Strategic Highway Network (STRAHNET) designations.	●			●	
9	**Network Refinements – National Network Updates** Coordinate with FHWA to review and formally update applicable federal roadway networks and related mapping to align consistently with the most current roadway networks/connections in Delaware. Include formal designation on the National Network relative to roadway modifications and the current limits of US 113.	●			●	
10	**Network Refinements – NMFN and CRFF Updates** Coordinate with FHWA for any updates to Delaware infrastructure identified on the National Multimodal Freight Network (NMFN). Consider state-specific candidates for formal designation as Multimodal Critical Rural Freight Facilities (CRFF) in line with state input and eligibility requirements detailed under 49 U.S.C. §70103(b)(4).	●			●	

Legend: ● = **primary** goal influence, relative to the overall freight plan goals that include:

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Exhibit 6-7: Delaware Freight Planning Tasks (Short-Term)

#	SHORT-TERM TASKS (within 1-4 years)	S&S	Econ	CMA	O&M	RSE
11	**Delaware Freight Restrictions Database** Continue the creation of a freight restrictions database that details the Delaware freight and roadway network inventories by adding/mapping technical data such as road widths, bridge loads, weight limits, height restrictions, operating restrictions, and other details for all freight routes and in a readily accessible format that can be referenced by or distributed to a broad audience.	●		●	●	●
12	**Truck Parking Information Systems** Review outcomes of the Truck Parking Information System pilot at Smyrna Rest Stop to gauge the system's effectiveness and potential applicability at other locations in Delaware, or related next steps.	●		●	●	
13	**Truck Parking Data Updates** Repurchase and update truck parking data in 2024 to re-assess usage trends of existing parking locations and concentrations of non-designated parking in comparison to the 2021 Truck Parking Study.	●		●	●	
14	**Freight/Supply Chain Study – FIS Industry Clusters** Conduct a detailed commodity/industry-specific study to examine key Freight Intensive Sector (FIS) industry clusters and related connections between freight generators and freight destinations.		●	●		●
15	**Freight/Supply Chain Study – Pharmaceuticals** Conduct a detailed commodity/industry-specific study to examine pharmaceuticals as a critical high-value cargo reflecting a significant percentage of Delaware's freight output.		●	●		●
16	**Freight/Supply Chain Study – E-Commerce** Conduct a detailed commodity/industry-specific study to further explore e-commerce and the land use, transportation, and economic impacts and policy implications of related freight activities.		●	●		●
17	**Freight/Supply Chain Study – Renewable Energy** Conduct a detailed commodity/industry-specific study to explore renewable or alternative energy sources relative to their primary manufacturing locations, generation sites, and freight implications.		●	●		●

Legend: ● = **primary** goal influence, relative to the overall freight plan goals that include:

S&S = Safety & Security; **Econ** = Economic Vitality; **CMA** = Freight Connectivity, Accessibility, and Mobility; **O&M** = Systems Mgmt., Operations, and Maintenance; **RSE** = Resilience, Sustainability, and Environmental Stewardship

Exhibit 6-7: Delaware Freight Planning Tasks (Short-Term) (Continued)

#	SHORT-TERM TASKS (within 1-4 years)	S&S	Econ	CMA	O&M	RSE
18	**Land Use Agency Coordination** Work with land use agencies to better account for first/final mile freight network considerations during plan review, including integration of the planning checklists developed in the Statewide First/Final Mile Network Study (also **Exhibit 6-3** and **Exhibit 6-4** in the State Freight Plan), and including special attention for large-scale warehouse/distribution plans.	●	●	●	●	●
19	**Local Freight Planning Support** Leverage DelDOT municipal assistance tasks available within statewide planning contracts, as well as similar MPO or academia resources within the state, to provide local freight relevant planning support to municipalities throughout the Delaware.	●	●	●	●	●
20	**Truck Parking Facilities** Advance/implement truck parking facility recommendations from the 2021 Delaware Statewide Truck Parking Study, including further exploration and development of detailed location assessments and cost estimates, notably including: • Development of protected roadside/shoulder parking near toll plazas and rest areas. • Development of non-state owned/informal truck parking locations and capacity. • Use of existing state-owned facilities for new truck parking capacity (i.e., Park & Rides).	●			●	
21	**First/Final Mile Freight Network Update** Use criteria from the 2021 First/Final Mile Freight Network study to review and re-assess the network and related GIS data in 2024 to meet changing demographic, policy, or traffic conditions. Consider coupling updates with larger data collection efforts by purchasing GPS data for detailed origin-destination analyses and/or including Reference USA employment data updates simultaneously.			●	●	●
22	**System Resilience Planning** Continue coordination across DelDOT and MPO planning partners to provide further exploration and details related to sea-level rise (SLR) impacts and related freight network or resilience concerns, as well as reference to FHWA's *State of the Practice Scan: Freight Resilience Planning in the Face of Climate-Related Disruption* (June 2022).	●		●		●

Legend: ● = **primary** goal influence, relative to the overall freight plan goals that include:

S&S = Safety & Security; **Econ** = Economic Vitality; **CMA** = Freight Connectivity, Accessibility, and Mobility; **O&M** = Systems Mgmt., Operations, and Maintenance; **RSE** = Resilience, Sustainability, and Environmental Stewardship

Exhibit 6-8: Delaware Freight Planning Tasks (Long-Term)

#	**LONG-TERM TASKS** (beyond 4-years out)	S&S	Econ	CMA	O&M	RSE
23	**Traffic Incident Management (TIM) Best Practices** Coordinate across DelDOT and applicable traffic incident management groups, emergency services partners, or regional stakeholders to further explore best practices, improvements, or training opportunities related to truck traffic management during incidents (e.g., emergency truck parking areas or truck re-routing options during unanticipated road closures/diversions due to weather, crashes, etc.).	●			●	●
24	**Freight/Supply Chain Study – Coal and Petroleum Products** Conduct a detailed commodity/industry-specific study to explore potential evolving trends, impacts, or opportunities related to coal and petroleum products, global energy market or supply chain transitions/disruptions, and their implications for key assets in Delaware (e.g., applicable rail, port, barge, and/or refinery operations).		●	●		●
25	**Feasibility Studies – DE Senate Resolution 10** [(a)] Pending further guidance from the General Assembly and additional bi-state (DE/PA) working group coordination, identify and conduct feasibility studies as follow-up to recommendations from DE Senate Resolution 10, including the following potential concepts: i. Bypass between US 1 and I-95. ii. Dedicated freight rail line along the Northeast Corridor between Perryville (MD) and Newark (DE). iii. Passenger and freight rail spur from Wilmington that parallels the SR 41 corridor, including impacts to SR 7, SR 41, and SR 48. iv. SR 896 corridor improvements and alternate/ parallel route to encourage trucks to use I-95 to SR 896.	●		●		●

Legend: ● = **primary** goal influence, relative to the overall freight plan goals that include:

S&S = Safety & Security; **Econ** = Economic Vitality; **CMA** = Freight Connectivity, Accessibility, and Mobility; **O&M** = Systems Mgmt., Operations, and Maintenance; **RSE** = Resilience, Sustainability, and Environmental Stewardship

(a) These studies were identified in *DE Senate Resolution 10: Special Committee to Study and Make Recommendations Regarding Truck Traffic & Freight Movements Along SR 41, SR 48 & SR 7*. Given the size, scope, and bi-state nature of these studies, it would be premature to begin work without explicit direction from the General Assembly, and a formal recommendation from a bi-state working group such as was recommended in Item 23 of the final report.

Exhibit 6-8: Delaware Freight Planning Tasks (Long-Term) (Continued)

#	**LONG-TERM TASKS** (beyond 4-years out)	S&S	Econ	CMA	O&M	RSE
26	**Regional Truck Crash Dataset** Establish a standardized method to track truck-related crash data to efficiently compile and compare crash datasets from Delaware, Maryland, and Virginia.	●			●	
27	**Freight Influence on Pavement Management** Create a system to monitor and inventory changes in heavy vehicle traffic patterns to inform pavement design and maintenance programs/projects.				●	
28	**Freight CAV Pilot Programs** Implement pilot studies to test connected and automated vehicles for freight operations on Delaware roads.	●			●	
29	**Statewide Freight Regulations Review** Conduct a full review of agency regulations and identify opportunities to streamline those that hinder freight business operations without increasing risks to public health and safety and environmental sustainability.	●	●			●

Legend: ● = **primary** goal influence, relative to the overall freight plan goals that include:

S&S = Safety & Security; **Econ** = Economic Vitality; **CMA** = Freight Connectivity, Accessibility, and Mobility; **O&M** = Systems Mgmt., Operations, and Maintenance; **RSE** = Resilience, Sustainability, and Environmental Stewardship

6.4 FUTURE PLAN UPDATES

This update to the 2022 Delaware State Freight Plan summarizes the relevant background information (Chapters 1-3), trends and needs (Chapter 4), and action planning components (Chapters 5-6) necessary to lay out a course for Delaware's ongoing freight planning activities over the next several years. This plan, however, reflects only a snapshot in time; and freight and economic conditions are far from static. It is anticipated, therefore, that the information contained herein 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 (Chapter 5), or the freight planning and implementation tasks in the freight strategic plan (Chapter 6). 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 and certification of Delaware's plan will be needed by no later than Fall 2026.

Federal requirements do, however, also permit the Freight Investment Plan to be updated more frequently than the overall freight plan. Based on prior planning cycles, it is anticipated that DelDOT will monitor, update, and submit revisions to Delaware's Freight Investment Plan for NHFP Funding (**Appendix L** in this document) as needs arise and in coordination with overall project cost estimate/funding revisions and related management/development of the Delaware CTP.

2022 Delaware State Freight Plan

ENDNOTES

ENDNOTES

1 U.S. Congress, H.R. 3684 (Public Law 117-58): Infrastructure Investment and Jobs Act (IIJA), November 15, 2021, https://www.congress.gov/bill/117th-congress/house-bill/3684/text; and

United States Code (USC), 49 USC §70202: State Freight Plans, amended November 15, 2021, accessible online through the Office of the Law Revision Counsel (OLRC) at: https://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title49-section70202&num=0&edition=prelim.

2 WRA, et. al., for DelDOT, Delmarva Freight Plan: The Delaware Freight Plan with Regional Coordination, May 2015, https://deldot.gov/Business/freight/index.shtml?dc=general; and

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3 USDOT, National Freight Strategic Plan (NFSP), last updated September 4, 2020, https://www.transportation.gov/freight/NFSP.

4 DelDOT, Innovation in Motion – the Delaware Long Range Transportation Plan, May 3, 2019, plus annual supplements, https://deldot.gov/Publications/reports/plan/index.shtml.

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9 Dover Kent MPO, Dover/Kent County MPO Rail/Freight Zoning Study, 2018 and 2022, https://doverkentmpo.delaware.gov/files/2018/11/Final-Rail-Study-November-14-NOV-18-FINAL-version.pdf.

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13 CPCS for DelDOT and Delaware MPOs, *Delaware First/Final Mile Freight Network Development*, August 12, 2021, http://www.wilmapco.org/freight/First_Final_Mile_Final_Report.pdf.

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2022 Delaware State Freight Plan

DRAFT APPENDICES

August 6, 2022

Appendix Contents

APPENDIX A:

Federal Freight Planning Requirements by Code

A. APPENDIX A: Federal Freight Planning Requirements by Code

Federal Freight Policy Goals	
49 U.S.C. §70101(b)	National Multimodal Freight Policy
• **https://uscode.house.gov**/view.xhtml?req=granuleid:USC-prelim-title49-section70101&num=0&edition=prelim	
49 U.S.C. §70102	National Freight Strategic Plan / National Freight Policy Strategic Goals
• **https://uscode.house.gov**/view.xhtml?req=granuleid:USC-prelim-title49-section70102&num=0&edition=prelim • **https://www.transportation.gov**/freight/NFSP	
23 U.S.C. §167(b)	National Highway Freight Program Goals
• **https://uscode.house.gov**/view.xhtml?req=granuleid:USC-prelim-title23-section167&num=0&edition=prelim	
State Freight Planning Requirements	
49 U.S.C. §70202(b)	Plan Content Requirements for State Freight Plans
49 U.S.C. §70202(f)	Commercial Motor Vehicle Parking Facilities Assessments
• **http://uscode.house.gov**/view.xhtml?req=granuleid:USC-prelim-title49-section70202&num=0&edition=prelim	
Highway Freight Network Details	
23 U.S.C. §167(e)	Eligibility Criteria for Critical Rural Freight Corridors
23 U.S.C. §167(f)	Eligibility Criteria for Critical Urban Freight Corridors
23 U.S.C. §167(h)	Use of Apportioned National Highway Freight Program Funds
23 U.S.C. §167(h)(5)	Eligibility Criteria for National Highway Freight Program Funds
• **https://uscode.house.gov**/view.xhtml?req=granuleid:USC-prelim-title23-section167&num=0&edition=prelim • **https://ops.fhwa.dot.gov**/freight/infrastructure/nfn/index.htm • **https://ops.fhwa.dot.gov**/freight/infrastructure/ismt/state_maps/states/delaware.htm	
Multimodal Freight Network Details	
49 U.S.C. §70103(b)	Designation of National Multimodal Freight Network
49 U.S.C. §70103(b)(4)(B)	Eligibility Criteria for Critical Rural Freight Facilities and Corridors
• **https://uscode.house.gov**/view.xhtml?req=granuleid:USC-prelim-title49-section70103&num=0&edition=prelim • **https://www.transportation.gov**/administrations/office-policy/interim-national-multimodal-freight-network • **https://maps.dot.gov**/BTS/Interim_NMFN/	
State / Multi-State Collaboration	
49 U.S.C. §70201	State Freight Advisory Committees
• **https://uscode.house.gov**/view.xhtml?req=granuleid:USC-prelim-title49-section70201&num=0&edition=prelim	
49 U.S.C. §70204	Multi-State Freight Corridor Planning
• **https://uscode.house.gov**/view.xhtml?req=granuleid:USC-prelim-title49-section70204&num=0&edition=prelim	

APPENDIX B:

Delaware Freight Collaboration (2020-2022)

B. APPENDIX B: Delaware Freight Collaboration (2020-2022)

In addition to monthly Delmarva Freight Working Group Meetings and Delaware Freight Plan Technical Working Group Meetings, other collaborative freight discussions and information-sharing opportunities that were leveraged to help inform updates to the 2022 Delaware State Freight Plan included:

2020 Delmarva Freight Summit (June 5, 2020)

- Delaware Statewide Truck Parking Study
- Kent County East/West Truck Freight Route Feasibility Study
- Harrington Intermodal Terminal Feasibility Study

2020 Delmarva #FreightFriday Podcasts / First State Insights

https://soundcloud.com/first-state-insights/sets/delmarva-freightfriday

- Logistics: There and Back Again
- Spotlighting Mountaineer Logistics
- Advancing Supply Chain Integration
- Logistics Tech in the Wild
- Mapping Logistics Technology
- Shortline Rail on Delmarva
- Insider Coverage on Freight and Supply Chain Trends
- Targeting Distribution & Logistics for Economic Development in Central Delaware
- Reporting on Logistics Trends
- Dot Foods in Delaware
- Getting Perdue Farms' Products to Market
- Warehouse Space Needs and Market Trends
- Making Sense of Maritime Shipping

2021 Delmarva Freight Summit (June 16, 2021)

- **2022 Delaware Freight Plan Updates** – Introduction, Resources, and Initial Input
- Freight Trends and Pressures
- Delaware Freight SWOT Analysis
- Delaware Freight Areas of Concern / Areas of Opportunity Discussion

2021 Delmarva Winter Freight Meeting (December 7, 2021)

- **2022 Delaware Freight Plan Updates** – Needs and Opportunities Polling
- Logistic Tech – From Private to Public
- Public Freight and Logistics Tech – DelDOT Real-Time Data and Truck Parking Info Systems
- Public Freight and Logistics Tech – MDOT Truck Parking Initiatives

2022 Delmarva Freight Summit (June 10, 2022)

- **2022 Delaware Freight Plan Updates** – Update and Action Plan (project/strategy) Preview
- Freight Funding Opportunities through MARAD
- Short- and Long-Term Perspectives on Trucking

APPENDIX C:

Delaware Details on the National Highway Freight Network

C. APPENDIX C: Delaware Details on the National Highway Freight Network

C.1 Delaware's Primary Highway Freight System (PHFS) Routes

Route No.	Start Point	End Point	Length (mi)
I-295	I-95	DE / NJ Line	6.94
I-495	I-95	I-95	10.79
I-95	MD / DE Line	DE / PA Line	23.12
PHFS Subtotal			**40.85**

Source: FHWA, https://ops.fhwa.dot.gov/Freight/infrastructure/ismt/state_maps/states/delaware.htm

C.2 Delaware's PHFS Intermodal Connectors

Facility ID	Facility Name	Facility Description	Length (mi)
DE2P	Port of Wilmington	Terminal Ave (Port to I-495)	0.49
PHFS Intermodal Connectors Subtotal			0.49
PHFS Total			**41.34**

Source: FHWA, https://ops.fhwa.dot.gov/Freight/infrastructure/ismt/state_maps/states/delaware.htm

C.3 Delaware's Non-PHFS Interstates

Not applicable; all intestate segments within Delaware are included on the PHFS.

C.4 Delaware's Critical Urban Freight Corridor (CUFC) Segments

ID	County	Route No.	Start Point	End Point	Length	Criteria[1]
1	New Castle	US 202	DE/PA Line	I-95 Interchange	5.09	K
2	New Castle	US 13	I-495 Interchange	I-295 Interchange	1.81	I, J
3	New Castle	US 40	I-295 Interchange	SR 896	11.16	K, I
4	New Castle	DE 896	I-95 Interchange	Churchtown Rd. / Boyd's Corner Intersection	10.46	J, K
5	New Castle	SR 1 (Segment A)	I-95 Interchange	US 13 Overpass (Urban boundary)	4.77	H, K
6	New Castle	SR 1 (Segment B)	Former Gov. Lea Rd. Crossover	Lorewood Grove Rd. (Exit 148)	4.12	H, K
7	Kent	SR 1 (Segment C)	Paddock Rd. Overpass	S. Smyrna Exit (Ex. 114)	2.82	H, K
8	Kent	SR 1 (Segment D)	Twin Willows Rd. Overpass	Leipsic River Crossing	0.82	H, K
9	Kent	SR 1 (Segment E)	Emergency Access Ramp	Dyke Branch Rd.	1.62	H, K
10	Kent	SR 1 (Segment F)	Exit 104 Ramps	0.35 mi. S. of Leipsic Rd. Overpass	1.70	H, K
11	Kent	SR 1 (Segment G)	White Oak Rd. Overpass	SR 9 Interchange (Exit 91)	5.90	H, K
12	Kent	SR 1 (Segment H)	Mulberrie Point Rd.	SR 12 Interchange	2.45	H, K
13	Kent	US 13 (Segment A)	Puncheon Run (Exit 97)	Longacre Dr.	6.43	H, K
14	Kent	US 13 (Segment B)	N. of Barnie Jenkins Rd.	S. of Killens Pond Rd.	5.52	H, K
15	Sussex	US 13 (Segment C)	Cannon Rd.	N. of Delmarva RV Center	4.66	H, K
16	Sussex	US 13 (Segment D)	Airport Rd.	Boyce Rd.	2.23	H, K
17	Sussex	US 13 (Segment E)	N. of Discount Land Rd.	Kurtz Rd.	0.66	H, K
18	Sussex	US 13 (Segment F)	Sycamore Rd	Laurel Rd.	0.74	H, K
19	Sussex	US 13 (Segment G)	Near US 13 Dragway	DE/MD Line	0.93	H, K
20	Sussex	US 9	US 13	0.41 miles East of US 13	0.41	K
				Total CUFC Mileage =	**74.30**	

[1] CUFC Criteria Legend:

- **H:** Connects an intermodal facility to the PHFS, the Interstate System, or an intermodal freight facility
- **I:** Located within a corridor of a route on the PHFS and provides an alternative highway option important to goods movement
- **J:** Serves a major freight generator, logistic center, or manufacturing and warehouse industrial land
- **K:** Corridor that is important to the movement of freight within the region, as determined by the MPO or the State

C.5 Delaware's Critical Rural Freight Corridor (CRFC) Segments

ID	County	Route No.	Start Point	End Point	Length	Criteria[1]
21	New Castle	SR 1 (Segment I)	US 13 Overpass (Urban boundary)	Former Gov. Lea Rd. Crossover	1.45	F, G
22	New Castle	SR 1 (Segment J)	Lorewood Rd.	Paddock Rd.	17.76	F, G
23	New Castle	DE 896	Churchtown Rd. / Boyd's Corner Intersection	SR 1 Interchange (Exit 142)	3.72	F, G
24	Kent	SR 1 (Segment K)	S. Smyrna Exit (Ex. 114)	Twin Willows Rd. Overpass	2.38	F, G
25	Kent	SR 1 (Segment L)	Leipsic River Crossing	Emergency Access Ramp	1.33	F, G
26	Kent	SR 1 (Segment M)	Dyke Branch Rd.	Exit 104 Ramps	0.37	F, G
27	Kent	SR 1 (Segment N)	0.35 mi. S. of Leipsic Rd. Overpass	White Oak Rd. Overpass	1.27	F, G
28	Kent	SR 1 (Segment O)	SR 9 Interchange (Exit 91)	Mulberrie Point Rd.	4.07	F, G
29	Kent/Sussex	SR 1 (Segment P)	SR 12 Interchange	US 9, Lewes	26.07	F, G
30	Kent	US 13 (Segment H)	Longacre Dr.	N. of Barnie Jenkins Rd.	1.38	F, G
31	Kent	US 13 (Segment I)	S. of Killens Pond Rd.	Cannon Rd.	19.72	F, G
32	Sussex	US 13 (Segment J)	N. of Delmarva RV Center	Airport Rd.	0.81	F, G
33	Sussex	US 13 (Segment K)	Boyce Rd.	N. of Discount Land Rd.	1.00	F, G
34	Sussex	US 13 (Segment L)	Kurtz Rd.	Sycamore Rd	0.30	F, G
35	Sussex	US 13 (Segment M)	Laurel Rd.	Near US 13 Dragway	5.95	F, G
36	Sussex	US 9	0.41 miles East of US 13	SR 1, Lewes	24.59	D, G
37	Kent/Sussex	US 113	SR 1/ US 113 Split	DE/MD Line	37.29	D, G
				Total CRFC Mileage =	**149.46**	

[1] CRFC Criteria Legend:

- **A:** Rural principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks
- **B:** Provides access to energy exploration, development, installation, or production areas
- **C:** Connects the PHFS or the Interstate System to facilities that handle more than: 50,000 20-foot equivalent units per year; or 500,000 tons per year of bulk commodities
- **D:** Provides access to a grain elevator, an agricultural facility, a mining facility, a forestry facility, or an intermodal facility
- **E:** Connect to an international port of entry
- **F:** Provides access to significant air, rail, water, or other freight facilities
- **G:** Corridor that is vital to improving the efficient movement of freight of importance to the economy of the State.

APPENDIX D:

Delaware Freight Emphasis Areas (IIJA-Based)

D. APPENDIX D: Delaware Freight Emphasis Areas (IIJA-Based)

Freight planning as a whole can be a unique and challenging endeavor as it involves or influences so many different topics, programs, resources, stakeholders, and countless other details. Examples of this diversity include many of the federally required freight emphasis areas that must be addressed within a state freight plan, including an expansion of these requirements under the 2021 Infrastructure Investment and Jobs Act (IIJA) as detailed in the introduction of this freight plan. Though far from all-inclusive, this Appendix to the 2022 Delaware State Freight Plan compiles additional details (beyond any summary highlights included within the main body of the freight) for several of the IIJA-based freight emphasis areas that provide insight into the following:

- Section D.1 – Technology and Operations
- Section D.2 – Asset Preservation and Improvement
- Section D.3 – Freight Congestion
- Section D.4 – Truck Parking
- Section D.5 – Supply Chains
- Section D.6 – Commercial Ports
- Section D.7 – Multistate Coordination
- Section D.8 – E-commerce
- Section D.9 – Military Freight
- Section D.10 – Freight Resilience and Environmental Impacts

D.1 Technology and Operations

DelDOT Integrated Transportation Management Program:
https://deldot.gov/Programs/itms/index.shtml.

An emphasis on technology and operations is reflected within the Delaware State Freight Plan's key strategies, notably as part of the state's goals pertaining to systems management and operations (see **Chapter 6.2.4**). Many of the freight-relevant technology systems operate with support through DelDOT's Transportation Management Center (TMC), as part of the state's Integrated Transportation Management System (ITMS) and related programs, or in coordination with other agencies.

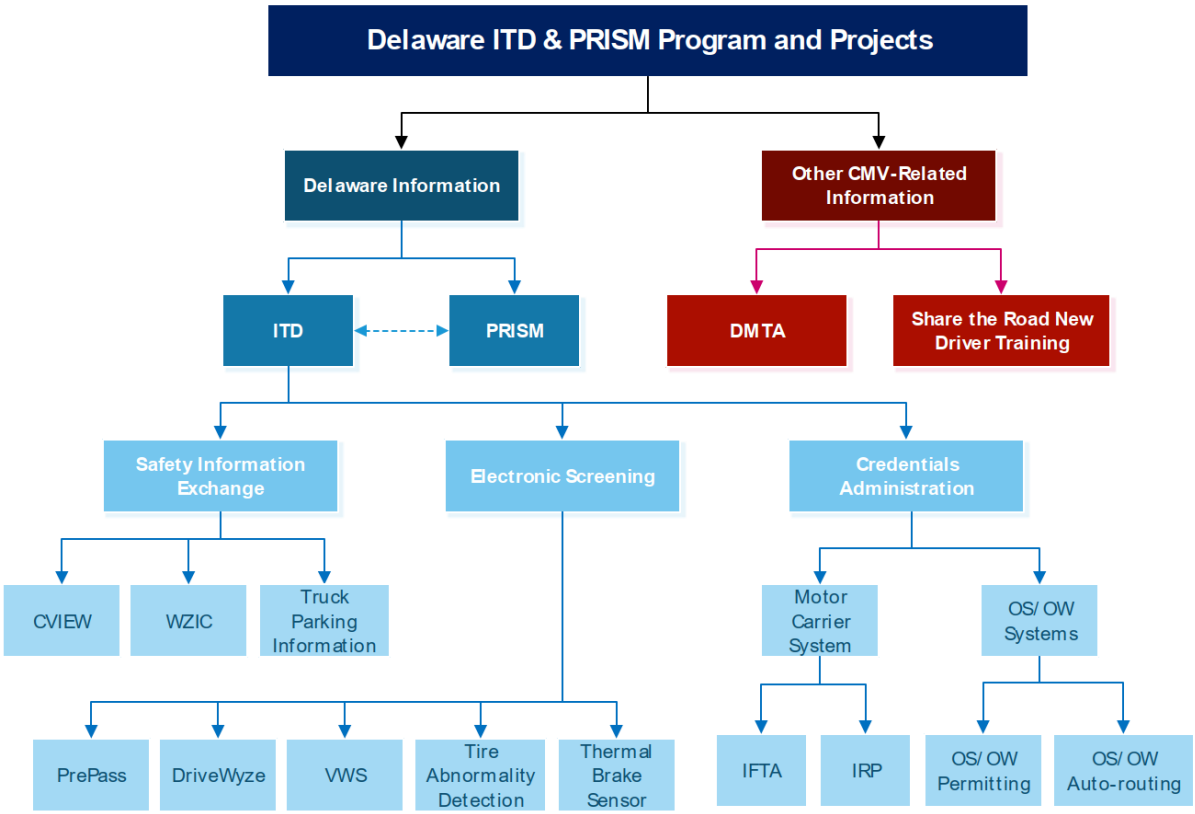
D.1.1 Delaware ITD-PRISM Program

Detail Report: https://deldot.gov/Programs/ITD-PRISM/pdfs/DE-ITD-PRISM.pdf.

DelDOT Commercial Motor Vehicle Portal: https://deldot.gov/Programs/ITD-PRISM/index.shtml.

DelDOT operates the Innovative Technology Deployment (ITD) Program[1] and Performance Registration and Information Systems (PRISM) Program as mechanisms through which the Federal Motor Carrier Safety Administration (FMCSA) provides federal funding to deploy a variety of projects that support interstate and intrastate commercial motor vehicle (CMV) operations. ITD provides funding for CMV credentials administration; electronic screening of CMVs for size, weight, safety, and credential information; and the real-time exchange of vehicle and driver safety information to support safety inspections and enforcement of CMV regulations. PRISM provides states with a mechanism to identify and immobilize motor carriers with serious safety deficiencies and hold them accountable through registration and law enforcement sanctions.

Exhibit D-1: Delaware ITD & PRISM Organization



Source: DelDOT, https://deldot.gov/Programs/ITD-PRISM/pdfs/DE-ITD-PRISM.pdf.

[1] Started in 2006 as the Commercial Vehicle Information Systems and Networks (CVISN) Program, CVISN was renamed to ITD in 2015 with the passage of the FAST Act.

D.1.2 Electronic Screening Systems

Electronic screening entails deploying technology to identify and electronically screen commercial vehicles at mainline speeds. As part of DelDOT's ITD-PRISM program efforts, Delaware's current and planned electronic screening (E-screening) systems include subscriber-based systems, virtual weigh stations, automatic brake sensor thermal inspection systems, and tire abnormality detection systems.

Subscriber-Based E-Screening Systems: The Delaware Electronic Screening Deployment project includes the *PrePass*[2] transponder-based system at one site and the *Drivewyze*[3] geo-fence/mobile device-based system at seven sites (**Exhibit D-2**). These E-screening systems use technology to screen commercial vehicles in motion. Motor carriers can enroll in the program if the carrier and vehicle meet safety and credentialing requirements. Once enrolled, commercial vehicles can use the e-screening sites to bypass fixed weigh stations. The sites pre-screen registered vehicles for compliance with size and weight regulations and tell drivers to bypass or continue to the weigh station. A transponder and dynamic message signs (DMS) or in-cab devices communicate information to the driver. An overheight detector and weigh-in-motion (WIM) system assess if the vehicle meets size and weight requirements.

Virtual Weigh Station (VWS) Deployment: Delaware VWS systems include three deployed, one portable, and one planned site (**Exhibit D-2**). VWS technology is typically deployed along diversion routes that trucks might use to avoid tolls or weigh stations. It allows the state to implement cost-effective truck route monitoring with targeted enforcement. The sites typically include WIM technology, overheight detection, cameras to capture images of the vehicle, license plate and USDOT number, and wireless communication devices. The sites send the collected data to officers located in fixed weigh stations or patrol vehicles who can intercept violators based on screening of vehicle size, weight, credentials, and safety information. A VWS site can be developed for a fraction of the cost of a fixed facility, providing greater coverage and flexibility for enforcement officers. The wider enforcement coverage promotes better compliance with size, weight, credential, and safety regulations. Delaware systems

Exhibit D-2: Delaware Electronic Screening and Virtual Weigh Station Sites

Route	Site	System(s) or Status
E-Screening Systems		
US 301	Middletown US 301 NB	Drivewyze and PrePass
I-95	Delaware Toll Plaza I-95 NB	Drivewyze
I-295/I-95	Delaware Turnpike Inspection Point, I-295/I-95 SB	Drivewyze
SR 7	Limestone Inspection, SR 7 NB	Drivewyze
SR 7	Limestone Inspection, SR 7 SB	Drivewyze
US 41	Newport Gap Pike Inspection, US 41 SB	Drivewyze
Terminal Ave	Terminal Avenue Inspection Point	Drivewyze
VWS Systems		
US 13	US 13 NB approaching weigh station	Deployed
SR 1	SR 1 NB approaching Exit 119	Deployed
Warwick Rd	Warwick Road EB	Deployed
--	Portable VWS System	Portable trailer can be deployed statewide
US 301	US 301 NB at Maryland-Delaware state line	Planned

[2] PrePass® / PrePass Safety Alliance (formerly HELP, Inc.), https://prepass.com/.
[3] Drivewyze, https://drivewyze.com/.

Automated Brake Sensor Thermal Inspection System: Delaware plans to install thermal inspection systems on the approach ramps to weigh stations on US 13 and US 301. These systems automatically screen CMVs for unsafe equipment without human intervention by capturing thermal images of each wheel set for every axle as the vehicle passes through the system. The system scans the images and flags vehicles that have potentially faulty equipment based on the heat signatures of the thermal images. This information is then sent to officials at the scale house who can direct vehicles to an area for further inspection.

Tire Abnormality Detection System: A tire abnormality detection systems (TADS) electronically screens tires of CMVs to identify underinflated, missing, mismatched, or flat tires at ramp to highway speeds. Anomalous or flat tires decrease a driver's directional control, increasing the risk of an accident. They also reduce the useful life of the tires and impact fuel economy. In the case of missing or mismatched tires (old and new in dual set), the vehicle loading can become imbalanced, also increasing the risk of an accident. Tire and brake failures are the number one equipment failures involved in CMV crashes nationwide. This innovative system can screen CMVs for anomalous tires to prevent crashes before they occur.

D.1.3 Truck Parking Information System

An element within DelDOT's ITD-PRISM program that focuses on enhanced safety information sharing includes the testing and implementation of a truck parking information system. This system provides CMV drivers with information on available truck parking along major routes in Delaware and neighboring states. The information is provided in real-time and in-cab to the truck drivers in a safe and non-intrusive manner. The information is collected from DelDOT and parking authorities around the state. With truck parking information, CMV drivers can plan to rest along their routes, in accordance with federal requirements. As of 2022, a pilot system has been developed at Delaware's Smyrna rest area, using cameras and in-pavement "puck" sensors to determine parking space availability. A corresponding webpage is being developed to track available spaces in parking lots, areas, and subareas; and a system demonstration is planned for the end of 2022. These technologies reflect ongoing implementation efforts that mesh with specific recommendations from the 2021 Delaware Statewide Truck Parking Study to explore information and technology projects where there are opportunities to address truck parking issues by providing timely and accurate truck parking information.

D.1.4 Work Zone Incident Communication System

DelDOT WZIC System: https://deldot.gov/Programs/WZIC/index.shtml.

Another element of DelDOT's ITD-PRISM program and a continuation of efforts from a prior (2017) feasibility study, DelDOT continues to explore the conceptual development of a Work Zone Incident Communication (WZIC) system to enhance the state's ability to communicate work zone restrictions to CMV drivers. The communication includes notifications of closures, adverse roadway conditions, safety alerts, and security concerns that will be provided via existing in-cab devices/systems in a safe and non-intrusive manner. The notifications will be sent with sufficient advanced notice to enable rerouting around the incident or slowing down to a safe speed approaching the area of concern. The system will collect information from DelDOT, cooperating agencies and companies in the private sector. As of 2022, ongoing work on the WZIC program includes development of the Trucker Portal and related requirements, as well as coordination of preferred data sets from sources such as Drivewyze, PrePass, and INRIX.

D.1.5 Share the Road New Driver Training Program

VTTI Sharing the Road Program: https://cmvroadsharing.org/.

In support of other technology and operations programs and to help the state's goal of reducing motor vehicle fatalities, DelDOT has also implemented a supplemental driver education program developed by the Virginia Tech Transportation Institute (VTTI) that promotes safe driving practices among teen drivers and the general driving population while interacting with CMVs. This program includes a hands-on truck experience developed by VTTI at Delaware schools, which demonstrates proper procedures for sharing the road with trucks and other heavy vehicles, along with the danger areas around these heavy vehicles. It also provides website resources through VTTI that incorporate video clips of real-world driving events captured during VTTI naturalistic driving studies.

D.1.6 DelDOT Oversize/Overweight Permit System

Delaware OS/OW Permit System: https://deldot.gov/osow/application/.

DelDOT's ITD-PRISM program efforts also include an emphasis on expanded electronic credentialing systems. Current efforts focus on Delaware's Oversize/Overweight (OS/OW) Hauling Permit System Software Upgrade and Common Look and Feel (CLF) Enhancement Project, and the OS/OW Automatic Routing System Project.

OS/OW Hauling Permit System Software Upgrade and CLF Enhancements: This project updates the DelDOT's system to be more accessible and secure. The system software is being upgraded to a new version of JAVA and Delaware's Information Technology (IT) CLF standard. The CLF standard improves the user experience and enables access to the system through different platforms such as tablets and smartphones. The upgraded system also provides enhanced security against cyber-threats.

OS/OW Automatic Routing System: This system generates routes for commercial vehicles along permitted routes. Motor Carriers can enter start and end locations into the OS/OW Auto Routing System to generate a safe route using the auto-routing system. The system ensures the safety of the traveling public and the integrity of public streets, bridges, and infrastructure statewide. Data input by DelDOT personnel and Commercial Vehicle Operations personnel is used to evaluate the routing options.

D.1.7 Dilemma Zone (DZ) System

Dilemma Zone System Details: https://deldot.gov/Programs/itms/index.shtml?dc=projects.

A dilemma zone (DZ) is the area just before a traffic signal where approaching vehicles may not be able to safely slow down to stop before a red signal, but also may not be able to keep driving to make it through an intersection safely before the signal turns red. Driver-decisions in the DZ during a traffic signal change interval play a significant role in affecting road safety at signalized intersections – more so, potentially, for CMVs with heavy freight loads that require greater time/distance to stop completely. To improve safety at strategic locations, Delaware is deploying a system that uses high-definition radar sensors that can detect if a vehicle may be entering a DZ, and that automatically extend the signal green time while also turning on a flasher sign ahead of the intersection to warn approaching drivers. DelDOT's initial DZ system was installed in February 2019 at the US 113 / SR 16 intersection in Ellendale. Future installations are planned in Smyrna along DelDOT's US 13 emerging technology testbed.

D.1.8 Connected and Automated Vehicles

DelDOT CAV website: https://deldot.gov/Programs/autonomous-vehicles/index.shtml.

Connected and Automated Vehicles (CAV) utilize technology to communicate with other vehicles, connected devices, and the transportation system. DelDOT maintains a CAV Advisory Council tasked with developing recommendations for innovative tools and strategies that can be used to prepare Delaware's transportation network for CAV. Potential CAV subject areas are related to promoting economic development; technology, security, and privacy; transportation network infrastructure; and impact on public and highway safety.

D.1.9 Transportation Operations Management Plan

DelDOT TOMP Resources: https://deldot.gov/Programs/itms/index.shtml?dc=tomp.

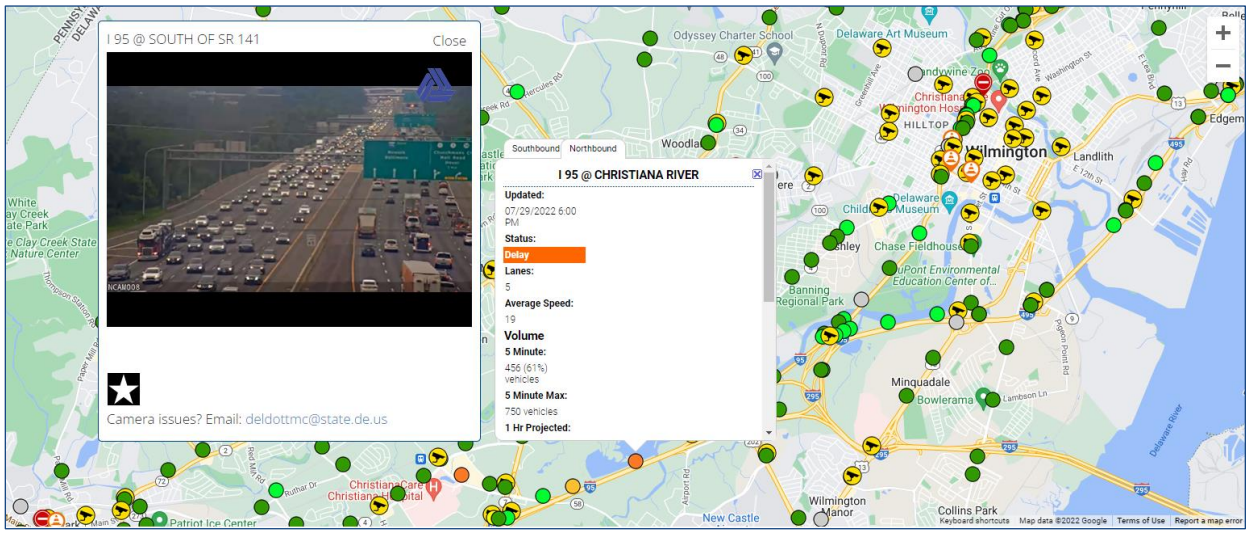
The Transportation Operations Management Plan (TOMP) is Delaware's comprehensive, consistent statewide approach that uses ITMS data to understand traffic mobility across the state. This understanding is essential for DelDOT to ensure the state's transportation system supports safe, reliable, and multimodal travel to make Delaware a better place to live and conduct business.

D.1.10 Real-Time Traffic Data

DelDOT Interactive Map: https://deldot.gov/map/index.shtml.

From a real-time data technology perspective, much of the information that DelDOT gathers for transportation systems management is shared with the public. DelDOT provides incident and travel advisory information throughout the state as part of an interactive travel map (**Exhibit D-3**) with access to data layers such as live traffic cameras, travel times, weather advisories, water-on-road warnings, snow advisories, and more. Maps are available online and via mobile device apps.

Exhibit D-3: DelDOT Interactive Map Sample



D.1.11 Other Technology Systems

Other technology and operations systems that support the applications above and other resources throughout DelDOT with benefits for both CMV traffic and general travel include details related to:

- All electronic tolling (AET) initiatives
- Traffic responsive signalization (TRS) via advanced software control and periodic retiming
- ITMS radar traffic detector systems (Wavetronix) for volume, speed, delay, and classification
- ITMS Bluetooth data collection systems for travel time, speed, and travel pattern data

DMTA Congestion Newsletters

In addition to state advisories and data available through DelDOT resources, the **Delaware Motor Transport Association (DMTA)** (https://delawaretrucking.org/) also supports public/private information sharing by providing newsletters and subscriber alerts directly to trucking and logistics professionals to alert them to road closures, congestion conditions, construction advisories, safety issues, and more.

D.2 Asset Preservation and Improvement

D.2.1 Bridge Conditions

Based on FHWA's National Bridge Inventory (NBI), Delaware's transportation network in 2022 includes a total of 872 bridges with 341 located along the NHS.[4] Tracking and managing bridge conditions is an important element of the National Highway Performance Program (NHPP) and related Transportation Performance Management (TPM) requirements that include a focus on bridge conditions on the NHS.[5] Maintaining Delaware's bridges in a state-of-good repair, particularly along the NHS, supports several broad transportation goals, including direct benefits for freight traffic and economic vitality. DelDOT regularly manages bridge condition reporting and related target comparisons through their TPM reporting processes to track the percentage of bridges on the NHS in poor or good conditions. Based on trend data and measurements, NHS bridge conditions in Delaware are generally improving and meeting or exceeding the current TPM targets (**Exhibit D-4** and **Exhibit D-5**).

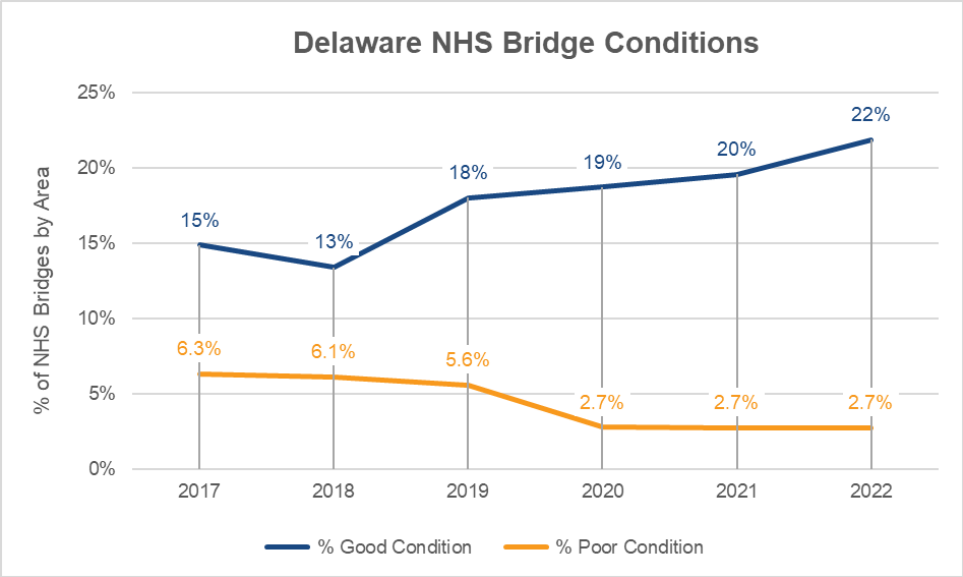
D.2.2 Pavement Conditions

Similar to the requirements for bridge conditions, DelDOT is also required to regularly manage pavement conditions reporting and related target comparisons through their TPM reporting processes. Based on FHWA TPM requirements, pavement conditions track the percentage of the interstate system and, separately, the non-interstate NHS having pavement in poor or good conditions. Based on trend data and measurements, interstate pavement conditions in Delaware are generally improving and meeting or exceeding the TPM targets (**Exhibit D-6**). Non-interstate NHS pavements in poor condition are also generally improving and meeting or exceeding the TPM targets; however, the most recent (2021) measurement of non-interstate NHS pavements in good condition are slightly below the desired 50% target. Ongoing investments through DelDOT's overall transportation planning and programming resources will continue to address improvements throughout the state as needed.

[4] FHWA, National Bridge Inventory, https://www.fhwa.dot.gov/bridge/nbi/condition.cfm.

[5] See FHWA TPM Rulemakings: Pavement and Bridge Condition Performance Measures Final Rule, 2017, https://www.fhwa.dot.gov/tpm/rule.cfm.

Exhibit D-4: Delaware NHS Bridge Conditions per FHWA National Bridge Inventory



Data Source: FHWA, National Bridge Inventory, https://www.fhwa.dot.gov/bridge/nbi/condition.cfm.

Exhibit D-5: Delaware NHS Bridge Conditions and Targets per DelDOT Reporting

Bridge Condition	Base Year (2017)	2018 (Measured)	2019 (2-year Target)	2021 (4-year Target)
GOOD	17.0%	25.7%	15.0%	15.0%
POOR	1.0%	1.8%	5.0%	5.0%

Data Source: DelDOT, Transportation Solutions Division

Exhibit D-6: Delaware Pavement Conditions (2017-2021)

Pavement Condition	Base Year (2017)	2019 (Measured)	2019 (2-year Target)	2020 (Measured)	2021 (Measured)	2021 (4-year Target)
Interstate Pavements						
GOOD	54.7%	55.6%	-	61.8%	60.7%	50.0%
POOR	0.8%	0.2%	-	0.6%	0.3%	2.0%
Non-Interstate NHS Pavements						
GOOD	59.7%	55.5%	50.0%	55.9%	42.4%	50.0%
POOR	1.2%	1.1%	2.0%	1.1%	0.8%	2.0%

Data Source: DelDOT, Transportation Solutions Division

D.2.3 First/Final Mile Network Shoulders

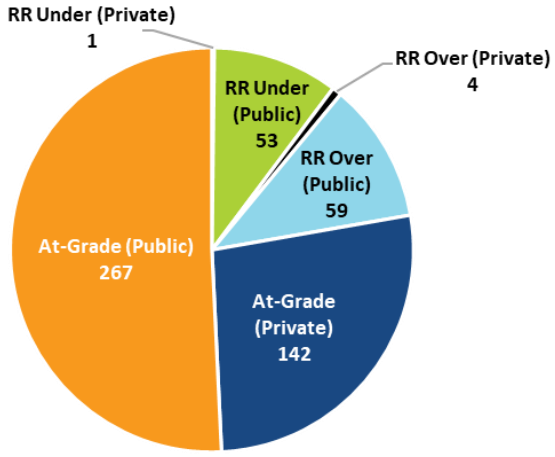
Beyond the federally required TPM details for bridges and pavements, data is available within Delaware to potentially explore conditions along the state's First/Final Mile Network. Specifically, the presence of shoulders along first/final mile connections can provide a notable benefit for general truck travel and safety for CMV's that must use specific routes to access their freight pick-up or delivery sites. Based on data compilations available through WILMAPCO, nearly 9% of Delaware's first/final mile connections have existing shoulder widths of up to 1', while 70% has shoulders of 4' or greater. Such details may be referenced to support first/final mile network improvements (e.g., to identify potential areas for shoulder widening) as part of ongoing state, regional, and local freight planning efforts throughout Delaware.

