

DELAWARE FREIGHT & GOODS MOVEMENT PLAN EXECUTIVE SUMMARY

Purpose & Principles

The purpose of the Delaware Freight and Goods Movement Plan is to provide a specific plan of action for the Delaware Department of Transportation's (DelDOT) implementation of the *Statewide Long-Range Transportation Plan*, which sets forth key strategies to guide planning and investment over the next 25 years. The Delaware Freight and Goods Movement Plan is intended define actions and investments that DelDOT should make to improve the movement of freight in Delaware. This Plan identifies freight and goods movement issues, develops solutions to encourage the efficient and economical movement of goods and materials, and establishes priorities for improvements through the year 2020.

The Plan was developed within a framework of three goals set forth in DelDOT's *Statewide Long-Range Transportation Plan*. These goals guiding freight planning and investment are:

- Provide a safe *freight* transportation system that sustains or improves existing levels of freight access and mobility;
- Support the state's economic well-being, while remaining sensitive to environmental needs and concerns; and
- Achieve efficiency in operations and investments in the *freight* transportation system.

The DelDOT LRTP reflects the growing government interest in freight transportation, as reflected in the landmark ISTEA legislation of 1991. This federal program led many states to understand and work proactively with freight shippers and carriers, rather than continue a legacy of reactive projects and policies. The other major pillar of the LRTP is the State of Delaware's quality of life policies represented by the *Livable Delaware* guidelines. These directives present the direction for and provide some mechanisms to achieve a community-friendly vision for development, including transportation and land use. DelDOT must balance the often-conflicting but interconnected needs of the state's businesses and citizens.

This plan was developed as a pragmatic approach to the needs of the freight system in Delaware. It was designed around statistical evaluation of freight movements into and out of Delaware, supplemented by more-focused interviews with key industry stakeholders to understand the industry trends and specific local issues confronting the shippers and carriers. Based upon this evaluation, a plan of specific actions has been developed, covering a broad range of activities and directly affecting many modes.

Why is freight transportation important?

The effectiveness and efficiency of freight transportation is a major factor in manufacturing costs and, directly and indirectly, in retail costs. Manufacturers look for reliability, speed, and quality control in the carriers that deliver their raw materials and deliver their finished products. If shipments of raw materials do not arrive on time, all other processes are affected, degrading productivity, which in turn affects total company costs. On the retail side, sellers now assume that the cost of transport will be less than the cost of maintaining large inventories (and paying for additional real estate to house it). This process, called ‘just-in-time’ inventory, is now widespread and points to the overall strength of our transportation system. However, as congestion affects transportation reliability, costs will increase because reliability will be a premium – affecting the price of retail items from bread to basketballs at the local distributor. The movement of freight may be slightly mysterious to the average consumer, but it is crucial to maintaining the high quality of life that we expect. Additionally, transportation jobs generally pay well and, through multipliers, this income positively affects the local economy in a direct way as well.

Trends in Freight Transportation

National trends and local conditions affect the future of Delaware’s industries – including how they receive and ship their freight. Many trends are and will continue to affect Delaware. Combined with the unique geography of the region and historical legacies, the trends are shaping the way freight services will be delivered and projects constructed.

Trends and conditions include:

- Most retailers have switched to ‘just-in-time’ stocking procedures, which eliminates in-store inventory, and demands reliable freight delivery (usually by truck).
- On-line/catalog sales continue to increase – which will increase the number of local delivery (UPS, FedEx) trips.
- Chronic shortages of qualified drivers and increasing fuel costs are affecting the viability of many truck companies.
- Roadway congestion will continue to increase – especially in newly developed suburban areas – affecting the ability of trucks to deliver reliable and cost-effective service.