D.2.4 Highway-Rail Crossings

The Federal Railroad Administration (FRA) crossing inventory identifies 526 highway-rail crossings within Delaware (**Exhibit D-7**).[6] Of these crossings, 142 (27%) are located along Class I rail lines, and 384 (73%) are located along Class III rail lines. Most crossings are publicly owned (72%), and most crossings also occur at-grade (78%) as opposed to grade-separated railroad over or under passes. Over half of the state's highway-rail crossings are located in New Castle County (272 or 52%), followed by Sussex County (180 or 34%), and Kent County (74 or 14%).

As noted in Chapters 4 and 5 of the Delaware State Freight Plan, highway-rail crossing locations are reflected among the state's broader freight planning needs, and annual improvement opportunities are available and managed (contingent on program resources) as part of DelDOT's Highway-Rail Grade Crossing Safety Program (HRGX) or other project funding opportunities.

Exhibit D-7: Delaware Highway-Rail Crossing Inventory



6 Federal Railroad Administration, Safety Data and Reporting – Crossing and Inventory Data, including data compiled for Delaware, https://railroads.dot.gov/safety-data/crossing-and-inventory-data/crossing-inventory-dashboards-data-downloads.

D.3 Freight Congestion

D.3.1 Truck Bottlenecks

As part of federal TPM reporting requirements and 23 U.S.C. §150(e)(4), states must identify and describe the ways in which they are addressing congestion at freight bottlenecks. States and their planning partners are required to build a foundation for truck freight bottleneck reporting that combines data analysis, qualitative information, professional expertise, and stakeholder engagement.[7]

Delaware's statewide truck bottleneck identification and analyses are prepared and tracked independent of the freight plan. Delaware's process considers a range of quantitative details that include:

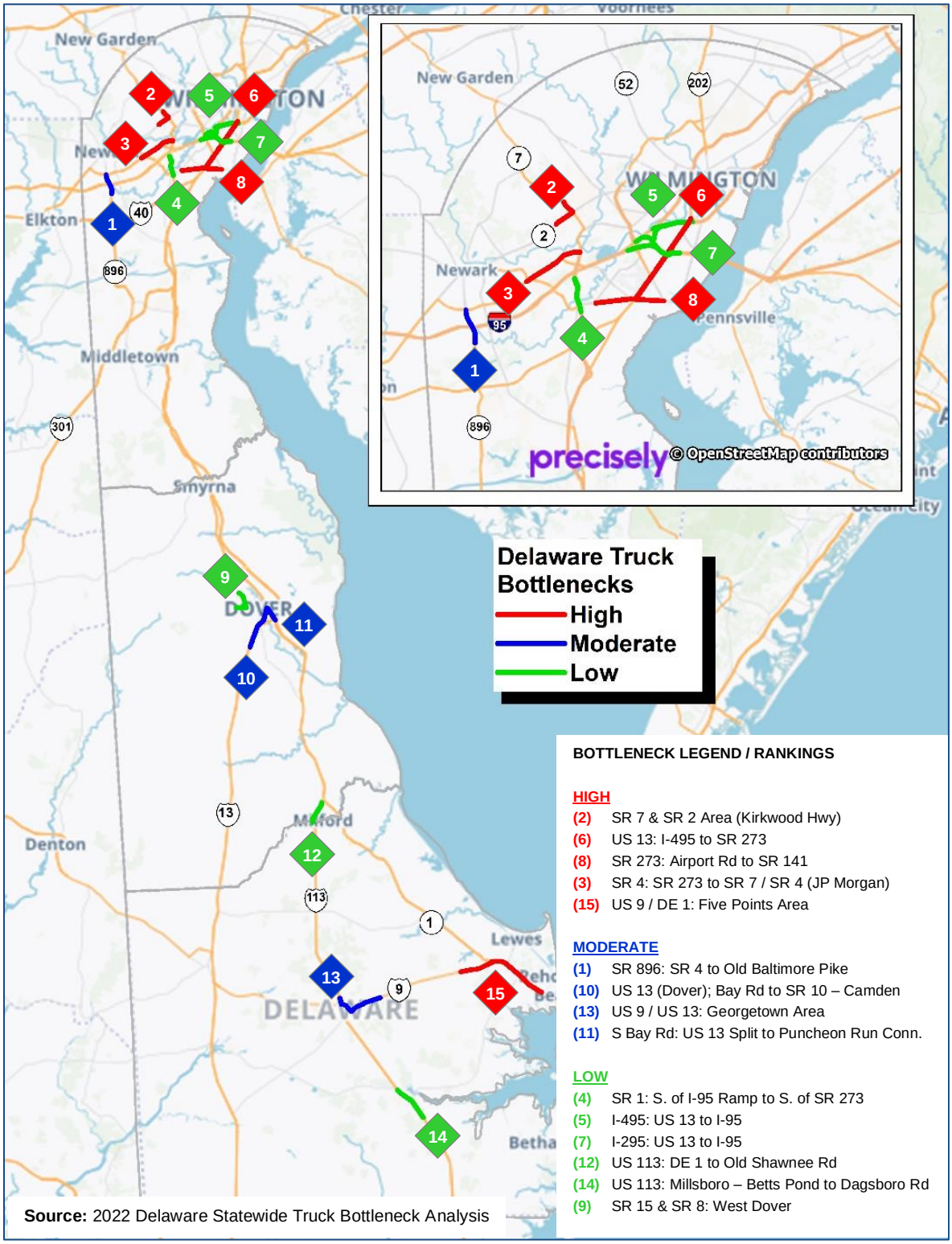
- Travel Reliability (based on volume-to-capacity and related level-of-service estimates for the average weekday AM peak, weekday PM peak, and summer peak)
- Daily Truck Traffic Volume (based on FHWA classes 5-7, and classes 8 and above)
- Daily Truck Traffic Percentage
- Daily Truck Trip Generation (based on zone estimates using employment details)
- Type of Route (based on NHFN, NHS, and other state-specific elements)
- Crash Impacts (based on intersection safety details or rankings)

Specific details for the criteria listed above and a summary of Delaware's Statewide Truck Bottleneck Analysis is reported separately in **Appendix F** of this freight plan. These analyses were used to identify and rank (high-moderate-low) Delaware's top 15 truck bottlenecks as summarized in **Exhibit D-8**.

In addition to the identified truck bottleneck locations, this freight plan also provides a summary comparison of planned projects that overlap the state's top 15 truck bottlenecks. This comparison provides a means to help support project planning/programming decisions and track the potential improvements that will address congestion at the bottleneck locations. Potential truck bottleneck improvement projects are reported separately in **Appendix G** of this freight plan.

[7] FHWA, Truck Freight Bottleneck Reporting Guidebook, July 2018, https://www.fhwa.dot.gov/tpm/guidance/hop18070.pdf.

Exhibit D-8: Delaware Top 15 Truck Bottlenecks



Source: 2022 Delaware Statewide Truck Bottleneck Analysis

BOTTLENECK LEGEND / RANKINGS

HIGH
- (2) SR 7 & SR 2 Area (Kirkwood Hwy)
- (6) US 13: I-495 to SR 273
- (8) SR 273: Airport Rd to SR 141
- (3) SR 4: SR 273 to SR 7 / SR 4 (JP Morgan)
- (15) US 9 / DE 1: Five Points Area

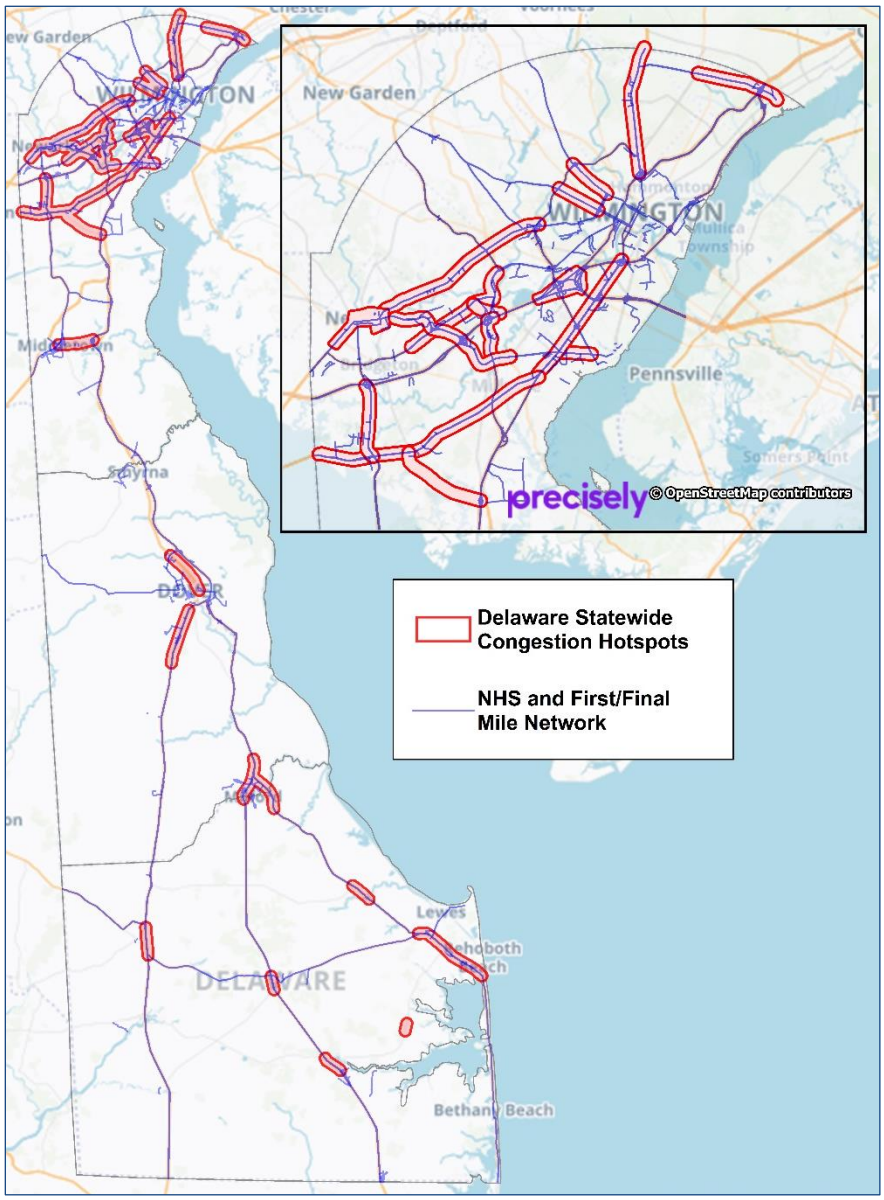
MODERATE
- (1) SR 896: SR 4 to Old Baltimore Pike
- (10) US 13 (Dover); Bay Rd to SR 10 – Camden
- (13) US 9 / US 13: Georgetown Area
- (11) S Bay Rd: US 13 Split to Puncheon Run Conn.

LOW
- (4) SR 1: S. of I-95 Ramp to S. of SR 273
- (5) I-495: US 13 to I-95
- (7) I-295: US 13 to I-95
- (12) US 113: DE 1 to Old Shawnee Rd
- (14) US 113: Millsboro – Betts Pond to Dagsboro Rd
- (9) SR 15 & SR 8: West Dover

D.3.2 Background Traffic Bottlenecks

In addition to the state's top truck bottlenecks identified in the previous section, general background traffic congestion along any route used by CMVs can impact overall freight transportation efficiency. As part of DelDOT's broader congestion management efforts, Transportation Operations Management Plans (TOMPs) are issued and updated by DelDOT for each of Delaware's three counties on a rotating basis. Data analysis conducted as part of the TOMPs focuses on travel time reliability (TTR) and traffic volume measures to assess the frequency and severity of congestion at multiple times during the day and throughout the various seasonal changes. These analyses support the identification of statewide congestion hotspots throughout Delaware that may also be referenced as needed in support of ongoing freight planning efforts and broader transportation planning/programming support (**Exhibit D-9**).

Exhibit D-9: Delaware Statewide Congestion Hotspots



D.3.3 Truck Travel Time Reliability

Predictable travel time is an important element for facilitating consistent, efficient, and cost-effective goods movement. Tracking and managing travel reliability for trucks and for general travel along the interstate and the non-interstate NHS is included among federal TPM reporting requirements.[8]

TTTR: For trucks specifically, required measures include the Truck Travel Time Reliability (TTTR) index. The TTTR index generally represents the 95th percentile truck travel time divided by the 50th percentile truck travel time, calculated for individual roadway segments and five designated time periods. The maximum TTTR reflects final system performance where a higher TTTR index value indicates worse (less reliable) operations.

LOTTR: For general travel on the interstate and non-interstate NHS, required measures are assessed in terms of the Level of Travel Time Reliability (LOTTR). The LOTTR is defined as the ratio of longer (80th percentile) travel times to normal (50th percentile) travel times in 15-minute intervals during all time periods from 6:00 AM to 8:00 PM. The final LOTTR measures reflect the percent of person-miles traveled on the network that are considered reliable where a higher LOTTR value indicates better (more reliable) operations.

Reliability data were included as part of the truck bottleneck analyses described previously in **Section D.3.1** of this appendix and in **Appendix F**. From a broader perspective as part of DelDOT's TPM reporting processes, summary trends and targets for truck reliability (based on TTTR index) and general travel reliability (based on LOTTR) are summarized in **Exhibit D-10**, **Exhibit D-11**, and **Exhibit D-12**. Based on these trend data and measurements (and not accounting for potential anomalies in the 2020-2021 timeframe), reliability conditions for truck traffic and general traffic were degrading slightly (i.e., becoming "less" reliable); however, all results still generally meet or exceed target expectations. It should be noted that this degradation was "expected" and intentionally planned for in previous target setting efforts, as it is primarily attributable to the influence of scheduled construction activities along I-95 and their related impact on travel reliability. Pending completion of the interstate improvements and future TPM reporting data updates, measured trends without the influence of major interstate work will be reassessed.

For the 2020-2021 timeframe, specifically, it is difficult to assess realistic long-term trends as the data shows substantial improvements in reliability that are almost certainly attributable to the influence of the COVID-19 pandemic and related decreases in overall traffic demand and volumes. As the impact of the pandemic (on travel) continues to decrease, and as travel conditions continue to "return to normal" or simply evolve (e.g., due to any residual or long-term effect of remote work activity on commuter travel schedules), future travel reliability data updates and/or target resetting will continue to be monitored.

[8] See FHWA TPM Rulemakings: System Performance/Freight/CMAQ Performance Measures Final Rule, 2017, https://www.fhwa.dot.gov/tpm/rule.cfm.

Exhibit D-10: Delaware Travel Reliability for Trucks (TTTR Index based)

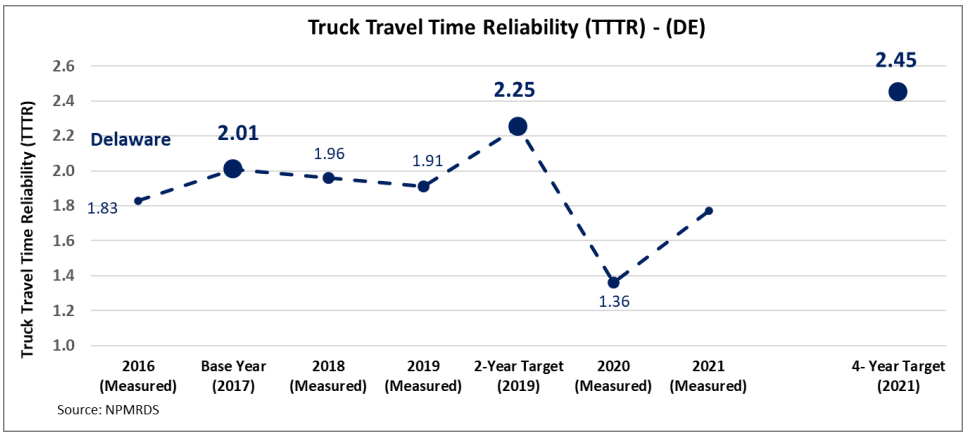


Exhibit D-11: Delaware Travel Reliability for Interstates (LOTTR based)

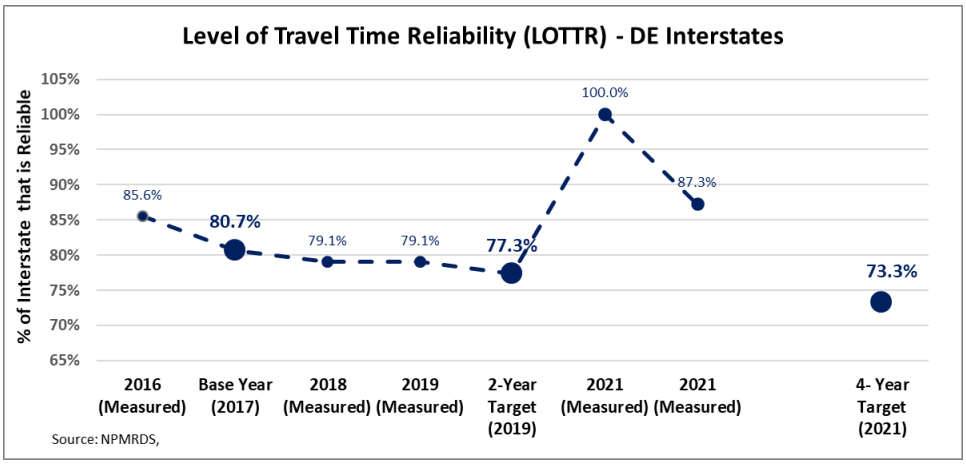
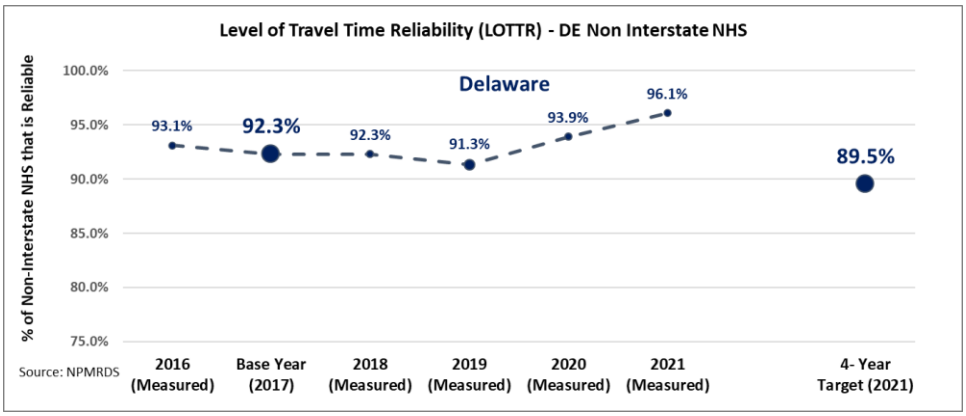


Exhibit D-12: Delaware Travel Reliability for Non-Interstate NHS (LOTTR based)



D.4 Truck Parking

2021 Delaware Statewide Truck Parking Study:
http://www.wilmapco.org/freight/DE_Truck_Parking_Final.pdf.

DelDOT and its MPO planning partners completed the Delaware Statewide Truck Parking Study in 2021. The main objective of the study was to address overnight parking hotspots as well as more localized, shorter-term truck parking and truck staging needs within Delaware. An additional study focus was regular engagement with the local trucking community to help validate future strategies and recommendations. Using several new data collection resources and detailed time-of-day and location-based data, truck parking patterns were captured to develop a comprehensive picture of truck parking conditions throughout Delaware.

IIJA Commercial Motor Vehicle Parking Facilities Assessments

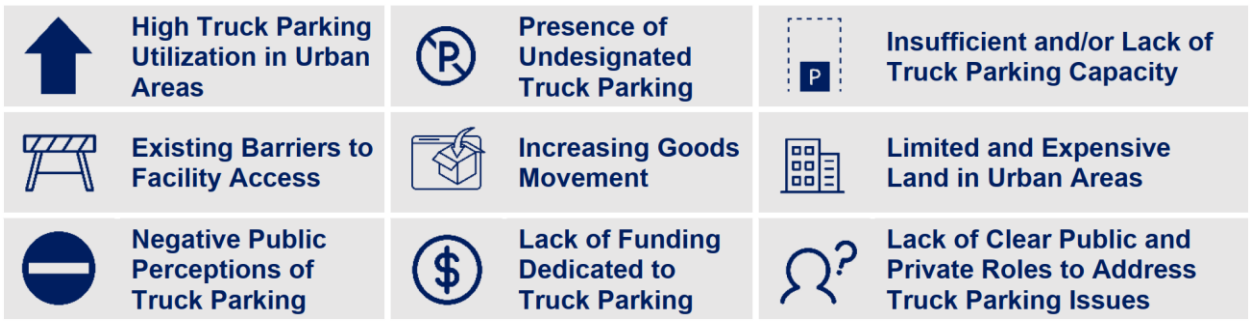
Introduced by the Infrastructure Investment and Jobs Act (IIJA) in 2021 as a new requirement for state freight plans, each state that receives funding under 23 U.S.C. §167, in consultation with relevant state motor carrier safety personnel, shall conduct an assessment of:

1. the capability of the state, together with the private sector in the state, to provide adequate parking facilities and rest facilities for commercial motor vehicles engaged in interstate transportation;
2. the volume of commercial motor vehicle traffic in the state; and
3. whether there exist any areas within the state with a shortage of adequate commercial motor vehicle parking facilities, including an analysis of the underlying causes of such a shortage.

D.4.1 Existing Truck Parking Demand

Based on findings from the truck parking study, the existing demand for truck parking exceeds the available supply of truck parking along key freight routes, near freight generating facilities, and surrounding urban areas in Delaware. As a result, trucks park in undesignated locations at the state's existing rest areas, along corridor and last-mile shoulders, and on last-mile roads, which poses negative impacts to Delaware's economy, safety, infrastructure, and quality of life. Overall conditions are fueled by a variety of truck parking issues and challenges in Delaware (**Exhibit D-13**).

Exhibit D-13: Truck Parking Issues and Challenges [9]



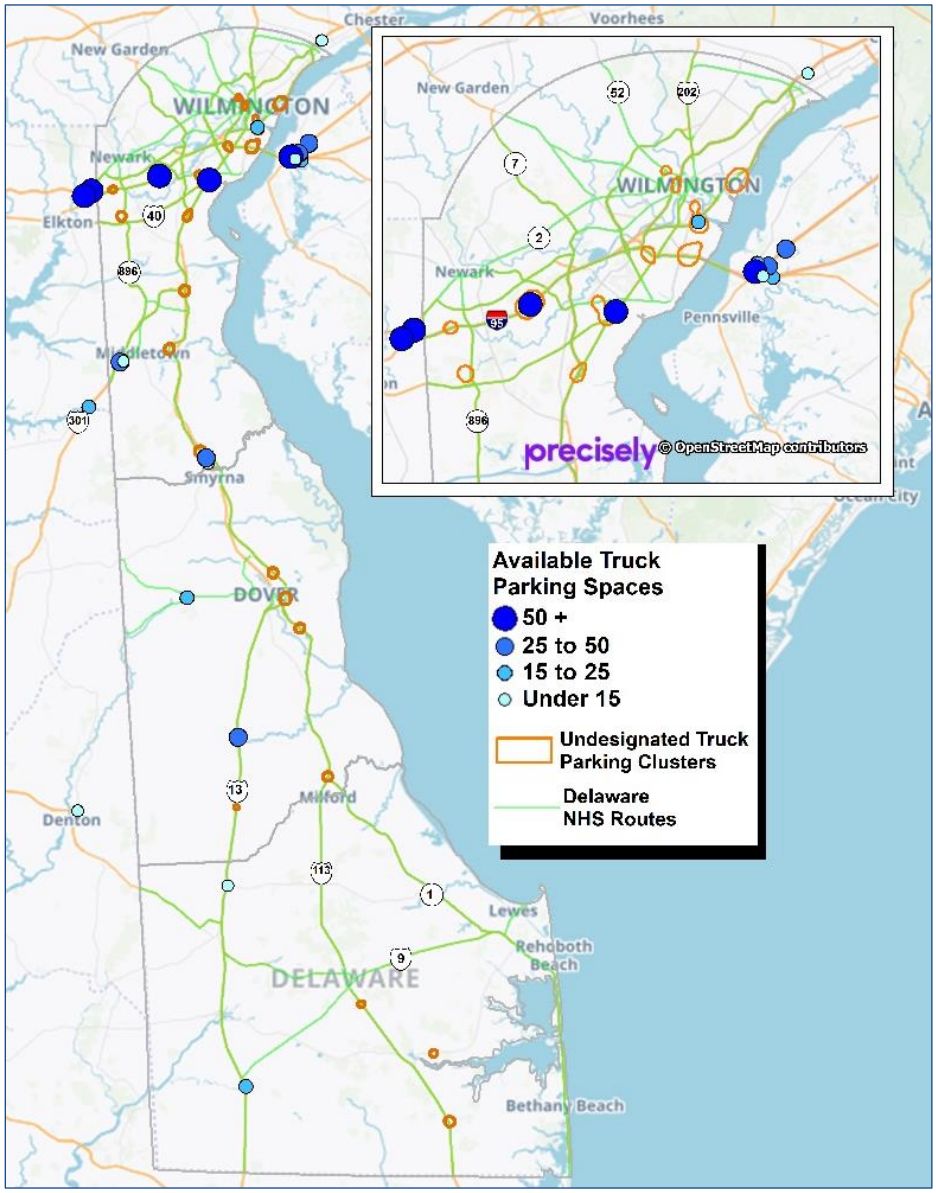
[9] Delaware Truck Parking Study, 2021, http://www.wilmapco.org/freight/DE_Truck_Parking_Final.pdf.

D.4.2 Existing Truck Parking Inventory

An inventory of truck parking locations and spaces, space utilization by time of day, and undesignated parking provide an understanding of the state's existing truck parking conditions (**Exhibit D-14**). The inventory and utilization of truck parking provide insights into the state's truck parking supply and demand, while the presence of undesignated parking signals an imbalance between truck parking supply and demand.

Delaware has 12 truck parking locations that offer a total of 337 truck parking spaces. Among these, there are 10 private locations (261 total spaces) and 2 public locations (76 total spaces). The public locations include the Smyrna Rest Area and the Biden Welcome Center, the latter of which is publicly owned, but privately operated.

Exhibit D-14: Truck Parking Locations



Utilization at the state's truck parking facilities is highest during the early morning hours, peaking from 2:00 AM to 3:00 AM, especially in urban areas. While utilization is high at select facilities, notably in urban locations, many of Delaware's truck parking facilities do not reach full capacity, even during peak hours. Utilization also remains low in many areas of the state during the non-peak hours of the late morning and afternoon. However, those locations in Delaware that do experience high truck parking utilization also experience higher concentrations of undesignated parking.

There are 32 undesignated truck parking clusters in Delaware, with concentrations of undesignated truck parking highest along key freight routes, near existing public rest areas, near freight generating facilities, and in urban areas.

D.4.3 Truck Parking Opportunities for Delaware

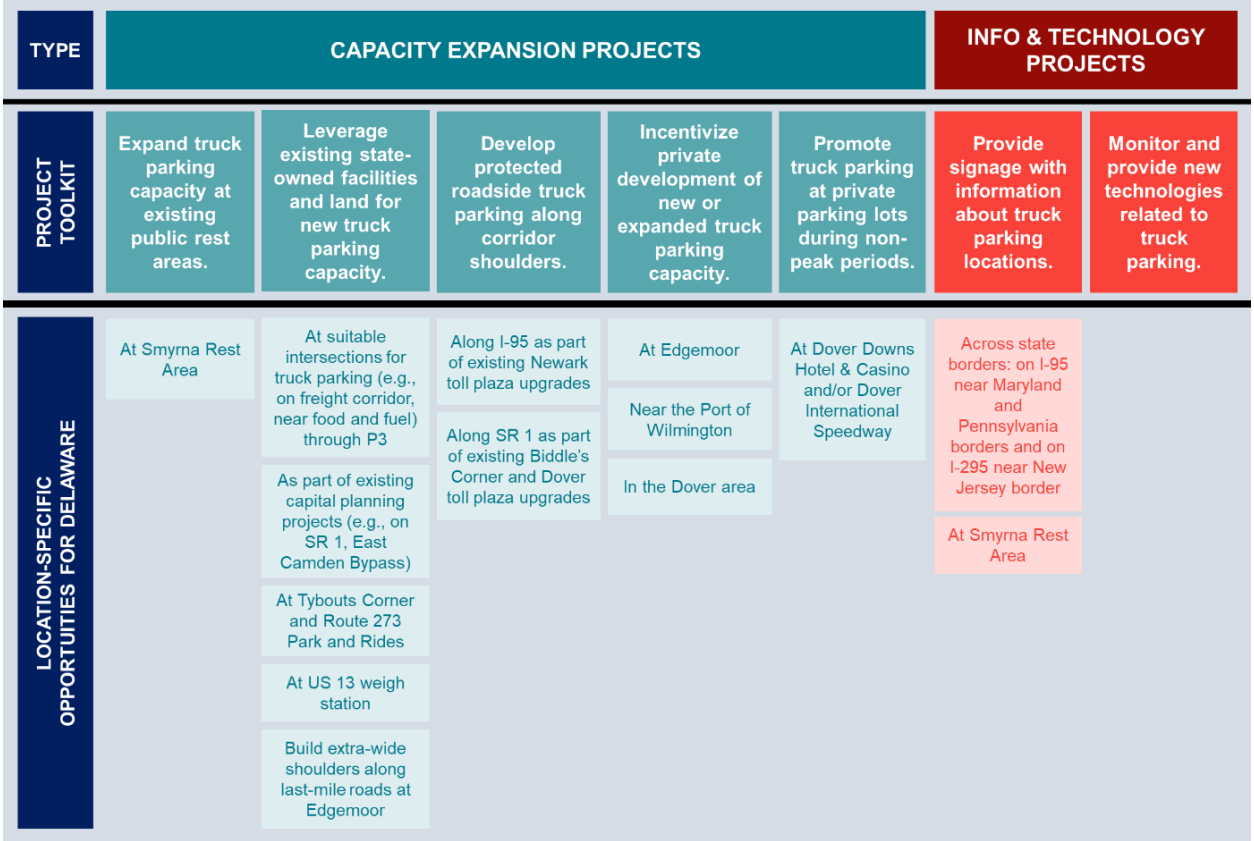
While there is no silver bullet solution for truck parking, there are a range of solutions available to advance truck parking in Delaware. Solutions include statewide policies and programs, as well as location-specific projects.

Policies and Programs focus on institutional changes that promote the inclusion of truck parking into governance and investment decisions. While policies and programs may not directly target a specific location, they are instead part of an overarching strategy that can set the foundation for DelDOT and local partners to advance truck parking on a systematic basis and in decision-making. Overall policy and program opportunities for truck parking in Delaware that focus on institutional changes to promote the inclusion of truck parking into governance, planning, and investment decisions include the following:

- **Champion:** Identify a point of contact, or "champion" for truck parking within DelDOT.
- **Funding:** Secure funding for truck parking projects.
- **Capital Planning:** Integrate truck parking into capital project planning and development.
- **Multistate Coordination:** Coordinate truck parking information and efforts with neighboring states.
- **Land Use Coordination:** Partner with local land use agencies to update local land use regulations to support additional parking capacity on-site at freight generators.
- **Outreach:** Launch a public education campaign to share information about truck parking with local agencies and the public.
- **Industry Coordination:** Work with trucking industry to exchange information about truck parking issues and solutions.

From a project planning perspective, the truck parking study also developed a Truck Parking Project Toolkit (**Exhibit D-15**), which provides a range of available solutions to target location-specific truck parking needs or issues. This toolkit includes the identification of specific opportunities to apply these projects to truck parking issue areas in Delaware. Refer to the 2021 Delaware Statewide Truck Parking Study directly for additional detail on project opportunities.

Exhibit D-15: Delaware Truck Parking Projects – Toolkit and Location-Specific Opportunities [10]



[10] Delaware Truck Parking Study, 2021, http://www.wilmapco.org/freight/DE_Truck_Parking_Final.pdf.

D.5 Supply Chains

D.5.1 Detailed Supply Chain Studies

Recent global events have highlighted how sensitive our goods movement supply chains are to disruption. One area in which Delaware can continue to make progress is gaining a better understanding of how key businesses rely on the transportation system to gather their raw materials, produce goods, and ship their final products to customers. Two of the state's largest industries were previously reviewed via detailed supply chain analyses just before the 2015 release of the FAST Act, including the Delaware Agricultural Supply Chain Analysis and the Delaware Chemicals Manufacturing Supply Chain Study. Reference findings from these prior supply chain studies still provide relevant insights to help support broader planning efforts (see highlight boxes for each study on the following page).

Both of these prior studies provided a "deep-dive" into industry specific supply chain details that go beyond the broader level of planning typically available within the context of an overall statewide freight plan. Such details can include a review of potential strengths, weaknesses, opportunities, and threats (SWOT) that explore a variety of perspectives. Those perspectives may uncover critical supply chain characteristics, raw material sources and related transportation links, intermediate processes or transportation connections, supply chain sub-components and supporting industries, critical market trends and logistics practices, or other needs and opportunities. Such details provide a potentially valuable source of insight to help further support decision-making by the state's transportation planners, forecasters, land use experts, economic development agencies, or other interested organizations, all connected to an ultimate goal of enhancing local, state, regional, and national economic interests.

As listed among the freight strategies and implementation tasks detailed in Chapter 6 of this freight plan, future "deep-dive" supply chain studies that are being considered to continue to grow Delaware's knowledge based potentially include the following industries:

- Freight Intensive Sector (FIS) industry clusters
- Pharmaceuticals
- E-commerce
- Renewable energy
- Coal and petroleum products

D.5.2 Delaware Import/Export Flows

Supply chain insights should leverage a variety of data sources and potentially include a review of critical import/export flows as part of the analysis. As summarized in Chapter 2 of this freight plan, Delaware foreign import/export trade in 2020 amounted to more than 9 million tons of freight worth $11.8 billion (FAF5). Leading trade partners by FAF5 region include Rest of Americas (e.g., South and Central America), Europe, Southwest and Central Asia (e.g., Saudi Arabia, India), and Canada. As future supply chain analyses are considered, insights from tools such as FAF5 (e.g., import/export flows as highlighted in **Exhibit D-16** and **Exhibit D-17**) may be used to look more closely at specific commodities, foreign-domestic connection/transfer points, truck or multimodal connectivity and accessibility needs within Delaware, specific cargo capacity or handling needs for multimodal infrastructure within Delaware, or other factors as the supply chain studies are developed.

Delaware Agricultural Supply Chain Analysis

This study reviewed agricultural market trends, transportation system and management issues, and overall supply chain insights for the region, with sample findings as follows:

- Much of the corn and soybean crops grown in Delaware are used to feed chickens, not people; requiring imports from the U.S. Midwest to make up an annual deficit of 120 million bushes (or 5,900 rail carloads).
- Eggs for the poultry industry are kept separately (in case of avian flu outbreak) in North Carolina and trucked to the Delmarva region once they hatch.
- Nutrients and minerals, such as calcium, for feed are imported from Pennsylvania.
- Processed poultry moves primarily to adjacent regions in the Midwest (30%), northeast (60%), and Mid-Atlantic (10%), with a small amount to Puerto Rico.
- Rail service was identified as one of the most important issues for the poultry industry to supply feed, and railroad congestion in Maryland could delay shipments of Delaware rail traffic.
- Highway travel was generally reasonable, but summer beach traffic causes major issues, such as congestion on SR 8, SR 24, SR 26, and SR 404, and for regional just-in-time shipments to New York City.

Source: IHS, Delmarva Agriculture Supply Chain Analysis (presentation to WILMAPCO), January 2015.

Delaware Chemicals Manufacturing Supply Chain Study

This study reviewed Delaware's chemicals manufacturing supply chain based on macroeconomic trends, chemical industry analyses, a review of regional transportation assets and Delmarva goods movement, and potential economic opportunities and policy perspectives, with sample findings as follows:

- The study explored inbound/outbound supply chains at each of Delaware's 12 chemical plants, as well as the influence of potential changes due to oil and gas development in the Marcellus shale play.
- Increased pipeline capacity (e.g., Mariner East) to supply feedstock materials, coupled with manufacturing and port facility investment, is necessary to create a more competitive regional economic environment.
- Modest growth opportunities include an emphasis on high-value, low-weight specialty chemicals, plastics, and pharmaceuticals.
- Policies emphasized a range of multimodal transportation options to support future economic opportunities, including reduced highway congestion, improved truck access to major seaports (Wilmington, Baltimore) and regional airports (Philadelphia, Baltimore), efficient rail access to seaports and to the lower Delmarva peninsula, dredging maintenance (45+ feet) for the Delaware River/Bay, and joint marketing with DVRPC.
- Potential challenges to chemicals manufacturing expansion go beyond transportation policy and potentially involve high energy costs, workforce constraints, Coastal Zone Management regulations, and other tax and regulatory issues.

Source: IHS, Delmarva Chemicals Manufacturing Supply Chain Study (presentation to WILMAPCO), November 2013.

Exhibit D-16: Delaware Import Flows (2020 FAF5)

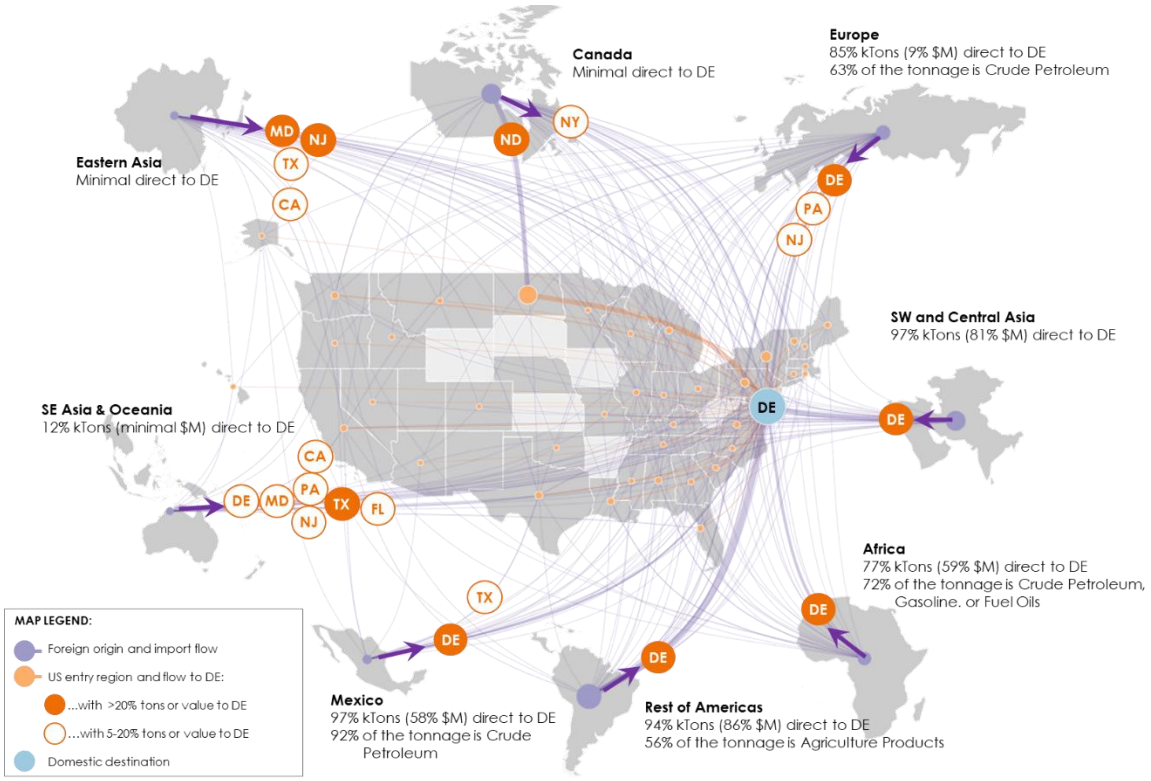
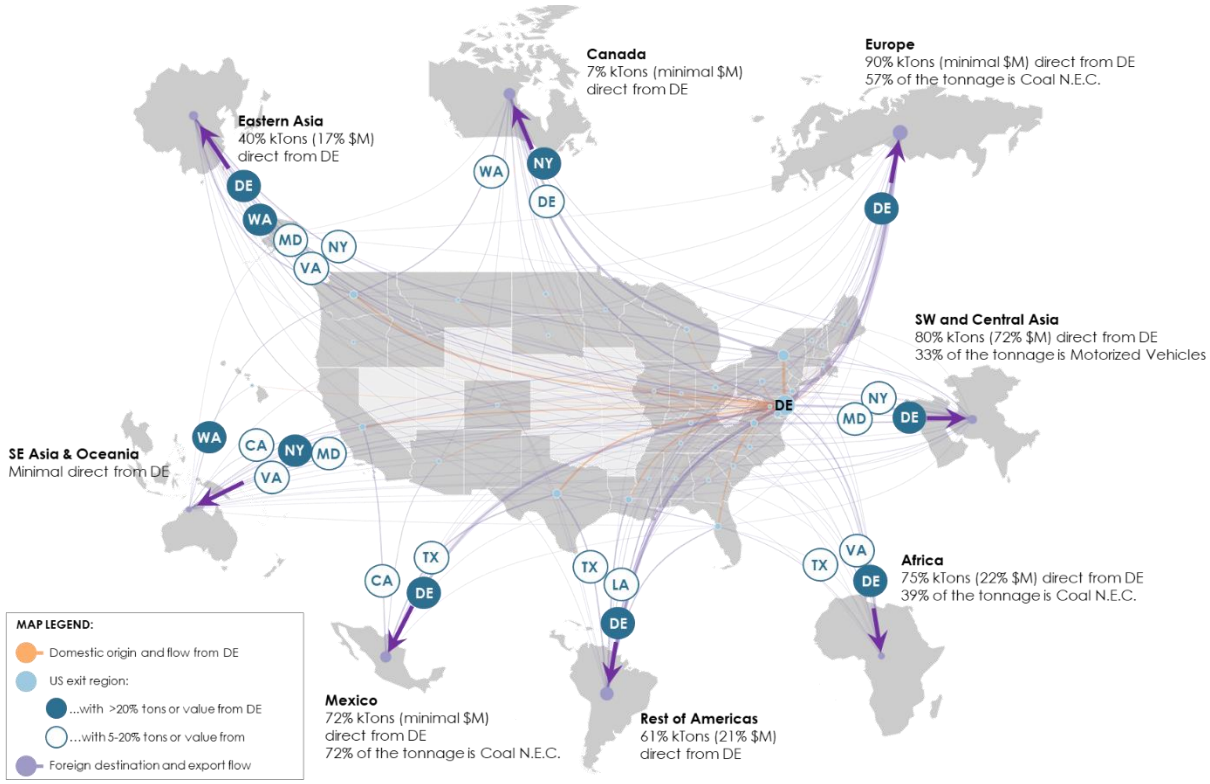


Exhibit D-17: Delaware Export Flows (2020 FAF5)



D.6 Commercial Ports

Commercial port activity and related facilities in Delaware are summarized in the main body of the Delaware State Freight Plan (refer to **Chapter 3.4**), which included highlights for:

- **Port of Wilmington:** handling nationally significant movements of produce and juices, 200,000 TEUs annually through their perishables terminal, 1 million tons of liquid petroleum products annually at their petroleum jetty on the Christina River, automobile and RoRo services, a wide variety of breakbulk and bulk cargo capabilities, livestock exports, and a popular gateway for specialty project cargo and wind energy shipments.[11]

- **Port of New Castle (Delaware City):** handling 9.2 million tons of cargo in 2019, with 94% as crude petroleum or related products such as fuel oils, gasoline, kerosene, lube oils, greases, solvents, and asphalt.[12]

- **M-95 Marine Highway:** with water route connectivity from Delaware to broader elements of MARAD's Marine Highway system, including access along the Atlantic Coast and connections to most major ports and other inland waterway systems along the east coast.[13]

- **Delaware River/Bay System:** offering connections between the Atlantic Ocean, the Port of Wilmington, and the other major regional port facilities, including the Philadelphia and South Jersey areas. Access via the Delaware River/Bay system also allows for ship/barge connections east of the Dover area to support localized pipeline and supply connections used for fuel storage at Dover Air Force Base.

- **Chesapeake & Delaware Canal:** offering connections between the Delaware River/Bay System and Port of Baltimore along a 46-mile canal maintained by USACE Philadelphia District.

- **Nanticoke River:** offering access through Maryland into Sussex County, Delaware, at Seaford, and carrying more than 1.2 million tons of sand, gravel, fertilizers, and agricultural products (2019 USACE data). This connection also relates directly to interests in exploring a new Seaford Barge-to-Rail Intermodal Terminal as highlighted in **Chapter 5** of this plan.

- **Wicomico River:** offering access to the river-based Port of Salisbury, Maryland, just seven miles from Delaware's southern border, and carrying more than 1.0 million tons of gasoline, fuel oils, sand, gravel, and agricultural products (2019 USACE data). This connection also relates directly to recent feasibility studies that focus on developing a multi-user river port facility in Salisbury as highlighted in **Chapter 1** of this plan.[14]

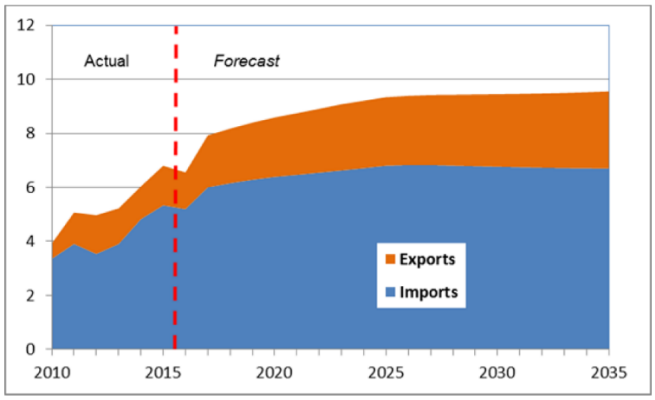
- **Other Eastern Shore (MD) Waterways:** including navigable stretches of water along the Pocomoke, Choptank, and Tred Avon rivers, each carrying roughly 100,000 tons per year of sand, gravel, or other periodic shipments (2019 USACE data).

[11] GT Wilmington, Cargo Portfolio, https://www.portofwilmington.com/cargo-portfolio.html.
[12] USACE, https://ndc.ops.usace.army.mil/wcsc/webpub/#/report-landing/year/2019/region/1/location/299.
[13] USDOT Maritime Administration, https://www.maritime.dot.gov/grants/marine-highways/marine-highway.
[14] CPCS, https://www.swmpo.org/_files/ugd/5c05e2_5a20a26e43f34c24b91295fdd78865dc.pdf.

From the above list, one of the most significant impacts relative to Delaware freight and goods movement opportunities will include GT USA Wilmington's planned expansion of the Port of Wilmington with construction of new 1.2 million TEU container facility at the former DuPont (Chemours) Edgemoor industrial site. This expansion reflects an ongoing realization of port improvements that were previously planned as part of the Port's 2016 Strategic Master Plan (see Port project details in **Appendix H**, notably for the ALT 4 Edgemoor site). The site tentatively reflects a $500 million investment with a goal of being operational by 2025, which is in addition to the $118 million that has been spent to upgrade the Port since GT USA Wilmington signed a 50-year management deal in September 2018.[15]

Based on the 2016 strategic plan, positive overall growth is expected to continue at the Port (**Exhibit D-18** and **Exhibit D-19**). Ongoing investments at the Port of Wilmington and the container facility expansion at the Edgemoor site will help to maintain the Port in a state of good repair while also supporting the future growth. Effective planning for dredge material management sites, multimodal rail/port connectivity and efficiencies, truck access and circulation enhancements, and truck parking opportunities as referenced throughout this freight plan will also help to support ongoing growth and future opportunities.

Exhibit D-18: Port of Wilmington Projected Trade Forecast (in million short tons and growth rates)

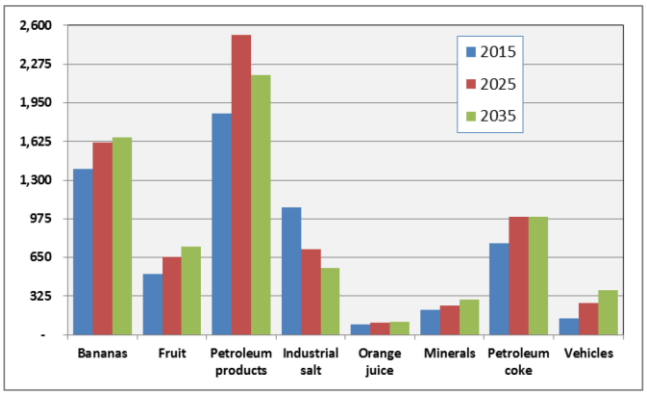


	History '10 - '15	5-Years '15 - '20	10-Years '15 - '25	20-Years '15 - '35
Imports	9.7%	3.7%	2.5%	1.1%
Exports	20.9%	8.5%	5.6%	3.4%
Total	11.7%	4.8%	3.2%	1.7%

Compound annual volume growth rates

Source: 2016 Diamond State Port Corporation Strategic Master Plan, based on AECOM/R.K. Johns projections.

Exhibit D-19: Port of Wilmington Key Commodity Volume Projections (in kTons)



Source: 2016 Diamond State Port Corporation Strategic Master Plan, based on AECOM/R.K. Johns projections.

[15] Thompson, Tad, The Produce News, "GT USA Wilmington continues massive port expansion", June 28, 2021, https://theproducenews.com/deleware-ports/gt-usa-wilmington-continues-massive-port-expansion.

D.7 Multistate Coordination

It is important to note from a regional perspective that DelDOT actively works with their adjacent state and regional/MPO planning partners as part of an overall collaborative/cooperative approach to freight planning in general (see **Chapter 1.2** of this freight plan), including specific coordination for the freight network designation process. Examples include discussions with MDOT regarding urban corridor recommendations in Cecil County, Maryland; and with the Delaware Valley Regional Planning Commission (DVRPC) regarding urban corridor interests north into Pennsylvania. Such efforts are anticipated to continue as part of broader, ongoing freight planning efforts.

A list of potential planning efforts or projects that could hold regional significance beyond Delaware and that could benefit from broader multistate coordination or related opportunities (e.g., future discussions for multistate freight mobility compact candidates per 49 U.S.C. §70204) includes the following:

- **Freight Network Continuity Initiatives:** It is anticipated that formal freight network designations will continue to be refined as part of broader ongoing freight planning efforts – at a minimum, to assign the additional CUFC/CRFC mileage allotments that were expanded in Delaware under the IIJA. As part of these efforts and considering that adjoining states may also be undertaking the same exercise in the near future, multistate discussions may be beneficial to identify potential needs and opportunities to ensure freight network continuity across state lines. For reference as this coordination occurs, an initial list of potential freight network continuity issues for key routes crossing between Delaware, Pennsylvania, and Maryland has been summarized in **Exhibit D-20**.

- **Chesapeake Connector and Susquehanna River Bridge Replacement**: Ongoing multistate discussions may be beneficial to focus on potential rail improvement needs and related plans, projects, or future opportunities to alleviate rail bottlenecks along the Amtrak Northeast Corridor (NEC) between the Bacon and Prince Interlockings. This section of the NEC includes a 6.3 mile two-track section between Perryville, Maryland and North East, Maryland. This section of track is one of the few remaining two-track segments along this heavily traveled rail corridor that is generally three or more tracks. Delays along this corridor impact freight rail access in general, including access to/from Delaware (e.g., for NS travel between Pennsylvania to Delaware).

- **Delaware Senate Resolution 10 Recommendations:** As noted in the prior (2017) Delaware Freight Plan, Delaware Senate Resolution 10 (April 25, 2017) encompassed a high-profile special committee effort to study truck traffic and community concerns along Delaware SR 41, SR 48, and SR 7 in New Castle County. The results of that effort include a series of recommendations and potential feasibility studies for constructing a bypass between US 1 and I-95, a passenger and freight rail spur parallel to SR 41, and SR 896 corridor improvements and an alternate/parallel route to encourage trucks use I-95 to SR 869. These studies have been included in the list of Delaware's long-term freight planning tasks; however, given the size, scope, and bi-state nature of these studies, commencement of future work will likely require explicit direct from the General Assembly, and a formal recommendation from a bi-state (Delaware/Pennsylvania) working group.

Exhibit D-20: Delaware Freight Network Continuity with Pennsylvania and Maryland [16]

Delaware Area	DE Route / Freight Network		PA Route / Freight Network		Continuity Issue?
north of Wilmington	DE 491	FFM	PA 491	-	FFM
north of Wilmington	US 202	**CUFC**	US 202	Other	**NHFN**
north of Wilmington	DE 52	Other	PA 52	Other	-
north of Hockessin	DE 41	Other	PA 41	Other	-
north of Hockessin	DE 7	Other	SR 3013	-	Other
Delaware Area	**DE Route / Freight Network**		**MD Route / Freight Network**		**Continuity Issue?**
west of Newark	DE 2	Other	MD 279	**CUFC**	**NHFN**
west of Glasgow	US 40	Other	US 40	Other	-
west of Middletown	US 301	Other	US 301	**CRFC**	**NHFN**
west of Smyrna	DE 6	FFM	MD 291	-	FFM
west of Dover	DE 44 / 300	Other	MD 300	-	Other
west of Dover	DE 11	FFM	MD 302`	-	FFM
west of Dover	DE 8	Other	MD 454	-	Other
west of Dover	DE 10	FFM	MD 287	-	FFM
west of Harrington	DE 14	FFM	MD 317	-	FFM
west of Greenwood	DE 16	FFM	MD 16	Other	FFM
west of Bridgeville	DE 404	Other	MD 404	Other	-
west of Bridgeville	DE 18	-	MD 318	Other	Other
west of Seaford	DE 20	-	MD 392	Other	Other
west of Laurel	DE 24	-	MD 348	Other	Other
west of Delmar	N Spring Hill Rd	FFM	MD 426	-	FFM
south of Delmar	US 13	**CUFC**	US 13	-	**NHFN**
south of Gumboro	DE 54	FFM	MD 353	-	FFM
south of Selbyville	US 113	**CRFC**	US 113	Other	**NHFN**
east of Selbyville	Hudson Rd	FFM	MD 367	-	FFM

Table Notes:

- "Other" Freight Network in Delaware implies "Remaining NHS Routes (not on the NHFN)"
- "Other" Freight Network in Pennsylvania implies "Other Principal Arterial NHS Routes (not on the NHFN)"
- "Other" Freight Network in Maryland implies "Significant Freight Route (not on the NHFN)"
- "FFM" implies "First/Final Mile Freight Network"

16 Based on reviews of current freight network designations in Delaware (https://mangomap.com/wilmapco/maps/120164/delaware-freight-plan-existing-network?preview=true#), Maryland (https://www.arcgis.com/home/webmap/viewer.html?webmap=ac60558928a5460a87e5f60c4347538b&extent=-79.0114,37.984,-74.9547,39.7524), and Pennsylvania.

- **I-95 Widening (Cecil County, MD):** Given its role as a significant interstate freight corridor, any maintenance, capacity, and/or congestion improvement projects along the overall I-95 corridor would inevitably support enhanced freight access to/from Delaware.
- **Nanticoke River and Seaford Barge-Rail Opportunities:** As noted in other sections of this freight plan, interests have been expressed in exploring/developing a potential Barge-to-Rail Intermodal Terminal in Seaford, Delaware. This effort would require coordination not just with Delmarva Central Railroad (DCR), but also the Delmarva Water Transport Committee, USACE, and applicable Maryland/MDOT organizations to conduct a broader assessment of multistate (Maryland/Delaware) dredging needs along the Nanticoke River to support efficient and ongoing access to a new terminal.

D.8 E-Commerce

Modern supply chains, particularly for an increasing volume of e-commerce activity, rely on complex networks of warehouses and distribution centers to support the efficient, fast, and affordable movement of freight. However, their operations and corresponding truck traffic generation can also have negative impacts on adjacent land uses. As part of broader planning processes throughout Delaware, added consideration for freight-related development should be explored.

A key element to supporting a proactive approach to balance freight needs and community impacts is the completion of the 2021 *Delaware First/Final Mile Freight Network Development Study*, as summarized in **Chapter 3.2.2** of this plan. Components from that study have been directly referenced and/or incorporated into the proposed strategies and implementation tasks detailed in **Chapter 6** of this Delaware State Freight Plan. These elements are reflected in freight planning strategies targeting freight land use preservation, freight and community impact planning, public outreach and education, and community planning considerations, among others. They are also specifically reflected in the Protect-Manage-Accommodate (PMA) Framework and the Planning Considerations Checklist for Freight Facilities and Truck Routes that are summarized in **Chapter 6.2.2**. Collectively these tools illustrate proactive considerations that community planners may need to anticipate when freight facility development is undertaken or when reviewing land use plans that have a freight component.

From an e-commerce perspective specifically, Delaware continues to see significant growth and expansion of e-commerce and warehousing related activities. A recent Delaware Public Media article[17] highlighted a continued increase in warehouses and fulfillment centers with current or planned facility examples including:

- 3 million square foot Amazon facility at the former GM Boxwood Road auto plant in Newport
- Amazon expansion in Seaford
- 2 million square foot distribution space planned in Delaware City
- Building expansion at a newly constructed business center in Smyrna
- 3.3 million square foot of potential logistics space off SR 301 north of Middletown
- Up to 300,000 square feet of new warehousing on the south side of Dover

While such expansion helps to support first/final mile distribution needs, public demand for expedient goods delivery, and opportunities for job growth and economic development, it can also introduce significant community conflicts. A recent Delaware specific example includes community pushback against a planned warehouse complex in Middletown.[18] While broad based general concerns typically include the impact of truck traffic on local roads and communities, viewsheds and building screening, conflicts with other community activities, and impacts on urban goods delivery that may be influenced by curbside parking and loading restrictions, local truck routes, delivery timeframes, or local land use and ordinance requirements. Proactive land use planning, first/final mile network planning, and ongoing agency, industry, and public coordination will remain critical to balancing the needs and opportunities of e-commerce activity versus potential community concerns.

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[17] Hurdle, Jon, Delaware Public Media, "Logistics booms in Delaware as companies meet strong demand from ecommerce," September 17, 2021, https://www.delawarepublic.org/business/2021-09-17/logistics-booms-in-delaware-as-companies-meet-strong-demand-from-ecommerce.

[18] Megginson, Charlie, Delaware Live, "Middletown residents fight to stop warehouse construction," April 13, 2022, https://delawarelive.com/middletown-residents-fight-to-stop-warehouse-construction/.

E-commerce and the Future?

A wide variety of sources and organizations are tracking, predicting, and planning for the ever-evolving impacts of e-commerce activities on freight, deliveries, and communities. As evidence that states, MPOs, and local jurisdictions must continue to stay abreast of changes and trends, a sampling of potential e-commerce influences – reported here from just one of many sources (summarized from a Wall Street Journal article per the source details below) – includes the following:

- "By 2030, the number of delivery vehicles in the world's 100 largest cities will balloon by more than a third from 2019, to 7.2 million…. That means more carbon emissions, more traffic congestion and – despite the rise of near-instant deliveries – probably more unhappiness in city life."
- "Tech companies, retailers and real-estate firms working on ways to alleviate the strain of constant delivery on urban environments envision an alternate scenario: skies filled with zipping delivery drones and floating dirigible warehouses, streets and sidewalks teeming with as many robots as people, familiar storefronts serving as automated stockrooms for online fulfillment. "
- "The vehicle that pulls up is an autonomously driven vehicle. The unpacking is done with vision technology and robotic equipment. The movement of equipment to automated storage and retrieval systems is done via mobile robots."
- "Pebble, an urban-mobility technology project from Google, is pitching municipal governments on a system to manage curbside loading areas…. The hope is that if those [types of systems] become prevalent, that cities are able to get more out of their loading zones and really manage them in such a way that they're able to turn over a super high volume there and avoid things like double parking and stopping in bike lanes."
- "Urban centers with tall buildings and little open space for landings pose challenges for [delivery] drones. But major retailers in the U.S. are already preparing, writing drone-usage rights for rooftops and other areas into new leases…"
- "Prime Air, a service in development at Amazon, is planning drone deliveries in cities across the U.S., with the goal of getting goods to doorsteps within 30 minutes of an order."
- "Proponents of autonomous vehicles and mobile service robots are betting that existing roads and highways will give them a jump start on delivery long before drones take off at scale."

Source: Parker, Will, The Wall Street Journal, "Delivery Town: How Your Online Order Will Change Your City", https://www.wsj.com/articles/drones-robots-warehouses-how-your-online-order-will-change-the-city-11649338872?st=6940c7opel624c2&reflink=desktopwebshare_permalink.

D.9 Military Freight

Military installations in the state of Delaware include:

- **Dover Air Force Base (DAFB)** – 436th Airlift Wing and Air Force Reserve 512th Airlift Wing
- **Air National Guard** – 166th Airlift Wing at Wilmington ILG (New Castle) Airport
- **Army Reserve** – 11 units in 3 facilities (Dover, Newark, Lewes)
- **Army National Guard** – 34 units in 4 facilities (Wilmington, Newark, Dover, Georgetown)

From a freight perspective, DAFB in Dover, Kent County, has a significant presence as the "Department of Defense's largest aerial port" (see callout box below). DAFB is directly linked to the U.S. DOD's Strategic Highway Network (STRAHNET), with is a federal system of public highways that provide access, continuity, and emergency transportation of personnel and equipment for defense purposes. STRAHNET connections include access in Dover via SR 10 to SR 1 to/from the north, and US 13 to/from the south (**Exhibit D-21**). These connections link with broader portions of the STRAHNET that include the I-95, I-295, and I-495 interstate routes through New Castle County, as connection to US 301 near Biddles Corner.

The Strategic Rail Corridor Network (STRACNET) also passes through New Castle County in Delaware (**Exhibit D-21**). Similar to the STRAHNET, the STRACNET is a federally designated network of interconnected and continuous rail lines that links defense installations and provides for the U.S. DOD's rail transportation needs for defense purposes, notably including acess for heavy and tracked vehicles to seaports of embarkation.

Exhibit D-21: Delaware Strategic Defense Network Routes (STRAHNET-STRACNET)

Dover Air Force Base (DAFB)

DAFB is home to the Department of Defense's largest aerial port and approximately 11,000 Airmen and joint service members, civilians and families. Its personnel are responsible for global airlift aboard assigned C-5M Super Galaxy and C-17 Globemaster III aircraft. Additionally, the 436th Airlift Wing hosts key partners, such as the Air Force Reserve's 512th Airlift Wing, Air Force Mortuary Affairs Operations (AFMAO), the Armed Forces Medical Examiner System (AFMES) and the Joint Personal Effects Depot (JPED), jointly responsible for the dignified return of fallen American service members.

Source: Dover Air Force Base, https://www.dover.af.mil/.

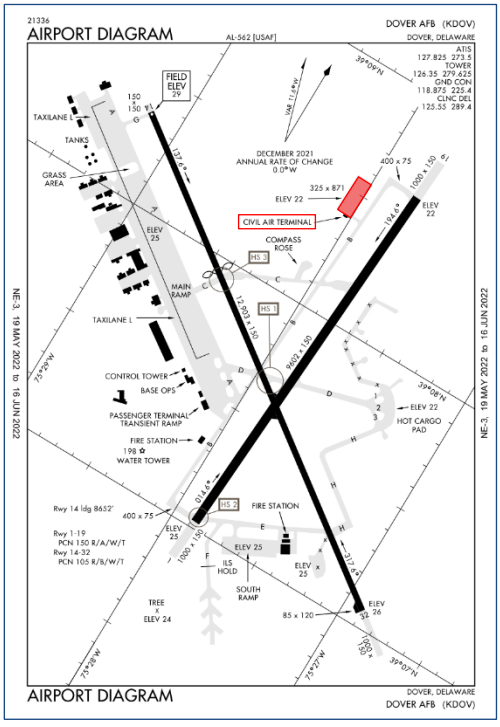
Beyond the existing military installations and formal STRAHNET and STRACNET connections in Delware, additional military freight issues may also encompass the topics listed below.

STRAHNET Refinement: Essentially all components of the STRAHNET and STRACNET routes overlap other portions of the state's freight network (as defined in Chapter 3). As such, prioritization of freight needs and opportunities along this network will benefit both general freight and military freight simultaneously. However, a closer review of the formal STRAHNET reveals that the federal maps may require updating to align consistenly with the current roadway network/connections in Delaware. Specifically, the current alignment and more recently constructed sections of US 301 near its junctions with SR 896 and SR 1 may not be accurately reflected on the federal NHS and STRAHNET mapping. FHWA Division and FTA regional offices encourage MPOs and state DOTs to coordinate with representatives from DOD in the transportation planning and project programming process on infrastructure and connectivity needs for STRAHNET routes and other public roads that connect to DOD facilities. To this end, a procedural implementation task to refine the formal NHS and STRAHNET mapping has been incorporated into the action planning elements in **Chapter 6** of this freight plan.

Aviation Fuel and DAFB Pipeline Access: As noted under the discussions of the Delaware River/Bay system in Section D.6 of this appendix, and as highlighted on pipeline mapping in Chapter 3.6, a small section of localized pipeline and supply connections east of DAFB allows for ship/barge connections to support fuel delivery and storage at the base.

Future Rail Connectivity/Feasibility: Delaware's current rail network in the Dover area includes north-south access via the Delmarva Central Railroad Company (DCR)'s Delmarva Sub lines. These lines are generally located on the west side of Dover (west of US 13) and currently do not provide connections or access to the east side of SR 1. Though no specific plans to provide future rail access/connections to DAFB have been recorded, stakeholder/agency comments during the development of the state freight plan raised a question as to whether such connections would be beneficial (e.g., for heavy equipment deliveries) or feasible. Further discussion would be required to determine if long-term interests or feasibility considerations would merit such efforts.

Exhibit D-22: DAFB Civil Air Terminal [19]



Joint Use Agreements: DAFB's Civil Air Terminal (CAT), envisioned as the future Central Delaware Aviation Complex (CDAC), is of special freight interest. Considering the base's heavy airlift mission and military cargo requirements, its longest runway length at 12,903 feet (**Exhibit D-22**)[19] is designed to handle all types of aircraft, from the biggest aircraft landings to the smallest. Currently, however, civilian operations at DAFB are limited due to prior clearance admissions; although they can still take place under a Joint Use Agreement (JUA), and active negotiations for a new JUA are ongoing.

[19] Aircraft Owners and Pilots Association, (KDOV) Dover Air Force Base Airport, updated as of May 19, 2022, https://www.aopa.org/destinations/airports/KDOV/details.

The JUA is an agreement between the U.S. DOD and DelDOT that authorizes DelDOT's use of DAFB's runways for civil operations from/to the Dover CAT / future CDAC. The agreement allows for most civilian operations (general aviation aircraft, air cargo, charter flights, etc.) with the exception of student-pilot training. The current JUA expires on 12/18/2022, and DelDOT is actively engaged with the DOD to negotiate a new agreement. Updated terms in the draft JUA tentatively include:

- A 50-year agreement term (previously 25 years)
- Increase in civilian aircraft operations (an operation is either a take-off or a landing), including a daily increase from 37 to 150 operations, and an annual increase from 13,500 to 25,000 operations.
- Removal of the prior permission requirement allowing for the CAT / future CDAC to be designated by the FAA as part of the National Plan of Integrated Airport Systems in the future
- An updated fee structure based on percentage of usage and fair share of maintenance costs

Business Park Development: In addition to pursuing broader/ongoing air cargo opportunities through DAFB based on JUA discussions and CAT / future CDAC operations, the City of Dover has also made major investments in the nearby Garrison Oak Business and Technology Center (Garrison Oak). These investments reflect significant efforts by both the City of Dover and Kent County to realize the full economic potential of the future CDAC at DAFB. Completion of the 2021 Dover Air Cargo Freight Access Study (noted in **Chapter 1** of this freight plan) identified potential roadway network improvements to facilitate access to SR 1 and support the continued growth of both Garrison Oak and the CDAC at DAFB.

D.10 Freight Resilience and Environmental Impacts

DelDOT's Division of Transportation Resiliency and Sustainability leads a mission to provide the citizens of Delaware with the most resilient and sustainable transportation infrastructure through effective project planning, design, construction, and maintenance along with the incorporation of innovative solutions such as alternative energy and electrification of the state's infrastructure to address the challenges associated with climate change.[20] Key initiatives within the state include a focus on:

- Impacts of Climate Change and Sea Level Rise – with initiatives pertaining to design, construction, and maintenance; drainage; and a flood matrix.
- Electrification of Infrastructure and Fleet – with initiatives pertaining to EV charging and electric buses and fleet.
- Use of Alternative Energy – with initiatives pertaining to solar energy, propane conversion, and exploring hydrogen.
- Quality of Life – with initiatives pertaining to the Keep DE Litter Free program and pollinators.

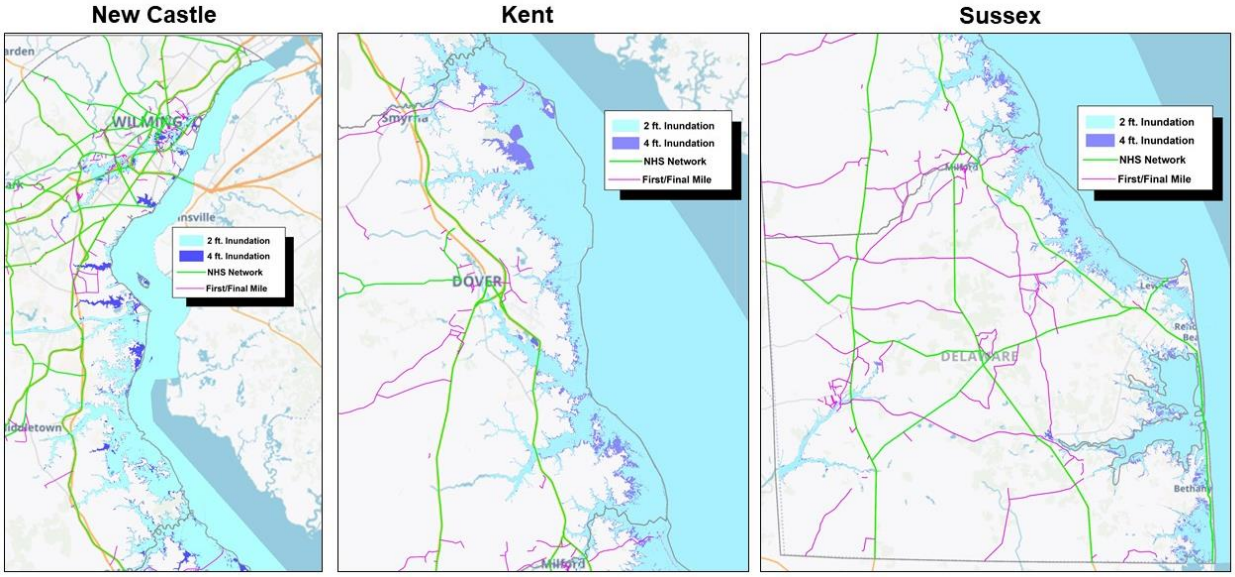
D.10.1 Climate Change and Sea Level Rise

Sea-Level Rise (SLR) is one of the most significant consequences of climate change. Delaware is especially vulnerable to the effects of SLR due to its flat topography, low mean elevation, and significant community development and infrastructure investments along the coast. Rates of relative SLR measured at tide gauges in and around Delaware are approximately twice the rate of global mean SLR[21] experiencing already over a one foot on SLR since 1900[22]. Due to the low-lying topography of the state (lowest state in the nation), creating resilient infrastructure in the face of roadway flooding becomes a challenge. DelDOT has been and continues to be challenged by the effects of SLR and frequently flooded roadways because of severe weather events.

[20] DelDOT, Division of Transportation Resiliency and Sustainability, https://deldot.gov/Programs/trs/.
[21] The Delaware Geological Survey, University of Delaware, https://www.dgs.udel.edu/projects/determination-future-sea-level-rise-planning-scenarios-delaware.
[22] Delaware's Climate Action Plan, https://documents.dnrec.delaware.gov/energy/Documents/Climate/Plan/Delaware-Climate-Action-Plan-2021.pdf

While sea level rise may be a significant concern for Delaware, it fortunately appears to be of limited relevance to the state's first/final mile freight network. Assessments show that less than 1 percent of the identified first/final mile network mileage was likely to be inundated with up to 3' of SLR (**Exhibit D-23**). The at-risk connections were primarily concentrated in coastal New Castle County, and a relatively small portion of the network is at risk of temporary or permanent closure due to near-term SLR. While the total miles remain somewhat limited, they still carry with them an economic impact. Reviewing the most recent model Traffic Analysis Zone (TAZ) data, nearly 7,000 jobs (4,900 in Freight Intensive Sector industries) would be impacted by a 3' SLR scenario.

Exhibit D-23: Freight Network and Sea Level Rise Comparison [23]



Impact	1' SLR	2' SLR	3' SLR
First Final Mile Impacts (miles)	4.8 miles	9.6 miles	12.0 miles
First Final Mile Impacts (%)	0.01%	0.02%	0.03%

[23] CPCS analysis of WILMAPCO data.

Determination of Future Sea-Level Rise Planning Scenarios for Delaware

The State of Delaware has had future SLR scenarios (projecting SLR out to year 2100) in place since 2009 to use in long-term planning activities. Those scenarios were integrated into many town and county plans and formed the basis of the Delaware Sea-Level Rise Vulnerability Assessment and Adaptation reports, the Delaware Climate Impact Assessment, and Executive Order 41: Preparing Delaware for Emerging Climate Impacts and Seizing Economic Opportunities from Reducing Emissions, which specifically mentions the periodic update of the SLR planning scenarios.

The new SLR planning scenarios recommended in the report correspond to increases of mean sea level in Delaware by the year 2100 of 1.53 m / 5.02 ft (High scenarios), 0.99 m / 3.25 ft (Intermediate scenario), and 0.52 m / 1.71 ft (Low scenario.)

As the project is still active and study information continues to evolve, updates may be reviewed at https://www.dgs.udel.edu/projects/determination-future-sea-level-rise-planning-scenarios-delaware.

D.10.2 Electric Vehicle Technology

Delaware is one of several states referred to as a "Section 177 state," meaning that it is adopting California's Zero Emission Vehicle (ZEV) regulations in some form. This includes a dedicated ZEV program to provide more options for electric vehicle (EV) purchases, reported in a recent Delaware.gov news article as follows:

> *Managed by the Delaware Department of Natural Resources and Environmental Control (DNREC), the ZEV program is designed to accelerate the commercialization of battery-electric, plug-in hybrid and fuel cell electric vehicles. The regulations mandate that a certain percentage of the vehicles delivered for sale in a state are ZEV vehicles. Manufacturers receive credits for each delivered vehicle based on the type of vehicle, range and other factors. Each year, manufacturers must meet a ZEV credit amount that is based on average annual sales. In states already in the program, the automobile industry has successfully met the required percentage.*[24]

While the ZEV program essentially focuses on passenger vehicles, it provides opportunities and the potential for expanded EV infrastructure that may also lead to shared interests or opportunities in expanding or explore future freight-relevant EV technologies. As EV conditions evolve, broader ongoing freight planning efforts should also explore freight-relevant EV technologies that may be tested, added, or expanded within the state (e.g., truck stop electrification, EV truck technologies, EV equipment applications within port/airport operations, etc.). As noted in Chapter 5.3.2 of this freight plan and in the details of Appendix J, formula funding and competitive grant opportunities under the IIJA resources may be available to support advancements of EV technology.

[24] Delaware News, https://news.delaware.gov/2022/03/03/delaware-to-adopt-zero-emission-vehicle-regulation/.

D.10.3 Energy Usage

Energy usage and related Freight Intensive Sector industries tend to directly affect the freight transportation system and/or freight industry needs. Key factors may include truck, rail, seaport, barge, or pipeline delivery of energy-related raw materials and resources; heavy construction and equipment needs related to energy production sources and utilities; or, in the case of alternative energy source, specialty cargo handling needs for components such as wind turbine blades, solar panels, and large generators. Because the energy sector can also be significantly affected by external forces related to raw materials, environmental policies, global supply chains, and other driving forces, it may be important to have a broader understanding of the state's overall energy usage trends and related details to provide a frame of reference for broader ongoing freight planning discussions. To that end, details in the exhibits below attempt to provide a snapshot of Delaware's current energy consumption profile (**Exhibit D-24**), energy sources (**Exhibit D-25**), and net electricity generation by source (**Exhibit D-26**).

Exhibit D-24: Delaware Energy Consumption Profile [25]

Energy Production and Consumption	Delaware produces less energy than any other state, and although it is the nation's third-lowest energy consumer, in 2019 Delaware used almost 75 times more energy than it produced.
Net Electricity Generation	In 2020, natural gas fueled 92% of Delaware's in-state utility-scale electricity generation, up from 51% in 2010, while the state's coal-fired generation fell from 46% to 2% during the same period.
Household Energy Consumption	About 42% of Delaware households rely on natural gas for home heating, 35% use electricity, about 10% use fuel oil or kerosene, and 10% use propane.
Renewable Energy	Delaware's renewable portfolio standard requires that renewable energy sources generate 40% of electricity retail sales in the state by 2035, with at least 10% coming from solar energy.
Industrial Energy Consumption	In 2019 and 2020, Delaware's industrial sector was the state's largest natural gas-consuming sector, surpassing the electric power sector, which had been the largest for most of the past decade.

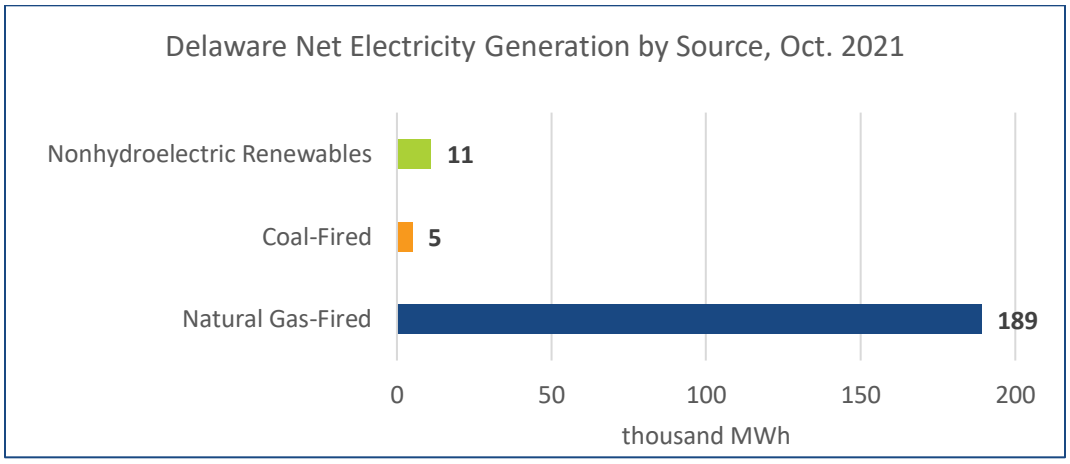
[25] EIA, Delaware Profile Analysis, https://www.eia.gov/state/analysis.php?sid=DE

Exhibit D-25: Delaware Energy Sources [26]

Energy Source	Active Production?	Profile
Petroleum	No	The Port of Wilmington contains a bulk storage terminal for petroleum, which handles diesel fuel, heating oil, and other forms of oil. Petroleum provides the largest share of the energy consumed in Delaware, accounting for about two-fifths of the state's total energy use. The transportation sector is the state's largest petroleum consumer and accounts for 70% of the petroleum used in Delaware, and half of that is used as motor gasoline.
Natural Gas	No	All of Delaware's natural gas supplies arrive by interstate pipeline from Pennsylvania. In 2019, natural gas use in the industrial sector surpassed the amount used by the electric power sector for the first time since 2010. In 2020, the industrial sector, which includes chemical manufacturing and food processing, accounted for nearly two-fifths of the state's natural gas consumption.
Electricity	Yes	Natural gas fuels most of Delaware's generation of electricity. The use of natural gas-fired power plants to Delaware's utility-scale (1 megawatt or larger) electricity (natural gas to electricity conversion) net generation increased dramatically from 50% in 2010 to more than 90% in 2020. In-state generation typically supplies much less electricity than is used by Delaware consumers.
Renewable Energy (Solar, Biomass, and Wind)	Yes	Solar energy and biomass generate most of the renewable electricity in Delaware. Together, they contributed more than 2% of the state's net generation from utility-scale facilities in 2020. The state has almost a dozen utility-scale solar facilities that use solar photovoltaic (PV) technologies, the largest of which has a generating capacity of 12 megawatts. These utility-scale solar facilities are found throughout the state. Delaware has low onshore wind energy potential; therefore, it is limited to offshore. The one onshore windmill is in Lewes.
Coal	No	The small amount that is consumed arrives by rail from Pennsylvania and then is delivered to the electric power sector. In 2020, the state's one remaining coal-fired power plant, the Indian River Generating Station, consumed all the coal used for electricity generation in Delaware. The plant is infrequently used and scheduled to close in 2022.

[26] Ibid.

Exhibit D-26: Delaware Net Electricity Generation by Source (2021) [27]



As noted at the beginning of this section, the use of alternative energy and initiatives pertaining to solar energy, propane conversion, and exploring hydrogen are included among efforts within DelDOT's Division of Transportation Resiliency and Sustainability. Additionally, the Delaware Department of Natural Resources and Environmental Control (DNREC), Division of Climate, Coastal and Energy, uses an integrated approach of applied science, education, policy development, and incentives to address Delaware's climate, energy, and coastal challenges. Ongoing coordination between DelDOT, DNREC, the state's freight planning efforts via the Delmarva Freight Working Group, and key public/private partners involved with the energy sector, to include the Port of Wilmington, rail operators, and energy related FIS industry sector representatives should occur as needed to stay abreast of evolving energy trends, needs, and opportunities, and their influence on freight transportation system planning.

D.10.4 Quality of Life

Quality of Life issues related to freight transportation system planning often relate to freight's general impact on communities. These impacts may relate to noise, emissions, truck traffic, and other factors that are often more prevalent along first/final mile freight routes. As noted in Chapter 3.2.2 of this freight plan, many such issues were assessed in detail as part of Delaware's First/Final Mile Freight Network study in 2021, including focus areas related to land use, mobility, infrastructure conditions, institutional challenges, and safety. Subsequently, many of the freight goals, values, and strategies summarized in Chapter 6 of the freight plan look to balancing freight needs while protecting Delaware's communities.

At a broader level and in conjunction with many of the latest federal planning policies and funding resources expanded under the IIJA, notable efforts are being made to lessen the negative impacts of transportation, climate change, and other factors on historically disadvantage, or environmental justice (EJ), communities. Such efforts are directly reflected in the recent Justice40 initiative (see callout box on the following page).

[27] EIA, State Energy Data System.

Jusitce40 Initiative

Executive Order (EO) 14008, Tackling the Climate Crisis at Home and Abroad, created the government-wide Justice40 initiative on January 27, 2021. This initiative aims to deliver 40% of the overall benefits of federal investments in climate and clean energy, including sustainable transportation, to disadvantaged communities.

As of May 2022, efforts under this initiative have included the development and beta-testing of a Climate and Economic Justice Screening Tool (CEJST) by the White Council on Environmental Quality (ECQ), development of an interim definition to identify disadvantaged communities for Justice40-covered programs, and a list of funding opportunities that are actively using this definition.

As Justice40 and its implementation continue to evolve, updates may be reviewed at https://www.transportation.gov/equity-Justice40.

With the Justice40 initiative and other EJ concerns in mind, direct consideration of EJ community impacts was accounted for in the freight plan's efforts related to freight candidate project screening. Specifically, these efforts account for areas of minority/low-income populations, and (from an air quality perspective) the presence of particulate matter for diesel emissions, including approach details as listed below.

Demographic Index: To assess project sites or impact areas in relation to the Delaware's minority/low-income populations, EPA's EJSCREEN tool was used. EJSCREEN is an environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach for combining environmental and demographic indicators.[28] Demographic Index is a combination of two factors, which are low-income and people of color.

- The low-income demographic indicator is described as the percent of a block group's population in households where the household income is less than or equal to twice the federal "poverty level."

- The "people of color" demographic indicator is described as the percent of individuals in a block group who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino. That is, all people other than non-Hispanic white-alone individuals. The word "alone" in this case indicates that the person is of a single race, not multiracial.

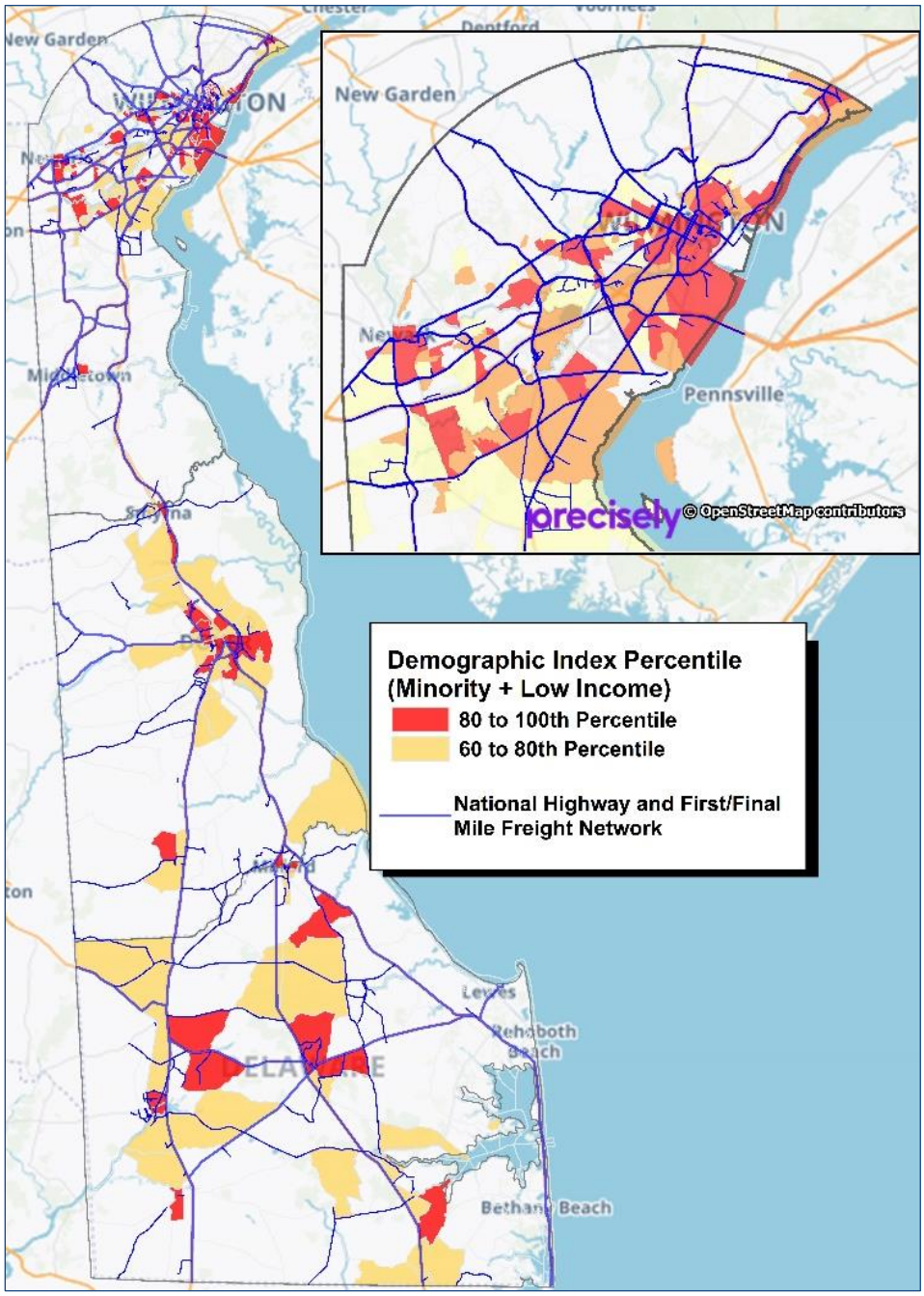
More details on demographic indicators can be found at: https://www.epa.gov/ejscreen/overview-demographic-indicators-ejscreen. The top percentiles of demographic index from the entirety of Delaware are used to track areas effected in the minority/low-income populations (**Exhibit D-27**).

Diesel Particulate Matter: Using the EJSCREEN data sources, areas within the state that score in the highest percentile of emissions for diesel particulate matter were mapped (**Exhibit D-28**). The bulk of the higher concentrations fall along the I-95 corridor and around the City of Dover. Delaware produces higher than average emissions, especially from Particulate Matter from diesel emissions.

Additional details for how these factors were applied to the candidate freight project screening efforts are included in **Chapter 5.2** and **Appendix I** of this freight plan.

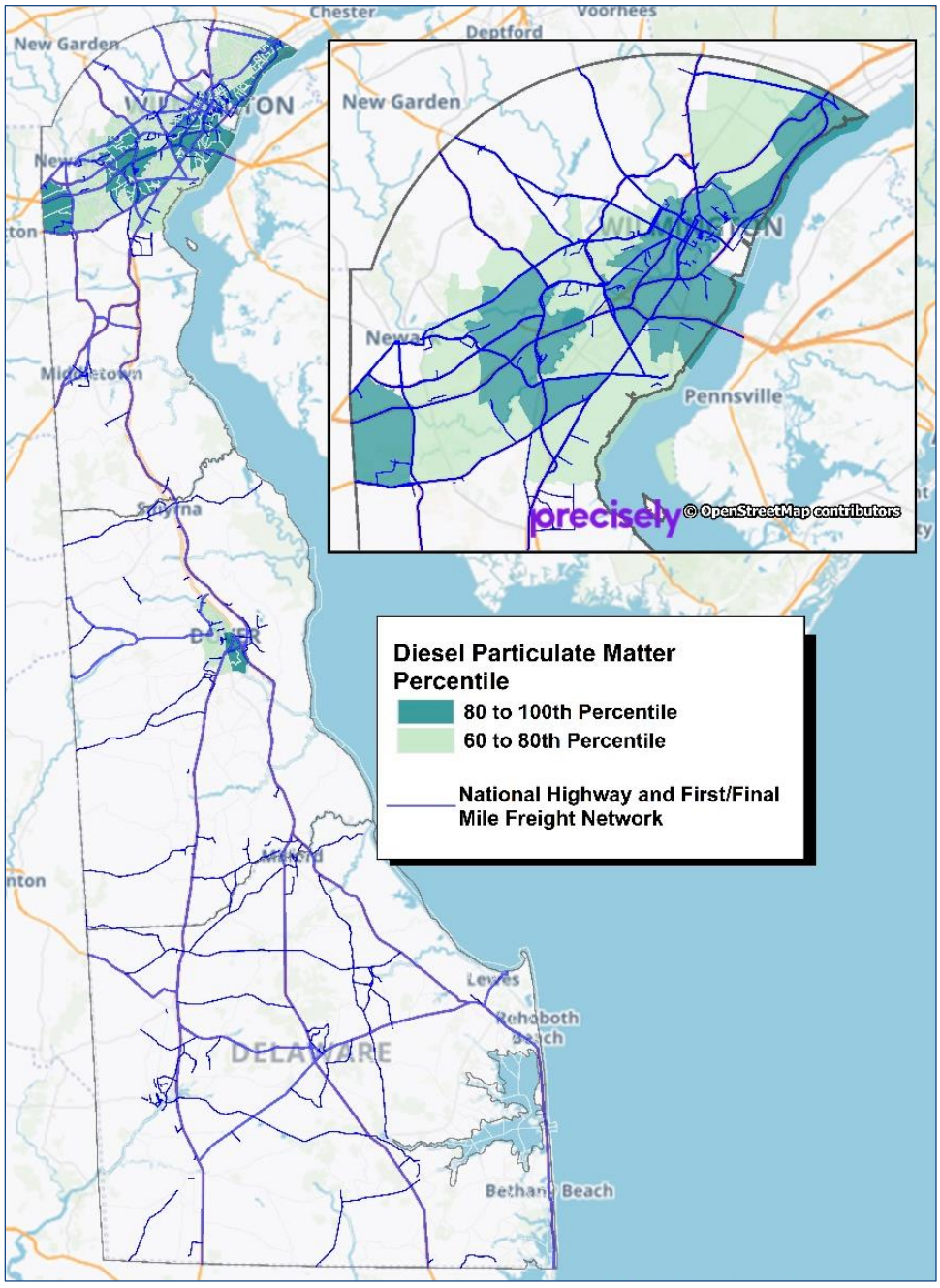
[28] EPA, https://www.epa.gov/ejscreen

Exhibit D-27: Demographic Index Percentile of Delaware



Source: WILMAPCO analysis and mapping of EPA EJSCREEN data.

Exhibit D-28: Diesel Particulate Matter Percentile



Source: WILMAPCO analysis and mapping of EPA EJSCREEN data.