- Increased development (especially residential) and congestion leads to more truck/auto conflicts and other nuisance complaints against trucks.
- Most of Delaware’s rail system is, functionally, a spur of the national system, served via the Amtrak-owned Northeast Corridor route – this restricts the reliability and quality of freight rail service to most of Delaware.
- Most of Delaware’s rail lines are underutilized – Delaware trails the national average in percentage of freight carried by rail.
- National trends toward heavier (286,000 lb.) railcars could affect some key Delaware businesses because the infrastructure does not exist to accommodate them.
- Intermodal traffic (truck trailers or shipping containers on rail flatcars) is the fastest growing sector of the national rail industry. Delaware is presently served from rail intermodal terminals in Pennsylvania and Maryland.
- The Port of Wilmington has a strong niche market in fruit, but also has room to expand into other valuable cargoes, as long as efficient landside access can be maintained.
- The Port of Wilmington may gain cargo because larger, deeper-berth ports (such as New York/New Jersey) simply lack capacity to process additional cargo on-site.
- Delaware has many excellent air cargo facilities, including the Dover Air Force Base, but there is not a market for high-value imports/exports at present that could efficiently utilize that capacity.
- Intermodal (ship-to-truck, truck-to-rail, etc.) or local freight (factory-to-interstate, highway-to-port, etc.) connections have been long been neglected by policy choices and the priority of other projects, and need to be considered if freight facilities are to continue to develop in the state.

A Vision for the Delaware Freight System

In order to proceed from the general strategies of both the *Statewide Long-Range Transportation Plan* and the Freight and Goods Movement Plan to the specific, a vision for the Delaware freight system in 2025 was developed based on input from many stakeholders and sectors of the Delaware economy. The vision is clearly within reach over the next 20 years, and the required capital investments are not unreasonable. The vision includes:

- A seamless freight system that serves the state in which each mode performs the service function for which it is inherently best suited. New terminals and the initiation of new operating policies and agreements among freight carriers, shippers, DelDOT, and other relevant public entities facilitate the intermodal flow of goods.

- The reliability and quality of Delaware’s rail service has been strengthened through (a) provision of a new track on the Northeast Corridor that is devoted primarily to freight, (b) restoration of the Christina River rail bridge, (c) return of through-freight train service to the Shellpot Secondary and Edgemoor Yard, (d) upgrading of existing rail service throughout the state in terms of quality and consistency, and (e) increased utilization of rail service in areas below the Chesapeake & Delaware Canal.
- The Port of Wilmington has excellent water, highway, and rail access through (a) rail system improvements that allow tri-level auto carriers and double-stack container access, (b) major road and land use improvements in the immediate vicinity of the port that facilitate truck movements between the port and I-495 and provide a comprehensive truck service facility, and (c) on-site port improvements that provide deeper berths on the Delaware River, port expansion space, and a more efficient internal circulation system.
- Trucks move safely and efficiently over a statewide system of major truck corridors with appropriate connections to principal freight generators. The trucking industry is informed as to the characteristics of the state’s highway system and the ability of each part of the system to accommodate trucks of different sizes and weights. Real-time traffic data is available to truckers in their vehicles, as well as assistance in identifying alternative routes to avoid congestion.
- Through the design of new highway facilities and the upgrading of design characteristics of older problem locations, trucks are moving more smoothly and safely through intersections and interchanges on Delaware’s highways, with less damage to trucks and to highway signs, curbs, traffic islands, and pavements.
- Motor carriers take advantage of streamlined electronic registration and credentialing of trucks and make fewer stops for roadside inspections because of interstate and interagency sharing of records.
- A coordinated system using weigh-in-motion detectors and portable scales are employed to enhance truck weight and safety enforcement.
- A truck-to-rail intermodal transfer yard has been established in Delaware to serve the entire Delmarva region.
- A proactive joint transportation and economic development initiative has brought new industry and business to downstate railroad corridors, creating new jobs and tax revenue, as well as strengthening the position of short-line operators.
- High-value and time-sensitive product shippers take advantage of Delaware’s excellent airport facilities, stimulating the development of regularly scheduled airfreight services.

Achieving Delaware’s Goals

Because DelDOT directly controls only one aspect of the freight transportation system in the state (the infrastructure of the roadway network), extensive cooperation with others is

mandatory. Partnerships must be forged with private sector freight carriers, shippers, and industry, as well as local governments, in working toward the goal of improving the freight transportation system, which includes infrastructure, services and business practices. DelDOT policies and investments can help to leverage private investments and working relationships, thereby magnifying the positive contributions of state action.