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APPENDIX E:

Delaware Freight Scenario Planning Summary

E. APPENDIX E: Delaware Freight Scenario Planning Summary

Freight scenario planning efforts and related insights are summarized below to provide a different set of perspectives that may be referenced to support long-term planning discussions and decision-making as part of ongoing freight planning in Delaware. These efforts identify and explore unknown future conditions that could change based on factors well beyond the state's control. Such insights can help to focus limited resources onto projects or strategies that may provide greater benefit across a variety of future conditions; or they may simply yield ideas for the state to proactively consider in the event that expected trends suddenly shift, requiring a potential "course adjustment" in freight plans or priorities.

E.1 2015 Model-Based Scenario Review

The 2015 Delmarva Freight Plan evaluated six scenarios to explore the potential impacts of future economic and infrastructure changes. These scenarios included variations in population and employment growth, as well as assumptions for multimodal freight transportation links that were added or removed from the future freight network. This exercise was primarily a quantitative, model-driven effort to determine how the varying assumptions would influence future conditions, measured in terms of the resulting mode splits, travel times, truck operating costs, and truck congestion (both at the system-level and for major freight corridors across the Delmarva Peninsula) for each scenario.

The specific growth and network assumptions from the 2015 scenario planning efforts would likely change if repeated today. However, the broader sensitivities or impacts identified for each scenario may still provide relevant insights, contingent on how growth and infrastructure across the Delmarva Peninsula change over time. Those results are detailed in Chapter 7 of the 2015 Delmarva Freight Plan, and they notably helped to identify specific freight corridors that could be exceptionally sensitive to, or impacted by, certain future trends if they come to fruition. Therefore, the potential sensitivities by corridor (**Exhibit E1**) may still be considered valid for ongoing, long-term planning.

Exhibit E1: Corridor Sensitivities based on 2015 Economic Infrastructure Scenario Assessments

Corridor sensitivity or impacts if future scenarios notably involve:	I-95	US 301	US 13 US 113 DE 1	US 202 DE 41	DE 404 US 9	US 50 (Maryland)
Accelerated growth	✓	✓	✓			✓
Loss of multimodal freight options					✓	✓
Warehousing and development shifts	✓					
Alternate routing and system redundancy		✓	✓			
Tourism and freight conflicts			✓		✓	✓
Community and freight access conflicts	✓	✓		✓	✓	
Multi-jurisdictional cooperation/influences	✓			✓	✓	
Oversize or special freight movements	✓		✓			
Technology advancements	✓	✓	✓			

Source: WRA, et. al., for DelDOT, *Delmarva Freight Plan: The Delaware Freight Plan with Regional Coordination*, as compiled from Chapter 7.4 – Corridor Perspectives (Exhibit 7.12), May 2015, https://deldot.gov/Business/freight/index.shtml?dc=general.

E.2 2022 Qualitative Scenario Review

In lieu of duplicating the 2015 scenario explorations that focused on specific economic and infrastructure assumptions, the 2022 Delaware Freight Plan proposes a qualitative assessment of three possible futures and their influence on potential freight projects, strategies, or programs that may become more or less relevant in terms of Delaware's ability to prepare for and respond to unknown or evolving conditions. This approach is primarily framed around discussions between DelDOT, Delaware's MPOs, and other freight stakeholders in a way that accounts for the latest freight trends/topics and related areas of concern or opportunity that were identified earlier in the plan. Scenarios were crafted as follows:

1. *Description* – summarize what happens in the alternative future.
2. *Driving Forces* – identify the major external factors that push the future in that direction.
3. *Freight Implications* – identify freight impacts, changes, or other trends if that future occurs.
4. *Action Plan Possibilities* – highlight options to manage, mitigate, or leverage freight implications.
5. *Project Implications* – compare findings to project screening criteria to highlight "key" criteria.

Within this approach, three future scenarios were considered (as detailed on the following pages) with a focus on "**Growth**" (**Exhibit E2**), "**Technology**" (**Exhibit E3**), and "**Resilience**" (**Exhibit E4**). These perspectives yield a variety of potential freight actions, many of which may be reflected in broader project/strategy implementation efforts covered elsewhere throughout the plan. Using these insights, and consistent with other implementation planning efforts, the scenario findings were collectively compared to the various project screening criteria from Section 5 of the plan. Based on this comparison (**Exhibit E5**), it was determined that regardless of which alternate future may or may not come to fruition, projects that align favorably with enhancements in the following three categories could provide notable benefits:

- **NHFN** – Projects located on, or providing benefits to, the NHFN could support freight activity under all scenarios. Benefits may include overall enhancements for truck access and multimodal connectivity in the Growth Scenario; broader technology adoption and related opportunities in the Technology Scenario; or emergency response access in the Resilience Scenario.

- **First/Final Mile Network** – Projects along a designated first/final mile network route, or providing direct access to one, could also support freight activity under all scenarios. Benefits may relate to e-commerce traffic in the Growth Scenario; leveraging new package delivery technologies in the Technology Scenario; or mitigation of freight access issues in the Resilience Scenario.

- **EJ Community** – Projects located in areas with high concentrations of minority and/or low-income populations could likewise support (or manage) freight activity under all scenarios. Benefits may include reduction of freight and community conflicts under the Growth Scenario; enhancements to deliveries and community access under the Technology Scenario; or protection of vulnerable infrastructure serving EJ areas, either to overcome flood/hazard impacts or for the purposes of emergency response/access, under the Resilience Scenario.

In addition to projects that align favorably with the above categories, projects or strategies that would also support freight activity under at least two of three scenarios (per **Exhibit E5**) would include those that yield air quality benefits in EJ areas (screening criteria #10), mitigate SLR impacts (screening criteria #11), or serve broader regional needs (screening criteria #13). While not intended to be prescriptive or limiting, such insights may provide a different set of perspectives to consider when balancing competing project/strategy interests, limited funding resources, or other prioritization issues.

Exhibit E2: Delaware Freight Scenario #1 – "Growth"

GROWTH SCENARIO

Rapid, widespread, and more-than-anticipated population and employment growth spread throughout Delaware, including a continued expansion of the state's tourism and recreational draw.

Driving Forces

- Faster/higher growth and expansion in Delaware's population, employment, and tourism.
- Corresponding increase in general traffic demands, as well as truck traffic.
- Corresponding increase in general freight demands for all manner of goods and materials.

Freight Implications

Construction –	High demand for construction materials for housing and business expansion.
Energy –	More overall energy usage with an increasing need to add or expand options.
E-Commerce –	More demand for goods, which also aggravates first/final mile impacts.
Waste –	Increase with higher population, as well as e-commerce packaging waste.
Congestion –	Increase in truck bottleneck issues and peak season tourism/freight conflicts.
Quality of Life –	Increase in fuel, emissions, first/final mile impacts, and community conflicts.
Truck Operations –	Increase in truck parking demands, driver needs, enforcement needs.

Action Plan Possibilities

Supply Chains –	Explore detailed supply chain analyses relevant to e-commerce, green energy, construction resources, or Delaware's high-growth commodities.
E-Commerce –	Enhance planning and policies affecting first/final mile truck access, truck routing, or opportunities for distribution and/or local consolidation centers.
Multimodal Freight –	Preserve/expand multimodal freight options and connectivity to move materials off-highway via short line rail, port and barge access, or air cargo.
Specialty Cargo –	Proactively manage specialty cargo capacity and capability (e.g., handling, permitting, response planning) for notable energy cargoes such as wind turbine blades, generators, solar panels, pipeline infrastructure, or similar.
Congestion –	Prioritize bottleneck mitigation, and focus on overall improvements to truck routing, travel reliability, and seasonal congestion planning.
Truck Operations –	Focus on first/final mile network improvements, truck parking priorities, and partnerships for driver recruitment, educations, and/or retention.

Exhibit E3: Delaware Freight Scenario #2 – "Technology"

TECHNOLOGY SCENARIO

Innovative and potentially disruptive advances in technology alter the way the freight transportation system operates, forcing agencies, stakeholders, policies, and regulations to adapt to evolving trends, needs, and opportunities.

Driving Forces

- Widespread adoption of truck-relevant connected and automated vehicle (CAV) systems.
- Rapid expansion in electric vehicle (EV) technologies and truck applications.
- Ongoing evolution of supporting technologies for tolling, enforcement, permitting, or similar.
- Expanded use of package delivery technologies via drones and autonomous robot systems.

Freight Implications

Tech Upgrades –	New technology equipment (and related investment) to support tolling, enforcement, permitting, or similar system and infrastructure upgrades.
Data Management –	Evolving requirements for data collection, management, or cybersecurity systems, as well as new types of data to track.
Policies & Regs –	State/local legislation revisions to keep pace with technology.
Pilot Programs –	New demand for pilot programs for truck platooning, drones, or robot systems.
Partnerships –	Change in focus on public/private partnerships, technical disciplines, or staff knowledge needed for effective collaboration and technology implementation.
Freight Operations –	Potential to leverage technologies to enhance safety, enforcement, efficiency, first/final mile impacts, parking management, curb usage, or similar.

Action Plan Possibilities

Policies & Regs –	Review/refine applicable legislation relevant to technology systems.
Pilot Programs –	Explore opportunities and partnerships for technology focused pilot programs.
Truck Parking –	Continue to review, refine, and expand real-time truck parking info systems.
Mapping Systems –	Upgrade mapping systems with respect to new potential needs for CAV corridors, parking technology, or drone routing and ground systems.
IT Systems –	Expand IT resources, cybersecurity capability, and related systems.
Communications –	Expand and improve communications technology to support CAV or similar.
Education –	Explore diverse partnerships to enhance awareness and training on technology topics for agency staff and for public outreach/education.

Exhibit E4: Delaware Freight Scenario #3 – "Resilience"

RESILIENCE SCENARIO

This scenario focuses on significant external forces due to climate change risks or other global disruptions that could affect broad portions of the state's multimodal freight transportation systems and/or supply chain interests.

Driving Forces

- Climate induced sea-level rise and related infrastructure impacts.
- Increased frequency or severity of extreme weather impacts and natural disasters.
- Global supply chain disruptions due to foreign conflicts, pandemics, or similar scale events.

Freight Implications

Flood Impacts –	Direct inundation of freight infrastructure (highway, rail, port, first/final mile).
Detour Impacts –	Temporary roadway closures, detours, and truck re-routing/re-scheduling.
Emergency Access –	Need for emergency freight access to support disaster response/recovery.
Construction Needs –	Spike in demand for construction materials for disaster response/recovery.
Site Development –	Influence on site-specific economic development potential.
Mode Shifts –	Change between freight modes (truck, port, rail) if supply chains shift.
Trade Impacts –	Supply chain shortages, delays, or cost spikes due to foreign trade impacts.

Action Plan Possibilities

Vulnerability Study –	Update and leverage the findings of freight-relevant vulnerability assessments, including system resilience planning for improvements or redundancy.
Multimodal Access –	Preserve and expand multimodal freight options and connectivity with a focus on port access, rail corridors, truck routing options, or contingency planning.
Response Tech –	Leverage freight technologies, real-time information systems, communications systems, cybersecurity, or similar to support emergency response.
Emissions Tech –	Leverage freight technologies and potential pilot program opportunities with the potential to reduce emissions and improve air/noise quality.
Preparedness –	Continue proactive planning and preparedness via organizations such as the Delaware Emergency Management Agency (DEMA), and through best practice resources such as FHWA's *State of the Practice Scan: Freight Resilience Planning in the Face of Climate-Related Disruption* (June 2022)
STRAHNET –	Update STRAHNET routing to ensure proper access to/from DAFB.
First/Final Mile –	Work with land use agencies to account for final mile networks in plan reviews.
Rail Properties –	Advance efforts to identify, preserve, and expand rail accessible property.
Energy Assets –	Review energy production assets and any related freight connection needs.
FIS Supply Chains –	Explore origin-destination details, network/mode connections, and foreign/domestic trade linkages for Freight Intensive Sectors (FIS) and supply chains.

Exhibit E5: Project Screening Criteria Relevance by Freight Scenario

Project Screening Criteria		Growth Scenario	Technology Scenario	Resilience Scenario
2	NHFN	●	●	●
3	STRAHNET	-	-	●
4	TOMP Congestion	●	-	-
5	DE Truck Bottleneck	●	-	-
6	First/Final Mile Network	●	●	●
7	DE State Strategies	●	-	-
9	EJ Community	●	●	●
10	EJ Air Quality	●	●	-
11	SLR	●	-	●
13	Regional Impact	-	●	●

Legend:

● = Projects that favor the indicated criteria may provide more direct benefits under the marked scenarios.

Note: Project screening criteria that focus generally on project readiness, type, eligibility, cost, etc., (i.e., Criteria #1, 8, 12, 14, and 15 per details in Section 5 of the plan) are not shown in the table above, as they would not yield any distinguishing insights that vary across the three scenarios being considered.

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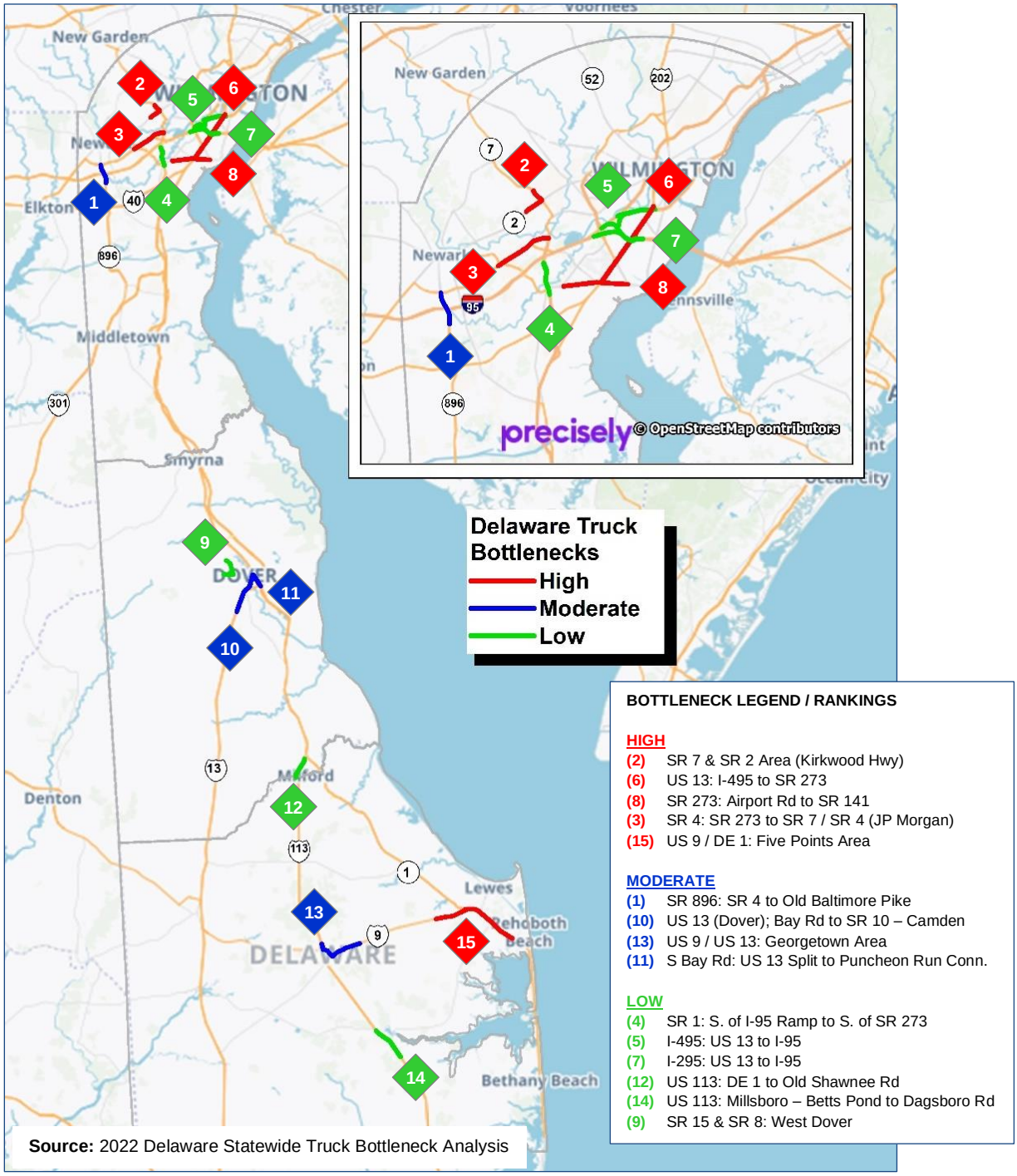
APPENDIX F:

Delaware Truck Bottleneck Analysis Details

F. APPENDIX F: Delaware Truck Bottleneck Analysis Details

The following data tables and maps reflect a partial summary of key details and findings pertinent to Delaware's Statewide Truck Bottleneck Analysis. This effort is otherwise prepared and tracked independent of the Delaware Freight Plan. For complete/additional details regarding the Truck Bottleneck Analyses, refer to broader updates through DelDOT and WILMAPCO resources.

Exhibit F-1: Delaware Truck Bottlenecks



Source: 2022 Delaware Statewide Truck Bottleneck Analysis

DRAFT DE Freight Bottlenecks (Sept. 2018)

Truck Bottleneck Analysis - Data Summary

	Corridor	NAME	County	Length	Hourly Capacity per Lane	Total Capacity All Lanes	Total AADT	Unit Truck AADT	Combination Truck AADT	AM Peak Reliability	PM Peak Reliability	Summer Peak Reliability	AM Peak Reliability	PM Peak Reliability	Summer Peak Reliability	Hourly Capacity
High	2	SR 7 & SR 2 Area (Kirkwood Hwy)	NCC	3.14	1,134	4,536	36,891	3,110	1,074	2.80	2.81	2.93	LOS F	LOS F	LOS F	3,000-6,000 VPH
	6	US 13: I-495 to SR 273	NCC	8.96	1,260	6,978	47,849	2,673	930	2.17	2.38	2.27	LOS E	LOS E	LOS E	6,000-10,000 VPH
	8	SR 273: Airport Rd to SR 141	NCC	6.21	1,287	3,708	25,936	1,450	501	3.32	4.02	3.89	LOS F	LOS F	LOS F	3,000-6,000 VPH
	3	SR 4: SR 273 to SR7/SR 4 (JP Morgan)	NCC	5.64	1,218	4,872	26,227	1,457	497	2.15	3.02	2.14	LOS E	LOS F	LOS E	3,000-6,000 VPH
	15	US 9/DE 1: Five Points Area	Sussex	14.85	1,038	3,805	44,537	2,382	798	1.85	2.20	3.37	LOS D	LOS E	LOS F	3,000-6,000 VPH
Moderate	1	SR 896: SR 4 to Old Baltimore Pike	NCC	3.20	1,176	4,704	43,208	2,415	835	1.97	2.17	1.77	LOS D	LOS E	LOS D	3,000-6,000 VPH
	10	US 13 (Dover): Bay Rd to SR 10 - Camden	Kent	6.76	1,252	5,007	43,151	2,412	834	1.63	2.04	1.92	LOS D	LOS E	LOS D	3,000-6,000 VPH
	13	US 9/US 13: Georgetown Area	Sussex	7.10	1,134	3,240	20,137	1,012	377	1.96	2.13	2.14	LOS D	LOS E	LOS E	3,000-6,000 VPH
	11	S. Bay Rd.: US 13 Split to Puncheon Run Connector	Kent	2.19	1,021	4,084	26,835	1,341	433	2.05	2.19	2.02	LOS E	LOS E	LOS E	3,000-6,000 VPH
Low	4	SR 1: S. of I-95 Ramps to S. of SR 273	NCC	3.17	2,200	8,800	70,811	4,543	2,648	1.30	2.17	1.46	LOS C+	LOS E	LOS C+	6,000-10,000 VPH
	5	I-495: US 13 to I-95	NCC	3.88	2,200	13,200	39,622	1,910	2,049	1.17	2.18	1.53	LOS C+	LOS E	LOS D	10,000+ VPH
	7	I-295: US 13 to I-95	NCC	4.87	2,200	9,900	90,274	5,133	5,589	1.22	1.27	1.65	LOS C+	LOS C+	LOS D	6,000-10,000 VPH
	12	US 113: DE 1 to Old Shawnee Rd	Kent	3.47	1,499	5,994	29,317	1,639	567	1.90	2.12	2.15	LOS D	LOS E	LOS E	3,000-6,000 VPH
	14	US 113: Millsboro Area - Betts Pond to Dagsboro Rd	Sussex	5.94	1,296	5,184	26,748	1,575	967	1.67	1.72	2.43	LOS D	LOS D	LOS E	3,000-6,000 VPH
	9	SR 15 & SR 8: West Dover	Kent	4.25	964	2,949	22,409	1,150	384	2.09	2.45	2.01	LOS E	LOS E	LOS E	3,000-6,000 VPH

83.62 = Total Corridor Bottleneck Mileage

DRAFT DE Freight Bottlenecks (Sept. 2018)

Truck Bottleneck Analysis - Data Summary

	Corridor	NAME	Truck_AADT	Truck Percentage	Primary Freight Route?	Delmarva Freight Study Corridor?	Local Truck Impact (Avg. Daily Trips)	Crash Imapct (Intersections)
High	2	SR 7 & SR 2 Area (Kirkwood Hwy)	5,000 +	11% and Above	Other NHS		563	1 top 20%
	6	US 13: I-495 to SR 273	2,500 to 5,000	7% to 9%	Crit. Urban	Metro	653	4 top 20%
	8	SR 273: Airport Rd to SR 141	2,500 to 5,000	7% to 9%	Other NHS		658	2 top 20%
	3	SR 4: SR 273 to SR7/SR 4 (JP Morgan)	1,000 to 2,500	7% to 9%	Other NHS		480	3 top 20%
	15	US 9/DE 1: Five Points Area	2,500 to 5,000	7% to 9%	Crit. Rural (Partial), Other NHS	Lewes/Coastal	276	2 top 20%
Moderate	1	SR 896: SR 4 to Old Baltimore Pike	2,500 to 5,000	7% to 9%	Crit. Urban (Partial), Other NHS	Metro	335	4 top 20%
	10	US 13 (Dover): Bay Rd to SR 10 - Camden	2,500 to 5,000	7% to 9%	Crit. Urban (Partial), Other NHS	Coastal	306	2 top 20%
	13	US 9/US 13: Georgetown Area	2,500 to 5,000	9% to 11%	Crit. Rural	Lewes/Coastal	235	1 top 20%
	11	S. Bay Rd.: US 13 Split to Puncheon Run Connector	1,000 to 2,500	7% to 9%	Other NHS	Coastal	298	0
Low	4	SR 1: S. of I-95 Ramps to S. of SR 273	5,000 +	9% to 11%	Crit. Urban	Coastal	N/A	N/A
	5	I-495: US 13 to I-95	2,500 to 5,000	9% to 11%	PHFS (Interstate)	Metro	N/A	N/A
	7	I-295: US 13 to I-95	5,000 +	11% and Above	PHFS (Interstate)	Metro	N/A	N/A
	12	US 113: DE 1 to Old Shawnee Rd	1,000 to 2,500	7% to 9%	Crit. Rural	Coastal	226	1 top 20%
	14	US 113: Millsboro Area - Betts Pond to Dagsboro Rd	2,500 to 5,000	9% to 11%	Crit. Rural	Coastal	252	1 top 20%
	9	SR 15 & SR 8: West Dover	1,000 to 2,500	7% to 9%	Other NHS		243	1 top 20%

DRAFT DE Freight Bottlenecks (Sept. 2018)

Truck Bottleneck Analysis - Scoring Summary

	ID	Location	AM TT Score	PM TT Score	Summer TT Score	TRK VOL Score	TRK PCT Score	TRK Gen Score	Route Type Score	Crash Impact Score	TOT_Score	Rank
High	2	SR 7 & SR 2 Area (Kirkwood Hwy)	3	3	3	3	3	3	0	1	2.375	High
	6	US 13: I-495 to SR 273	2	2	2	2	2	3	2	3	2.250	High
	8	SR 273: Airport Rd to SR 141	3	3	3	2	1	3	0	2	2.125	High
	3	SR 4: SR 273 to SR7/SR 4 (JP Morgan)	2	3	2	1	1	3	0	3	1.875	High
	15	US 9/DE 1: Five Points Area	1	2	3	2	1	2	2	2	1.875	High
Moderate	1	SR 896: SR 4 to Old Baltimore Pike	1	2	1	2	1	2	2	3	1.750	Moderate
	10	US 13 (Dover): Bay Rd to SR 10 - Camden	1	2	1	2	1	2	2	2	1.625	Moderate
	13	US 9/US 13: Georgetown Area	1	2	2	1	1	2	3	1	1.625	Moderate
	11	S. Bay Rd.: US 13 Split to Puncheon Run Connector	2	2	2	1	1	2	1	0	1.571	Moderate
Low	4	SR 1: S. of I-95 Ramps to S. of SR 273	0	2	0	3	2	N/A	2	N/A	1.500	Low
	5	I-495: US 13 to I-95	0	2	1	2	2	N/A	2	N/A	1.500	Low
	7	I-295: US 13 to I-95	0	0	1	3	3	N/A	2	N/A	1.500	Low
	12	US 113: DE 1 to Old Shawnee Rd	1	2	2	1	1	2	2	1	1.500	Low
	14	US 113: Millsboro Area - Betts Pond to Dagsboro Rd	1	1	2	1	2	2	2	1	1.500	Low
	9	SR 15 & SR 8: West Dover	2	2	2	1	1	2	0	1	1.375	Low

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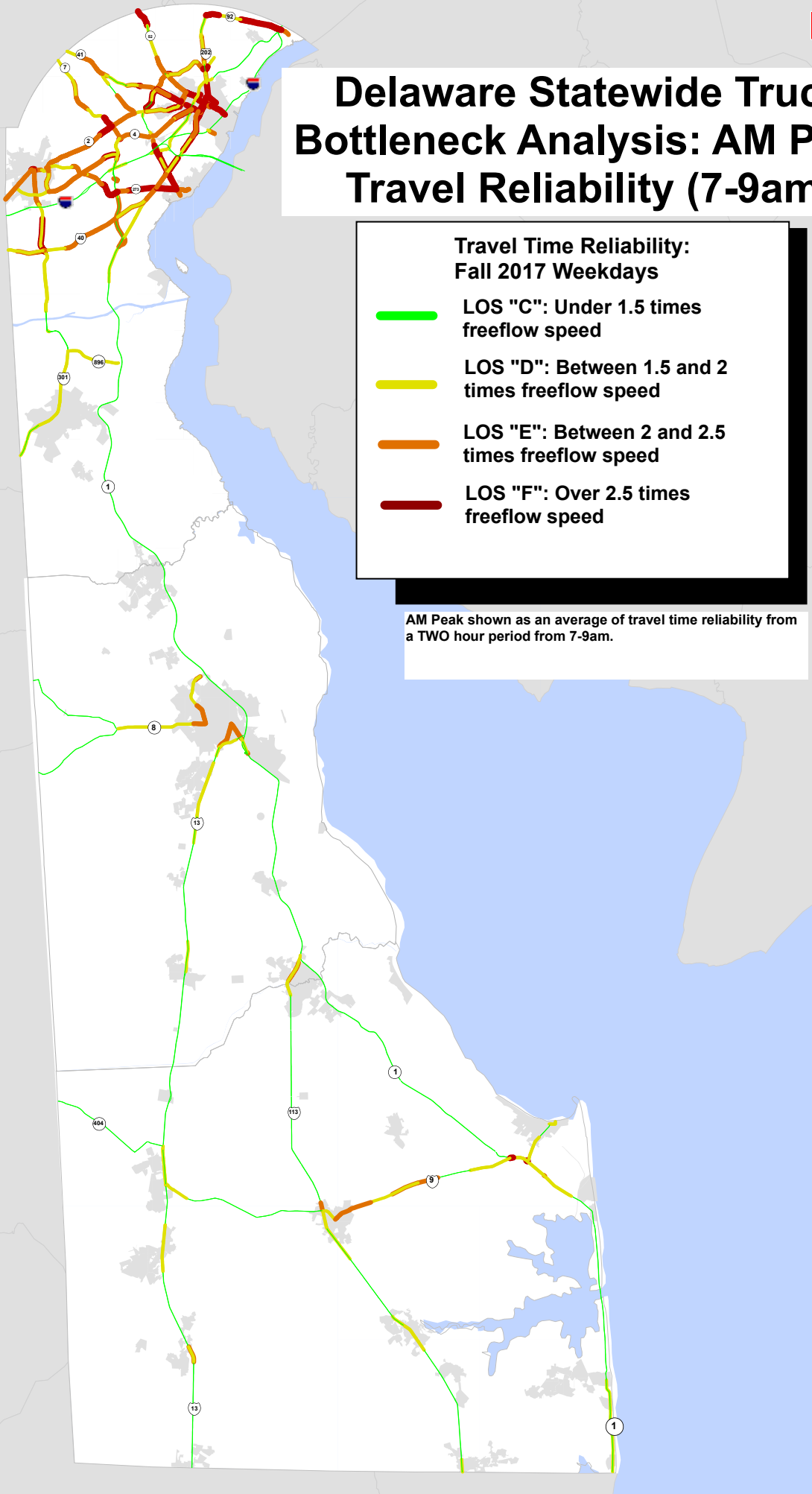
Delaware Statewide Truck Bottleneck Analysis: AM Peak Travel Reliability (7-9am)



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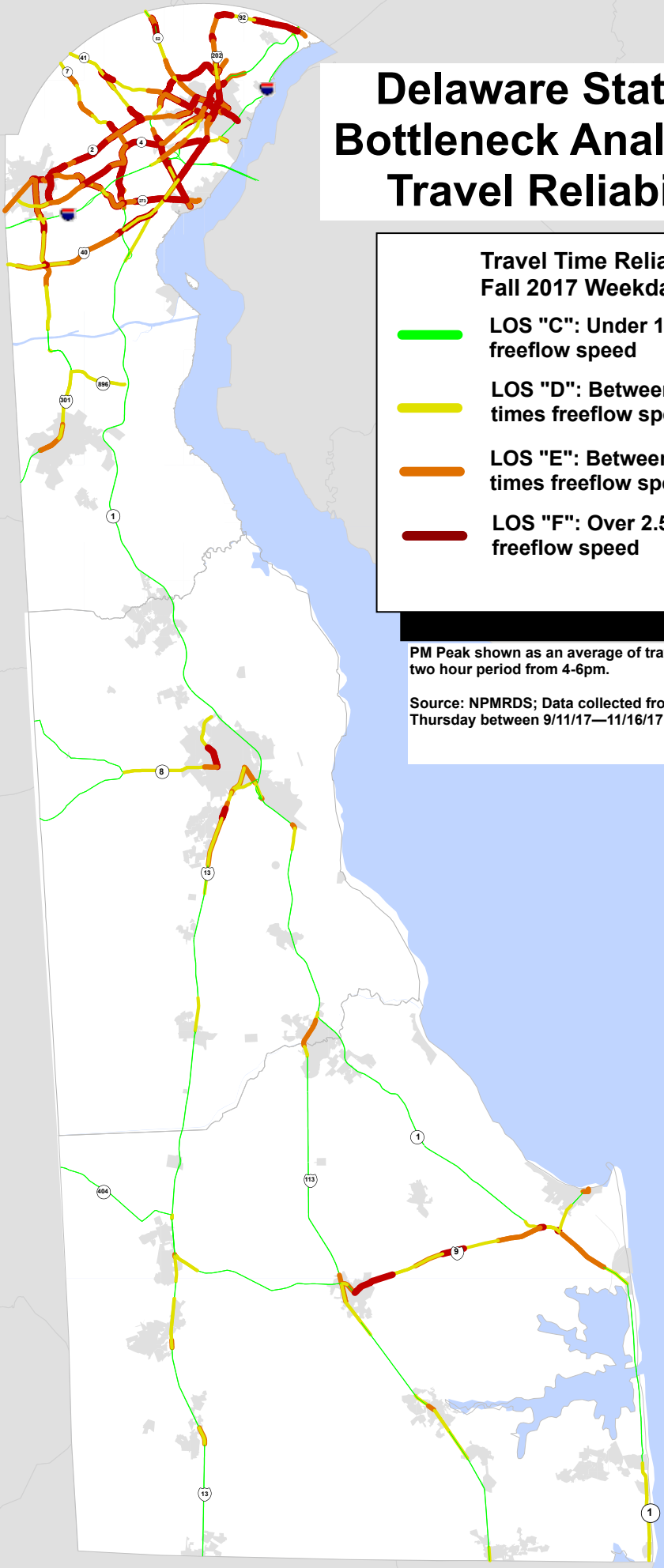
Delaware Statewide Truck Bottleneck Analysis: PM Peak Travel Reliability (4-6pm)



Travel Time Reliability: Fall 2017 Weekdays

- LOS "C": Under 1.5 times freeflow speed
- LOS "D": Between 1.5 and 2 times freeflow speed
- LOS "E": Between 2 and 2.5 times freeflow speed
- LOS "F": Over 2.5 times freeflow speed

PM Peak shown as an average of travel time reliability from a two hour period from 4-6pm.

Source: NPMRDS; Data collected from each Monday through Thursday between 9/11/17—11/16/17

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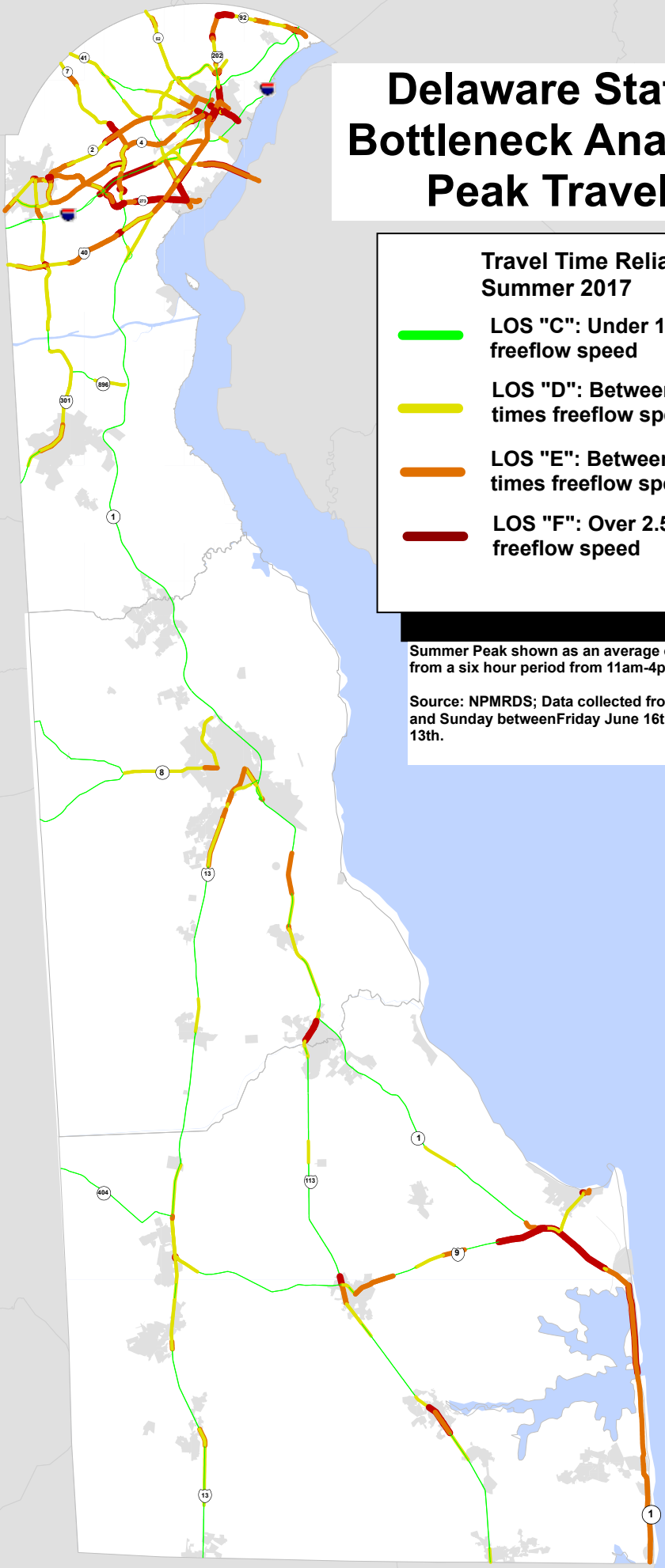
Delaware Statewide Truck Bottleneck Analysis: Summer Peak Travel Reliability



Travel Time Reliability: Summer 2017

- LOS "C": Under 1.5 times freeflow speed
- LOS "D": Between 1.5 and 2 times freeflow speed
- LOS "E": Between 2 and 2.5 times freeflow speed
- LOS "F": Over 2.5 times freeflow speed

Summer Peak shown as an average of travel time reliability from a six hour period from 11am-4pm.

Source: NPMRDS; Data collected from each Friday, Saturday and Sunday betweenFriday June 16th through Sunday August 13th.

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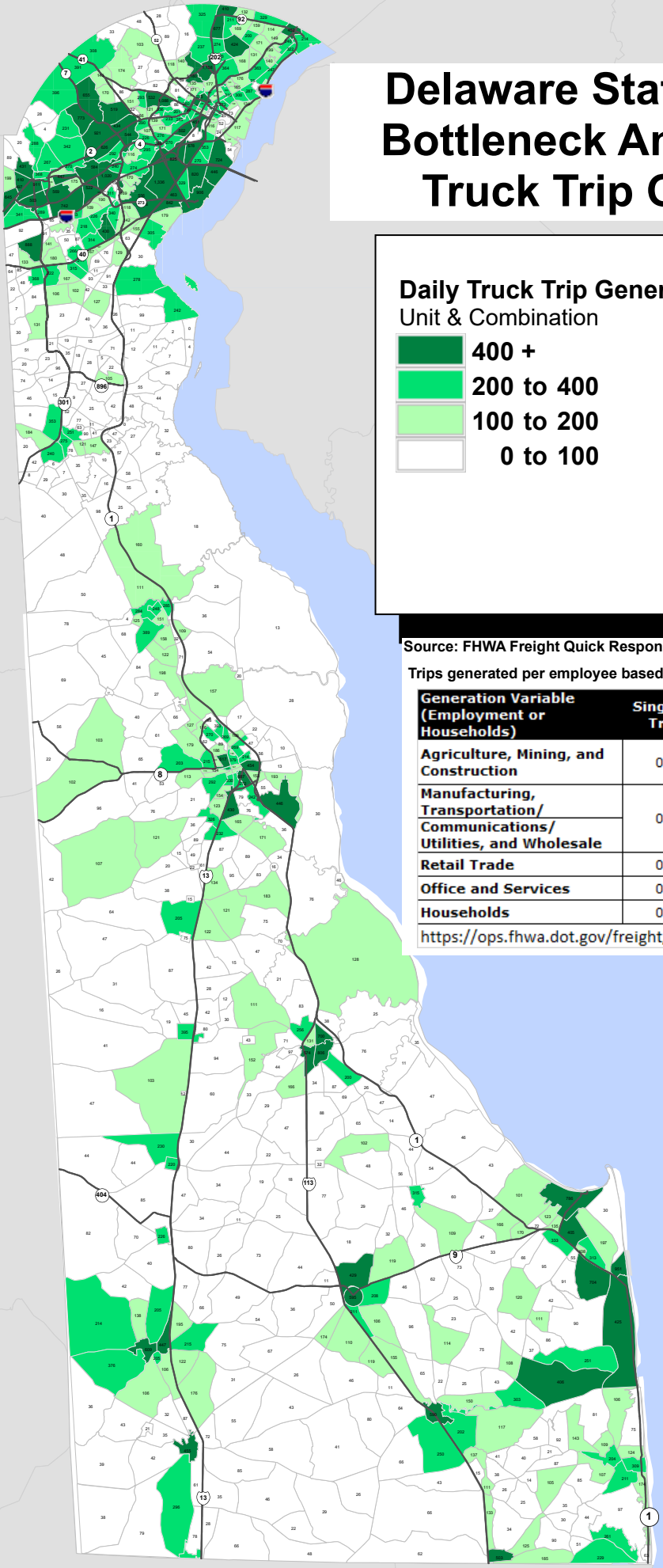
Delaware Statewide Truck Bottleneck Analysis: Daily Truck Trip Generation



Daily Truck Trip Generation
Unit & Combination

- 400 +
- 200 to 400
- 100 to 200
- 0 to 100

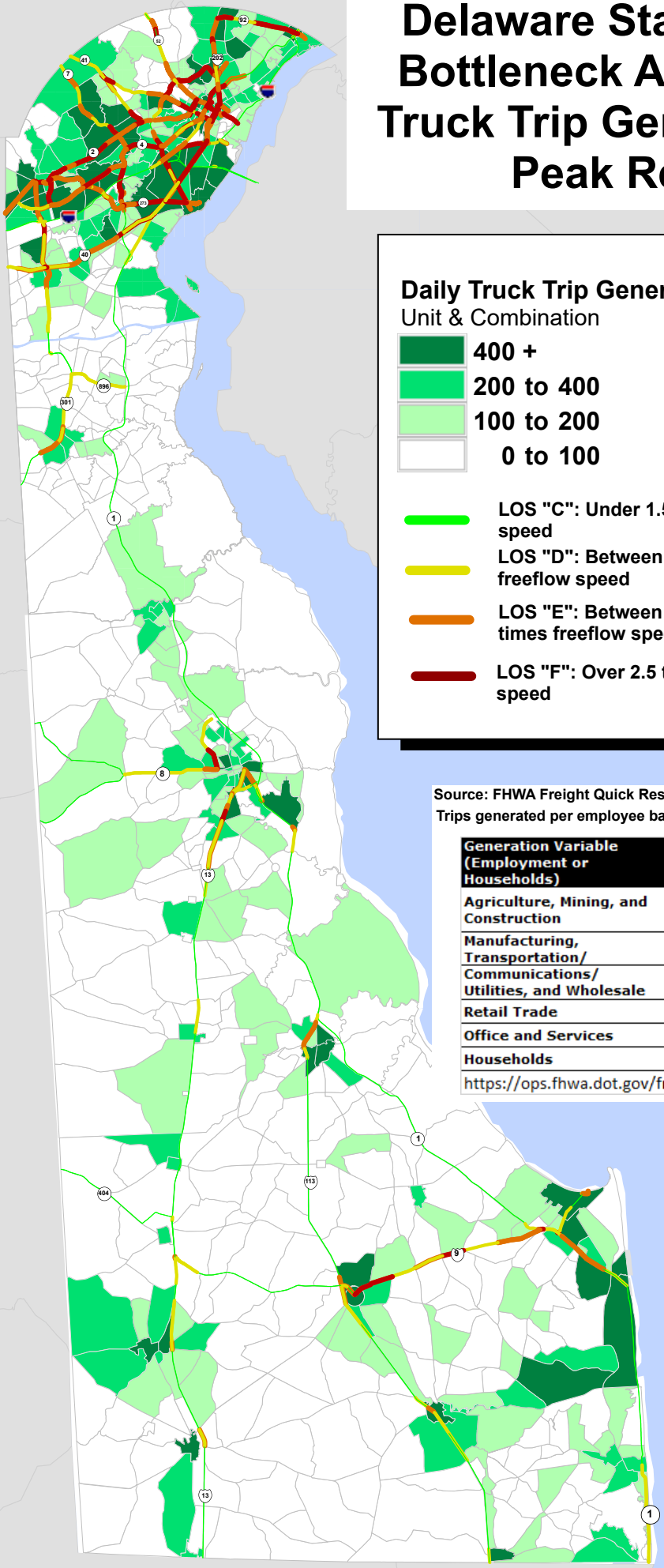
Source: FHWA Freight Quick Response Manual:

Trips generated per employee based on the following job types:

Generation Variable (Employment or Households)	Single Unit Trucks	Combination Trucks
Agriculture, Mining, and Construction	0.289	0.174
Manufacturing, Transportation/ Communications/ Utilities, and Wholesale	0.242	0.104
Retail Trade	0.253	0.065
Office and Services	0.068	0.009
Households	0.099	0.038

https://ops.fhwa.dot.gov/freight/publications/qrfm2/sec

Delaware Statewide Truck Bottleneck Analysis: Daily Truck Trip Generation & PM Peak Reliability



Daily Truck Trip Generation
Unit & Combination

- 400 +
- 200 to 400
- 100 to 200
- 0 to 100

- LOS "C": Under 1.5 times freeflow speed
- LOS "D": Between 1.5 and 2 times freeflow speed
- LOS "E": Between 2 and 2.5 times freeflow speed
- LOS "F": Over 2.5 times freeflow speed

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Source: FHWA Freight Quick Response Manual:
Trips generated per employee based on the following job types:

Generation Variable (Employment or Households)	Single Unit Trucks	Combination Trucks
Agriculture, Mining, and Construction	0.289	0.174
Manufacturing, Transportation/ Communications/ Utilities, and Wholesale	0.242	0.104
Retail Trade	0.253	0.065
Office and Services	0.068	0.009
Households	0.099	0.038

https://ops.fhwa.dot.gov/freight/publications/qrfm2/sec

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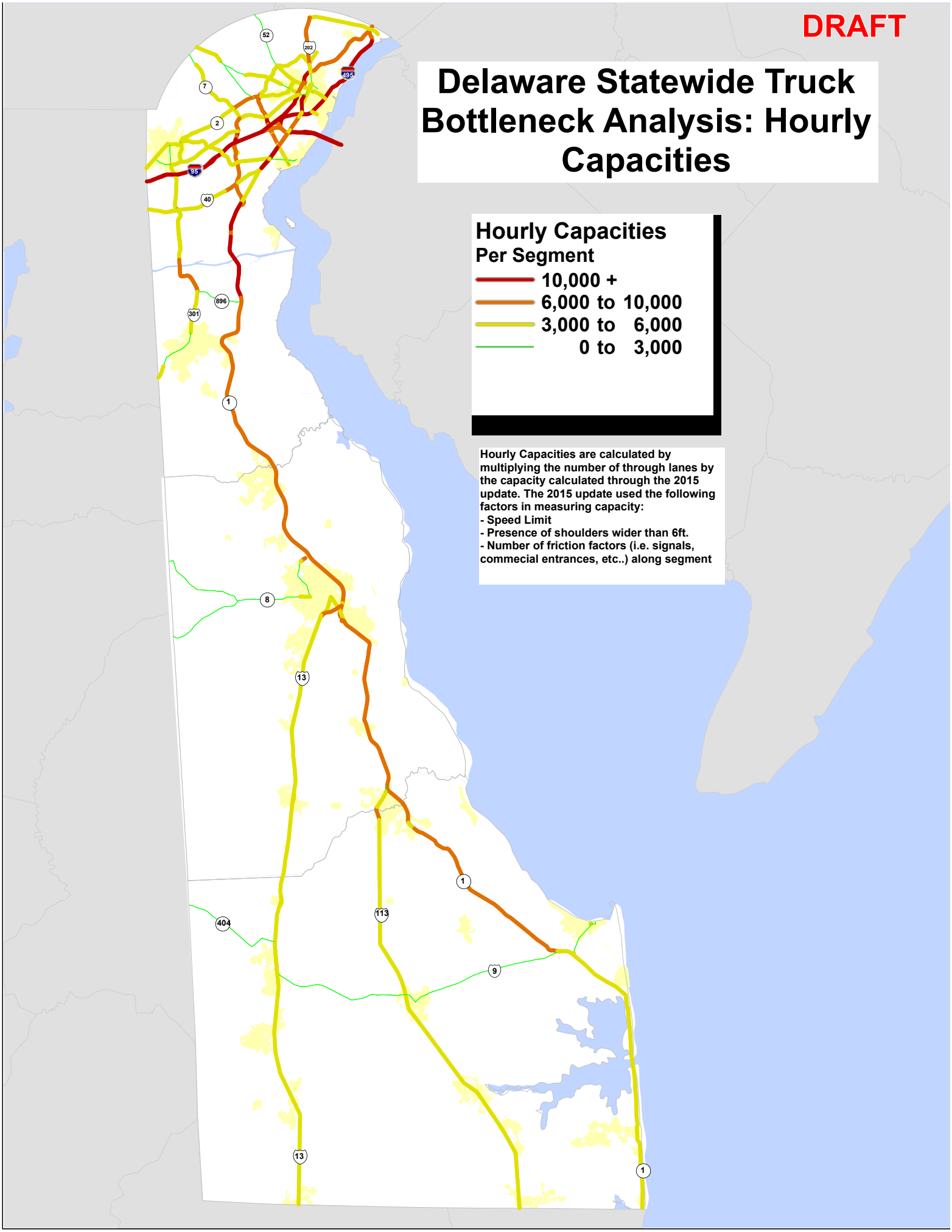
Delaware Statewide Truck Bottleneck Analysis: Hourly Capacities



Hourly Capacities are calculated by multiplying the number of through lanes by the capacity calculated through the 2015 update. The 2015 update used the following factors in measuring capacity:
- Speed Limit
- Presence of shoulders wider than 6ft.
- Number of friction factors (i.e. signals, commecial entrances, etc..) along segment

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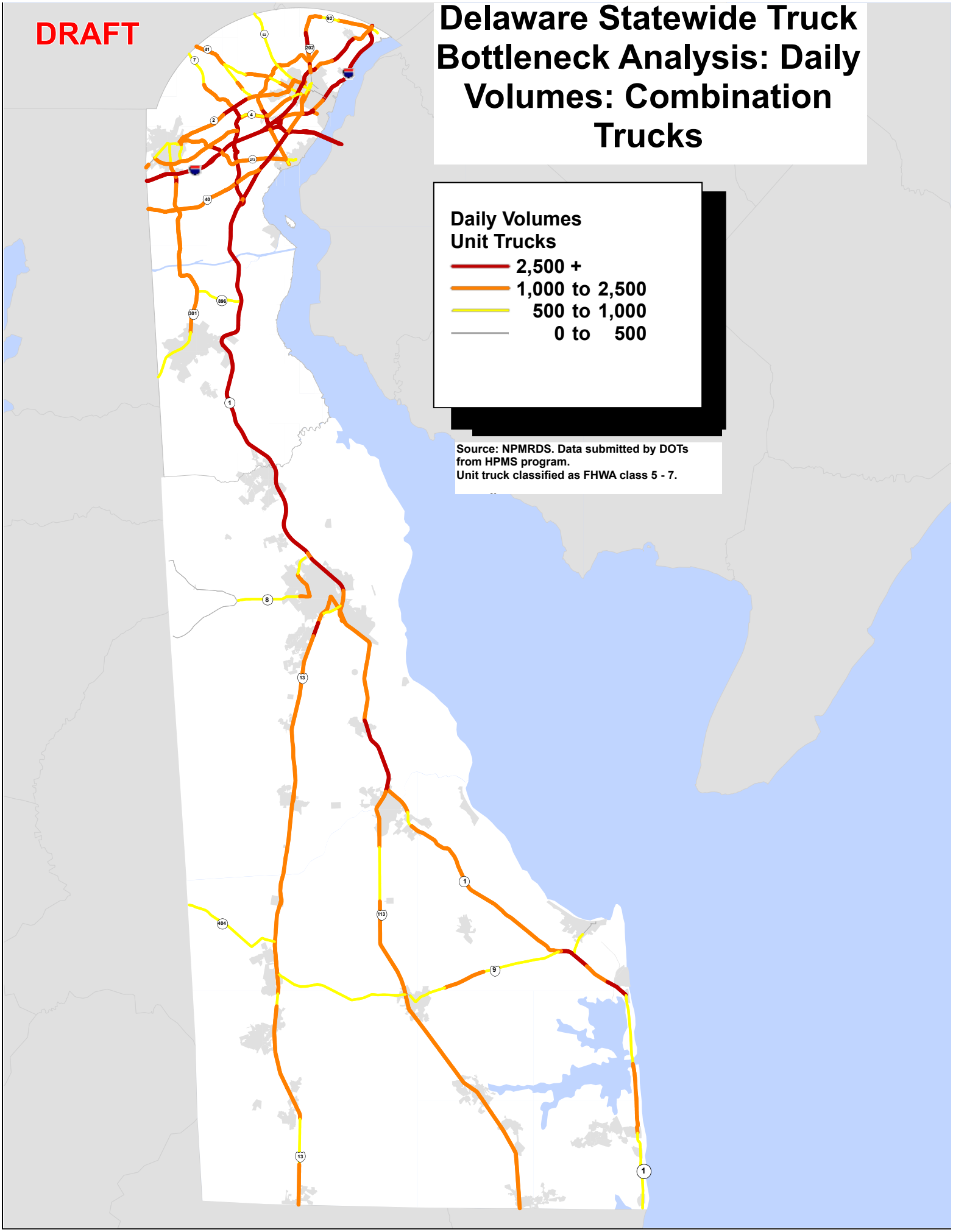
Delaware Statewide Truck Bottleneck Analysis: Daily Volumes: Combination Trucks



Source: NPMRDS. Data submitted by DOTs from HPMS program.
Unit truck classified as FHWA class 5 - 7.

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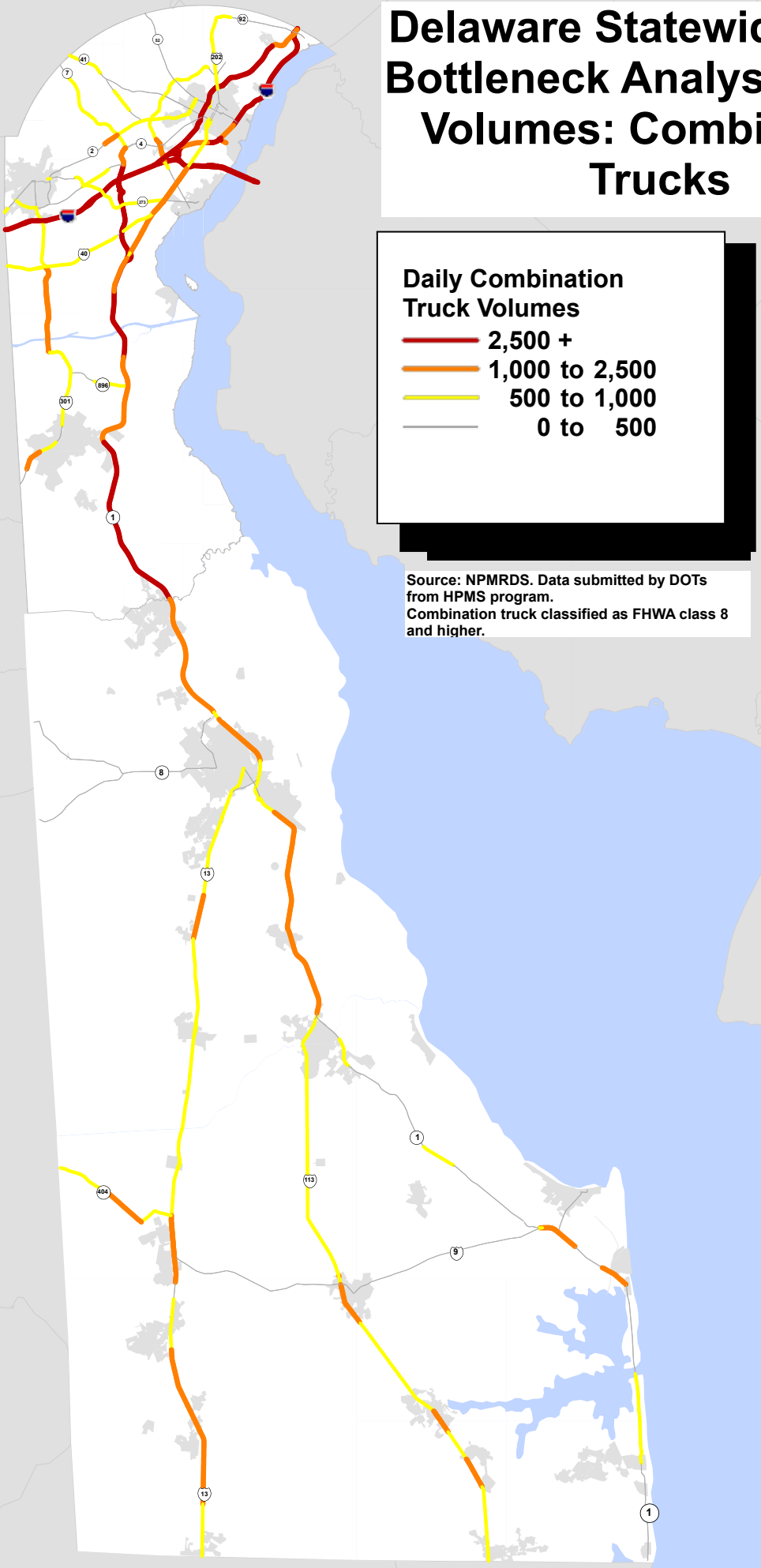
Delaware Statewide Truck Bottleneck Analysis: Daily Volumes: Combination Trucks



Source: NPMRDS. Data submitted by DOTs from HPMS program.
Combination truck classified as FHWA class 8 and higher.

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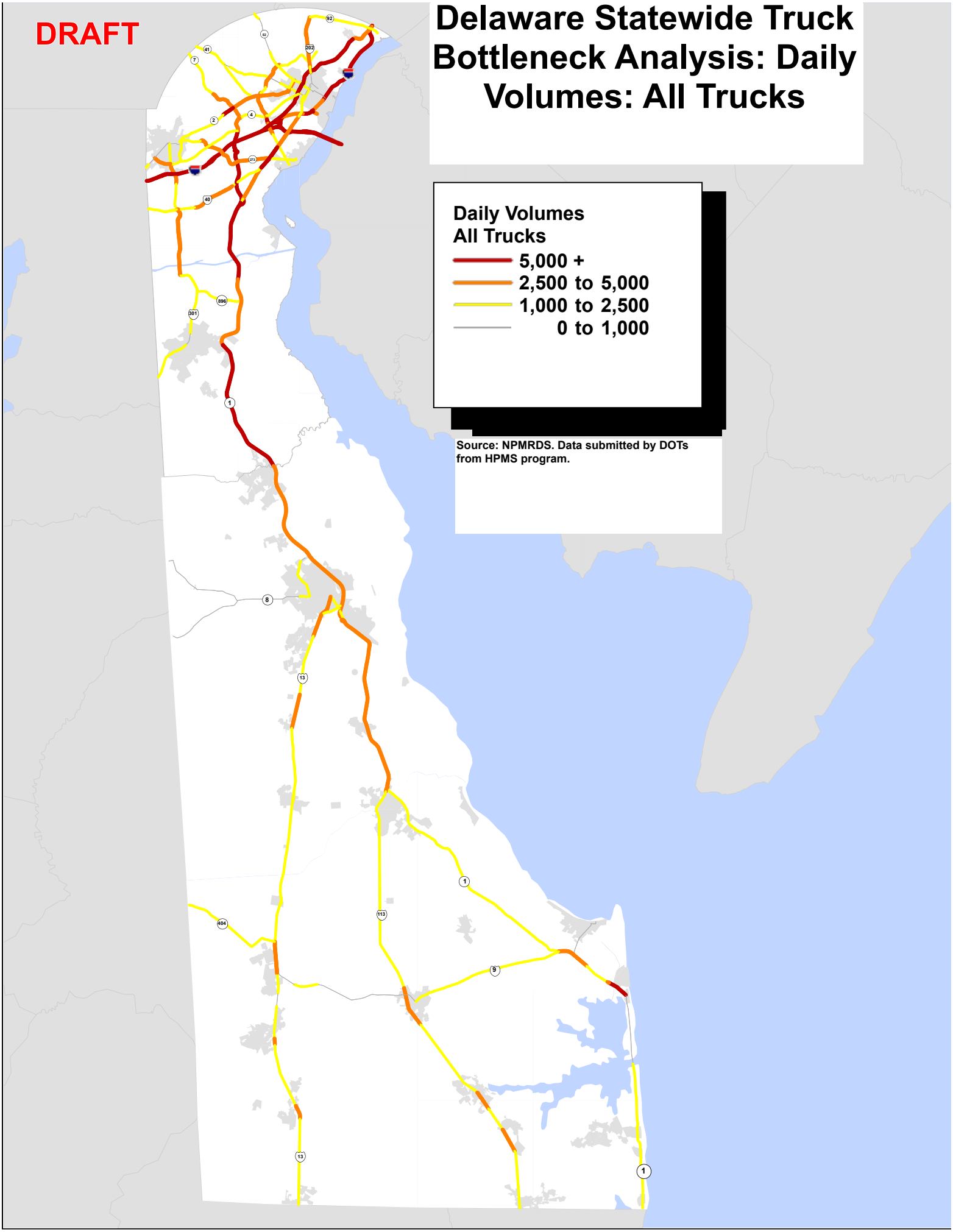
Delaware Statewide Truck Bottleneck Analysis: Daily Volumes: All Trucks



Source: NPMRDS. Data submitted by DOTs from HPMS program.

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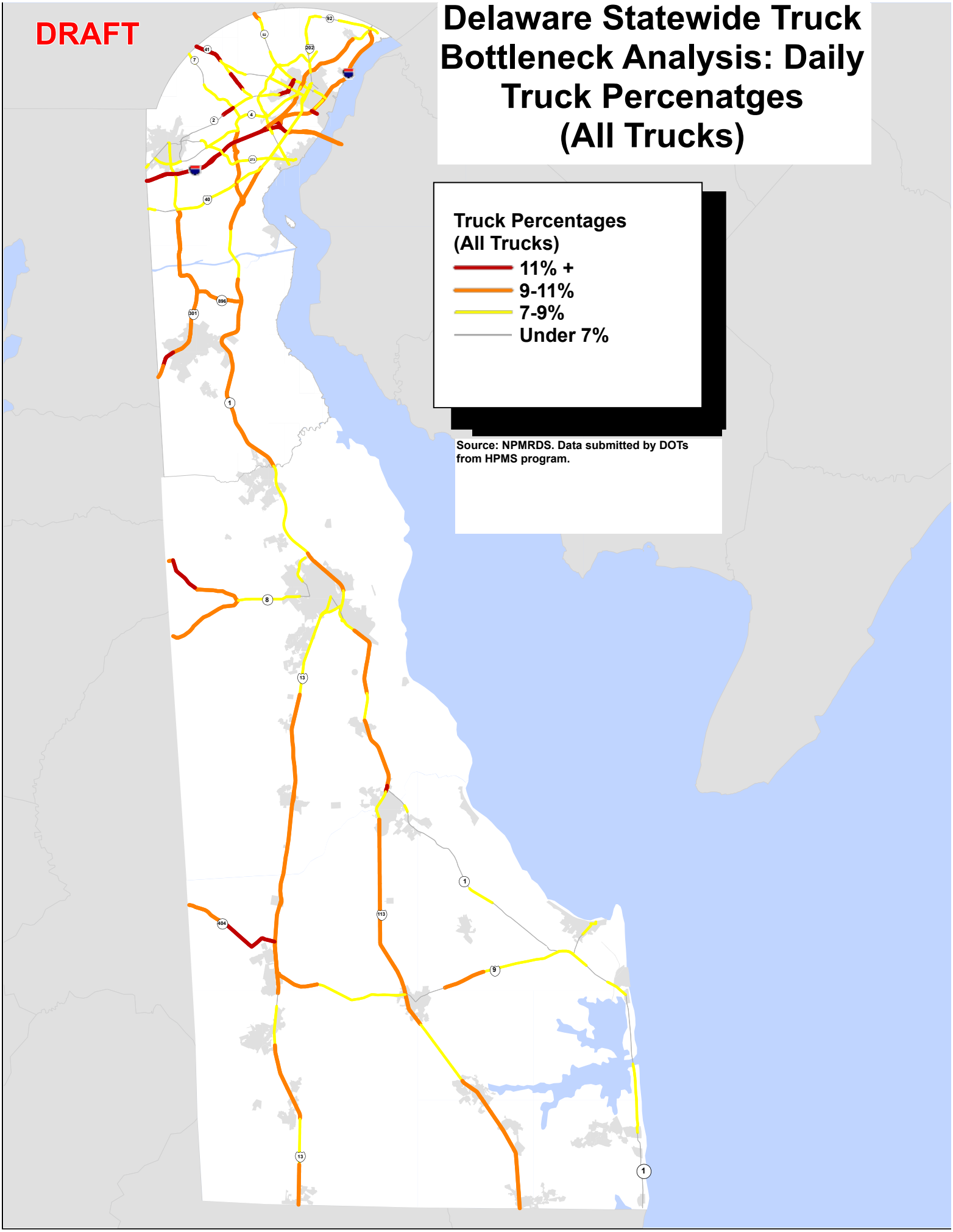
Delaware Statewide Truck Bottleneck Analysis: Daily Truck Percenatges (All Trucks)



Source: NPMRDS. Data submitted by DOTs from HPMS program.

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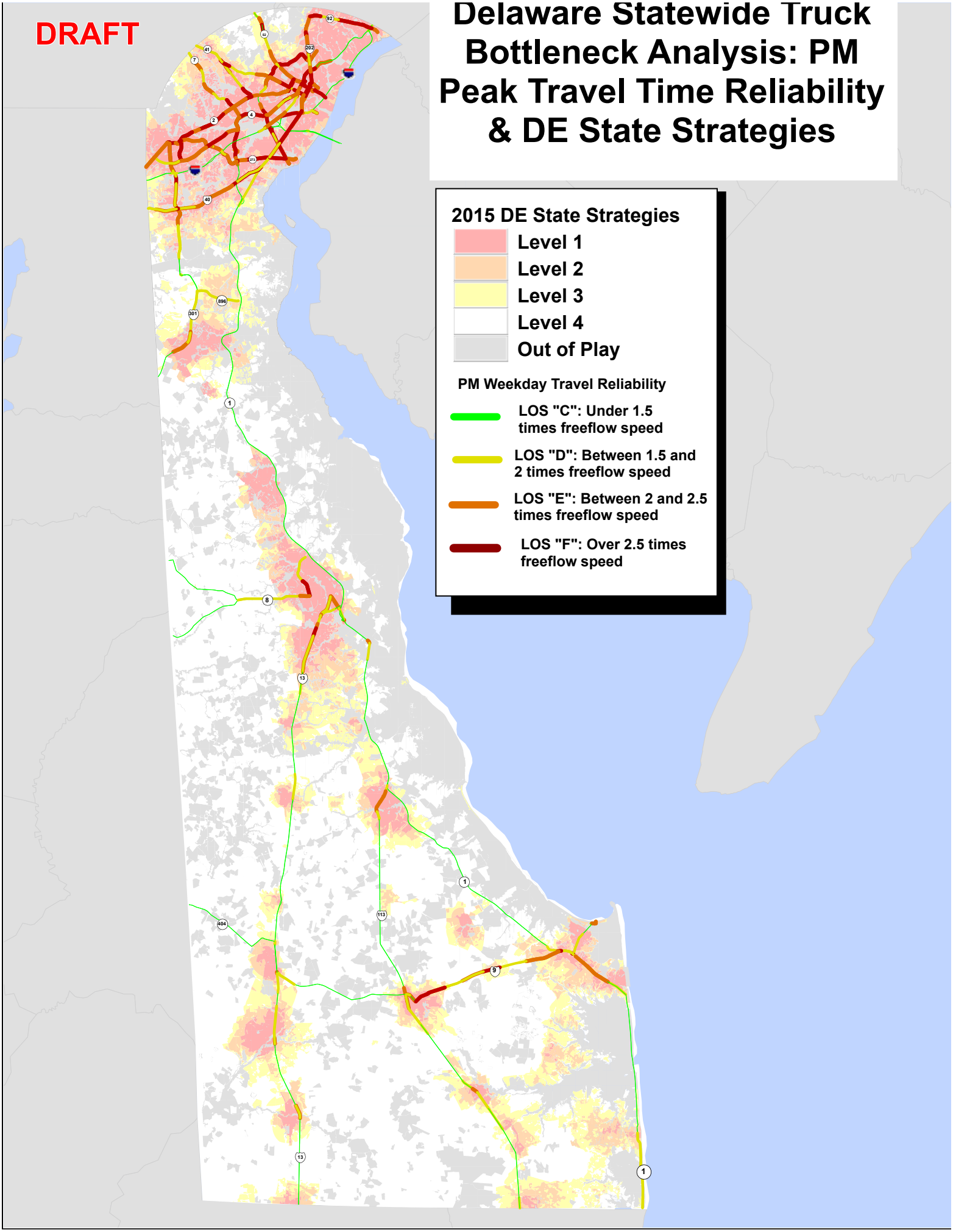
Delaware Statewide Truck Bottleneck Analysis: PM Peak Travel Time Reliability & DE State Strategies



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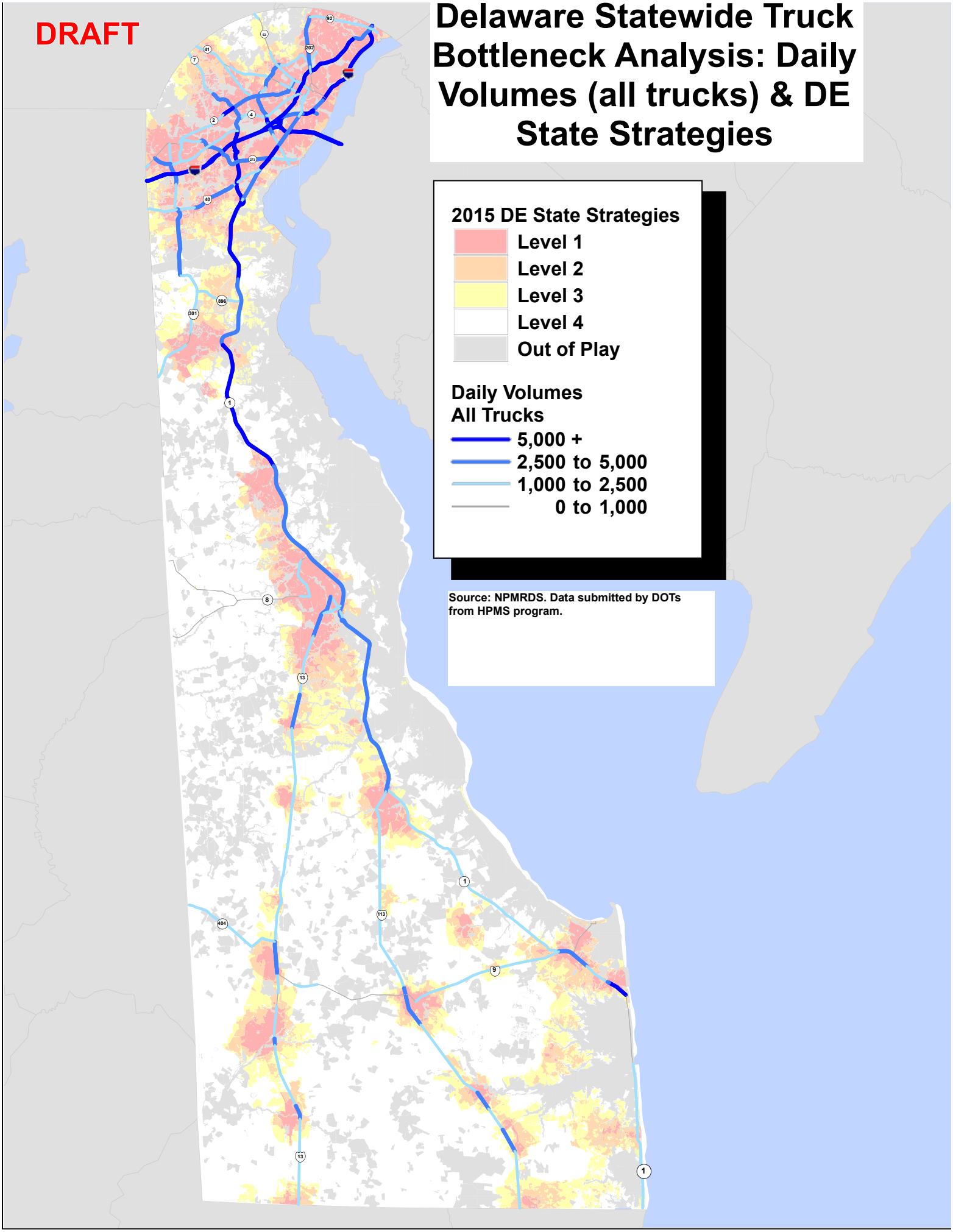
Delaware Statewide Truck Bottleneck Analysis: Daily Volumes (all trucks) & DE State Strategies



APPENDIX G:

Freight Project Candidates – Truck Bottleneck Improvements

G. APPENDIX G: Freight Project Candidates – Truck Bottleneck Improvements

The following project candidate references are based on detailed reviews of Delaware's Statewide Truck Bottleneck Analysis (documented elsewhere in this plan) in comparison to planned projects on Delaware's CTP or corresponding MPO planning/programming resources that overlap the identified truck bottleneck areas. These project candidates may play a particularly important role in the state's overall freight action plan, especially in relationship to federal requirements for bottleneck improvements. These requires include the following reference:

- **49 U.S.C. §70202(b)(7):** state freight plans must include "an inventory of facilities with freight mobility issues, such as bottlenecks, within the state, and for those facilities that are state owned or operated, a description of the strategies the state is employing to address the freight mobility issues."

- **23 CFR §490.107:** states must provide a "discussion on progress of the State DOT's efforts in addressing congestion at truck freight bottlenecks within the State, as described in 23 CFR 490.107(b)(1)(ii)(F), through comprehensive freight improvement efforts of State Freight Plan or MPO freight plans; the Statewide Transportation Improvement Program (STIP) and Transportation Improvement Program (TIP); regional or corridor level efforts; other related planning efforts; and operational and capital activities targeted to improve freight movement on the Interstate System." (23 CFR 490.107(b)(2)(ii)(D), 23 CFR 490.107(b)(3)(ii)(D))

All potential bottleneck improvements summarized herein generally reflect a snapshot in time and should otherwise be viewed for reference only. Prior to making any official assumptions related to these lists, formal/current project updates should be coordinated (independent of this plan) with DelDOT and the state's MPO planning partners to remain consistent with any subsequent updates or changes relative to broader ongoing transportation planning/programming efforts throughout Delaware.

Delaware Statewide Truck Bottleneck Planned Improvements Summary (5/16/22)

Map ID	Bottleneck	Related Projects and Studies	Description	Estimated In-Service Year / Project Status	Project Website (if applicable)
High Ranked Bottlenecks					
2	SR 7 & SR 2 Area (Kirkwood Hwy.)	SR 2 & SR 7 Intersection Improvements	Alternatives evaluated as part of Senate Resolution #10 Committee Recommendations. Recommendations include grade-separated options	Alternatives evaluated in 2021. Project to be inlcuded in WILMAPCO RTP Aspirations List	http://www.wilmapco.org/sr10/Intersection_Analysis_DEC_20.pdf
		Delaware Park Blvd Extension, SR 2 to SR 4	A four-lane boulevard type roadway connecting the intersection of SR 4 and SR 58 with SR 2 at Delaware ParkBoulevard. Included in the Churchmans Crossing Plan Plan Update (2021)	Long Term project in WILMAPCO RTP Aspirations list (2050)	http://www.wilmapco.org/churchmans/
		SR 7 & Milltown Rd. Intersection Improvements	Alternatives evaluated as part of Senate Resolution #10 Committee Recommendations. Recommendations include short term restriping opions and long term grade-separated options	Alternatives evaluated in 2021. Project to be inlcuded in WILMAPCO RTP Aspirations List	http://www.wilmapco.org/sr10/Intersection_Analysis_DEC_20.pdf
		Last Corridor Signal Re-timing	SR 7 portion retimed in 2020; SR 2 portion retimed in 2017	N/A	Regular updates available at http://www.wilmapco.org/cms
6	US 13: I-495 to SR 273	US 13 & Bacon Ave. Safety Intersection Improvements	Part of 2018 DelDOT HEP (Site S-1) Improvements included in a corridor-wide effort	FY 2025	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201601102
		US 13 & SR 273 Intersection Safety Improvements	Part of 2018 DelDOT HEP (Site S-2). Improvements included in a corridor-wide effort	FY 2025	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201601102
		US 13 & SR 273. Intersection Improvements	Long term option of a grade separated interchange	Project to be inlcuded in WILMAPCO RTP Aspirations List. No estimated In-Service Year	http://www.wilmapco.org/rtp
		SR 141/US 13 Interchange upgrade	Upgrade of existing on/off ramps	Project to be inlcuded in WILMAPCO RTP Aspirations List. No estimated In-Service Year	http://www.wilmapco.org/rtp
		Last Corridor Signal Re-timing: 2018	Portion of US 13 retimed in 2020 (I-295 to I-495)		Regular updates available at http://www.wilmapco.org/cms
8	SR 273: Airport Rd. to SR 141	SR 273: I-95 to SR 1	Intersection / Road Improvements	WILMAPCO RTP Project Aspirations List	
		US 13 & SR 273 Intersection Safety Improvements	Part of 2018 DelDOT HEP (Site S-2). Improvements included in a corridor-wide effort	2025	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201601102
		US 13 & SR 273. Intersection Improvements	Long term option:grade separated interchange	Project to be inlcuded in WILMAPCO RTP Aspirations List. No estimated In-Service Year	http://www.wilmapco.org/rtp
		HSIP NCC, SR 273, Appleby Road to Airport Road	Widen to provide two left-turn lanes from eastbound SR 273 onto Airport Road and three through lanes on westbound SR 273.	FY 2021	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T200900704
		Last Corridor Signal Re-timing: 2018			Regular updates available at http://www.wilmapco.org/cms/

Delaware Statewide Truck Bottleneck Planned Improvements Summary (5/16/22)

Map ID	Bottleneck	Related Projects and Studies	Description	Estimated In-Service Year / Project Status	Project Website (if applicable)
High Ranked Bottlenecks (Continued)					
3	SR 4: SR 273 to SR7/SR 4 (JP Morgan)	SR 4 / Harmony Road Intersection	Improvements include adding turn lanes and geometric improvements	Project in DelDOT CTP. Construction scheduled for FY2027	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202111601
		Churchmans Crossing Study	Bottleneck is part of large sub regional study to be completed by Spring 2021	TBD (if any)	http://www.wilmapco.org/churchmans/
		SR 4 / Churchmans Road Intersection	Churchmans Crossing Plan Plan Update (2021)	Project in DelDOT CTP. Construction scheduled for FY2027	http://www.wilmapco.org/churchmans/
		Delaware Park Blvd Extension, SR 2 to SR 4	A four-lane boulevard type roadway connecting the intersection of SR 4 and SR 58 with SR 2 at Delaware Park Boulevard. Included in the Churchmans Crossing Plan Plan Update (2021)	Long Term project in WILMAPCO RTP Aspirations list (2050)	http://www.wilmapco.org/churchmans/
		SR 4/ SR 7 Intersection (JP Morgan)	Additional turn lanes and other geometric improvements.	Construction scheduled for FY2027	http://www.wilmapco.org/churchmans/
		Last Corridor Signal Re-timing: 2019			Regular updates available at http://www.wilmapco.org/cms/
15	US 9/DE 1: Five Points Area	Multiple projects under 5 Points Transportation Study	The Five Points Transportation Study is examining and implementing improvements to the area around the intersection located at Routes 1 and 9 in Lewes. The study began with Phase 1 – Five Points Working Group and has moved into Phase 2 – Implementation.		https://deldot.gov/projects/Studies/fivepoints/
		Last Corridor Signal Re-timing: 2018 (US 9) and 2016 (DE 1)	US 9 Business retimed in 2020		

Delaware Statewide Truck Bottleneck Planned Improvements Summary (5/16/22)

Map ID	Bottleneck	Related Projects and Studies	Description	Estimated In-Service Year / Project Status	Project Website (if applicable)
Moderate Ranked Bottlenecks					
1	SR 896: SR 4 to Old Baltimore Pike	SR 896 Widening from I-95 to US 40	Increase capacity of SR 896 by adding onetravel lane in each direction	Long Term project in WILMAPCO RTP (2050)	
		I-95 / SR 896 Interchange	Improvements at the interchange to address congestion in the peak hours, along with accidents during different times of the day.	FY 2026	https://deldot.gov/information/projects/i95/i95_sr896/index.shtml
		2019 HEP Site C	Identification of safety improvements from I-95 ramps to Mopar Dr.	Alternatives being evaluated	
		Last Corridor Signal Re-timing: 2017	Retimed in 2020		Regular updates available at http://www.wilmapco.org/cms
10	US 13 (Dover): Bay Rd. to SR 10 - Camden	East Camden Bypass	Provide a new connection from US 13 to Lebanon Road (SR 10) and Rising Sun Road.	FY 2025	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201709502
		HEP, KC, US13, Lochmeath Way to Puncheon Run Connector	Widen to provide a third through lane in each direction on US 13 from Lochmeath Way to the Puncheon Run Connector.	FY 2025	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201500202
		Last Corridor Signal Re-timing: 2016			
13	US 9/US 113: Georgetown Area	US 113 @ SR 18/SR 404 (Georgetown) Grade Separated Intersection	Grade separated intersection at US 113 and SR 18/SR 404 in Georgetown DE. Include widening US 113 to provide three lanes in each direction from Bedford St to Ennis St.	FY 2026	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201412701
		Last Corridor Signal Re-timing: 2019			
11	S. Bay Rd.: US 13 Split to Puncheon Run Connector	HSIP SC, US 9 and SR 5 Intersection	Widen to provide turn lanes at the US 9/SR 5 intersection to address safety and operational issues and accommodate heavy vehicles.	Completed FY 2021	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201100901
		Last Corridor Signal Re-timing: 2016			

Delaware Statewide Truck Bottleneck Planned Improvements Summary (5/16/22)

Map ID	Bottleneck	Related Projects and Studies	Description	Estimated In-Service Year / Project Status	Project Website (if applicable)
Low Ranked Bottlenecks					
4	SR 1: S. of I-95 Ramps to S. of SR 273	SR 1: Roth Bridge - SR 273	Identify and prioritize cost-effective short, mid- and long-term transportation infrastructure improvements along SR 1 from the Roth Bridge to south of I-95 that reduce congestion and travel times and improve safety, while minimizing environmental impacts.	Alternatives being evaluated	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T200511001
		Last Corridor Signal Re-timing: N/A			
5	I-495: US 13 to I-95				
		Last Corridor Signal Re-timing: N/A			
7	I-295: US 13 to I-95	I-295 Northbound from SR 141 to US 13	Additional capacity from I-95 northbound from the SR141 interchange to I-295 northbound.	FY 2026	http://www.drba.net/LinkClick.aspx?fileticket=Bkz6VOUYsCc%3d&tabid=131
		Last Corridor Signal Re-timing: N/A			
12	US 113: DE 1 to Old Shawnee Rd.	US 113, North / South Improvements	This project will continue to work on viable alternatives for a limited access highway throughout Sussex County to address existing and future transportation needs along US 113 while preserving environmental and historic resources and accommodating planned economic growth.		https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T200212701#project-details1
		Last Corridor Signal Re-timing: 2019			
14	US 113: Millsboro Area - Betts Pond to Dagsboro Rd.	US 113, North / South Improvements	This project will continue to work on viable alternatives for a limited access highway throughout Sussex County to address existing and future transportation needs along US 113 while preserving environmental and historic resources and accommodating planned economic growth.		https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T200212701#project-details1
		North Millsboro Bypass, US 113 to SR 24	2 lane connector road between US 113 and SR 24 north of Millsboro DE. The new alignment will start at US 113 and extend eastward bridging over Fox Run Road, the Norfolk Southern Railroad, the Millsboro pond, and Gravel Hill Road. Includes grade separated intersection at the US 113/SR 20 intersection.	FY 2025	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201912701
		Last Corridor Signal Re-timing: 2014			
9	SR 15 & SR 8: West Dover	HEP KC, SR 8 and SR 15 Intersection Improvements	Construction of an additional through lane on each leg of SR 15 (Saulsbury Road).	FY 2023	https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201500201
		Salisbury & McKee Road Improvements	Expand to 4 Lanes	Mid Term project in Dover/Kent RTP (2022-2030)	www.doverkentmpo.org
		Last Corridor Signal Re-timing: 2020			

APPENDIX H:

Freight Project Candidates – Port Strategic Plan References

H. APPENDIX H: Freight Project Candidates – Port Strategic Plan References

The following project candidate references are specific to the Port of Wilmington based on details taken directly from the 2016 *Strategic Master Plan for the Diamond State Port Corporation*.

Pending further coordination with the Port, no updates have been made to the project elements or cost estimates reflected on these lists since their creation in 2016, with one exception. The original costs were reported in terms of year 2016 dollars, while the information on the following pages adjusts those costs to reflect inflation to year 2020 dollars based on a 2016-2020 multiplier of 1.07 per guidance/details in USDOT's *Benefit-Cost Analysis Guidance for Discretionary Grant Programs* (March 2022 Revised).

All port project details summarized herein should otherwise be viewed for reference only. It is likely that several project needs, elements, or alternatives have changed and/or been partially advanced or revised since the 2016 update of the Port's strategic plan. Prior to making any official assumptions related to these lists, formal/current project updates should be coordinated (independent of this plan) with the Diamond State Port Corporation (DSPC) and GT USA Wilmington, LLC, to remain consistent with any subsequent updates or changes relative to broader ongoing Port planning and improvement efforts at the Port of Wilmington or related facilities.

Exhibit 1: Port Project Candidates for State of Good Repair (2016 Strategic Master Plan Alternative 1)

		ALT 1 State of Good Repair	
#	Port Improvement / Key Item	Cost (2016 $M)	Inflated Cost (2020 $M)
-	*Inflation Adjustment Multiplier*	-	*1.07*
1	**Current Funded Commitments**		
1a	Equipment	$ 15.7	$ 16.8
1b	Other Tasks	$ 27.5	$ 29.4
2	**Other Commitments**		
2a	Unfunded Additional Commitments	$ 4.7	$ 5.0
3	**Expansion Opportunity**		
3a	Internal Gate	$ 0.46	$ 0.50
3b	Site Improvements	$ 9.4	$ 10.1
3c	Maintenance Bldg Relocation	$ 9.6	$ 10.3
4	**Cold Storage Warehouse**		
4a	Demolition of Warehouse B/C/D	$ 7.3	$ 7.8
4b	Reconstruction of Cold Storage	$ 80.8	$ 86.4
5	**New Main Gate**		
5a	Demolition of Existing Gate/Bldgs	$ 1.3	$ 1.4
5b	Site Improvements	$ 4.7	$ 5.0
5c	New Gate	$ 4.1	$ 4.4
5d	New Building	$ 5.0	$ 5.4
6	**Other Costs**		
6a	Engineering, Construction Management	$ 10.9	$ 11.7
-	**Totals**		
-	*Funded Subtotal (#1)*	*$ 43.2*	*$ 46.2*
-	*Unfunded Subtotal (#2 thru #6)*	*$ 138.3*	*$ 148.0*
-	**TOTAL**	**$ 181.5**	**$ 194.2**

Exhibit 2: Port Project Candidates for Market Demand/Growth (2016 Strategic Master Plan Alternative 1A)

		ALT 1A Market Demand/Growth	
#	Port Improvement / Key Item	Cost (2016 $M)	Inflated Cost (2020 $M)
-	*Inflation Adjustment Multiplier*	-	*1.07*
7	**Extend Berth/Crane Rail through Floating Berth**		
7a	Demolition	$ 0.79	$ 0.84
7b	New Berth Structure	$ 28.5	$ 30.5
7c	Upland Fill, Site Improvements	$ 13.0	$ 13.9
7d	Mods to Juice Unloading Facility	$ 1.1	$ 1.2
7e	2 Cranes, RTG & Other Yard Eq.	$ 39.8	$ 42.6
8	**Storage**		
8a	Upland 10 Acre Multi-Purpose Storage	$ 15.3	$ 16.3
9	**Construct RO-RO Storage on Pigeon Point Parcel**		
9a	Property Acquisition	$ -	$ -
9b	Gate	$ 0.58	$ 0.6
9c	Site Improvements	$ 37.4	$ 40.0
10	**Other Costs**		
10a	Engineering, Construction Management	$ 8.4	$ 9.0
-	**Totals**		
-	**TOTAL**	**$ 144.9**	**$ 155.0**

Exhibit 3: Port Project Candidates for Port/Terminal Expansion (2016 Strategic Master Plan Alternatives 2B/C, 3, and 4)

		ALT 2B WHS River		ALT 2C WHS Land		ALT 3 Riveredge		ALT 4 Edgemoor	
#	Port Improvement / Key Item	Cost (2016 $M)	Inflated Cost (2020 $M)	Cost (2016 $M)	Inflated Cost (2020 $M)	Cost (2016 $M)	Inflated Cost (2020 $M)	Cost (2016 $M)	Inflated Cost (2020 $M)
-	*Inflation Adjustment Multiplier*	-	*1.07*	-	*1.07*	-	*1.07*	-	*1.07*
11	**Property Acquisition**								
11a	-	$ -	**$ -**	$ -	**$ -**	$ -	**$ -**	$ -	**$ -**
12	**Berth / Yard / Buildings**								
12a	Dredging	$ -	**$ -**	$ 33.3	**$ 35.6**	$ 87.3	**$ 93.4**	$ 18.5	**$ 19.8**
12b	Berth Structure	$ 674.8	**$ 722.0**	$ 118.1	**$ 126.4**	$ 118.1	**$ 126.4**	$ 118.1	**$ 126.4**
12c	Yard / Earthwork	$ 103.7	**$ 111.0**	$ 56.8	**$ 60.8**	$ 157.1	**$ 168.1**	$ 16.7	**$ 17.9**
12d	Buildings	$ 2.3	**$ 2.5**	$ 2.3	**$ 2.5**	$ 10.2	**$ 10.9**	$ 10.2	**$ 10.9**
12e	Demolition	$ -	**$ -**	$ -	**$ -**	$ -	**$ -**	$ 28.2	**$ 30.2**
12f	Civil Infrastructure	$ 76.0	**$ 81.3**	$ 94.7	**$ 101.3**	$ 103.1	**$ 110.3**	$ 110.0	**$ 117.7**
13	**Internal Access Road / Gate / Rail**								
13a	Access Rd / Infastructure	$ -	**$ -**	$ -	**$ -**	$ 87.2	**$ 93.3**	$ -	**$ -**
13b	Gate	$ 2.2	**$ 2.4**	$ 2.2	**$ 2.4**	$ 4.1	**$ 4.4**	$ 4.1	**$ 4.4**
13c	Rail	$ 3.6	**$ 3.9**	$ 3.6	**$ 3.9**	$ 4.9	**$ 5.2**	$ 1.8	**$ 1.9**
14	**Other Infrastructure Cost**								
14a	Permitting / Design / CM	$ 80.6	**$ 86.2**	$ 31.8	**$ 34.0**	$ 50.0	**$ 53.5**	$ 32.1	**$ 34.3**
15	**Equipment**								
15a	Reefer & Scales	$ 31.6	**$ 33.8**	$ 31.6	**$ 33.8**	$ 31.6	**$ 33.8**	$ 31.6	**$ 33.8**
15b	Cranes / Yard Equipment	$ 119.4	**$ 127.8**	$ 119.4	**$ 127.8**	$ 228.8	**$ 244.8**	$ 119.4	**$ 127.8**
-	**Totals**								
-	*Infrastructure Subtotal (#11 thru #14)*	*$ 943.2*	***$ 1,009.2***	*$ 342.8*	***$ 366.8***	*$ 622.0*	***$ 665.5***	*$ 339.7*	***$ 363.5***
-	*Equipment Subtotal (#15)*	*$ 151.0*	***$ 161.6***	*$ 151.0*	***$ 161.6***	*$ 260.4*	***$ 278.6***	*$ 151.0*	***$ 161.6***
-	**ALTERNATIVE TOTAL**	**$ 1,094.2**	**$ 1,170.8**	**$ 493.8**	**$ 528.4**	**$ 882.4**	**$ 944.2**	**$ 490.7**	**$ 525.0**

APPENDIX I:

Freight Project Candidates – Screening Details

I. APPENDIX I: Freight Project Candidates – Screening Details

The following details reflect the initial set of approximately 120 project candidates that were screened from Delaware's CTP and related planning/programming resources. These details include input assumptions for 15 project screening criteria to help assess each project's potential freight relevance and general project readiness as described in Chapter 5 of the 2022 Delaware State Freight Plan. It is anticipated that the list of project candidates and screening details will continue to evolve as a working tool to be used/referenced on an ongoing basis as part of broader planning/programming efforts beyond the snapshot in time compiled on the following pages.