Limited capital funding must necessarily be directed at key bottlenecks and improving the productivity of the existing transportation network.

Plan Implementation Priorities

From a review of the freight issues and proposed improvements, several improvement projects clearly emerge as the keys to developing a better freight and goods movement system for Delaware. In general, the projects are listed herein in priority order, by mode.

Projects crucial to maintaining the viability of existing businesses must take precedence over all others. Provision of reliable rail service by the Norfolk Southern Railway (NS), Delaware's major interstate rail service provider, via the Amtrak-owned Northeast Corridor (NEC) route to Pennsylvania and Maryland, is absolutely critical for the economic sustainability of the auto, poultry, and power-production industries. Without rail service, these industries would be only days or weeks from total shutdown from lack of key supplies. Ensuring future access for freight rail is a top priority – thus the Perryville-Newark/Wilmington freight-only NEC track is the highest-priority project among the modes.

Because the trucking industry, in general, has more redundancy in routing and flexibility, its projects are less imperative in terms of potential imminent jeopardy to businesses. However, long-term trends in trucking, especially because of its shared use of highways with auto traffic, require solutions that must become integrated into standard operations at DelDOT. Freight and truck concerns and requirements must be considered with every aspect of road building and maintenance.

Project recommendations that benefit trucking are generally more systemic in nature and will be provided more slowly as programs, such as pavement rehabilitation or weigh-in-motion (WIM) site activation, are rolled out as part of the continuing DelDOT project development process. Nevertheless, because of trucks' shared use of the roadway network, traffic conditions are more likely to change rapidly due to new land uses (likely non-industrial), so changes or needs for projects such as bypasses or traffic safety may develop quickly and become priorities.

These implementation priorities are consistent with the freight plan strategies and will make the greatest contribution toward the three basic goals relating to transportation system safety, efficiency, and support of the state's economic and environmental well-being.

Proposed Modal and Intermodal Freight System Improvements

In order to implement the vision for the Delaware freight system, an extensive list of recommended improvements was prepared based on interviews with stakeholders and prior studies. Proposed improvements are summarized by mode in the following sections.

Motor-Carrier Freight Improvements

- 1. Classify roads according to their ability to safely accommodate vehicles of various sizes and weights, sign and enforce restrictions on roads with severe safety and operating constraints, and map the system for broad distribution to the public and trucking industry.**

There is a need in Delaware to define an expanded system of roadways that will be improved, where necessary, and maintained to safely accommodate various sizes and weights of commercial vehicles. The objective is to optimize the facilities needed for freight and goods movement and to stimulate commerce, while at the same time ensuring that public safety and the quality of life of adjacent communities are protected. Identification and designation of those roadways with high truck traffic will help the DOT and law enforcement agencies better focus maintenance and safety projects to those areas. The principal steps in implementing this recommendation are:

- a) Inventory the existing highway system and identify physical factors and conditions that may constrain the safe operation of commercial vehicles. Of particular concern are lane widths, pavement and bridge load restrictions, vertical and horizontal clearance constraints, vertical and horizontal curvature, and shoulder availability and width.
- b) Identify existing major truck corridors throughout the state. This will require an extensive program of vehicle classification counts on all routes that are known or thought to have significant truck volumes. This should include local connectors to major generators of truck traffic, such as terminals and major industries.
- c) Based upon the results of the preceding tasks, classify all state roadways as to their *existing* ability to accommodate safely 102-inch-wide twins and 102-inch 48- and 53-foot semitrailers and trailers. Also, identify those sections that could have limited approval for vehicles that are 102 inches in width, but for which length restrictions may be appropriate. Desirably, 102-inch twins and 102-inch 48- and 53-foot combinations should not be allowed on roadways having travel lanes that are less than 10 feet wide. Roadway sections and bridge locations with restrictions resulting from load limits, clearance constraints, or unique environmental or scenic concerns should be identified and mapped along with the roadway classifications described above.
- d) The mapped existing conditions and classifications should be compared to the network of major truck corridors defined in item 2 above to identify roadway sections

and structures in major truck corridors that cannot accommodate Surface Transportation Assistance Act (STAA) standards for vehicles. These sections are candidates for capital improvements that would eliminate the operating constraints and allow the safe operation of large trucks and combinations throughout the system of major truck corridors.