Delaware Freight Project Screeing - REVISED May 5, 2022

ID	PROJECT	CRITERIA 1 Associated with a completed Study (if any)	CRITERIA 2 Project location in relation to National Highway Freight Network (NHFN)	CRITERIA 3 Is project along the Strategic Highway Network (STRAHNET)?	CRITERIA 4 Is the project along one of the congestion hotspots in the DelDOT TMC's Traffic Operations Manangement Plans (TOMP)?	CRITERIA 5 Is the project located within one of the 15 Statewide Truck Bottlenecks?	CRITERIA 6 Is project designed as a Final Mile route OR provides direct access to one?	CRITERIA 7 Project location within DE State Strategies (2020)	CRITERIA 8 Project status within DelDOT CTP/MPO Long Range Plans (where applicable)
1	US 13 and SR 404 / Newton Rd Lengthen right turn land and accel lane	DelDOT	Critical Rural Freight Corridor	Yes	Yes			Level 1	
2	US 13 / SR 14 Intersection Improvements	DelDOT	Critical Rural Freight Corridor	Yes			Yes	Level 1	
3	SR 1 widening. One lane each direction, SR 299 to Kent Line	DelDOT SR 1 Study (2021)	Critical Rural Freight Corridor	Yes				Level 3	WILMAPCO TIP/CTP
4	US 113 at SR 18 Grade Separated Intersection		Critical Rural Freight Corridor		Yes	Yes (Rank: Moderate)		Level 1	
5	US 113/Johnson Rd. Final MIle Improvements	Final Mile Study (2021)	Critical Rural Freight Corridor			Yes (Rank: Moderate)	Yes	Level 2	
6	US 113 Improvements - Selbyville		Critical Rural Freight Corridor			Yes (Rank: Moderate)		Level 3	
7	Protected Roadside Shoulder Truck Parking along SR 1	DE Statewide Truck Parking Study (2021)	Critical Rural Freight Corridor					Level 1	WILMAPCO RTP - Aspirations
8	SR 1, Front St Grade Separated Intersection		Critical Rural Freight Corridor		Yes		Yes	Level 1	
9	Truck Parking - Sussex Location	DE Statewide Truck Parking Study (2021)	Critical Rural Freight Corridor		Yes			Level 1	
10	US 113 US 9 Grade Separation		Critical Rural Freight Corridor		Yes			Level 1	
11	US 113 Improvements - Dagsboro		Critical Rural Freight Corridor					Level 1	
12	Boyd's Corner Rd Widening		Critical Rural Freight Corridor					Level 2	WILMAPCO TIP/CTP
13	SR 1 Widening - 1 lane each direction	DelDOT SR 1 Study (2021)	Critical Rural Freight Corridor					Level 3	
14	SR 1 Cave Neck Rd Grade Separation		Critical Rural Freight Corridor					Level 3	
15	US 113 & Avenue of Honor Grade Separated Intersection		Critical Rural Freight Corridor					Level 3	
16	US 113 at SR 16 Grade Separated Intersection		Critical Rural Freight Corridor				Yes	Level 3	
17	SR 1 Widening 1 lane each direction	DelDOT SR 1 Study (2021)	Critical Rural Freight Corridor					Level 4	
18	SR 1 Slaughter Beach Rd Grade Separation		Critical Rural Freight Corridor					Level 4	
19	SR 1 and SR 16 Grade Separation		Critical Rural Freight Corridor		Yes		Yes	Level 4	
20	US113 & Redden Rd Grade Separated Intersection		Critical Rural Freight Corridor				Yes	Level 4	
21	US 13, Lochmeath Way to Puncheon Run Connector		Critical Urban Freight Corridor	Yes	Yes	Yes (Rank: Moderate)	Yes	Level 1	
22	SR 1 Widening, Tyboults Corner to SR 273		Critical Urban Freight Corridor	Yes	Yes			Level 2	WILMAPCO TIP/CTP
23	US 13, Walnut Shade Rd to Lochmeath Way		Critical Urban Freight Corridor	Yes	Yes		Yes	Level 1	
24	SR 1 Widening/Improvements, Tybouts Corner to Roth Bridge		Critical Urban Freight Corridor	Yes				Level 2	WILMAPCO TIP/CTP
25	US 13/Kings Hwy Intersection Improvements		Critical Urban Freight Corridor	Yes				Level 2	

Delaware Freight Project Screeing - REVISED May 5, 2022

ID	PROJECT	CRITERIA 9 EJ Screening #1 (EJ Community): Minority/Low Income Concentrations	CRITERIA 10 EJ Screen #2 (EJ Air Quality): Diesel Particulate Matter Concentrations.	CRITERIA 11 Is project within a 4ft. inundation area for Sea Level Rise (SLR)?	CRITERIA 12 Projet Key focus type	CRITERIA 13 Does project have a regional impact? (Direct-Indirect-Nominal)	CRITERIA 14 Eligibility with IIJA Program(s)	CRITERIA 15 Project Cost Range
1	US 13 and SR 404 / Newton Rd Lengthen right turn land and accel lane	Moderate: 60-80th percentile			Intersection	Nominal	TBD	TBD
2	US 13 / SR 14 Intersection Improvements	Moderate: 60-80th percentile			Intersection	Indirect	TBD	TBD
3	SR 1 widening. One lane each direction, SR 299 to Kent Line				Road	Direct	TBD	TBD
4	US 113 at SR 18 Grade Separated Intersection	High: 80-100th percentile			Interchange	Indirect	TBD	TBD
5	US 113/Johnson Rd. Final MIle Improvements				Final Mile	Final Mile	TBD	TBD
6	US 113 Improvements - Selbyville	Moderate: 60-80th percentile			Road	Nominal	TBD	TBD
7	Protected Roadside Shoulder Truck Parking along SR 1	Moderate: 60-80th percentile			Parking	Direct	TBD	TBD
8	SR 1, Front St Grade Separated Intersection				Interchange	Indirect	TBD	TBD
9	Truck Parking - Sussex Location				Parking	Direct	TBD	TBD
10	US 113 US 9 Grade Separation				Interchange	Indirect	TBD	TBD
11	US 113 Improvements - Dagsboro	Moderate: 60-80th percentile			Road	Nominal	TBD	TBD
12	Boyd's Corner Rd Widening				Road	Indirect	TBD	TBD
13	SR 1 Widening - 1 lane each direction				Road	Direct	TBD	TBD
14	SR 1 Cave Neck Rd Grade Separation				Interchange	Indirect	TBD	TBD
15	US 113 & Avenue of Honor Grade Separated Intersection				Interchange	Indirect	TBD	TBD
16	US 113 at SR 16 Grade Separated Intersection	Moderate: 60-80th percentile			Interchange	Indirect	TBD	TBD
17	SR 1 Widening 1 lane each direction			Yes	Road	Direct	TBD	TBD
18	SR 1 Slaughter Beach Rd Grade Separation	High: 80-100th percentile			Road	Direct	TBD	TBD
19	SR 1 and SR 16 Grade Separation				Interchange	Indirect	TBD	TBD
20	US113 & Redden Rd Grade Separated Intersection	Moderate: 60-80th percentile			Interchange	Indirect	TBD	TBD
21	US 13, Lochmeath Way to Puncheon Run Connector		Moderate: 60-80th percentile		Road	Indirect	TBD	TBD
22	SR 1 Widening, Tyboults Corner to SR 273	Moderate: 60-80th percentile	Moderate: 60-80th percentile		Road	Direct	TBD	TBD
23	US 13, Walnut Shade Rd to Lochmeath Way				Road	Indirect	TBD	TBD
24	SR 1 Widening/Improvements, Tybouts Corner to Roth Bridge				Road	Direct	TBD	TBD
25	US 13/Kings Hwy Intersection Improvements				Intersection	Indirect	TBD	TBD

Delaware Freight Project Screeing - REVISED May 5, 2022

ID	PROJECT	CRITERIA 1 Associated with a completed Study (if any)	CRITERIA 2 Project location in relation to National Highway Freight Network (NHFN)	CRITERIA 3 Is project along the Strategic Highway Network (STRAHNET)?	CRITERIA 4 Is the project along one of the congestion hotspots in the DelDOT TMC's Traffic Operations Manangement Plans (TOMP)?	CRITERIA 5 Is the project located within one of the 15 Statewide Truck Bottlenecks?	CRITERIA 6 Is project designed as a Final Mile route OR provides direct access to one?	CRITERIA 7 Project location within DE State Strategies (2020)	CRITERIA 8 Project status within DelDOT CTP/MPO Long Range Plans (where applicable)
26	US 13/273, Hares Corner Grade Separation	DelDOT	Critical Urban Freight Corridor		Yes	Yes (Rank: High)		Level 1	WILMAPCO RTP - Aspirations
27	SR 141/US 13 Interchange upgrade	DelDOT	Critical Urban Freight Corridor		Yes	Yes (Rank: High)		Level 1	WILMAPCO RTP - Aspirations
28	SR 896 Widening to 6 lanes, US 40 to I-95	US 40 Transportation Plan (2000)	Critical Urban Freight Corridor		Yes	Yes (Rank: Moderate)		Level 2	WILMAPCO TIP/CTP
29	Added Truck Parking - Kent	DE Statewide Truck Parking Study (2021)	Critical Urban Freight Corridor		Yes	Yes (Rank: Moderate)		Level 1	
30	US 40/SR 896 Grade Separated Intersection	US 40 Transportation Plan (2000)	Critical Urban Freight Corridor		Yes			Level 1	WILMAPCO TIP/CTP
31	US 40 Pulaski Hwy Widening/Improvements	US 40 Transportation Plan (2000)	Critical Urban Freight Corridor		Yes			Level 1	
32	US 40 Overpass at Rail Crossing	US 40 Plan (2000)	Critical Urban Freight Corridor		Yes			Level 1	
33	US 40 SR 7 Grade Separation	US 40 Transportation Plan (2000)	Critical Urban Freight Corridor		Yes		Yes	Level 2	WILMAPCO TIP/CTP
34	US 40 Widening, Salem Church Rd to Walther Rd	US 40 Transportation Plan (2000)	Critical Urban Freight Corridor		Yes		Yes	Level 2	
35	US 40 Pulaski Hwy Widening/Improvements	US 40 Transportation Plan (2000)	Critical Urban Freight Corridor		Yes		Yes	Level 2	
36	SR896/Bethel Church Road Interchange	US 301 (2008)	Critical Urban Freight Corridor					Level 3	WILMAPCO TIP/CTP
37	I295 Widening		Primary Freight Network	Yes (Interstate)		Yes (Rank: High)		Level 1	
38	I295 Widening		Primary Freight Network	Yes (Interstate)		Yes (Rank: High)		Level 1	
39	I95 Ramp Widening		Primary Freight Network	Yes (Interstate)	Yes	Yes (Rank: Low)		Level 1	
40	I295 Widening		Primary Freight Network	Yes (Interstate)	Yes	Yes (Rank: Low)		Level 1	
41	I295 Widening		Primary Freight Network	Yes (Interstate)	Yes	Yes (Rank: Low)		Level 1	
42	I295 Widening		Primary Freight Network	Yes (Interstate)		Yes (Rank: Low)		Level 1	
43	Protected Roadside Shoulder Truck Parking along I-95 SB	DE Statewide Truck Parking Study (2021)	Primary Freight Network	Yes (Interstate)				Level 1	WILMAPCO RTP - Aspirations
44	Protected Roadside Shoulder Truck Parking along I-95 NB	DE Statwide Truck Parking Study (2021)	Primary Freight Network	Yes (Interstate)				Level 1	WILMAPCO RTP - Aspirations
45	I95 Widening, Mall Area to DE/MD Line		Primary Freight Network	Yes (Interstate)				Level 1	
46	SR 896 & I-95 Flyover and Reconfiguration		Primary Freight Network		Yes	Yes (Rank: Moderate)		Level 2	WILMAPCO TIP/CTP
47	Truck Staging Location Near Port of Wilmington	Port of Wilmington Truck parking Study	Primary Freight Network				Yes	Level 1	WILMAPCO TIP/CTP
48	SR 273 at I-95 interchange reconfiguration	Churchmans Crossing Plan Update (2021)	Primary Freight Network		Yes			Level 1	
49	SR 4/Churchmans Rd Intersection Improvements	Churchmans Crossing Plan Update (2021)	Remaining NHS Route		Yes	Yes (Rank: High)		Level 1	
50	SR 4/Harmony Rd Intersection Improvements	Churchmans Crossing Plan Update (2021)	Remaining NHS Route		Yes	Yes (Rank: High)		Level 1	WILMAPCO TIP/CTP

ID	PROJECT	CRITERIA 9 EJ Screening #1 (EJ Community): Minority/Low Income Concentrations	CRITERIA 10 EJ Screen #2 (EJ Air Quality): Diesel Particulate Matter Concentrations.	CRITERIA 11 Is project within a 4ft. inundation area for Sea Level Rise (SLR)?	CRITERIA 12 Projet Key focus type	CRITERIA 13 Does project have a regional impact? (Direct-Indirect-Nominal)	CRITERIA 14 Eligibility with IIJA Program(s)	CRITERIA 15 Project Cost Range
26	US 13/273, Hares Corner Grade Separation		Moderate: 60-80th percentile		Intersection	Indirect	TBD	TBD
27	SR 141/US 13 Interchange upgrade		Moderate: 60-80th percentile		Intersection	Indirect	TBD	TBD
28	SR 896 Widening to 6 lanes, US 40 to I-95		Moderate: 60-80th percentile		Road	Direct	TBD	TBD
29	Added Truck Parking - Kent	Moderate: 60-80th percentile			Parking	Direct	TBD	TBD
30	US 40/SR 896 Grade Separated Intersection		Moderate: 60-80th percentile		Interchange	Direct	TBD	TBD
31	US 40 Pulaski Hwy Widening/Improvements	Moderate: 60-80th percentile	Moderate: 60-80th percentile		Road	Indirect	TBD	TBD
32	US 40 Overpass at Rail Crossing	High: 80-100th percentile	Moderate: 60-80th percentile		Interchange	Indirect	TBD	TBD
33	US 40 SR 7 Grade Separation	Moderate: 60-80th percentile	Moderate: 60-80th percentile		Interchange	Indirect	TBD	TBD
34	US 40 Widening, Salem Church Rd to Walther Rd	High: 80-100th percentile	Moderate: 60-80th percentile		Road	Indirect	TBD	TBD
35	US 40 Pulaski Hwy Widening/Improvements	Moderate: 60-80th percentile			Road	Indirect	TBD	TBD
36	SR896/Bethel Church Road Interchange				Interchange	Indirect	TBD	TBD
37	I295 Widening	Moderate: 60-80th percentile	High: 80-100th percentile		Interstate	Direct	TBD	TBD
38	I295 Widening		High: 80-100th percentile		Interstate	Direct	TBD	TBD
39	I95 Ramp Widening	Moderate: 60-80th percentile	High: 80-100th percentile		Interstate	Direct	TBD	TBD
40	I295 Widening	High: 80-100th percentile	High: 80-100th percentile		Interstate	Direct	TBD	TBD
41	I295 Widening	Moderate: 60-80th percentile	High: 80-100th percentile		Interstate	Direct	TBD	TBD
42	I295 Widening	Moderate: 60-80th percentile	High: 80-100th percentile		Interstate	Direct	TBD	TBD
43	Protected Roadside Shoulder Truck Parking along I-95 SB	High: 80-100th percentile	High: 80-100th percentile		Parking	Direct	TBD	TBD
44	Protected Roadside Shoulder Truck Parking along I-95 NB	Moderate: 60-80th percentile	High: 80-100th percentile		Parking	Direct	TBD	TBD
45	I95 Widening, Mall Area to DE/MD Line		Moderate: 60-80th percentile		Interstate	Direct	TBD	TBD
46	SR 896 & I-95 Flyover and Reconfiguration		High: 80-100th percentile		Interchange	Direct	TBD	TBD
47	Truck Staging Location Near Port of Wilmington	High: 80-100th percentile	High: 80-100th percentile		Parking	Direct	TBD	TBD
48	SR 273 at I-95 interchange reconfiguration	Moderate: 60-80th percentile	High: 80-100th percentile		Interchange	Indirect	TBD	TBD
49	SR 4/Churchmans Rd Intersection Improvements		High: 80-100th percentile		Intersection	Nominal	TBD	TBD
50	SR 4/Harmony Rd Intersection Improvements		High: 80-100th percentile		Intersection	Nominal	TBD	TBD

ID	PROJECT	CRITERIA 1 Associated with a completed Study (if any)	CRITERIA 2 Project location in relation to National Highway Freight Network (NHFN)	CRITERIA 3 Is project along the Strategic Highway Network (STRAHNET)?	CRITERIA 4 Is the project along one of the congestion hotspots in the DelDOT TMC's Traffic Operations Manangement Plans (TOMP)?	CRITERIA 5 Is the project located within one of the 15 Statewide Truck Bottlenecks?	CRITERIA 6 Is project designed as a Final Mile route OR provides direct access to one?	CRITERIA 7 Project location within DE State Strategies (2020)	CRITERIA 8 Project status within DelDOT CTP/MPO Long Range Plans (where applicable)
51	Center Turn Overpass ("Elevated Lefts")	Senate Resolution 10 recommendations (2018)	Remaining NHS Route		Yes	Yes (Rank: High)		Level 1	WILMAPCO RTP - Aspirations
52	SR 7 at Milltown Road - SR 7 Thru-Traffic Overpass	Senate Resolution 10 recommendations (2018)	Remaining NHS Route			Yes (Rank: High)		Level 1	WILMAPCO RTP - Aspirations
53	Add 3rd Lane on 273 from SR 1 to I-95	Churchmans Crossing Plan Update (2021)	Remaining NHS Route		Yes			Level 1	WILMAPCO RTP - Aspirations
54	3rd Lane on 273: SR 4 to I-95	Churchmans Crossing Plan Update (2021)	Remaining NHS Route		Yes			Level 1	WILMAPCO RTP - Aspirations
55	SR 273 Delaware St. Widening - City of New Castle		Remaining NHS Route					Level 1	
56	SR 2/Harmony Rd Intersection Improvements		Remaining NHS Route		Yes			Level 1	DelDOT CTP / WILMAPCO TIP
57	Rte 141 Improvements		Remaining NHS Route				Yes	Level 1	
58	SR 7 at Skyline Drive: Reconstruct EB and WB approaches with concurrent side street phasing	Senate Resolution 10 recommendations (2018)	Remaining NHS Route				Yes	Level 1	WILMAPCO RTP - Aspirations
59	SR 141 at SR 48: Center Turn Overpass ("Elevated Lefts") or Echelon	Senate Resolution 10 recommendations (2018)	Remaining NHS Route		Yes			Level 1	WILMAPCO RTP - Aspirations
60	Tyler McConnell Bridge Widening		Remaining NHS Route					Level 1	WILMAPCO TIP/CTP
61	Christina Pkwy, Elkton Rd to College Ave add 1 lane each direction		Remaining NHS Route					Level 1	
62	Limestone Rd Widening		Remaining NHS Route					Level 2	WILMAPCO RTP - Aspirations
63	Newton Road - Flatten Geometric Curve	DelDOT	Remaining NHS Route					Level 3	
64	Delaware Park Blvd Extension, SR 2 to SR 4	Churchmans Crossing Plan Update (2021)			Yes	Yes (Rank: High)		Level 1	WILMAPCO RTP - Aspirations
65	Walker Rd Improvements (Saulsbury Rd to N State St)	Final Mile Study (2021)				Yes (Rank: Low)	Yes	Level 1	
66	North Millsboro Bypass, US 113 to SR 24					Yes (Rank: Low)		Level 2	
67	Garashes Lane Extension	Port Truck Alternatives Study (2022)					Yes	Level 1	WILMAPCO RTP - Aspirations
68	Pigeon Point Rd. Extenstion Option 2 via Davidson Ln.	Port Truck Alternatives Study (2022)						Level 1	WILMAPCO RTP - Aspirations
69	Eagle Run Road: SR 273 - SR 7	Churchmans Crossing Plan Update (2021)						Level 1	
70	East 7th St Improvements	7th Steet Peninsula Study (2020)					Yes	Level 1	WILMAPCO TIP/CTP
71	Swedes Landing and 7th Street Intersection Improvments	7th Street Peninsula Study (2020)					Yes	Level 1	WILMAPCO TIP/CTP
72	New Sweden Rd. Connector							Level 1	
73	North Claymont Rd. Spine Road	North Claymont Area Master Plan			Yes			Level 1	
74	Pigeon Point Road Extansion - Option 1	Port Truck Alternatives Study (2022)						Level 2	WILMAPCO RTP - Aspirations
75	Crowell Rd. Extension - MacArthur Dr. to Sears Blvd.	Town of Newport Transporation Plan					Yes	Level 1	WILMAPCO RTP - Aspirations

Delaware Freight Project Screeing - REVISED May 5, 2022

ID	PROJECT	CRITERIA 9 EJ Screening #1 (EJ Community): Minority/Low Income Concentrations	CRITERIA 10 EJ Screen #2 (EJ Air Quality): Diesel Particulate Matter Concentrations.	CRITERIA 11 Is project within a 4ft. inundation area for Sea Level Rise (SLR)?	CRITERIA 12 Projet Key focus type	CRITERIA 13 Does project have a regional impact? (Direct-Indirect-Nominal)	CRITERIA 14 Eligibility with IIJA Program(s)	CRITERIA 15 Project Cost Range
51	Center Turn Overpass ("Elevated Lefts")		Moderate: 60-80th percentile		Interchange	Indirect	TBD	TBD
52	SR 7 at Milltown Road - SR 7 Thru-Traffic Overpass		Moderate: 60-80th percentile		Intersection	Nominal	TBD	TBD
53	Add 3rd Lane on 273 from SR 1 to I-95	Moderate: 60-80th percentile	High: 80-100th percentile		Road	Indirect	TBD	TBD
54	3rd Lane on 273: SR 4 to I-95	Moderate: 60-80th percentile	High: 80-100th percentile		Road	Indirect	TBD	TBD
55	SR 273 Delaware St. Widening - City of New Castle		Moderate: 60-80th percentile	Yes	Road	Nominal	TBD	TBD
56	SR 2/Harmony Rd Intersection Improvements		Moderate: 60-80th percentile		Intersection	Nominal	TBD	TBD
57	Rte 141 Improvements	High: 80-100th percentile	Moderate: 60-80th percentile		Road	Nominal	TBD	TBD
58	SR 7 at Skyline Drive: Reconstruct EB and WB approaches with concurrent side street phasing				Intersection	Nominal	TBD	TBD
59	SR 141 at SR 48: Center Turn Overpass ("Elevated Lefts") or Echelon				Intersection	Nominal	TBD	TBD
60	Tyler McConnell Bridge Widening				Road	Indirect	TBD	TBD
61	Christina Pkwy, Elkton Rd to College Ave add 1 lane each direction	Moderate: 60-80th percentile			Road	Indirect	TBD	TBD
62	Limestone Rd Widening				Road	Nominal	TBD	TBD
63	Newton Road - Flatten Geometric Curve	Moderate: 60-80th percentile			Road	Nominal	TBD	TBD
64	Delaware Park Blvd Extension, SR 2 to SR 4		High: 80-100th percentile		Road	Direct	TBD	TBD
65	Walker Rd Improvements (Saulsbury Rd to N State St)	High: 80-100th percentile	Moderate: 60-80th percentile		Final Mile	Nominal	TBD	TBD
66	North Millsboro Bypass, US 113 to SR 24	Moderate: 60-80th percentile		Yes	Road	Indirect	TBD	TBD
67	Garashes Lane Extension	High: 80-100th percentile	High: 80-100th percentile	Yes	Road	Direct	TBD	TBD
68	Pigeon Point Rd. Extenstion Option 2 via Davidson Ln.	High: 80-100th percentile	High: 80-100th percentile	Yes	Road	Direct	TBD	TBD
69	Eagle Run Road: SR 273 - SR 7		High: 80-100th percentile		Road	Final Mile	TBD	TBD
70	East 7th St Improvements	High: 80-100th percentile	High: 80-100th percentile	Yes	Final Mile	Final Mile	TBD	TBD
71	Swedes Landing and 7th Street Intersection Improvments	High: 80-100th percentile	High: 80-100th percentile		Intersection	Indirect	TBD	TBD
72	New Sweden Rd. Connector	High: 80-100th percentile	High: 80-100th percentile	Yes	Road	Final Mile	TBD	TBD
73	North Claymont Rd. Spine Road	High: 80-100th percentile	High: 80-100th percentile		Intermodal	Indirect	TBD	TBD
74	Pigeon Point Road Extansion - Option 1	High: 80-100th percentile	High: 80-100th percentile	Yes	Road	Direct	TBD	TBD
75	Crowell Rd. Extension - MacArthur Dr. to Sears Blvd.		Moderate: 60-80th percentile		Final Mile	Direct	TBD	TBD

Delaware Freight Project Screeing - REVISED May 5, 2022

ID	PROJECT	CRITERIA 1 Associated with a completed Study (if any)	CRITERIA 2 Project location in relation to National Highway Freight Network (NHFN)	CRITERIA 3 Is project along the Strategic Highway Network (STRAHNET)?	CRITERIA 4 Is the project along one of the congestion hotspots in the DelDOT TMC's Traffic Operations Manangement Plans (TOMP)?	CRITERIA 5 Is the project located within one of the 15 Statewide Truck Bottlenecks?	CRITERIA 6 Is project designed as a Final Mile route OR provides direct access to one?	CRITERIA 7 Project location within DE State Strategies (2020)	CRITERIA 8 Project status within DelDOT CTP/MPO Long Range Plans (where applicable)
76	Truck Restriction on Windsor Dr.- Trucks to use new Crowell Rd. Extension	Town of Newport Transportation Plan						Level 1	WILMAPCO RTP - Aspirations
77	SR 72 widen to four lanes, Wyoming Rd. to SR 4	DelDOT					Yes	Level 1	
78	SR 72 widen to four lanes, Old Baltimore Pike to US 40	DelDOT			Yes			Level 1 & 2	WILMAPCO RTP - Aspirations
80	Truck Parking - NCC Location	DE Statewide Truck Parking Study (2021)					Yes	Level 3	WILMAPCO RTP - Aspirations
81	Improvements to portions of existing Lafferty Lane	Dover Air Cargo Freight Access Study (2021)					Yes	Level 1	Dover/Kent MPO
82	SR 299, SR 1 to Catherine St	Westtown TID			Yes			Level 1	WILMAPCO TIP/CTP
83	Harrington Terminal: Added Rail Capacity	Harrington Intermodal Feasibility Study (2021)						Level 1	
84	Harrington Terminal Road "B"	Harrington Intermodal Feasibility Study (2021)						Level 1	
85	Add one left turn lane to Christiana hospital at the intersection of SR 299 and Gloucester	Easttown TID			Yes			Level 1	
86	Airport Road Extension, SR 24 to Postal Lane	Five Points TID			Yes			Level 1	
87	Aux. Truck Parking (During emergency/off peak periods)	DE Truck Parking Study (2021)			Yes			Level 1	
88	Levels Rd: Widen to 2 lanes each direction from Existing US 301 to beyond proposed Westown North Industrial Park	Westtown TID					Yes	Level 1	
89	SR 71 Main St/ Pine Tree Rd Improvements: Add 71 NB/SB Left turns onto Main St. Pine Tree Corner Rds.	SNCC Master Plan (2020)					Yes	Level 1	WILMAPCO RTP - Aspirations
90	Main St Widening	Final Mile Study (2021)					Yes	Level 1	
91	US 13 & Denneys Rd. Improvements	Final Mile Study (2021)					Yes	Level 1	
92	Added Rail Capacity & Track Extension - Former BASF Facility	Stakeholder Input - Carload Express						Level 1	
93	Seaford Agri-Business Barge - to Rail Intermodal Faciltity	Stakeholder Input - Carload Express						Level 1	
94	Glasgow Avenue, SR 896 to US 40	Final Mile Study (2021)						Level 1	WILMAPCO TIP/CTP
95	Nanticoke River Dredging Assessment - DE Portion	Stakeholder input - Delmarva Water Transport Committee						Level 1 & 2	
96	Horsepond Road Improvements 2-lane road	Dover Air Cargo Freight Access Study (2021)					Yes	Level 2	Dover/Kent MPO
97	Scarborough Rd C-D Extension - Dover Mall Access	Final Mile Study (2021)			Yes			Level 2	
98	Extension of Clunkey Dr.	Harrington Intermodal Feasibility Study (2021)						Level 2	
99	Mulberry Knoll Rd Extension: US 9 to Cedar Grove Rd.	Five Points TID						Level 2	
100	Airport Road Extension (Alternative B), SR24 to Old Landing Road	Five Points TID			Yes			Level 2	
101	Park Avenue Relocation near Georgetown Airport							Level 2	

ID	PROJECT	CRITERIA 9 EJ Screening #1 (EJ Community): Minority/Low Income Concentrations	CRITERIA 10 EJ Screen #2 (EJ Air Quality): Diesel Particulate Matter Concentrations.	CRITERIA 11 Is project within a 4ft. inundation area for Sea Level Rise (SLR)?	CRITERIA 12 Projet Key focus type	CRITERIA 13 Does project have a regional impact? (Direct-Indirect-Nominal)	CRITERIA 14 Eligibility with IIJA Program(s)	CRITERIA 15 Project Cost Range
76	Truck Restriction on Windsor Dr.- Trucks to use new Crowell Rd. Extension		Moderate: 60-80th percentile		Final Mile	Direct	TBD	TBD
77	SR 72 widen to four lanes, Wyoming Rd. to SR 4	High: 80-100th percentile	Moderate: 60-80th percentile		Road	Indirect	TBD	TBD
78	SR 72 widen to four lanes, Old Baltimore Pike to US 40	Moderate: 60-80th percentile	Moderate: 60-80th percentile		Road	Nominal	TBD	TBD
80	Truck Parking - NCC Location	Moderate: 60-80th percentile	Moderate: 60-80th percentile		Parking	Direct	TBD	TBD
81	Improvements to portions of existing Lafferty Lane	High: 80-100th percentile			Intermodal	Nominal	TBD	TBD
82	SR 299, SR 1 to Catherine St				Road	Indirect	TBD	TBD
83	Harrington Terminal: Added Rail Capacity				Rail	Direct	TBD	TBD
84	Harrington Terminal Road "B"				Intermodal	Direct	TBD	TBD
85	Add one left turn lane to Christiana hospital at the intersection of SR 299 and Gloucester				Intersection	Nominal	TBD	TBD
86	Airport Road Extension, SR 24 to Postal Lane				Road	Indirect	TBD	TBD
87	Aux. Truck Parking (During emergency/off peak periods)				Parking	Direct	TBD	TBD
88	Levels Rd: Widen to 2 lanes each direction from Existing US 301 to beyond proposed Westown North Industrial Park				Final Mile	Nominal	TBD	TBD
89	SR 71 Main St/ Pine Tree Rd Improvements: Add 71 NB/SB Left turns onto Main St. Pine Tree Corner Rds.				Intersection	Nominal	TBD	TBD
90	Main St Widening	Moderate: 60-80th percentile			Final Mile	Final Mile	TBD	TBD
91	US 13 & Denneys Rd. Improvements				Final Mile	Final Mile	TBD	TBD
92	Added Rail Capacity & Track Extension - Former BASF Facility					Direct	TBD	TBD
93	Seaford Agri-Business Barge - to Rail Intermodal Faciltity			Yes		Direct	TBD	TBD
94	Glasgow Avenue, SR 896 to US 40					Final Mile	TBD	TBD
95	Nanticoke River Dredging Assessment - DE Portion					Direct	TBD	TBD
96	Horsepond Road Improvements 2-lane road	High: 80-100th percentile			Intermodal	Indirect	TBD	TBD
97	Scarborough Rd C-D Extension - Dover Mall Access				Final Mile	Final Mile	TBD	TBD
98	Extension of Clunkey Dr.				Intermodal	Direct	TBD	TBD
99	Mulberry Knoll Rd Extension: US 9 to Cedar Grove Rd.				Road	Nominal	TBD	TBD
100	Airport Road Extension (Alternative B), SR24 to Old Landing Road				Road	Indirect	TBD	TBD
101	Park Avenue Relocation near Georgetown Airport	Moderate: 60-80th percentile			Road	Nominal	TBD	TBD

ID	PROJECT	CRITERIA 1 Associated with a completed Study (if any)	CRITERIA 2 Project location in relation to National Highway Freight Network (NHFN)	CRITERIA 3 Is project along the Strategic Highway Network (STRAHNET)?	CRITERIA 4 Is the project along one of the congestion hotspots in the DelDOT TMC's Traffic Operations Manangement Plans (TOMP)?	CRITERIA 5 Is the project located within one of the 15 Statewide Truck Bottlenecks?	CRITERIA 6 Is project designed as a Final Mile route OR provides direct access to one?	CRITERIA 7 Project location within DE State Strategies (2020)	CRITERIA 8 Project status within DelDOT CTP/MPO Long Range Plans (where applicable)
102	SR 72 widen to four lanes, Rue Madora to SR 71	DelDOT			Yes			Level 2	WILMAPCO RTP - Aspirations
103	SR 72: McCoy Road - SR 71				Yes			Level 2	WILMAPCO TIP/CTP
104	Reconfigure Fox Rd. - Remove access from Little Creek Rd.	Dover Air Cargo Freight Access Study (2021)					Yes	Level 3	Dover/Kent MPO
105	US 301 Spur	US 301 (2008)						Level 3	
106	Bethel Church Road Realignment w/Interchange	US 301 (2008)						Level 3	
107	Access Road to SR 14 from Indurstrial Park	Harrington Intermodal Feasibility Study (2021)						Level 3	
108	Harrington Terminal Road "C"	Harrington Intermodal Feasibility Study (2021)						Level 3	
109	DuPont Blvd. Widening	DelDOT						Level 3	
110	US 404 / Newton Rd. Lengthen right-turn lane and accel lane	DelDOT						Level 3	
111	Tub Mill Rd. Improvements to local road standards and multi-modal facilities	Final Mile Study (2021)					Yes	Level 3	
112	US 13/SR 71 Intersection - Add 2nd NB Left Turn Lane	SNCC Master Plan (2020)						Level 3	WILMAPCO RTP - Aspirations
113	New Rd between Little Creek Rd and Whiteoak Rd - Horsepond Rd.	Dover Air Cargo Freight Access Study (2021)					Yes	Level 4	
114	Starlifter Avenue Extenstion: Galaxy Drive to Little Creek Rd.	Dover Air Cargo Freight Access Study (2021)						Level 4	Dover/Kent MPO
115	Horsepond Road Extenstion 2-lane road	Dover Air Cargo Freight Access Study (2021)					Yes	Level 4	
116	Paddock Rd US 13 to US 1	Final Mile Study (2021)						Level 4	
117	Susquehanna River Bridge Replacement	MD Freight Plan Suggested Project						N/A	MD Freight Plan Recommendation
118	Added Truck Parking, Elkton Maryland	Stakeholder Input - MD Freight Plan Suggested Project						N/A	MD Freight Plan Recommendation
119	C & D Canal Dredging	Stakeholder Input - MD Freight Plan Suggested Project						N/A	MD Freight Plan Recommendation
120	MD 213 Roadway Reconstruction and Operational Improvements	Stakeholder Input - MD Freight Plan Suggested Project						N/A	MD Freight Plan Recommendation

Delaware Freight Project Screeing - REVISED May 5, 2022

ID	PROJECT	CRITERIA 9 EJ Screening #1 (EJ Community): Minority/Low Income Concentrations	CRITERIA 10 EJ Screen #2 (EJ Air Quality): Diesel Particulate Matter Concentrations.	CRITERIA 11 Is project within a 4ft. inundation area for Sea Level Rise (SLR)?	CRITERIA 12 Projet Key focus type	CRITERIA 13 Does project have a regional impact? (Direct-Indirect-Nominal)	CRITERIA 14 Eligibility with IIJA Program(s)	CRITERIA 15 Project Cost Range
102	SR 72 widen to four lanes, Rue Madora to SR 71				Road	Nominal	TBD	TBD
103	SR 72: McCoy Road - SR 71	Moderate: 60-80th percentile				Indirect	TBD	TBD
104	Reconfigure Fox Rd. - Remove access from Little Creek Rd.	High: 80-100th percentile			Intermodal	Nominal	TBD	TBD
105	US 301 Spur				Road	Indirect	TBD	TBD
106	Bethel Church Road Realignment w/Interchange				Road	Nominal	TBD	TBD
107	Access Road to SR 14 from Indurstrial Park				Intermodal	Direct	TBD	TBD
108	Harrington Terminal Road "C"				Intermodal	Direct	TBD	TBD
109	DuPont Blvd. Widening				Road	Indirect	TBD	TBD
110	US 404 / Newton Rd. Lengthen right-turn lane and accel lane	Moderate: 60-80th percentile			Intersection	Nominal	TBD	TBD
111	Tub Mill Rd. Improvements to local road standards and multi-modal facilities				Final Mile	Final Mile	TBD	TBD
112	US 13/SR 71 Intersection - Add 2nd NB Left Turn Lane				Intersection	Nominal	TBD	TBD
113	New Rd between Little Creek Rd and Whiteoak Rd - Horsepond Rd.	Moderate: 60-80th percentile			Intermodal	Indirect	TBD	TBD
114	Starlifter Avenue Extenstion: Galaxy Drive to Little Creek Rd.	High: 80-100th percentile			Intermodal	Final Mile	TBD	TBD
115	Horsepond Road Extenstion 2-lane road	High: 80-100th percentile			Intermodal	Indirect	TBD	TBD
116	Paddock Rd US 13 to US 1			Yes	Final Mile	Final Mile	TBD	TBD
117	Susquehanna River Bridge Replacement					Direct	TBD	TBD
118	Added Truck Parking, Elkton Maryland					Direct	TBD	TBD
119	C & D Canal Dredging					Direct	TBD	TBD
120	MD 213 Roadway Reconstruction and Operational Improvements					Indirect	TBD	TBD

APPENDIX J:

Funding Highlights – Federal Programs

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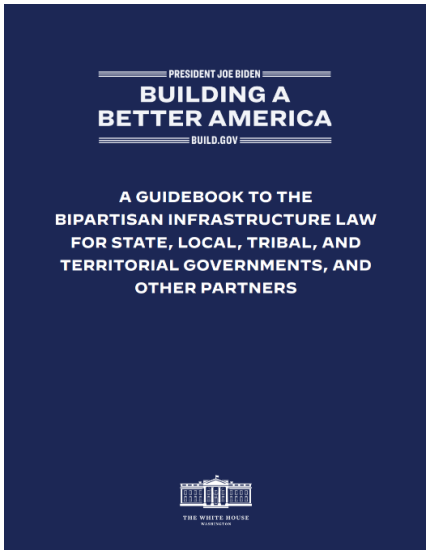
The following pages summarize potential federal funding programs introduced by the Bipartisan Infrastructure Law (BIL), also referred to as the Infrastructure Investment and Jobs Act (IIJA). These summaries reflect a partial set of references that were directly extracted from the White House's March 2022 version of *Building a Better America: A Guidebook to Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments, and Other Partners*.
Specifically, this appendix summarizes funding programs for:

- Roads, Bridges, and Major Projects
- Passenger and Freight Rail
- Public Transportation
- Airports and Federal Aviation Administration Facilities
- Ports and Waterways
- Safety
- Electric Vehicles, Buses, and Ferries
- Clean Energy and Power
- Water
- Resilience
- Environmental Remediation
- Broadband



Building a Better America | Guidebook

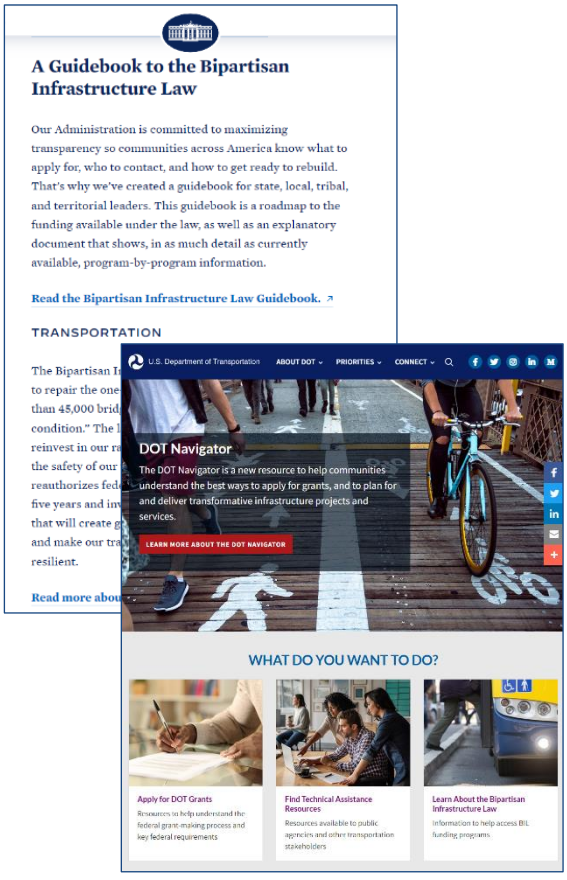
The complete (and most current) copy of the guidebook is available online and provides additional details describing each funding program individually, as well as a downloadable and searchable data file containing the relevant guidebook and program data.

Building a Better America Guidebook and individual funding program/data details: https://www.whitehouse.gov/build/.

DOT Navigator

Additional details regarding USDOT grant programs and related funding and technical resources are also available online at the new DOT Navigator website.

DOT Navigator website: https://www.transportation.gov/dot-navigator.



Executive Summary

On November 15th, 2021, President Biden signed the Bipartisan Infrastructure Law – a once-in-a-generation investment in our nation's infrastructure, competitiveness, and communities. This bill is a historic opportunity to rebuild America's roads, bridges and rails; expand access to clean drinking water; ensure that every American has access to high-speed internet; to tackle the climate crisis and advance environmental justice, while investing in communities – both urban and rural – that have too often been left behind. This bipartisan effort will help ease inflationary pressures; strengthen supply chains by making long overdue improvements for our nation's ports, airports, rail, and roads; drive the creation of good-paying union jobs with high labor standards that can be accessed by all workers, especially those from underserved communities; and, grow the economy sustainably and equitably for decades to come.

Overview and Purpose of this Guidebook

To achieve the ambitious goals outlined by the President and this legislation, the Biden-Harris Administration needs help. Building a better America is a shared endeavor no one can do alone, and investing federal infrastructure dollars will require significant coordination between the federal government, states, Tribal governments, community stakeholders, local governments, and other key partners.

This guidebook is a roadmap to the funding available under the law. It explains, in as much detail as currently available, how much funding is available at the program level. Our primary goal is to help our partners across the country know what to apply for, who to contact for help, and how to get ready to rebuild. We have also published an accompanying data file on Build.gov that allows users to quickly sort programs funded under the law by fields like agency, amount, eligible recipient, or program name.

The guidebook contains 13 chapters grouping Bipartisan Infrastructure Law programs by issue area. Each chapter contains a cover note explaining how to get ready to apply for and receive this subset of funding. These memos identify additional resources our partners can and should utilize to prepare while the federal government gets ready to distribute Bipartisan Infrastructure Law funds from new and existing programs.

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This is the first version of this product. In the coming weeks, we plan to publish subsequent versions of this document to keep our partners up to date on the latest deadlines and details. The White House has also encouraged external stakeholders to use this information to develop local or regional-specific guides on available sources of funding, so every community in America can identify, understand, and access investment opportunities that they need and deserve under the law. This initial publication is not an attempt to capture every possible federal infrastructure program, authorization, or expenditure—rather, it provides our partners with a deeper view into funding soon to be available under the law. If you have questions, please see the appendix for agency-level contact information and links to more information online.

Additional Resources & Actions

Earlier this month, the White House Infrastructure Implementation Coordinator sent a letter to Governors recommending a series of preparatory actions, including appointing infrastructure coordinators to manage the flow of funds to their states. He also outlined steps cities can take to prepare and has begun deeper intergovernmental engagements with Tribal leaders, county officials, civil rights and territorial leaders through outreach calls, listening sessions, and Tribal consultations.

The American Rescue Plan, signed into law in 2020, has already provided over $350 billion in critical resources to every state, Tribal, county, city, and unit of local government to support their response to the COVID-19 public health emergency, including in making the investments needed to ensure a durable and equitable economic recovery. Recipients of Bipartisan Infrastructure Law funding should look to leverage those resources to help prepare for the transformative investments included under the law. For example, American Rescue Plan funding could be used to train the workers needed to build high quality infrastructure; hire back the public sector workers needed to help manage potential federal investments; and get a jump start on water, sewer, and broadband projects that could complement investments from the infrastructure law. We encourage everyone to review the U.S. Department of Treasury's website here, which explains how to request funding, eligible uses, and other important information about American Rescue Plan funding.

We recognize local capacity may be strained due to the pandemic, the need to account for heightened cybersecurity, climate and other known hazard risks, the effects of historic underinvestment, or just the challenges of day-to-day governance. A community's lack of capacity to apply for federal funds can create significant inequities – and for many communities, this will be their first time applying for funds from a suite of federal agencies. Many funding streams in the Bipartisan Infrastructure Law specifically set aside funds for disadvantaged communities.

Further, in keeping with efforts like the President's Justice40 Initiative, the Administration is committed to ensuring disadvantaged communities receive benefits from all available resources in relevant Bipartisan Infrastructure Law programs. The White House Infrastructure Implementation Team and the components across the Executive Office of the President and the federal agencies will be engaging states, Tribal governments, territories, federal agencies, philanthropies, civil rights leaders, advocates and others to leverage all available resources to quickly deliver the necessary technical assistance and capacity to underserved communities. We intend to use this guidebook as a critical tool to accelerate and amplify the impact of this work.

Disclaimer

This guidebook is designed to help users familiarize themselves with the Bipartisan Infrastructure Law. Nothing contained in this document constitutes guidance from the U.S. government on any law, program, policy, application process, or funding eligibility. Applicants for funding should consult official agency or program specific guidance for additional information.

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Roads, Bridges and Major Projects

Challenge*:* One in five miles, or 173,000 total miles, of our highways and major roads and more than 43,500 bridges are in poor condition. Bridges in poor condition pose heightened challenges in rural communities, which often may rely on a single bridge for the passage of emergency service vehicles.

Solutions*:* The Bipartisan Infrastructure Law reauthorizes federal surface transportation programs for five years and invests approximately $400 billion over that period to repair our roads and bridges and support transformational projects that will create good-paying union jobs, boost regional and the national economy, make our transportation system safer and more resilient.

Funding Overview:

The Bipartisan Infrastructure Law also contains significant new funding for roadways, bridges, and other major projects funded by the Federal Highway Administration and the Department of Transportation. Highlights include:

- **A total of $40 billion[1] in dedicated funding for bridges.** This funding includes $12.5 billion for the *Bridge Investment Program*, which is a competitive program to replace, rehabilitate, preserve, or protect some of the nation's most important and economically significant bridges. The rest of the funds fall under the *Bridge Formula Program*, which provides formula funding to States to replace, rehabilitate, preserve, protect, and construct bridges on public roads. Notably, the program includes a 15 percent ($4 billion) set aside for off-system bridges. These are bridges often owned and maintained by cities, counties, and towns—and typically located on roads normally ineligible for federal highway funding. On January 14, 2022, the Department of Transportation released the first year of funding for the Bridge Formula Program. $5.3 billion

[1]$40 billion is provided through the Bipartisan Infrastructure Law in advanced appropriations and contract authority, an additional $3.3 billion is authorized under Division A of the Bipartisan Infrastructure Law, but is subject to appropriations, for a total program level of $43.3 billion.

will be available to states, the District of Columbia, and Puerto Rico in Fiscal Year 2022, along with $165 million for Tribal governments. The federal government will also cover 100 percent of the cost of off-system bridge projects under the Bridge Formula Program for bridges owned by a local government or Tribe. (See Fiscal Year 2022 State apportionment here).

- **$8 billion for the Infrastructure for Rebuilding America (INFRA) Program**, which supports freight and highway projects of regional and national significance.

- **$7.5 billion for Rebuilding American Infrastructure Sustainably and Equitably (RAISE) grants—**a competitive grant program (formerly BUILD and TIGER) which provides funding for road, rail, transit, and other surface transportation of local and/or regional significance. Selection criteria includes safety, sustainability, equity, economic competitiveness, mobility, and community connectivity.

- **$5 billion for the National Infrastructure Project Assistance or "Megaprojects."** This program—sometimes referred to as the "Megaprojects program" or MEGA —provides grants on a competitive basis to support multi-jurisdictional or regional projects of significance that may also cut across multiple modes of transportation. Communities are eligible to apply for funding to complete critical large projects that would otherwise be unachievable without assistance.

The Bipartisan Infrastructure Law also includes a five-year reauthorization for the Federal Highway Administration at the Department of Transportation. A major component of this reauthorization is $273.2 billion in Federal-aid highway formula funding for States. In December 2021, the Federal Highway Administration announced that it disbursed to all 50 states and the District of Columbia a total of $52.5 billion of this formula funding for Fiscal Year 2022; this represents a more than 20 percent increase over Fiscal Year 2021 formula funding. (See the Fiscal Year 2022 State apportionment here).