- e) Route sections on which certain truck sizes or combinations should not be allowed to operate should be posted in the field and the restrictions enforced by state police and local law enforcement personnel.
- f) Maps of the classified route system should be mass-produced for wide distribution to the trucking industry and other interested parties. The maps could include other information on state regulations affecting truck operations in Delaware, as well as information on the location of public truck rest areas and private truck stops.

2. Identify communities where bypasses may be warranted because of through truck movements and initiate project planning studies.

To improve freight movement in designated major truck corridors and to reduce adverse community impacts, bypasses may be warranted for some communities. A bypass may involve designating existing roads as a truck route around a congested area or construction of a new roadway. By focusing on routes that are part of the system of major truck corridors, improvement priorities can target those projects that will produce the greatest benefit in easing truck movements and relieving community pressures and impacts. Factors that should affect improvement priorities include the volume of through trucks that would be diverted to a bypass and the amount of relief (e.g., improved level of service, reduced noise levels, etc.) that would accrue to the old route as a result of building a bypass. Any DOT policy on bypasses needs to consider the effect of land use on traffic and how local communities will plan their land uses to maintain the viability of a constructed bypass route. If a bypass cannot practically be developed, strategies to control adverse effects heavy traffic (such as traffic calming, increased enforcement, education, etc.) should be employed.

3. Develop a plan to improve truck access and operations in the vicinity of the Port of Wilmington.

The Port of Wilmington is located within a half-mile of I-495 via an interchange with Terminal Avenue. This proximity to the Interstate system provides the port with excellent regional and interregional access to a large market area. However, local roadway and interchange conditions tend to degrade the efficiency and effectiveness of truck service to the port. Moreover, the state and local governments are failing to capitalize upon the economic development opportunities associated with this unique intermodal location.

The port's 1997 Master Plan calls for new roadways within the port property to better accommodate access to ship berths and storage areas, particularly for the auto import/export trade. However, that plan stops at the port's property line and does not include the possible need for broader, related roadway improvements in the surrounding area, such as on Christiana Avenue, Pigeon Point Road, and possible new connections to

the port. A plan to improve truck access and operations around the port should assess the need and develop specific proposals for new roadways and ramps.

Problems with the design of certain ramps at the Terminal Avenue/I-495 interchange have created difficult operating conditions for trucks. Informal, roadside truck parking and a lack of access management along Terminal Avenue creates hazardous conditions associated with vehicles pulling on and off the roadway. These movements also break-up the pavement and create ruts along the roadside. There is a need to analyze these problems and make improvements to the interchange and Terminal Avenue.

There is also a need for a full-service truck stop and service facility in the vicinity of the port, given the hundreds of daily truck trips to the port and nearby industries. Such facilities could meet the need for an additional truck rest area in northern Delaware and provide needed off-street short-term and overnight truck parking.

It is recommended that a comprehensive transportation and land use study be conducted for the area surrounding the port to identify existing and projected future transportation improvement needs, including both roadway and rail-intermodal improvements. It would identify desirable land development and redevelopment proposals to make the most effective use of the valuable land adjacent to the Port and to capitalize upon the unique intermodal accessibility of this location.

4. Review roadway and intersection design criteria and standards with representatives of the trucking industry to consider modifications to facilitate truck operations, especially in major truck corridors.



The Delaware Motor Transport Association (DMTA) and trucking companies have identified numerous locations throughout the state where trucks have difficulty operating safely, because of inadequate turning radii, lane

widths, ramp configuration and grades, signs, shoulders, pavement, and other factors. More than 70 percent of the shippers and carriers using trucks in DeIDOT's 1998 *Customer Satisfaction Surveys* said that interchanges with ramps that trucks can negotiate, wide intersections with turning lanes, and well-planned sequencing and timing of traffic lights were "extremely important."¹ This response was consistent with the results of the 1997 surveys.