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Getting Ready:

Federal-aid Highway Formula Funding and **Bridge Formula Program –** The Federal Highway Administration distributes both Federal-aid Highway Formula funding and Bridge Formula Program funding to State departments of transportation. State Departments of Transportation then program projects (select them for funding) through statewide and metropolitan transportation planning processes. Project sponsors should contact their State Department of Transportation for additional information about how to access any of these categories of formula funding.

Competitive Grant Programs – In order to prepare for upcoming application openings, potential recipients should begin to work with stakeholders to develop a list of priority projects that would be suited for applications for competitive grant funding programs such as the Bridge Investment Program, RAISE, MEGA, and INFRA.

Existing Resources:

- Information on the Federal Highway Administration's implementation of the Bipartisan Infrastructure Law is available here.
- Information on Federal Highway Administration's resources for technical assistance and local support is available here.
- Information on the Department of Transportation's INFRA program is available here.
- Information on Department of Transportation's RAISE program is available here.

Program Name	Agency Name	Funding Amount
National Highway Performance Program	Department of Transportation	$148,000,000,000
Surface Transportation Block Grant Program	Department of Transportation	$72,000,000,000
Bridge Formula Program	Department of Transportation	$26,675,000,000
Congestion Mitigation & Air Quality Improvement Program	Department of Transportation	$13,200,000,000
Bridge Investment Program	Department of Transportation	$12,200,000,000
Local and Regional Project Assistance Grants (RAISE)	Department of Transportation	$7,500,000,000
Nationally Significant Freight & Highway Projects (INFRA)	Department of Transportation	$7,250,000,000
National Highway Freight Program	Department of Transportation	$7,150,000,000
National Infrastructure Project Assistance (Megaprojects)	Department of Transportation	$5,000,000,000
Tribal Transportation Program	Department of Transportation	$2,966,800,000
Metropolitan Planning	Department of Transportation	$2,280,000,000
Federal Lands Transportation Program (funds for National Park	Department of Transportation	$1,731,187,250
Federal Lands Access Program	Department of Transportation	$1,487,875,000
Transportation Infrastructure Finance and Innovation Act	Department of Transportation	$1,250,000,000
Appalachian Development Highway System	Department of Transportation	$1,250,000,000
Rural Surface Transportation Grant Program	Department of Transportation	$1,000,000,000
National Culvert Removal, Replacement, & Restoration Grant	Department of Transportation	$1,000,000,000
Puerto Rico Highway Program	Department of Transportation	$900,995,000
Advanced Transportation Technologies & Innovative Mobility	Department of Transportation	$900,000,000
Tribal Transportation Facility Bridges (Bridge Formula Funding Set-	Department of Transportation	$825,000,000
State Incentives Pilot Program (Set-aside within Nationally Significant Freight and Highway Projects - INFRA)	Department of Transportation	$750,000,000
Reconnecting Communities Pilot Program	Department of Transportation	$1,000,000,000
Highway Research & Development Program	Department of Transportation	$310,000,000
Nationally Significant Federal Lands and Tribal Projects	Department of Transportation	$275,000,000
Intelligent Transportation Systems Program	Department of Transportation	$250,000,000
Congestion Relief Program	Department of Transportation	$250,000,000
Territorial Highway Program	Department of Transportation	$239,505,000
Tribal Transportation Facility Bridge (Set-aside)	Department of Transportation	$200,000,000
Federal Lands Transportation Program (Funding for U.S. Fish & Wildlife	Department of Transportation	$180,000,000
Federal Lands Transportation Program (For other Federal Land Management Agencies)	Department of Transportation	$153,637,750
Federal Lands Transportation Program (Funding for U.S. Forest	Department of Transportation	$130,000,000
Grants for Planning, Feasibility Analysis, and Revenue Forecasting (Bridge Investment Program Set-aside)	Department of Transportation	$100,000,000
Accelerated Implementation and Deployment of Advanced Digital Construction Management Systems (Set-aside)	Department of Transportation	$100,000,000
Strategic Innovation for Revenue Collection (Set-aside)	Department of Transportation	$75,000,000
Accelerated Implementation and Deployment of Pavement Technologies (Set-aside)	Department of Transportation	$60,000,000
On-the-Job Training Program	Department of Transportation	$50,000,000
Disadvantaged Business Enterprises	Department of Transportation	$50,000,000
National Motor Vehicle Per-Mile User Fee Pilot (Set-aside)	Department of Transportation	$50,000,000
Tribal High Priority Projects Program	Department of Transportation	$45,000,000
Highway Use Tax Evasion Projects	Department of Transportation	$20,000,000
TOTAL - ROADS, BRIDGES AND MAJOR PROJECTS		**$318,855,000,000**

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Passenger and Freight Rail

Challenge*:* U.S. passenger rail lags behind the rest of the world in reliability, speed, and coverage. The Bipartisan Infrastructure Law is a once-in-a-generation opportunity to position our railways to play a central role in our transportation and economic future. Our rail networks have the potential to offer safe, reliable, efficient, and climate-friendly alternatives to driving or flying.

Solutions*:* The Bipartisan Infrastructure Law invests $66 billion in advanced appropriations and authorizes up to an additional $36 billion over the next five years for Department of Transportation's rail programs. This includes funding to modernize the Northeast Corridor, and bring world-class rail service to areas outside the northeast and mid-Atlantic; refurbish Amtrak's fleet and facilities; and upgrade freight rail service in rural communities and on shared freight-passenger routes. This legislation enables the Federal Railroad Administration to lay the foundation for a sustainable rail investment program, on par with other modes of transportation, that advances safe, clean, equitable, and efficient world-class passenger and freight rail.

Funding Overview: The Federal Railroad Administration's funding falls into five major programs (1) Amtrak, (2) the Federal-State Partnership for Intercity Passenger Rail Grant Program, (3) the Consolidated Rail Infrastructure and Safety Improvements Grant Program, (4) the Railroad Crossing Elimination Grant Program, and (5) the Restoration and Enhancements Grant Program.

The funding allocated towards **Amtrak** is broken into two categories: (1) Amtrak Northeast Corridor, and (2) Amtrak National Network. In general, the funds for Amtrak are to be used for capital projects to address Amtrak's state of good repair backlog, including funding for infrastructure, fleet replacement, and ADA updates.

The **Consolidated Rail Infrastructure and Safety Improvements Grant Program** will fund projects that improve the safety, efficiency, and reliability of intercity passenger and freight rail. This program leverages private, state, and local investments to support safety enhancements and general improvements to infrastructure.

The **Railroad Crossing Elimination Grant Program** provides funds for the mitigation or elimination of hazards at railway-highway crossings. This is a new grant program enacted in the Bipartisan Infrastructure Law.

The Federal-State Partnership for **Intercity Passenger Rail Grant Program** provides funds for capital projects that reduce the state of good repair backlog, improve performance, or expand or establish new intercity passenger rail service. This program was significantly revised under the Bipartisan Infrastructure Law, providing direction specific to the Northeast Corridor and non-Northeast Corridor projects. While there is only a single grant program, the funding is broken into two categories: (1) Northeast Corridor, and (2) non-Northeast Corridor projects.

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The **Restoration and Enhancements Grant Program** provides operating assistance to initiate, restore, or enhance intercity passenger rail service.

From the funding provided above, Bipartisan Infrastructure Law also authorizes for two additional rail programs: the Corridor Identification and Development Program and the Interstate Rail Compact Program.

The **Corridor Identification and Development Program** will identify new intercity passenger rail corridors, develop the necessary service planning elements, and create a non-Northeast Corridor Project Pipeline for associated capital projects.

The **Interstate Rail Compacts Grant Program** will provide funding for interstate rail compacts' administrative costs and to conduct railroad systems planning, promotion of intercity passenger rail operations, and the preparation of grant applications.

Getting Ready:

Potential applicants should start to identify projects now. More information about the new rail programs in the Bipartisan Infrastructure Law can be found on the Federal Rail Administration's dedicated Bipartisan Infrastructure Law page here. All new Notices of Funding Opportunities will be posted here.

Existing Resources:

- Details about Federal Rail Administration's competitive discretionary grant programs can be found here, as well as information on Amtrak can be found here. More information about the new rail programs in the Bipartisan Infrastructure Law can be found on Federal Rail Administration's dedicated Bipartisan Infrastructure Law page.
- Federal Rail Administration provides technical assistance to grantees through webinars and other on-demand resources. Additional information about Federal Rail Administration's competitive grants application process, state and regional rail planning, training and guidance, and recordings of past webinars can be found on Federal Rail Administration's website.
- Federal Rail Administration also provides oversight and subject matter expertise to projects funded under the Railroad Rehabilitation & Improvement Financing loan program that is managed by the Department's Build America Bureau. More information on Railroad Rehabilitation & Improvement Financing can be found here.

Program Name	Agency Name	Funding Amount
Federal-State Partnership for Intercity Passenger Rail Grants	Department of Transportation	$36,000,000,000
Amtrak National Network Grants	Department of Transportation	$15,750,000,000
Amtrak Northeast Corridor Grants	Department of Transportation	$6,000,000,000
Consolidated Rail Infrastructure and Safety Improvement Grants	Department of Transportation	$5,000,000,000
Railroad Crossing Elimination Program	Department of Transportation	$3,000,000,000
Restoration & Enhancement Grant Program	Department of Transportation	$250,000,000
TOTAL - PASSENGER AND FREIGHT RAIL		**$66,000,000,000**

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Public Transportation

Challenge*:* America's public transit infrastructure has faced decades of underinvestment– with an estimated $105 billion repair backlog, representing more than 27,000 buses and vans, 2,000 rail cars, 200 passenger stations, 300 maintenance facilities, and hundreds of miles of track, guideway, signals, and power systems in need of repair or replacement. Communities of color are twice as likely to take public transportation, and many of these communities lack sufficient public transit options. Switching from personal vehicle use to public transit can also reduce greenhouse gas emissions for the transportation sector, which is now the largest single source of emissions in the country.

Solutions*:* The Bipartisan Infrastructure Law invests $91.2 billion to repair and modernize transit. The legislation supports expanded public transportation choices nationwide, replacing thousands of deficient transit vehicles, including buses, with clean, zero emission vehicles, and improving accessibility for the elderly and people with disabilities.

Funding Overview: Transit funding falls into two major categories (1) Federal Transit Administration Reauthorization ($69.9 billion), (2) Supplemental Appropriations ($21.3 billion).

The Bipartisan Infrastructure Law includes a five-year reauthorization for the Federal Transit Administration programs at the Department of Transportation. Highlights of the Federal Transit Administration's Bipartisan Infrastructure Law authorities include:

Federal Transit Administration Capital Investment Grants ($8[8] billion in total from reauthorization and supplemental appropriations) are used to support new and expanded high-capacity rail and bus service. The program includes New Starts for the construction of new systems and expansion of existing systems, Small Starts for projects with capital costs less than $400 million, and Core Capacity for projects that upgrade existing corridors to handle increased demand. Federal Transit Administration also supports the pilot program for Expedited Project Delivery for new high-capacity transit projects.

The Federal Transit Administration **Low or No Emission (Bus) Grants** ($5.6 billion) provides funding to state and local governments for the purchase or lease of zero-emission and low-emission transit buses, including acquisition, construction, and leasing of required supporting facilitates. 5 percent of the funding for zero emission buses within this program will also support workforce development training so transit operators and mechanics can learn how to maintain and operate zero emission vehicles. Lastly, two programs supporting Accessibility are the (1) All Stations Accessibility Program ($1.75 billion) and (2) additional funding for the Enhanced Mobility of Seniors

[8] 8 billion is provided through the Bipartisan Infrastructure Law in advanced appropriations, an additional $15 billion is authorized under Division C of the Bipartisan Infrastructure Law for a total program level of $23 billion.

and Individuals with Disabilities Formula Program ($2.2 billion). The All Stations Accessibility Program, a new program under the Bipartisan Infrastructure Law, provides funds to eliminate rail station barriers to access for persons with disabilities while the Enhanced Mobility of Seniors and Individuals with Disabilities Program, an existing program, increases funding to provide mobility options to seniors and persons with disabilities.

Getting Ready:

What a potential recipient (state/local/Tribal government) can do now to prepare to receive funding in this section – including the biggest hurdles they can expect to face (e.g. maps for broadband)?

Bipartisan Infrastructure Law Program Changes – All potential recipients can learn about Bipartisan Infrastructure Law changes to the Federal transit program by reviewing the Federal Transit Administration Program Fact Sheets.

Formula Grant Programs – Potential recipients can review upcoming Federal Transit Administration Apportionment Notices which will include both funding program levels and specific Fiscal Year 2022 funding information.

Competitive Grant Programs – Potential recipients can review the Federal Transit Administration Notices of Funding Opportunity for competitive grant programs. Notices will be published throughout 2022.

To sign up for Federal Transit Administration updates regarding grant programs and other news, please visit here.

Existing Resources:

- The American Rescue Plan includes $30.5 billion in federal funding to support public transportation systems. Information on American Rescue Plan funding can be found here.
- A full list of Federal Transit Administration grant programs can be found here.
- A list of Federal Transit Administration -sponsored technical assistance centers can be found here.

Program Name	Agency Name	Funding Amount
Urbanized Area Formula Grants	Department of Transportation	$33,390,947,107
State of Good Repair Grants	Department of Transportation	$21,640,412,832
Capital Investment Grants	Department of Transportation	$8,000,000,000
Low or No Emission (Bus) Grants	Department of Transportation	$5,624,550,890
Formula Grants for Rural Areas	Department of Transportation	$4,109,463,374
Bus and Bus Facilities Formula Grants	Department of Transportation	$3,161,294,400
Enhanced Mobility of Seniors and Individuals with Disabilities	Department of Transportation	$2,193,105,343
Ferry Service for Rural Communities	Department of Transportation	$2,000,000,000
Bus and Bus Facilities Competitive Grants	Department of Transportation	$1,966,392,169
All Stations Accessibility Program	Department of Transportation	$1,750,000,000
Rail Vehicle Replacement Grants	Department of Transportation	$1,500,000,000
Metropolitan Transportation Program	Department of Transportation	$799,441,834
Strengthening Mobility and Revolutionizing Transportation (SMART) Grants	Department of Transportation	$500,000,000
Public Transportation on Indian Reservations Formula	Department of Transportation	$183,250,437
Statewide Transportation Planning	Department of Transportation	$167,001,389
Urbanized Area Passenger Ferry Program	Department of Transportation	$150,000,000
Appalachian Development Public Transportation Assistance Program	Department of Transportation	$137,437,828
Research, Development, Demonstration and Deployment Projects (Less Set Aside)	Department of Transportation	$132,218,677
Rural Transportation Assistance Program	Department of Transportation	$91,552,911
Pilot Program for Transit Oriented Development	Department of Transportation	$68,864,631
Public Transportation Technical Assistance and Workforce Development	Department of Transportation	$61,978,167
Public Transportation on Indian Reservations Competitive	Department of Transportation	$45,812,610
Transit Cooperative Research Program	Department of Transportation	$34,432,315
Pilot Program for Enhanced Mobility	Department of Transportation	$24,102,620
National Rural Transportation Assistance Program	Department of Transportation	$13,743,783
TOTAL - PUBLIC TRANSPORTATION		**$87,746,003,317**

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Airports and Federal Aviation Administration Facilities

Challenge*:* The United States built modern aviation, but many of our airports lag behind our competitors. According to some rankings, no U.S. airport ranks in the top 25 of airports worldwide.

Solutions*:* The Bipartisan Infrastructure Law invests $25 billion to address repair and maintenance needs, reduce congestion and emissions, and modernize our National Aerospace System.

Funding Overview: This funding falls into three major programs covered under this section – (1) Facilities and Equipment funding ($5 billion), (2) the Airport Infrastructure Grant Program ($15 billion), and (3) the Airport Terminal Program ($5 billion).

The **Facilities and Equipment Program** provides funding for Federal Aviation Administration-owned airport traffic control towers including Federal Aviation Administration-owned contract towers. This funding will allow the Federal Aviation Administration to place a down payment on the growing end-of- life backlog within the facilities portfolio. The focus on lower tier airport traffic control towers and specific facilities portfolio backlog items will help to improve safety, security, and environmental standards at facilities that infrequently receive the limited amount of yearly appropriated Facilities and Equipment Program dollars.

The **Airport Infrastructure Grant Program** is the largest new program funded for airports under the Bipartisan Infrastructure Law. On December 16, 2021, the Federal Aviation Administration at the Department of Transportation announced the initial allocations for the Airport Infrastructure Grant Program – which provides grants to thousands of airports across the country to invest in a variety of maintenance and improvement projects (e.g. runways and taxiways, noise, multimodal, and terminal buildings). The program also includes a competitive $100 million ($20 million annually) specifically for airport-owned contract airport traffic control towers. Through this program, Bipartisan Infrastructure Law funding provides local airports with flexible funding to address specific pressing needs. (See Fiscal Year 2022 state allocation here and an interactive map of where funding is going here.) Funds that remain unobligated at the end of the fifth year, are available for a competitive discretionary grant program. Under the discretionary program, the first $100 million will be for airport-owned contract airport traffic control towers, with remaining unobligated funds going to projects that reduce airport emissions, noise impacts, dependence on the electric grid or provide benefits to the surrounding community.

The **Airport Terminal Program** is a new program for airports under the Bipartisan Infrastructure Law. This program is a discretionary grant program for terminal development, multimodal and airport-owned airport traffic control towers.

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Getting Ready to Receive Grant Funding:

In order to prepare to receive funding, potential recipients such as airport owners/operators should begin to identify what the primary airside and/or landside needs are and begin to develop a strategy and plan as to how this additional funding would be used to address the airport needs and challenges. Potential recipients will work with their local Federal Aviation Administration Airports District Office to ensure all requirements to receive funding are met (i.e. airspace, on an approved airport layout plan, and National Environmental Policy Act, etc.). For the two competitive grant programs (Airport Owned Contract Tower Program or Airport Terminal Program), airport owners/operators will need to apply based on the requirements in the Notice of Funding Opportunity issued for each competitive program.

Existing Resources:

- The Airport Improvement Program and Supplemental Discretionary Programs includes approximately $3.75 billion annually for capital improvement programs at eligible U.S. airports. See more on the Airport Improvement Program and Discretionary Program here.

Program Name	Agency Name	Funding Amount
Facilities and Equipment	Department of Transportation	$5,000,000,000
Airport Infrastructure Grants	Department of Transportation	$15,000,000,000
Airport Terminal Program	Department of Transportation	$5,000,000,000
- AIRPORTS AND FEDERAL AVIATION ADMINISTRATION FACILITIES		**$25,000,000,000**

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Ports and Waterways

Challenge*:* The United States' underfunded port and waterway infrastructure has real costs to families, our economy, and our global competitiveness. The surge of both imports and exports moving through outdated infrastructure as we recover from the COVID pandemic has strained our ports and their intermodal connections and slowed the global supply chain. To support our growing economy, we must strengthen our supply chain and invest in the transportation systems that move cargo to, through, and from our ports.

Solutions*:* The Bipartisan Infrastructure Law invests over $16.7 billion to improve infrastructure at coastal ports, inland ports and waterways, and land ports of entry along our borders.

Funding Overview: This funding falls into several major categories: (1) Army Corps of Engineers; (2) Land Ports of Entry Modernization and Construction Program ($3.85 billion); and (3) the Port Infrastructure Development Program ($2.25 billion); (4) and other programs ($1.6 billion) (including the America's Marine Highways program, which will receive $25 million).

The **Army Corps of Engineers'** funding will support construction projects as well as operations and maintenance. Construction funding will be used for the construction of coastal ports, inland waterways, and other water infrastructure. Operations and maintenance funds will be used to dredge Federal navigation projects and to operate and maintain authorized Army Corps projects, including repair of damages caused by natural disasters.

The **Land Ports of Entry Modernization and Construction Program** provides funds to modernize and improve Land Ports of Entry at our Northern and Southwest Borders. Funds will be split between the General Services Administration and Customs and Border Protection.

The **Port Infrastructure Development Program** funds improvements of the infrastructure needed to move cargo to, through, and around ports. The Bipartisan Infrastructure Law significantly expands funding for this program, and expands eligibility to include projects that will improve resiliency to address sea-level rise, flooding, extreme weather events, earthquakes, and tsunami inundation, as well as projects that will help reduce or eliminate criteria pollutants and greenhouse gas emissions associated with port operations, including projects for port electrification.

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Getting Ready for Port Funding:

What a potential recipient (state/local/Tribal government) can do now to prepare to receive funding is:

Potential recipients can work with their sponsors to:

(1) identify project needs and attend webinars covering both "How to Apply" and "Benefit Cost Analysis" development;
(2) Read the "Frequently Asked Questions" section of the U.S. Maritime Administration's website and submit questions to the PIDPGrants@dot.gov;
(3) Adhere to the requirements of the Notice of Funding Opportunity;
(4) Submit applications prior to the deadline on grants.gov;
(5) Avoiding beginning any of the work outlined in a project application while applications are still pending;
(6) Notify the U.S. Maritime Administration if any of the scope, schedule, or budget items have changed since application submission; and
(7) Wait patiently until a notification is made that awards have been announced.

Existing Resources:

- The Department of Transportation offers a number of other funding opportunities through programs such as RAISE and INFRA as well as loans through programs such as Transportation Infrastructure Finance and Innovation Act and Railroad Rehabilitation and Improvement Financing to support port projects. More information about these opportunities can be found here.

Program Name	Agency Name	Funding Amount
Corps of Engineers Operation and Maintenance	Department of Defense – Army Corps of Engine	$4,000,000,000
Real Property Activities	General Services Administration	$3,418,008,000
Inland Waterways Projects	Department of Defense – Army Corps of Engine	$2,500,000,000
Port Infrastructure Development Program Grants	Department of Transportation	$2,250,000,000
Major Rehabilitation for Rivers and Harbors	Department of Defense – Army Corps of Engine	$1,500,000,000
Construction of Ferry Boats and Ferry Terminal Facilities	Department of Transportation	$912,000,000
Mississippi River and Tributaries	Department of Defense – Army Corps of Engine	$808,000,000
Reduction of Truck Emissions at Port Facilities	Department of Transportation	$400,000,000
Land Port of Entry Modernization	U.S. Customs and Border Protection	$330,000,000
Major Shore, Housing, Aids to Navigation, Survey and Design	Department of Homeland Security	$158,000,000
Major Shore, Housing, Aids to Navigation, Survey and Design	Department of Homeland Security	$131,500,000
Major Shore, Housing, Aids to Navigation, Survey and Design	Department of Homeland Security	$120,000,000
Land Port of Entry Modernization	U.S. Customs and Border Protection	$100,000,000
America's Marine Highway Program Grants	Department of Transportation	$25,000,000
Major Shore, Housing, Aids to Navigation, Survey and Design	Department of Homeland Security	$19,500,000
Operations and Support	Department of Homeland Security	$5,000,000
	TOTAL - PORTS AND WATERWAYS	**$16,677,008,000**

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Safety

Challenge*:* The United States has one of the highest traffic fatality rates in the industrialized world, double the rate in Canada and quadruple that in Europe. Even as people drove less because of the pandemic, an estimated 38,680 people died in motor vehicle crashes in 2020, of which an estimated 6,236 were people walking and 891 people were biking. Additionally, safety concerns remain across modes, from the risk of vehicle/train collisions at railroad grade crossings to aging natural gas pipelines throughout the country.

Solutions*:* The Bipartisan Infrastructure Law includes nearly $38 billion to improve the safety of the United States transportation system by helping states and territories support a broad array of traffic safety priorities, including the safety of drivers and vulnerable road users, safety at railroad crossings, and replacement or repair of obsolete natural gas pipelines.

Funding Overview: Funding allocated to safety is divided into several categories **(1)** Highway Safety Improvement Program ($15.6 billion); **(2)** Safety-Related Activities ($17.5 million); **(3)** Safe Streets and Roads for All ($5 billion[9]); **(4)** Federal Motor Carrier Safety Administration and National Highway Traffic Safety Administration ($11.8 billion); **(5)** Pipeline and Hazardous Materials Safety Administration ($1.2 billion); and **(6)** Rail Crossing Safety ($4.2 billion).

Bipartisan Infrastructure Law reauthorizes the Federal Highway Administration's **Highway Safety Improvement Formula Program** and includes nearly $4 billion over levels in the Fixing America's Surface Transportation Act.

Safe Streets and Roads for All is a new competitive discretionary grant program for local and Tribal "vision zero" plans and other improvements to reduce crashes and fatalities not only for drivers, but also for cyclists, pedestrians, and all other roadway users.

Bipartisan Infrastructure Law funding will provide a five-year reauthorization for the Federal Motor Carrier Safety Administration and the National Highway Traffic Safety Administration, which includes a plus up over Fixing America's Surface Transportation Act levels.

Pipeline and Hazardous Materials Safety Administration's funding includes a new **Pipeline Modernization Program** ($1 billion) provides competitive grant funding for a municipality or community owned utility to repair, rehabilitate, or replace its natural gas distribution pipeline systems to reduce incidents and fatalities and to avoid economic losses.

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[9] $5 billion is provided through the Bipartisan Infrastructure Law in advanced appropriations, an additional $1 billion is authorized under Division B of the Bipartisan Infrastructure Law for a total program level of $6 billion.

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Lastly, the Bipartisan Infrastructure Law includes funding for rail crossing safety through the **Rail-Highway Grade Crossing Formula Program** ($1.2 billion) to reduce the number and severity of incidents to motorists, bicyclists, and pedestrians at grade crossings, and the **Railroad Crossing Elimination Program** ($3 billion[10]) for competitive grants to eliminate rail crossings, where feasible.

Getting Ready:

The Bipartisan Infrastructure Law creates a number of new discretionary grant programs like Safe Streets and Roads for All and provides additional funding for existing programs. State, regional, local, and Tribal governments are encouraged to engage with the Department about upcoming opportunities, the requirements associated with them, and the timeframes when application opportunities will occur.

The Bipartisan Infrastructure Law also updates Federal aid formula program requirements and eligibilities, and States should expect updated guidance from Federal Highway Administration, Federal Motor Carrier Safety Administration, and National Highway Traffic Safety Administration in the coming months.

[10] $3 billion is provided through the Bipartisan Infrastructure Law in advanced appropriations, an additional $2.5 billion is authorized under Division B of the Bipartisan Infrastructure Law for a total program level of $5.5 billion.

Program Name	Agency Name	Funding Amount
Highway Safety Improvement Program	Department of Transportation	$15,557,499,996
Safe Streets and Roads for All	Department of Transportation	$5,000,000,000
Railroad Crossing Elimination Grants	Department of Transportation	$3,000,000,000
Motor Carrier Safety Assistance Program	Department of Transportation	$2,432,500,000
Highway Safety Programs	Department of Transportation	$1,992,000,000
Motor Carrier Safety Operations and Programs	Department of Transportation	$1,925,000,000
National Priority Safety Programs	Department of Transportation	$1,874,500,000
Railway-Highway Crossings Program	Department of Transportation	$1,225,000,000
Natural Gas Distribution Infrastructure Safety and	Department of Transportation	$1,000,000,000
Highway Safety Research & Development	Department of Transportation	$970,000,000
Crash Data	Department of Transportation	$750,000,000
Vehicle Safety and Behavioral Research	Department of Transportation	$548,500,000
High Priority Activities Program	Department of Transportation	$432,500,000
Wildlife Crossings Pilot Program	Department of Transportation	$350,000,000
Commercial Driver's License Implementation Pro	Department of Transportation	$297,500,000
High-Visibility Enforcement	Department of Transportation	$201,600,000
Racial Profiling Data Collection Grants	Department of Transportation	$57,500,000
National Driver Register	Department of Transportation	$36,000,000
Commercial Motor Vehicle Enforcement Training	Department of Transportation	$25,000,000
Safety-Related Activities (Set-aside)	Department of Transportation	$17,500,000
Commercial Motor Vehicle Operators Grant Progr	Department of Transportation	$16,500,000
	TOTAL - SAFETY	**$37,709,099,996**

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Electric Vehicles, Buses and Ferries

Challenge*:* Building a network of electric vehicle chargers and supporting the transition to electrification across all types of vehicles is critical to reduce emissions and help to combat the climate crisis. U.S. market share of plug-in electric vehicle sales is only one-third the size of the Chinese electric vehicle market.

Solutions*:* The Bipartisan Infrastructure Law includes a $7.5 billion investment in electric vehicle charging to help build out a national network of 500,000 electric vehicle chargers. This investment will make electric vehicles accessible to all Americans, create good-paying jobs across the country, and ensure a convenient, reliable, affordable, and equitable charging experience for all users. The Bipartisan Infrastructure Law provides funding for deployment of electric vehicle chargers along highway corridors to facilitate long-distance travel and within communities to provide convenient charging where people live, work, and shop.

In addition, there are investments from the Bipartisan Infrastructure Law for specific vehicles to transition to electric- school buses, transit buses and even passenger ferries to reduce emissions for their riders including children and low-income families that bear the greatest burdens of pollution while trying to meet their mobility needs.

Funding Overview: This funding falls into five major programs (1) National Electric Vehicle Infrastructure Formula Program ($5 billion) (2) National Electric Vehicle Infrastructure Grant Program ($2.5 billion), (3) Clean School Bus Program ($5 billion), (4) Low- and No-Emission transit bus Program ($5.6 billion) and (5) Electric or Low Emitting Ferry Program ($250 million) for a total of over $18 billion in investments to reduce emissions through the electrification of vehicles.

The **National Electric Vehicle Charging Formula Program ($5 billion) and Grant Program ($2.5 billion)** provides a total of $7.5 billion to states to procure and install electric vehicle chargers, with the goal of building a national network of electric vehicle chargers and to support charging in communities where people live, work, and shop. The Formula Program targets charging along corridors and Interstates whereas the Grant Program will invest in communities to support innovative approaches that ensure charger deployment reaches rural, disadvantaged, and other hard-to-reach communities. Funding amounts by State for the $5 billion investment can be found in the Department of Transportation's state-by-state fact sheets here.

New funding will also go to improve transit and school buses. The **Clean School Bus Program, Low- and No-Emission Transit Bus Program, and Electric or Low Emitting Ferry Grant Program** support transitioning buses and ferries to zero-emission alternatives. These programs will support innovation in new types of vehicles that reduce pollution in communities and for children and passengers.

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In addition, the Bipartisan Infrastructure Law creates the Joint Office of Energy and Transportation, which will provide within technical assistance to support the efficient and equitable deployment of electric vehicle Charging and other related programs. This office will be a key resource for local communities.

Getting Ready:

- Identify a staff lead on electric vehicle charging to provide guidance, share lessons learned, and coordinate with state and federal staff.
- Connect with State Departments of Transportation who will receive the Formula Program funds and other electric vehicle planning entities like the State Departments of Energy or Environment. Work with them to identify current and potential Alternative Fuel Corridors in and near your community.
- Reach out to school districts and transit agencies to ensure they are preparing for upcoming funding opportunities and know where to go for technical assistance.
- Stay tuned for more information from the Joint Office of Energy and Transportation and the technical assistance and capacity building they will provide.
- Learn more about the technologies, case studies, and lessons learned on the Alternative Fuels Data Center (afdc.energy.gov).
- Watch for upcoming funding opportunities from Environmental Protection Agency, Department of Energy, and Department of Transportation for competitive grants funded through the Bipartisan Infrastructure Law investments.
- Watch for Federal Highway Administration formula program guidance and apportionment tables in February.

Existing Resources:

- Read this Department of Transportation Report on charging infrastructure.
- Check out the Department of Energy's Alternative Fuels Data Center.
- Read more on the Environmental Protection Agency's Clean School Bus Program and the Department of Transportation Low or No Emission Vehicle Program.

Program Name	Agency Name	Funding Amount
National Electric Vehicle Infrastructure Formula Program	Department of Transportation	$5,000,000,000
Charging and Fueling Infrastructure Grants (Community Charging)	Department of Transportation	$1,250,000,000
Charging & Fueling Infrastructure Grants (Corridor Charging)	Department of Transportation	$1,250,000,000
Low or No Emission (Bus) Grants	Department of Transportation	$5,624,550,890
Clean School Bus Program	Environmental Protection Agency	$5,000,000,000
Electric or Low-Emitting Ferry Program	Department of Transportation	$250,000,000
Electric Drive Vehicle Battery Recycling And 2nd Life Apps	Department of Energy	$200,000,000
Low or No Emission Vehicle Component Assessment Program	Department of Transportation	$26,169,974
TOTAL - ELECTRIC VEHICLES, BUSES AND FERRIES		**$18,600,720,864**

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Clean Energy and Power

Challenge*:* Our energy system is in desperate need of modernization and reform to increase resilience and bring low-cost clean energy to more Americans. Power outages cost the U.S. economy up to $70 billion every year and one in three U.S. households face challenges paying their energy bills. Many promising clean energy technologies that can help to meet our climate goals work in the lab but have yet to be demonstrated at scale. Too many of our homes, schools, and offices are inefficient, contributing to high energy bills and air pollution. And for too long, we have ceded ground on manufacturing to our global competitors.

Solutions*:* The Bipartisan Infrastructure Law is the largest investment in clean energy infrastructure in American history. It will modernize our power grid by building and upgrading thousands of miles of resilient transmission lines to reduce outages and energy costs and facilitate the expansion of clean energy. It will invest in energy efficiency and clean energy improvements in our homes, schools, businesses, and communities to make them cleaner and more affordable. And it will fund new programs to support the development, demonstration, and deployment of cutting-edge clean energy technologies to accelerate our transition to a zero-emission economy, while also creating good paying jobs and investing in manufacturing in communities across the country.

Funding Overview: This funding includes four major areas, covered under this section – **(1)** delivering clean power (~$21.3 billion), **(2)** clean energy demonstrations (~$21.5 billion), **(3)** energy efficiency and weatherization retrofits for homes, buildings, and communities ($6.5 billion), and **(4)** funding for clean energy manufacturing and workforce development ($8.6 billion).

Delivering clean power

In January 2022, the Department of Energy launched **a new "Building a Better Grid Initiative" initiative to accelerate the deployment of new transmission lines** that will connect Americans to cleaner, cheaper electricity, while improving the resilience and reliability of the grid. This initiative will leverage the ~$16.5 billion in Bipartisan Infrastructure Law funding to reliably deliver clean, affordable power to more Americans, improving resilience of our grid infrastructure, and helping achieve the President's goal of 100 percent carbon pollution-free electricity by 2035. In addition, Bipartisan Infrastructure Law provides $6 billion for a **Civil Nuclear Credit Program** that will provide financial support to existing nuclear reactors that are at risk of closing and being replaced by higher-emitting power resources, and more than $700 million for **upgrades to our existing hydropower fleet** that will improve efficiency, maintain safety, and reduce environmental impacts. Key eligible recipients for much of this funding are states, tribes, communities, and utilities, including utilities that operate under regulatory supervision by local governments and State commissions.

Clean energy demonstrations

In December 2021, the Department of Energy established a new **Office of Clean Energy Demonstrations** to oversee the $21.5 billion in Bipartisan Infrastructure Law funding for clean energy demonstration projects for innovative technologies like clean hydrogen, carbon capture, grid-scale energy storage, advanced nuclear reactors, and more. Demonstration projects test the effectiveness of innovative technologies in real-world conditions at scale, often leveraging public-private partnerships to pave the way towards commercialization and widespread deployment. Much of this funding will go to large projects that can be significant engines of local and regional economic development and job creation.

Energy efficiency

In the Bipartisan Infrastructure Law, Department of Energy is charged with investing an additional $6.5 billion to support weatherization and other energy efficiency improvements to reduce energy costs for American families, businesses, schools, and communities, improve comfort and health, and cut carbon and air pollution, which disproportionately harms lower-income communities and communities of color. These investments will also help state local, and Tribal governments develop and implement their own clean energy and energy efficiency programs that will create jobs in their communities. Much of this funding will flow through existing State Energy Offices, local governments, or weatherization and housing agencies.

Clean energy manufacturing and workforce

The Bipartisan Infrastructure Law investments in clean energy technology supply chains for technologies like batteries will allow America to make the energy technologies of the future right here at home, boosting our competitiveness within a global clean energy market expected to reach $23 trillion by the end of the decade. These investments will create good jobs up and down the supply chain—especially manufacturing jobs and skills-matched opportunities for fossil fuel workers. Department of Energy's funding will go primarily to clean energy manufacturing facilities across the country. Department of Interior's funding will enable the U.S. Geological Survey's Earth Mapping Resources Initiative (Earth MRI) to modernize the Nation's maps of critical minerals necessary for clean energy technologies and for other key manufacturing sectors of the economy. This mapping will focus on both minerals still in the ground and mineral resources that may be reprocessed from legacy mine wastes. The maps will also provide data useful to support remediation of abandoned mine lands, and will improve the Nation's understanding of other natural resources such as groundwater and geothermal energy, and geologic hazards such as earthquakes.

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Getting Ready:

The power and clean energy provisions in the Bipartisan Infrastructure Law cover a variety of technologies, funding across competitive and formula formats, and potential recipient including state, local, territorial, and Tribal governments, clean energy companies, utilities, and others. To guide program design and help potential recipients prepare to apply for and receive funding, Department of Energy will issue requests for information, notices of intent, webinars, and other stakeholder engagement opportunities.

To stay apprised of these opportunities, potential applicants can go to www.energy.gov/bipartisan-infrastructure-law-programs for the latest announcements and upcoming engagements.

Existing Resources:

- The Department of Energy has stood-up centralized one-stop shop online for Bipartisan Infrastructure Law program information.
- Please review the Department of Energy's recent Notice of Intent on its "Building a Better Grid Initiative" which lays out a plan for forthcoming actions on grid modernization.
- The United States Geological Service is leading an ongoing effort to identify areas that may contain undiscovered critical mineral resources, as the enhancement of our domestic mineral supply decreases our national reliance on foreign sources of minerals fundamental to our economy and security. Read more on their Earth Mapping Resources Initiative here.

Program Name	Agency Name	Funding Amount
Power Marketing Administration Transmission Borrowing Authority	Department of Energy	$10,000,000,000
Regional Clean Hydrogen Hubs	Department of Energy	$8,000,000,000
Civil Nuclear Credit Program	Department of Energy	$6,000,000,000
Program Upgrading Our Electric Grid and Ensuring Reliability and Resili	Department of Energy	$5,000,000,000
Preventing Outages and Enhancing the Resilience of the Electric Grid Gra	Department of Energy	$5,000,000,000
Weatherization Assistance Program	Department of Energy	$3,500,000,000
Four Regional Clean Direct Air Capture Hubs	Department of Energy	$3,500,000,000
Battery Manufacturing and Recycling Grants	Department of Energy	$3,000,000,000
Battery Materials Processing Grants	Department of Energy	$3,000,000,000
Deployment of Technologies to Enhance Grid Flexibility	Department of Energy	$3,000,000,000
Carbon Capture Demonstration Projects Program	Department of Energy	$2,537,000,000
Transmission Facilitation Program	Department of Energy	$2,500,000,000
Carbon Storage Validation and Testing	Department of Energy	$2,500,000,000
Advanced Reactor Demonstration Program	Department of Energy	$2,477,000,000
Carbon Dioxide Transportation Infrastructure Finance and Innovation I	Department of Energy	$2,100,000,000
Clean Hydrogen Electrolysis Program	Department of Energy	$1,000,000,000
Energy Improvement in Rural and Remote Areas	Department of Energy	$1,000,000,000
Carbon Capture Large-Scale Pilot Programs	Department of Energy	$937,000,000
Advanced Energy Manufacturing and Recycling Grants	Department of Energy	$750,000,000
Critical Material Innovation, Efficiency, And Alternatives	Department of Energy	$600,000,000
Rehabilitation of High Hazard Potential Dams	Department of Homeland Secu	$585,000,000
Hydroelectric Incentives	Department of Energy	$553,600,000
Energy Efficiency and Conservation Block Grant Program	Department of Energy	$550,000,000
Clean Hydrogen Manufacturing Recycling	Department of Energy	$500,000,000
Grants for Energy Efficiency and Renewable Energy Improvements at Pu	Department of Energy	$500,000,000
Industrial Emission Demonstration Projects	Department of Energy	$500,000,000
State Energy Program	Department of Energy	$500,000,000
Purchase of Power and Transmission Services	Department of Energy	$500,000,000
Industrial Research and Assessment Center Implementation Grants	Department of Energy	$400,000,000
Energy Storage Demonstration Pilot Grant Program	Department of Energy	$355,000,000
Earth Mapping Resources Initiative	Department of the Interior	$320,000,000
Carbon Utilization Program	Department of Energy	$310,140,781
Energy Efficiency Revolving Loan Fund Capitalization Grant Program	Department of Energy	$250,000,000
Assisting Federal Facilities with Conservation Technologies	Department of Energy	$250,000,000
Building Codes Implementation for Efficiency and Resilience	Department of Energy	$225,000,000
Energy and Minerals Research Facility	Department of the Interior	$167,000,000
Industrial Research and Assessment Centers	Department of Energy	$150,000,000
Long-Duration Energy Storage Demonstration Initiative and Joint Progr	Department of Energy	$150,000,000
National Dam Safety Program	Department of Homeland Secu	$215,000,000
Rare Earth Elements Demonstration Facility	Department of Energy	$140,000,000
Rare Earth Security Activities	Department of Energy	$127,000,000
Hydroelectric Production Incentives	Department of Energy	$125,000,000
Battery and Critical Mineral Recycling	Department of Energy	$125,000,000
Watershed Rehabilitation Program	Department of Agriculture	$118,000,000
Front-End Engineering and Design Program Out Activities Under Carbor	Department of Energy	$100,000,000

Commercial Direct Air Capture Technology Prize Competition	Department of Energy	$100,000,000
Geothermal Research & Development	Department of Energy	$84,000,000
Section 243 Hydroelectric Efficiency Improvement Incentives (Sec 403	Department of Energy	$75,000,000
Critical Material Supply Chain Research Facility	Department of Energy	$75,000,000
Marine Energy Research, Development, and Demonstration	Department of Energy	$70,400,000
Wind Energy Technology Program	Department of Energy	$60,000,000
Energy Efficiency Materials Pilot Program	Department of Energy	$50,000,000
Solar Improvement Research & Development	Department of Energy	$40,000,000
National Marine Energy Centers	Department of Energy	$40,000,000
Energy Auditor Training Grant Program	Department of Energy	$40,000,000
Wind Energy Tech Recycling Research & Development	Department of Energy	$40,000,000
Hydropower Research, Development, and Demonstration	Department of Energy	$36,000,000
New Solar Research & Development	Department of Energy	$20,000,000
Solar Recycling Research & Development	Department of Energy	$20,000,000
Pre-Commercial Direct Air Capture Prize Competitions	Department of Energy	$15,000,000
Energy Efficient Transformer Rebates	Department of Energy	$10,000,000
Pumped Storage Hydropower Wind and Solar Integration and System Re	Department of Energy	$10,000,000
Extended Product System Rebates	Department of Energy	$10,000,000
Lithium-Ion Recycling Prize	Department of Energy	$10,000,000
Career Skills Training	Department of Energy	$10,000,000
Capital Improvement and Maintenance for Dams	Departmnet of Agriculture	$10,000,000
Building, Training, And Assessment Centers	Department of Energy	$10,000,000
TOTAL - CLEAN ENERGY AND POWER		**$74,952,140,781**

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Water

Challenge*:* The nation has underinvested in water infrastructure for too long, putting communities at risk. Lead pipes, watermain breaks, PFAS contamination, and failing wastewater management systems threaten the safety and security of Americans across the country. Long-term drought and water shortages in many areas of the nation, fueled by climate change, have laid bare underinvestment in water reuse, conveyance and storage infrastructure.

Solutions*:* The legislation's $55 billion investment represents the largest investment in drinking water, wastewater, water reuse, conveyance and water storage infrastructure in American history, including dedicated funding to replace lead service lines and address the dangerous chemical PFAS (per- and polyfluoroalkyl).

Funding Overview: This funding falls into seven major programs covered under this section – **(1)** the Drinking Water and Clean Water State Revolving Funds ($23.43 billion), **(2)** Lead Service Lines ($15 billion), **(3)** PFAS and Emerging Contaminants ($10 billion), **(4)** Indian Water Rights ($2.5 billion), **(5)** Indian Health Service Water and Sewer ($1.8 billion), **(6)** Water and Sewer Tax ($1.25 billion), **(7)** Rural Water ($1 billion), (8) Western Water ($7.1 billion).

The **Drinking Water and Clean Water State Revolving Funds** provide below-market rate loans and grants to fund water infrastructure improvements to protect public health and the environment. This additional funding will go towards existing Environmental Protection Agency programs– the Fiscal Year 2022 allocations from the Bipartisan Infrastructure Law can be found here.

The **Lead Service Lines** program provides funding for lead pipe replacement. This was announced as part of a broader Lead Pipe and Paint Action Plan on December 16, 2021. The fact sheet covering the entirety of the program can be found here.

The **PFAS and Emerging Contaminants** program provides funding for states and water utilities to be used in the treatment of any pollutant that is a perfluoroalkyl or polyfluoroalkyl substance (PFAS) or any pollutant identified by the Environmental Protection Agency Administrator as a contaminant of emerging concern.

The **Indian Water Rights** program is to satisfy Federal obligations under Indian water rights settlements enacted as of November 15, 2021.

The **Western Water** program appropriates funds to be spent on projects associated with water storage, groundwater storage, and conveyance projects, water recycling and reuse projects, water desalination projects and studies, watershed management, dam repair and replacement, repairing and replacing aging infrastructure, and WaterSMART grants.

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The **Indian Health Service Water and Sewer** program provides funds for the provision of domestic and community sanitation facilities for Tribal communities.

The **Water and Sewer Tax** excludes from taxable income any "contribution in aid of construction" or any other contribution for purposes of water storage.

The **Rural Water Project** invests in water infrastructure projects in rural communities.

Getting Ready:

The majority of the water funding will move through the State Revolving Fund programs. Water utilities, non-profits, drinking water providers, and other potential recipients should begin to work with local stakeholders and state program contacts to identify potential projects, with a focus on prioritizing projects serving disadvantage communities. The Environmental Protection Agency and other agencies will provide technical assistance to help these disadvantaged communities overcome barriers to receiving loans and grants for water improvements. Potential recipients of the lead service line funding are also encouraged to accelerate the development and use of lead service-line inventories, which can help guide the design of replacement projects eligible for these funds. Additional national program guidance will be issued soon to state water primacy agencies.

Existing Resources:

- Funds from State and Local Fiscal Recovery Funds as part of the American Rescue Plan can be used to support necessary improvements in water, including for the State Revolving Funds, lead service line replacement programs, and other projects that assist systems most in need to provide clean drinking water. See more about the guidance that permitted the use of these funds here.
- Funding through the CARES act State and Local Fiscal Recovery Funds can also be used to make necessary investments to improve access to clean drinking water.
- Funding is available for water infrastructure through Environmental Protection Agency's existing State Revolving Funds and grant programs under the Water Improvements for the Nation Act, including $25 million in 2022 to improve drinking water quality in small, underserved, and disadvantaged communities; and additional funding for lead testing in school and child care drinking water grants, and reducing lead in drinking water grants.
- Department of Agriculture funds are also available through the Water and Waste Disposal Loan and Grant Program.

- Department of Housing and Urban Development Community Block Development Block Grant funds are available for a wide range of community needs, including lead reduction initiatives.

Program Name	Agency Name	Funding Amount
Drinking Water State Revolving Fund Lead Service Lines Replacement	Environmental Protection Agency	$15,000,000,000
Drinking Water State Revolving Fund	Environmental Protection Agency	$11,713,000,000
Clean Water State Revolving Fund	Environmental Protection Agency	$11,713,000,000
Water Infrastructure Improvements for the Nation Small and Underserved Communities Emerging Contaminants Grant Program	Environmental Protection Agency	$5,000,000,000
Drinking Water State Revolving Fund Emerging Contaminants (incl. PFAS)	Environmental Protection Agency	$4,000,000,000
Indian Health Service Sanitation Facilities Construction Program	Department of Health and Human Services	$3,500,000,000
Aging Infrastructure Account	Department of the Interior	$3,200,000,000
Indian Water Rights Settlements	Department of the Interior	$2,500,000,000
Water & Groundwater Storage, And Conveyance	Department of the Interior	$1,150,000,000
Rural Water Projects	Department of the Interior	$1,000,000,000
Clean Water State Revolving Fund-Emerging Contaminants	Environmental Protection Agency	$1,000,000,000
Water Recycling	Department of the Interior	$1,000,000,000
Dam Safety Program	Department of the Interior	$500,000,000
WaterSMART Grants	Department of the Interior	$400,000,000
Water Desalination Projects	Department of the Interior	$250,000,000
Safety of Dams, Water Sanitation, And Other Facilities	Department of the Interior	$200,000,000
Watershed Management Projects	Department of the Interior	$100,000,000
Central Utah Project	Department of the Interior	$50,000,000
Underground Injection Control Grants: Class VI wells	Environmental Protection Agency	$50,000,000
Tribal Irrigation and Power Systems	Department of the Interior	$50,000,000
Water Resources Development Act Data Acquisition	Department of Commerce	$25,000,000
Soil Moisture and Snowpack Pilot Program	Department of Commerce	$1,000,000
Geographic Programs - Columbia River Basin Restoration Program	Environmental Protection Agency	$79,000,000
Geographic Programs - Great Lakes Restoration Initiative	Environmental Protection Agency	$1,000,000,000
Geographic Programs - Gulf of Mexico	Environmental Protection Agency	$53,000,000
Geographic Programs - Lake Champlain	Environmental Protection Agency	$40,000,000
Geographic Programs - Lake Pontchartrain Restoration Program	Environmental Protection Agency	$53,000,000
Geographic Programs - Long Island Sound	Environmental Protection Agency	$106,000,000
Geographic Programs - Northwest Forest	Environmental Protection Agency	$4,000,000
Geographic Programs - South Florida Geographic Initiatives Program	Environmental Protection Agency	$16,000,000
Geographic Programs - Southeast New England Coastal Watershed Restoration Program	Environmental Protection Agency	$15,000,000
National Estuary Program Grants	Environmental Protection Agency	$132,000,000
Geographic Programs - Chesapeake Bay Program	Environmental Protection Agency	$238,000,000
Geographic Programs - Puget Sound	Environmental Protection Agency	$89,000,000
Geographic Programs - San Francisco Bay Water Quality Improvement Fund	Environmental Protection Agency	$24,000,000
	TOTAL - WATER	**$64,251,000,000**

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Resilience

Challenge*:* Millions of Americans feel the effects of climate change each year when their roads wash out, power goes down, homes are destroyed by wildfires, or schools get flooded. Last year alone, the United States faced 20 extreme weather and climate-related disaster events with losses exceeding $1 billion each – a cumulative price tag of more than $145 billion. People of color and underserved communities are disproportionately vulnerable to the climate crisis and are more likely to experience the negative health and environmental effects of climate-related and extreme weather events. Further, the country's critical infrastructure is at risk from a wide variety of additional hazards. Investments in the Bipartisan Infrastructure Law prioritize this "all hazards" approach to protecting our infrastructure with an emphasis on designing projects that will be resilient in the face of cybersecurity threats and climate and extreme weather-related risks.

Solutions*:* The Bipartisan Infrastructure Law makes our communities safer and our infrastructure more resilient to the impacts of climate change and cyber-attacks, with an investment of more than $50 billion to protect against droughts, heat, floods and wildfires, in addition to a major investment in weatherization. The legislation is the largest investment in the resilience of physical and natural systems in American history.

Funding Overview: This bill contains historic funding for resilience to all hazards – including cyber, climate, and other threats communities face. Some of the most significant of these investments are:

(1) Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Grants ($8.7 billion),
(2) Wildfire Management ($8.25 billion)
(3) Investments in Resilience through the Army Corps of Engineers ($7 billion)
(4) Western Water ($3.8 billion),
(5) Flood Mitigation Assistance Program ($3.5 billion)
(6) Weatherization ($3.5 billion)
(7) Cybersecurity ($1.3 billion).

PROTECT (Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation) Program includes $7.3 billion in formula funding that will be distributed to States and $1.4 billion in competitive grants to help States and local agencies improve the resiliency of transportation infrastructure. PROTECT grants include resilience improvement grants, community resilience and evacuation route grants, and at-risk coastal infrastructure grants.

The money allocated to **Wildfire Management** encompasses a suite of programs aimed at reducing risk of wildfires, detecting wildfires, instituting firefighter workforce reforms and building more resilient infrastructure to be overseen by Department of Agriculture, Department of Interior, and the National Oceanic Atmospheric Association. The largest portion of this funding is for the Department of Agriculture's U.S. Forest

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Service ($3.37 billion) and the Department of the Interior ($1.46 billion) for wildfire risk reduction.

Investments in Resilience through the Army Corps of Engineers allocates funding to the Army Corps with specific set-asides for projects related to coastal storm risk management, hurricane and storm damage reduction inland flood risk management, and aquatic ecosystem restoration.

The **Western Water** program provides substantial new funding for that will help western communities fight drought by investing in new and expanded water storage, water efficiency water reuse and dam safety projects throughout the west.

Federal Emergency Management Agency's Flood Mitigation Assistance Program financial and technical assistance to states and communities to reduce the risk of flood damage to homes and businesses through buyouts, elevation and other activities.

The **Weatherization** program reduces energy costs for low-income households by increasing the energy efficiency of their homes, while ensuring health and safety.

Money allocated to **Cybersecurity** is spread across multiple programs to strengthen cyber systems and defense against future attacks, including funding for State, Local, Tribal, and Territorial grants for the Federal Emergency Management Administration, cyber response and recovery, and Research & Development in cyber.

Getting Ready:

Resilience-related funding opportunities vary significantly by program. States and communities should be pro-active in reaching out to the Department of Transportation for transportation-related resilience funding and to the Interior Department's Bureau of Reclamation regarding western water grant opportunities. State officials who are working closely with U.S. Forest Service and the Department of the Interior wildfire teams should not hesitate to approach federal officials and identify mutually-beneficial strategies for reducing dangerous fuel loads across federal and state lands. Tribal officials should contact the Bureau of Indian Affairs at the Department of Interior to learn about the full range of climate resilience funding that may be available to them.

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Existing Resources:

In addition to specific funding made available through Bipartisan Infrastructure Law, communities and states that are seeking federal funding for locally-important resilience investments should explore potential opportunities under existing resilience-focused programs at the Federal Emergency Management Administration and the Department of Housing & Urban Development. Both Departments have robust resilience funding programs, including the Federal Emergency Management Agency's Building Resilient Infrastructure & Communities program.

Program Name	Agency Name	Funding Amount
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) - Formula	Department of Transportation	$7,299,999,998
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) - Discretionary	Department of Transportation	$1,400,000,000
Carbon Reduction Program	Department of Transportation	$6,419,999,998
Preventing Outages and Enhancing the Resilience of the Electric Grid Grants	Department of Energy	$5,000,000,000
Flood Mitigation Assistance Grants (National Flood Insurance Act Sec 1366)	Department of Homeland Security	$3,500,000,000
Coastal Storm Risk Management, Hurricane, And Storm Damage Reduction Projects	Army Corps of Engineers	$2,550,000,000
Inland Flood Risk Management (FRM) Projects	Army Corps of Engineers	$2,500,000,000
Aquatic Ecosystem Restoration (AER) Projects	Army Corps of Engineers	$1,900,000,000
State and Local Cybersecurity Grant Program	Department of Homeland Security	$1,000,000,000
Building Resilient Infrastructure and Communities (Robert T Stafford Act Section 203(i))	Department of Homeland Security	$1,000,000,000
Wildfire Management - Fuels Management	Department of the Interior	$878,000,000
Reforestation Trust Fund (Replant Act)	Department of Agriculture	$528,000,000
Hazardous Fuels Management	Department of Agriculture	$514,000,000
Community Wildfire Defense Grant Program For At-Risk Communities	Department of Agriculture	$1,000,000,000
Hazard Mitigation Revolving Loan Funds/Safeguarding Tomorrow through Ongoing Risk Mitigation (STORM) Act (Robert T Stafford Act, Sec 205)	Department of Homeland Security	$500,000,000
Watershed And Flood Prevention Operations	Department of Agriculture	$500,000,000
Flood and Inundation Mapping and Forecasting, Water Modeling, and Precipitation Studies	Department of Commerce	$492,000,000
National Oceans and Coastal Security Fund	Department of Commerce	$492,000,000
Habitat Restoration	Department of Commerce	$491,000,000
Federal Wildland Firefighter Salaries And Expenses	Department of Agriculture	$480,000,000
Continuing Authorities Program (CAP) (Under Flood Control Act And River And Harbor Act)	Army Corps of Engineers	$465,000,000
Hazardous Fuels (Mechanical Thinning And Timber Harvesting; Precommercial Thinning In Young Growth)	Department of Agriculture	$400,000,000
Grants For States And Tribes For Voluntary Restoration	Department of the Interior	$400,000,000
Financial Assistance To Facilities That Purchase And Process Byproducts For Ecosystem Restoration Projects	Department of Agriculture	$400,000,000
Department of Interior Wildfire Management - Burned Area Rehabilitation	Department of the Interior	$325,000,000
Emergency Watershed Protection Program	Department of Agriculture	$300,000,000
Colorado River Drought Contingency Plan	Department of the Interior	$300,000,000
Flood Control,and Coastal Emergencies	Army Corps of Engineers	$251,000,000
Capital Improvement And Maintenance - Legacy Road And Trail Remediation Program	Department of Agriculture	$250,000,000
Prescribed Fires	Department of Agriculture	$250,000,000
Fuel Breaks	Department of Agriculture	$250,000,000
Activities Under Cybersecurity For The Energy Sector Research, Development, And Demonstration Program	Department of Energy	$250,000,000
Rural And Municipal Utility Advances Cybersecurity Grant And Technical Assistance Program	Department of Energy	$250,000,000
Aquatic Ecosystem Restoration And Protection Projects	Department of the Interior	$250,000,000
Department of Interior Wildfire Management - Preparedness	Department of the Interior	$245,000,000
Emergency Preparedness Grants	Department of Transportation	$234,125,000
Burned Area Recovery	Department of Agriculture	$325,000,000
Coastal Zone Management	Department of Commerce	$207,000,000
Ecosystem - Fish Passage	Department of the Interior	$200,000,000

Water-Related Environmental Infrastructure Assistance	Army Corps of Engineers	$200,000,000
Joint Chiefs Landscape Restoration Partnership Program	Department of Agriculture	$180,000,000
Ecosystem - Klamath Basin	Department of the Interior	$162,000,000
Regulatory Program	Army Corps of Engineers	$160,000,000
Restoration Projects Via States And Tribes	Department of Agriculture	$160,000,000
Ecological Health Restoration Contracts	Department of Agriculture	$150,000,000
Tribal Climate Resilience - Community Relocation	Department of the Interior	$130,000,000
Capital Improvement And Maintenance - Construction And Maintenance Of Roads For Forest Restoration Projects That Reduce Wildfire Risk	Department of Agriculture	$100,000,000
Pollution Prevention Grants	Environmental Protection Agency	$100,000,000
Collaborative Forest Landscape Restoration Program	Department of Agriculture	$100,000,000
Restore Native Vegetation On Federal/Non-Federal Land	Department of Agriculture	$100,000,000
Removal Of Vegetation For Biochar And Innovative Wood Products	Department of Agriculture	$100,000,000
Post-Fire Restoration	Department of Agriculture	$100,000,000
Forest Health Management on Federal Lands Program and Forest Health Management on Cooperative Lands Program	Department of Agriculture	$100,000,000
Working Capital Fund	Department of the Interior	$100,000,000
Direct Federal Spending For Invasives	Department of the Interior	$100,000,000
Ocean And Coastal Observing Systems	Department of Commerce	$100,000,000
Multi-Benefit Projects To Improve Watershed Health	Department of the Interior	$100,000,000
Cyber Response and Recovery Fund	Department of Homeland Security	$100,000,000
State Fire Assistance	Department of Agriculture	$88,000,000
Tribal Climate Resilience - Adaptation Planning	Department of the Interior	$86,000,000
Research Supercomputing	Department of Commerce	$80,000,000
Revegetation Effort to Implement National Seed Strategy	Department of Agriculture	$70,000,000
Direct Federal Spending (Or Other) For National Revegetation Strategy	Department of the Interior	$70,000,000
Critical Infrastructure Security and Resilience Research	Department of Homeland Security	$69,806,250
National Seed Strategy	Department of Agriculture	$60,000,000
Ecosystem - Sagebrush-Steppe	Department of the Interior	$50,000,000
Preplanning Fire Response Workshops And Workforce Training	Department of Agriculture	$50,000,000
Contracts And Agreements For Restoration On Federal Lands	Department of the Interior	$50,000,000
Wildfire	Department of Commerce	$50,000,000
Colorado River Endangered Species Recovery and Conservation Programs	Department of the Interior	$50,000,000
Advanced Energy Security Program	Department of Energy	$50,000,000
Wildfire	Department of Commerce	$50,000,000
Ocean And Coastal Observing Systems	Department of Commerce	$50,000,000
Direct Federal Spending For Resilient Recreation Sites	Department of the Interior	$45,000,000
Flood Plain Management Services	Army Corps of Engineers	$45,000,000
To Complete Or Initiate And Complete Studies That Were Authorized Prior To The Date Of This Act	Army Corps of Engineers	$45,000,000
Physical Security	Department of Homeland Security	$38,800,000
Sector Risk Management Agencies	Department of Homeland Security	$35,000,000
Planning Assistance To States	Army Corps of Engineers	$30,000,000
Section 118 Of Water Resources Development Act of 2020	Army Corps of Engineers	$30,000,000
Provide Financial Assistance To States, Indian Tribes, And Units Of Local Government To Establish And Operate Reverse-911 Telecommunication Systems	Department of Agriculture	$30,000,000
Ecosystem - Delaware River Basin Conservation Act	Department of the Interior	$26,000,000
National Geological And Geophysical Data Preservation Program	Department of the Interior	$23,668,000
Southwest Ecological Restoration Institute	Department of Agriculture	$20,000,000
Volunteer Fire Assistance	Department of Agriculture	$20,000,000
Ecosystem - Lake Tahoe	Department of the Interior	$17,000,000
Cybersecurity	Department of Homeland Security	$14,500,000
Probabilistic Analysis of National Threats, Hazards and Risks	Department of Homeland Security	$13,400,000

Countering Violent Extremism	Department of Homeland Security	$12,800,000
Research And Development Via Joint Fire Science Program Partnership With Department Of Interior	Department of Agriculture	$10,000,000
Agreement with National Oceanic and Atmospheric Administration For Geostationary Operations Environmental Satellite Program	Department of Agriculture	$10,000,000
Wildfire Management - Joint Fire Science Program	Department of the Interior	$10,000,000
Firewood Banks	Department of Agriculture	$8,000,000
Wildfire Detection And Monitoring Equipment	Department of Agriculture	$5,000,000
First Responder Capability	Department of Homeland Security	$4,000,000
Explosives Threat Assessment	Department of Homeland Security	$2,800,000
Develop And Publish Every 5 Years A Map Depicting At-Risk Communities, Including Tribal Communities	Department of Agriculture	$1,200,000
Network & System Security & Investment	Department of Homeland Security	$1,000,000
Water Infrastructure Finance and Innovation Program Account	Army Corps of Engineers	$75,000,000
Energy Sector Operational Support for Cyber Resilience Program	Department of Energy	$50,000,000
	TOTAL - RESILIENCE	**$47,886,099,246**

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Environmental Remediation

Challenge*:* In thousands of rural and urban communities around the country, hundreds of thousands of orphaned oils and gas wells, abandoned mines, brownfields and Superfund sites sit idle– sources of blight and pollution. These sites pose serious safety hazards, while also causing ongoing air, water, and other environmental damage. Further, many of these sites are located in disadvantaged communities that have suffered from years of disinvestment.

Solutions*:* The bill will invest $21 billion in environmental remediation – the largest investment in addressing legacy pollution in American history. These projects will remediate environmental harms, address the legacy pollution that harms the public health of communities, create good-paying union jobs, and advance long overdue environmental justice.

Funding Overview: This funding falls into four major programs covered under this section – **(1)** abandoned mine land reclamation ($11.3 billion), **(2)** orphan oil & gas well plugging, remediation and restoration ($4.7 billion), **(3)** Superfund site cleanup ($3.5 billion), and **(4)** brownfield remediation and revitalization ($1.5 billion).

- The Bipartisan Infrastructure Bill provides $11.3 billion to the Department of Interior to provide grants to states and Tribes for abandoned coal mine land reclamation. These funds will be disbursed by the Office of Surface Mining Reclamation and Enforcement to eligible States and Tribes. The Bipartisan Infrastructure Bill also provides $25 million to Department of Interior to help states update their abandoned mine land inventories. Finally, the Bipartisan Infrastructure Bill includes language enabling the Office of Surface Mining and Reclamation to give priority to reclamation projects that provide employment for current and former coal industry workers.

- The Bipartisan Infrastructure Bill provides $4.7 billion to the Department of Interior to establish three new oil and gas well plugging, remediation and reclamation grant programs - $250 million for wells on federal lands, $4.3 billion for wells on state and private lands, and $150 million for wells on Tribal lands. These funds include initial, formula, and performance-based grants for states and tribes, as well as funding for technical assistance to help identify, prioritize, and plug wells. Virtual targeted engagements to gain perspectives from Indian Tribes with a history of oil and gas development have been planned for February 8, 9, and 10, 2022.

- The Bipartisan Infrastructure Bill provides $3.5 billion in new funds to the Environmental Protection Agency to fund clean-ups and remedial actions on Superfund sites. The bill waives the state cost-share requirements for this new funding and encourages the Environmental Protection Agency to consider the unique Superfund needs of Tribal communities. The Environmental Protection

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Agency has already announced $1 billion of this funding will clear the backlog of 49 previously unfunded sites, while accelerating cleanup at dozens of locations across the country.

- The Bipartisan Infrastructure Bill provides $1.5 billion to the Environmental Protection Agency to expand its existing brownfield remediation and revitalization grant programs. $1.2 billion of the funding is for brownfield assessment grants, cleanup grants, technical assistance, environmental remediation job training, and reuse/economic revitalization. $300 million of the funds will flow to support state and Tribal brownfield clean-up programs.

Getting Ready:

Potential grant applicants should begin to inventory sites and launch community-led stakeholder engagement sessions to determine eligibility for funding remediation work, as well as assess the needs of the local workforce from a training standpoint, so jobs created by these projects can employ members of affect communities.

Abandoned Mine Land Reclamation: Begin discussions with communities, watershed groups, and recreation interests (such as fishing groups) to identify acid mine drainage problems that may be newly eligible for funding given the broader allowable uses of Bipartisan Infrastructure Bill funding.

Orphan Well Plugging: Begin outreach to communities near orphaned well sites to identify sites that have the most significant impacts or are preventing other beneficial uses of the land. Work with your state geologic surveys to identify other areas that may need to be inventoried for orphaned wells.

Superfund Site Clean-Up: Environmental Protection Agency Superfund site teams will work to ensure communities have the information and support they need to meaningfully participate in the remedial process, including holding a public meeting prior to the start of construction, engaging communities in discussions about redevelopment opportunities, and offering technical assistance and job training opportunities.

Brownfield Remediation: Potential applicants for brownfields grants should become familiar with application guidelines and determine which priority sites are eligible for funding. Please see the following webpages for additional information

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Existing Resources:

- More information about available technical assistance resources can be found here for the Brownfields Program.
    - Types of Brownfield Grant Funding
    - Tips for Applying
- More information about resources available to communities for addressing Superfund sites can be found at the links below:
    - Superfund Technical Assistance Needs Assessment
    - Superfund Technical Assistance Grant
    - Superfund Technical Assistance Services for Communities
    - Superfund Community Advisory Group support
    - Superfund Job Training Initiative
    - Superfund Redevelopment Program

Program Name	Agency Name	Funding Amount
Abandoned Mine Reclamation Fund	Department of the Interior	$11,293,000,000
Orphaned Well Site Plugging, Remediation, And Restoration	Department of the Interior	$4,677,000,000
Superfund Remedial	Environmental Protection Agency	$3,500,000,000
Brownfields Projects	Environmental Protection Agency	$1,200,000,000
Clean Energy Demonstration Program on Current and Former Mine Land	Department of Energy	$500,000,000
Brownfields Categorical Grants	Environmental Protection Agency	$300,000,000
Direct Federal Spending for Revegetation of Mined Lands	Department of the Interior	$100,000,000
Funding to Support Orphan Well Plugging	Department of Energy	$30,000,000
TOTAL - ENVIRONMENTAL REMEDIATION		**$21,600,000,000**

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Broadband

Challenge*:* Ensure that all Americans have access to affordable, reliable, high-speed internet service. High quality internet service is necessary for Americans to do their jobs, to participate equally in school learning, health care, and to stay connected. Yet, by one definition, more than 30 million Americans live in areas where there is no broadband infrastructure that provides minimally acceptable speeds – a particular problem in rural communities throughout the country. And, according to the latest Organisation for Economic Co-operation and Development data, among 35 countries studied, the United States has the second highest broadband costs.

Solutions*:* The Bipartisan Infrastructure Law invests roughly $65 billion to help ensure that every American has access to reliable high-speed internet through a historic investment in broadband infrastructure deployment. The legislation will also help lower prices for internet service and help close the digital divide, so that more Americans can make full use of internet access.

Funding Overview: This funding falls into 7 major program areas– **(1)** the Broadband Equity, Access, and Deployment Program ($42.45 billion), **(2)** the Affordable Connectivity Program ($14.2 billion); **(3)** Digital Equity Planning, Capacity and Competitive Grants ($2.75 billion); **(4)** the Tribal Broadband Connectivity Program ($2 billion), **(5)** Rural Broadband Programs at the Department of Agriculture ($2 billion); **(6)** the Middle Mile Broadband Infrastructure Program ($1 billion); and **(7)** Private Activity Bonds **(** ~$600 million).

On January 7, 2022 – the National Telecommunications and Information Administration at the Department of Commerce released a Notice seeking comment on the **Broadband Equity, Access and Deployment program, the Middle Mile Broadband Infrastructure Program**, and the **Digital Equity Planning Grant Program.** The Broadband Equity, Access and Deployment program is a formula-based grant program to states, territories and the District of Columbia primarily for the purposes of state broadband planning and deployment. It can also be used for broadband data collection and mapping; to promote broadband adoption, including through the provision of affordable internet-connected devices; to provide Wi-Fi or reduced-cost internet access to multi-family housing units; and for other uses that the National Telecommunications and Information Administration determines are necessary to facilitate the goals of the program. States will distribute funds through a competitive grant program. Funding recipients have an obligation to offer a low-cost plan as a condition of receiving funding for broadband deployment. Future-proof deployments are prioritized. Each state, including the District of Columbia and Puerto Rico, will receive at least $100 million. American Samoa, Guam, The Northern Marianas and the U.S. Virgin Islands will each receive at least $25 million. The remainder of the funds will be allocated based on a formula that considers the number of locations in

each State or territory unserved by broadband and the number of high cost unserved locations.

The Middle Mile Broadband Infrastructure Program, administered by the National Telecommunications and Information Administration, will provide grants for the construction, improvement or acquisition of middle-mile infrastructure to eligible entities, including, but not limited to, telecommunications companies, technology companies, electric utilities, and utility cooperatives.

The Digital Equity Planning, Digital Equity Capacity, and Digital Equity Competitive Grants are three National Telecommunications and Information Administration-administered grant programs (two formula-based and one competitive) to plan for and then promote digital inclusion and equity for communities that lack the skills, technologies and support needed to take advantage of broadband connections. Grants can be used to accelerate the adoption of broadband through digital literacy training, workforce development, devices access programs, and other digital inclusion measures.

The Tribal Broadband Connectivity Program is an existing National Telecommunications and Information Administration program, that provides grants to federally recognized Tribal governments, Tribal organizations, Tribal Colleges and Universities, the Department of Hawaiian Homelands, and Alaska Native Corporations for broadband deployment on Tribal lands, as well as for telehealth, distance learning, broadband affordability, and digital inclusion.

On December 31, 2021, the Federal Communications Commission launched the **Affordable Connectivity Program** which provides a subsidy of up to $30/month for low-income families (up to $75/month for low-income families on Tribal Lands) to use toward the internet service plan of their choice offered by participating internet service providers, as well as a one-time $100 towards a desktop, laptop or tablet computer offered by participating internet service providers.

The Broadband ReConnect Program, administered by the Rural Utilities Service at the Department of Agriculture, will provide almost $2 billion in loans and grants toward the costs of construction, improvement, or acquisition of facilities and equipment needed to provide broadband service in eligible rural areas. Companies, cooperatives; and state, local, Tribal, and territorial governments may all apply for ReConnect funding.

Private Activity Bonds – the Bipartisan Infrastructure Bill allows states and local governments to issue private activity bonds to support broadband deployment in rural areas.

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Getting Ready:

The Broadband Equity, Access and Deployment Program and the State Digital Equity Planning and Capacity Grants: In order to prepare to receive funding from the National Telecommunications and Information Administration from the Broadband Equity, Access and Deployment and State Digital Equity Planning and Capacity Grant programs, States should identify and solidify their state broadband leadership teams and begin coordinating across state agencies and with Tribal and local governments and other stakeholders to begin to develop a strategy and plan for identifying and meeting the state's broadband deployment, affordability and equity challenges.

Affordable Connectivity Program: In order to make sure low-income households in your communities can take advantage of the Affordable Connectivity Program, State, Tribal, and local leaders, internet service providers, and non-profits should identify opportunities to effectively reach out to low-income households and inform them about the program.

The Tribal Broadband Connectivity Program: Tribal leaders should identify and solidify their broadband planning, deployment and affordability programs and plan to participate in Tribal consultations, and National Telecommunications and Information Administration webinars and other information sessions regarding the Tribal Broadband Connectivity Program.

The Broadband ReConnect Program: Rural companies, government officials, and residents interested in bringing better broadband to your communities should to participate in Rural Utilities Service webinars to learn about the funding opportunity provided by the Broadband ReConnect Program.

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Existing Resources:

- The American Rescue Plan included $350 billion in State and Local Fiscal Recovery Funds, administered by the Department of the Treasury, which can be used to provide broadband affordability and deployment programs to respond to the negative economic impacts of the pandemic and to meet the necessary investments to expand affordable access to broadband. See more here.
- Broadband deployment projects and digital connectivity projects are eligible uses for funding from the $10 billion Capital Projects Program, administered by the Department of the Treasury and funded by the American Rescue Plan. Each State has been allocated more than $100 million under that program, each Territory has been allocated more than $14 million, and each Tribal government has been allocated $167,000 under that program. See more here.
- The Broadband ReConnect Program at the Department of Agriculture, is accepting applications, through February 22, 2022, for $1.15 billion in grants and loans for broadband deployment in rural areas. See here for more information.

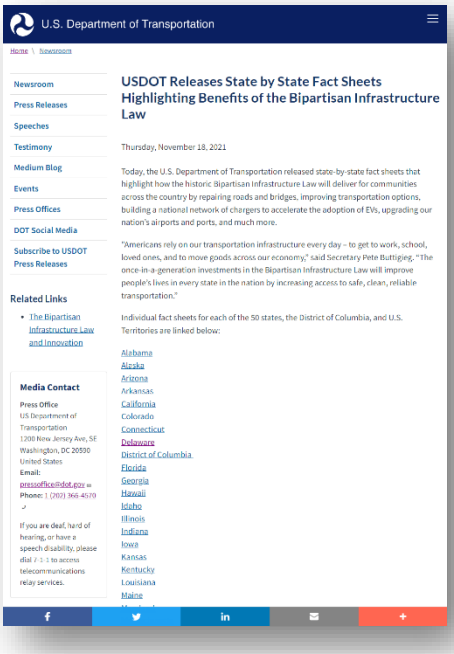
Program Name	Agency Name	Funding Amount
Broadband Equity, Access, And Deployment Program	Department of Commerce	$42,450,000,000
Affordable Connectivity Program	Federal Communications Commission	$14,200,000,000
Tribal Broadband Connectivity Program	Department of Commerce	$2,000,000,000
Distance Learning, Telemedicine, And Broadband Program: Reconn	Department of Agriculture	$1,926,000,000
State Digital Equity Planning Grant	Department of Commerce	$60,000,000
State Digital Equity Capacity Grant	Department of Commerce	$1,440,000,000
State Digital Equity Competitive Grant	Department of Commerce	$1,250,000,000
Middle Mile Grants Program	Department of Commerce	$1,000,000,000
Distance Learning, Telemedicine, And Broadband Program: Broadb	Department of Agriculture	$74,000,000
Affordable Connectivity Program - Outreach Grants	Federal Communications Commission	TBD
Broadband Deployment Locations Map	Federal Communications Commission	$10,000,000
Denali Commission Broadband Funding	Denali Commission	$250,000
	TOTAL - BROADBAND	**$64,410,250,000**

APPENDIX K:

Funding Highlights – Delaware Estimates (FY 2022-2026)

K. APPENDIX K: Funding Highlights – Delaware Estimates (FY 2022-2026)

The following pages summarize five-year formula funding estimates and related benefits for the state of Delaware based on details compiled by USDOT *State by State Fact Sheets Highlighting Benefits of the Bipartisan Infrastructure Law* (BIL), also referred to as the Infrastructure Investment and Jobs Act (IIJA).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USDOT Releases State by State Fact Sheets Highlighting Benefits of the Bipartisan Infrastructure Law

Thursday, November 18, 2021

Today, the U.S. Department of Transportation released state-by-state fact sheets that highlight how the historic Bipartisan Infrastructure Law will deliver for communities across the country by repairing roads and bridges, improving transportation options, building a national network of chargers to accelerate the adoption of EVs, upgrading our nation's airports and ports, and much more.

"Americans rely on our transportation infrastructure every day – to get to work, school, loved ones, and to move goods across our economy," said Secretary Pete Buttigieg. "The once-in-a-generation investments in the Bipartisan Infrastructure Law will improve people's lives in every state in the nation by increasing access to safe, clean, reliable transportation."

Individual fact sheets for each of the 50 states, the District of Columbia, and U.S. Territories are linked below:

Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine

The attached details were last updated on April 11, 2022. Future updates may be referenced online at: https://www.transportation.gov/briefing-room/bipartisan-infrastructure-law-will-deliver-delaware.

Note that funding apportionments, project specific obligations, and competitive grant candidate interests are all subject to change as part of broader ongoing transportation planning and programming efforts. Refer to DelDOT and the Delaware Department of Finance for updates. As a sample set of state-specific estimates, apportionments to Delaware for fiscal year (FY) 2022 are summarized below.

Exhibit K1: Federal-Aid Highway Program Apportionments to Delaware (FY 2022)

Federal-Aid Highway Program	FY 2022 Delaware Apportionment
National Highway Performance Program	$ 120,040,689
Surface Transportation Block Grant Program	$ 58,398,173
Highway Safety Improvement Program	$ 12,386,467
Railway Highway Crossings Program	$ 1,225,000
Congestion, Mitigation & Air Quality Program	$ 12,706,466
Metropolitan Program	$ 2,350,707
National Highway Freight Program	**$ 5,866,504**
Carbon Reduction Program	$ 5,207,171
Protect Formula Program	$ 5,920,926
TOTAL	**$ 224,102,103**

Source: USDOT FHWA, *Fiscal Year (FY) 2022 Supplementary Tables – Apportionments Pursuant to the Infrastructure Investment and Jobs Act*, (before post-apportionment set-asides; before penalties; before sequestration), (Classification N4510.864 – Table 1), February 23, 2022, https://www.fhwa.dot.gov/legsregs/directives/notices/n4510864/n4510864_t1.cfm.

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Washington, DC 20590
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News

The Bipartisan Infrastructure Law Will Deliver for Delaware

President Biden and Vice President Harris's Bipartisan Infrastructure Law is the largest long-term investment in our infrastructure and competitiveness in nearly a century. **The need for action in Delaware is clear, and recently released state-level data demonstrates that the Bipartisan Infrastructure Law will deliver for Delaware**. For decades, infrastructure in Delaware has suffered from a systemic lack of investment. The historic Bipartisan Infrastructure Law will make life better for hundreds of thousands of Delaware residents, create a generation of good-paying union jobs and economic growth, and position the United States to win the 21st century.

Specifically, with regard to transportation, the Bipartisan Infrastructure Law will:

Repair and rebuild our roads and bridges with a focus on climate change mitigation, resilience, equity, and safety for all users, including cyclists and pedestrians. In Delaware there are 19 bridges and over 253 miles of highway in poor condition. Since 2011, commute times have increased by 5% in Delaware, and on average, each driver pays $456 per year in costs due to driving on roads in need of repair. The Bipartisan Infrastructure Law is the single largest dedicated bridge investment since the construction of the interstate highway system. **Based on formula funding alone, Delaware would expect to receive approximately $1.4 billion over five years in Federal highway formula funding for highways and bridges**. On an average annual basis, this is about 33.4% more than the State's Federal-aid highway formula funding under current law (1). Delaware can also compete for the $15.77 billion Bridge Investment Program for economically significant bridges and $15 billion of national funding in the law dedicated to megaprojects that will deliver substantial economic benefits to communities. Delaware can also expect to receive approximately $27 million over five years in formula funding to reduce transportation-related emissions, in addition to about $31 million over five years to increase the resilience of its transportation system (2). States may also apply federal aid dollars towards climate resilience and safety projects.

Improve the safety of our transportation system. The Bipartisan Infrastructure Law invests $13 billion over the Fixing America's Surface Transportation (FAST) Act levels directly into improving roadway safety. Over five years, Delaware will receive approximately $15 million in 402 formula funding for highway safety traffic programs, which help states to improve driver behavior and reduce deaths and injuries from motor vehicle-related crashes. On an average annual basis, this represents about a 29% increase over FAST Act levels (3). Local and tribal governments in Delaware will also be eligible to compete for $6 billion in

funding for a new **Safe Streets for All program** which will provide funding directly to these entities to support their efforts to advance "vision zero" plans and other improvements to reduce crashes and fatalities, especially for cyclists and pedestrians. In addition, Delaware can expect to receive approximately $9.2 million over five years in funding to augment their commercial motor vehicle (CMV) safety efforts to reduce CMV crashes through the Federal Motor Carrier Safety Administration's Motor Carrier Safety Assistance Program (MCSAP) formula grant. This represents about a 56% increase in funding compared to FAST Act levels (4). Delaware will be able to apply for funds to modernize data collection systems to collect near real time data on all reported crashes, including fatal ones, to enhance safety and to allow the Department to understand and address trends as they are identified.

Improve healthy, sustainable transportation options for millions of Americans. Delawareans who take public transportation spend an extra 87% of their time commuting and non-White households are 3.7 times more likely to commute via public transportation. 10% of transit vehicles in the state are past useful life. **Based on formula funding alone, Delaware would expect to receive about $186 million over five years under the Bipartisan Infrastructure Law to improve public transportation options across the state (5). In the first year, this represents about a 36% increase over 2021 FAST Act formula transit funding levels.**

Build a network of EV chargers to facilitate long-distance travel and provide convenient charging options. The U.S. market share of plug-in electric vehicle (EV) sales is only one-third the size of the Chinese EV market – in 2020, plug-in electric vehicles made up only 2.3% of new car sales in the U.S., compared to 6.2% in China. The President believes that must change. The law invests $7.5 billion to build out the first-ever national network of EV chargers in the United States and is a critical element in the Biden-Harris Administration's plan to accelerate the adoption of EVs to address the climate crisis and support domestic manufacturing jobs. **Under the Bipartisan Infrastructure Law, Delaware would expect to receive about $18 million over five years to support the expansion of an EV charging network in the state (6). Delaware will also have the opportunity to apply for grants out of the $2.5 billion available for EV charging.**

Modernize and expand passenger rail and improve freight rail efficiency and safety. The Bipartisan Infrastructure Law includes $102 billion to eliminate the Amtrak maintenance backlog, modernize the Northeast Corridor, and bring world-class rail service to areas outside the northeast and mid-Atlantic. Within these totals, $41 billion would be provided as grants to Amtrak, $43.5 billion for Federal-State Partnership for Intercity Passenger Rail Grants for intercity rail service, including high-speed rail. On top of this, Delaware will be eligible to compete for $10 billion for rail improvement and safety grants and $5.5 billion for grade crossing safety improvements."

Improve our nation's airports. The United States built modern aviation, but our airports lag far behind our competitors. **Under the Bipartisan Infrastructure Law, airports in Delaware would receive approximately $6 million for infrastructure development for airports over five years (7).** This funding will address airside and landside needs at airports, such as improving runways, taxiways and airport-owned towers, terminal development projects, and noise reduction projects. In addition, $5 billion in discretionary funding is available over five years for airport terminal development projects that address the aging infrastructure of our nation's airports, including projects that expand accessibility for persons with disabilities, improve access for historically disadvantaged populations, improve energy efficiency, and improve airfield safety.

State and local governments can look forward to these new & expanded competitive grant programs in the Bipartisan Infrastructure Law (BIL) anticipated to launch over the course of the next year:

- **Safe Streets for All ($6B, new)** – This program will provide funding directly to local and tribal governments to support their efforts to advance "vision zero" plans and other improvements to reduce crashes and fatalities, especially for cyclists and pedestrians.
- **Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants ($15B, expanded)** – RAISE grants support surface transportation projects of local and/or regional significance.
- **Infrastructure for Rebuilding America (INFRA) Grants ($14B, expanded)** – INFRA grants will offer needed aid to freight infrastructure by providing funding to state and local government for projects of regional or national significance. The BIL also raises the cap on multimodal projects to 30% of program funds.
- **Federal Transit Administration (FTA) Low and No Emission Bus Programs ($5.6B, expanded)** – BIL expands this competitive program which provides funding to state and local governmental authorities for the purchase or lease of zero-emission and low-emission transit buses as well as acquisition, construction, and leasing of required supporting facilities.
- **FTA Buses + Bus Facilities Competitive Program ($2.0B, expanded)** – This program provides competitive funding to states and direct recipients to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities including technological changes or innovations to modify low or no emission vehicles or facilities.
- **Capital Investment Grants (CIG) Program ($23B, expanded)** – The BIL guarantees $8 billion, and authorizes $15 billion more in future appropriations, to invest in new high-capacity transit projects communities choose to build.
- **Federal Aviation Administration (FAA) Terminal Program ($5B, new)** – This discretionary grant program will provide funding for airport terminal development and other landside projects.
- **MEGA Projects ($15B, new)** – This new National Infrastructure Project Assistance grant program will support multi-modal, multi-jurisdictional projects of national or regional significance.
- **Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Program ($8.7B, new)** – PROTECT will provide $7.3 billion in formula funding to states and $1.4 billion in competitive grants to eligible entities to increase the resilience of our transportation system. This includes funding for evacuation routes, coastal resilience, making existing infrastructure more resilient, or efforts to move infrastructure to nearby locations not continuously impacted by extreme weather and natural disasters.
- **Port Infrastructure Development Program ($2.25B, expanded)** – BIL will increase investment in America's coastal ports and inland waterways, helping to improve the supply chain and enhancing the resilience of our shipping industry. BIL overall doubles the level of investment in port infrastructure and waterways, helping strengthen our supply chain and reduce pollution.
- **5307 Ferry Program ($150M, existing)** – BIL retains the $30 million per year passenger ferry program for ferries that serve urbanized areas.
- **Electric or Low Emitting Ferry Program ($500M, new)** – This competitive grant program will support the transition of passenger ferries to low or zero emission technologies.

- **Rural Ferry Program ($2B, new)** – This competitive grant program will ensure that basic essential ferry service continues to be provided to rural areas by providing funds to States to support this service.
- **Federal Highway Administration (FHWA) competitive grants for nationally significant bridges and other bridges ($15.77B, new)** – This new competitive grant program will assist state, local, federal, and tribal entities in rehabilitating or replacing bridges, including culverts. Large projects and bundling of smaller bridge projects will be eligible for funding.
- **FTA All Station Accessibility Program ($1.75B, new)** – This competitive grant program will provide funding to legacy transit and commuter rail authorities to upgrade existing stations to meet or exceed accessibility standards under the Americans with Disabilities Act.
- **Charging and fueling infrastructure discretionary grants (Up to $2.5B, new)** – This discretionary grant program will provide up to $2.5 billion in funding to provide convenient charging where people live, work, and shop.
- **Reconnecting Communities Pilot Program ($1B, new)** – This new competitive program will provide dedicated funding to state, local, MPO, and tribal governments for planning, design, demolition, and reconstruction of street grids, parks, or other infrastructure.
- **FHWA Nationally Significant Federal Lands and Tribal Projects ($1.78B, expanded)** – This discretionary program provides funding for the construction, reconstruction, and rehabilitation of nationally-significant projects within, adjacent to, or accessing Federal and tribal lands. BIL amends this program to allow smaller projects to qualify for funding and allows 100% federal share for tribal projects.
- **Strengthening Mobility and Revolutionizing Transportation (SMART) Grant Program ($1B, new)** – The SMART Grant program will be a programmed competition that will deliver competitive grants to states, local governments, and tribes for projects that improve transportation safety and efficiency.
- **Rural Surface Transportation Grant Program ($2B, new)** – This new competitive grant program will improve and expand surface transportation infrastructure in rural areas, increasing connectivity, improving safety and reliability of the movement of people and freight, and generate regional economic growth.

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(1) These values are estimates and may change based on updated factor data each fiscal year.
(2) These values are estimates and may change based on updated factor data each fiscal year.
(3) These values are estimates based on the 2020 FHWA public road mileage data for FYs 2022-2026. Formula funding amounts in FYs 2023-2026 are subject to change as a result of the annual public road mile data certified by FHWA. The 402 amounts do not include redistribution of unawarded 405 balances per 23 USC § 405(a)(8) as that information is unknown at this time. The Bipartisan Infrastructure Law specifies NHTSA must distribute the supplemental appropriations for Section 402 in "equal amounts for each fiscal year 2022 through 2026". This analysis is subject to provisions of FY 2022-FY2026 appropriations acts.
(4) These values are estimates and may change based on updated factor data each fiscal year.
(5) Transit formula funding amounts are subject to changes resulting from the 2020 census or from annual transit service data reported to FTA's National Transit Database.
(6) These values are estimates and may change based on updated factor data each fiscal year.
(7) Precise allocations would change each year because the formulas use current passenger boarding and cargo data, and this estimate is based on 2019 data.

###

APPENDIX L:

Delaware Freight Investment Plan for NHFP Funding

L. APPENDIX L: Delaware Freight Investment Plan for NHFP Funding

As part of the overall 2022 Delaware State Freight Plan, the table on the following page represents the current Delaware Freight Investment Plan for National Highway Freight Program (Z460) Funding.

This table reflects updates current as of **April 18, 2022,** with projected expenditures through **FY 2025**.

Delaware Freight Investment Plan for National Highway Freight Program (Z460) Funding Revised 4/18/22

Item #	Project #	Project	Phase	Ratio	FY	Federal NHFP Funding	Non-Federal Funding	Total Expenditures
1.0	**T201012001**	**SR 299**	PE	100/0	2016			
		SR 1 to Catherine Street			2017	1,975		1,975
				Project Sub-total		**1,975**		**1,975**
2.0	**T201407404**	**Rehabilitation of I-95**	PE	80/20	2017	484,424	121,106	605,530
		from I-95 to North of			2018	1,915,576	478,894	2,394,470
		Brandywine River Bridge		**Project Sub-total**		**2,400,000**	**600,000**	**3,000,000**
					2019	3,000,000	333,333	3,333,333
			Con	90/10	2020	13,750,000	1,527,778	15,277,778
					2021	8,274,605	919,401	9,194,006
				Project Sub-total		**25,024,605**	**2,780,512**	**27,805,117**
3.0	**T200601102**	**SR 72**	Con	80/20	2019	4,184,440	1,046,110	5,230,550
		Advanced Utilities			2022	2,356,800	589,200	2,946,000
		McCoy Road to SR 71		**Project Sub-total**		**6,541,240**	**1,635,310**	**8,176,550**
4.0	**T200601102**	**SR 72**						
		McCoy Road to SR 71	Con	80/20	2022	1,000,000	250,000	1,250,000
					2023	2,500,000	625,000	3,125,000
				Project Sub-total		**3,500,000**	**875,000**	**4,375,000**
5.0	**T201500202**	**HEP KC**						
		US13 LOCHMEATH WAY						
		TO PUNCHEON RUN CONNECTOR	Con	80/20				
					2024	5,000,000	1,250,000	6,250,000
					2025	5,000,000	1,250,000	6,250,000
				Project Sub-total		**10,000,000**	**2,500,000**	**12,500,000**
6.0	**T201611902**	**US 40**						
		SALEM CHURCH ROAD TO WALTHER ROAD	Con	80/20	2023	2,000,000	500,000	2,500,000
					2024	3,000,000	750,000	3,750,000
					2025	-	-	-
				Project Sub-total		**5,000,000**	**1,250,000**	**6,250,000**

Key: Advanced Construction (AC) Deferred

Key: Assumed Continuation of HNFP Funding

Funding Summary (All Projects)	FY	Federal NHFP Funding	Non-Federal Funding	Total Expenditures	Annual NHFP Apportionments	Unused NHFP Balance at End of FY
	2016	-	-	-	4,816,567	4,815,567
	2017	486,399	121,106	607,505	4,577,421	8,906,589
	2018	1,915,576	478,894	2,394,470	5,001,893	11,992,906
	2019	7,184,440	1,379,443	8,563,883	5,645,906	10,197,580
	2020	13,750,000	1,527,778	15,277,778	6,249,364	3,683,244
	2021	8,274,605	919,401	9,194,006	6,210,297	1,618,937
	FY 2016-2021 Sub-total	**31,611,020**	**4,426,622**	**36,037,642**	**32,501,448**	**41,214,824**
	2022	3,356,800	839,200	4,196,000	5,749,174	4,011,311
	2023	4,500,000	1,125,000	5,625,000	5,864,157	5,375,468
	2024	8,000,000	2,000,000	10,000,000	5,981,441	3,356,909
	2025	5,000,000	1,250,000	6,250,000	6,101,069	4,457,978
	FY 2022-2025 Sub-total	**20,856,800**	**5,214,200**	**26,071,000**	**23,695,841**	**17,201,665**
Overall 2016-2025		**52,467,820**	**9,640,822**	**62,108,642**	**56,197,289**	**58,416,489**