¹ 1998 *DelDOT Customer Satisfaction Surveys*. Prepared for DelDOT by Frederic R. Harris, Inc.

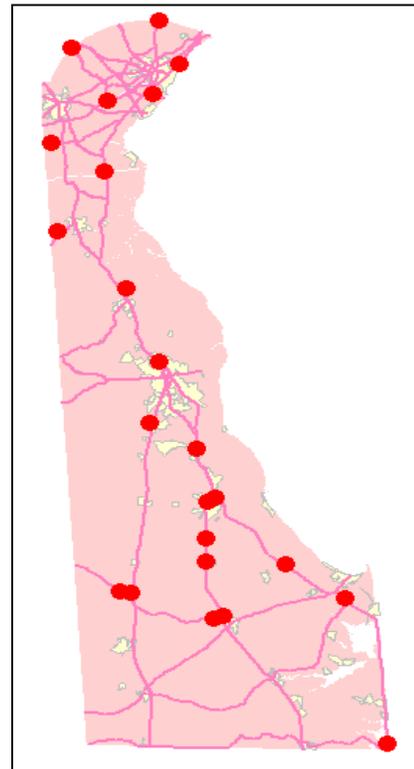
It is recommended that DelDOT's design engineers review roadway and bridge design criteria and standards with representatives of the trucking industry to get their insights on issues and problems faced by the industry in using the state's highways. These insights may foster modifications to design criteria and standards, especially for application to projects in major truck corridors.

Traffic forecasts that are prepared to guide the design of roadway improvements often do not reflect or highlight potentially greater truck usage of such facilities, and thus, the designs do not include special consideration of their unique requirements. Therefore, it is recommended that any roadway or bridge improvement project or new land use development on a major truck corridor should have a specific estimate of truck traffic and an identification of truck operational issues for input to project design.

5. Expand the statewide deployment of joint weigh-in-motion (WIM) and traffic counting stations, and ensure the provision of safe roadside enforcement areas for each facility.

Delaware needs to expand its monitoring and enforcement of commercial vehicle weight restrictions and to initiate a continuing, comprehensive traffic counting program for commercial vehicles throughout the state. These two needs can be satisfied through a joint program to employ the existing WIM sites in major truck corridors across the state, using that information to target enforcement efforts. WIM sites would be paired with safe truck pull-off areas that could be used for enforcement by the State Police Truck Enforcement Unit using portable scales.

As full operation of all WIM sites may be cost prohibitive, variable employment of four to five sites at a time on a rotating basis might be effective to identify trouble spots. The system of major truck corridors should be reviewed in establishing WIM/traffic counter sites to ensure reasonable coverage of major routes and critical areas, as well as broad geographic coverage.



6. Expand Intelligent Traffic Management System (ITMS) traveler-information services to improve the availability of timely data on traffic conditions to truckers.

Real-time information on traffic and roadway conditions is now available to truckers (and other motorists) primarily through variable message signs (VMS) on the roadways

and the Travelers' Advisory Radio System (TARS). Several other sources are available through the Internet, but these not are generally not accessible to truckers on the road.

Telematics, which are in-vehicle wireless systems and services using Global Positioning Systems (GPS), can provide motorists the ability to communicate in the event of an emergency, timely prompts of road hazards and traffic conditions, and accurate route guidance in unfamiliar territory.² The private sector is likely to offer both in-vehicle hardware and information services that truckers and others can tap into to facilitate travel through congestion caused by highway incidents or chronic highway system overload.

With the growing emphasis on just-in-time deliveries, timeliness and reliability in freight operations will become increasingly important. DeIDOT should look for ways it can help to improve freight schedule reliability by expanding the provision of traveler information through its ITMS and in cooperation with other groups, such as the I-95 Corridor Coalition. Cooperation with its neighbors in the sharing of traveler information is particularly important for Delaware, because so many of its truck freight trips have origins or destinations outside the state, and these trips can become embroiled in traffic tie-ups in adjacent states.

During the stakeholder interviews, a representative of a major industry that is also a significant generator of truck trips expressed a desire for more, real-time information on road maintenance and repair work schedules. This company receives extensive deliveries from local suppliers on a just-in-time basis, and these deliveries are often disrupted by local roadwork. DeIDOT currently provides detailed information on planned and on-going road maintenance and construction projects through its website and by radio via WTMC-AM. It may be useful for DeIDOT to send periodic notices to the logistics or transportation directors of major companies with significant truck activity to tell them where they can get reliable and current information on road construction and maintenance.

7. Develop truck rest areas to address problems of driver fatigue.

It is recommended that at least two new truck rest areas be developed in Delaware: one in the southern half of the state on either U.S. 13 or U.S. 113, and the other in the northern half of the state, possibly on I-495 near the Port of Wilmington. These facilities would provide driver amenities, such as rest rooms and vending machines, and safe short-term and overnight parking for driver rest. A recent forum on truck rest areas suggests a consistent spacing of 100 kilometers, or approximately one hour apart, for such facilities in major highway corridors.³ Provision of rest areas in the northern and southern parts of the state would achieve roughly a one-hour spacing of such facilities in Delaware. The Federal Highway Administration has developed planning and design guidelines for estimating rest area truck parking requirements that will be useful in locating and

² C. Kenneth Orski. "The Telematics Boom – Fact or Fiction?" *Traffic Technology International*. August-September 2000.

³ *Rest Area Forum: Summary of Proceedings*. Federal Highway Administration. June 1999.

planning these proposed facilities.⁴ Co-location with commuter Park & Ride facilities may also be possible (at state-owned sites only).



8. Implement electronic registration and credentialing of commercial vehicles and sharing of credentialing information with other states and Delaware enforcement personnel.

DelDOT should implement the recommendations in its ITS/CVO Business Plan to streamline registration and licensing procedures and facilitate the sharing of commercial carrier records with other states and enforcement agencies. An electronic credentialing system will allow motor carriers to submit registration requests and associated data electronically via the Internet, which can result in huge savings of person-hours, especially for companies with large fleets.

The ITS/CVO Business Plan proposals also include the development of data systems that will provide field enforcement personnel with real-time information on a vehicle's registration, tax, and safety record. This information will be electronically updated to reflect the results of field inspections or stops and shared with enforcement personnel in other states. This will expedite field inspections and allow law enforcement to focus on trucks and drivers with poor records, improving the effectiveness of the limited number of police dedicated to truck enforcement.

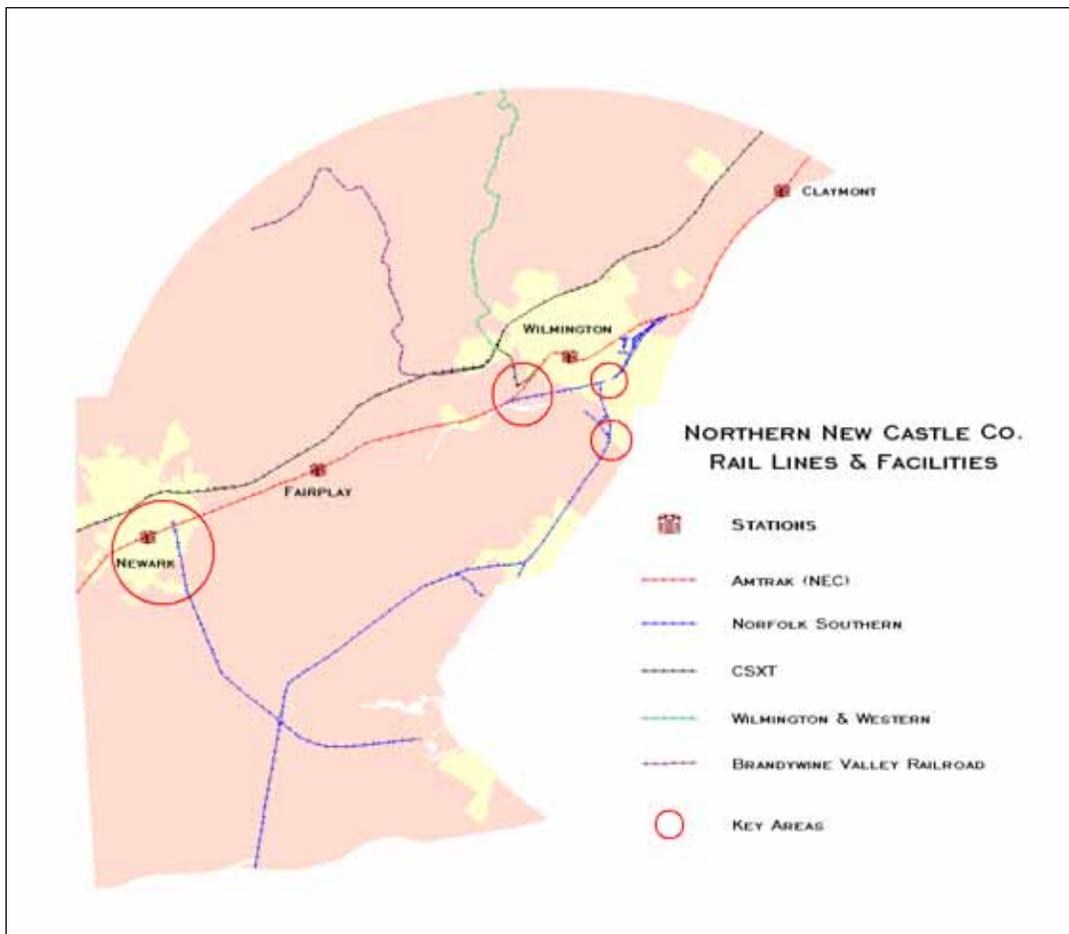
Proposed Rail and Intermodal Freight Improvements

Rail and intermodal freight improvements are discussed together, because rail is involved in all intermodal improvement proposals. Northeast Corridor (NEC) freight access improvements are covered first because they are the key to any significant improvement to rail and intermodal service in Delaware.

⁴ *Commercial Driver Rest Area Requirements: Making Space for Safety*. Prepared for the Federal Highway Administration by the Trucking Research Institute, Apogee Research, Inc., and Wilbur Smith Associates. May 1966.

1. Develop a new track on the NEC between Newark, Delaware, and Perryville, Maryland, to be used primarily for freight.

An engineering study should be conducted to determine the feasibility of a new, 21-mile track with 20'6" clearances within the existing right-of-way of the NEC between Newark (Iron Interlocking) and Perryville. This track would be used primarily for freight service. The study would also examine the feasibility of connecting the new track to the existing Track A at Iron Interlocking, as well as a short extension of the parallel tail track and its connection to Track A in order to increase operating flexibility near the Newark Yard. The new track would provide continuous hours of freight access between the yards at Harrisburg, Pennsylvania, and Delaware origins and destinations.



The study would also document rail operating efficiencies that could be achieved, such as improved freight car and train crew utilization. In addition, the study would address economic and environmental impact issues, as well as the undertaking of rail infrastructure improvements outside Delaware. The Delaware Economic Development Office (DEDO), Amtrak, and the State of Maryland should be active participants in the study.

The government of Cecil County, Maryland has expressed interest in extending commuter rail service from Newark into the county, perhaps to Perryville, using the same NEC right-of-way. The feasibility study could include consideration of shared freight and commuter rail use of the new track, but still meeting on-demand freight service capability.

2. Restore the Christina River movable rail bridge and Shellpot Secondary operations, including direct, head-on access to the Port of Wilmington.

DelDOT is providing financial, technical, and political assistance to Norfolk Southern for the restoration of the Shellpot Secondary movable bridge and approach track structure at the Christina River, as well as the restoration of Edgemoor Yard to eliminate freight movements on the NEC through the Wilmington passenger station. Restoration of the Shellpot Secondary would provide improved local service to customers in Delaware, as well as allow the initiation of general merchandise, through-train service on the NEC, with service at Edgemoor Yard.

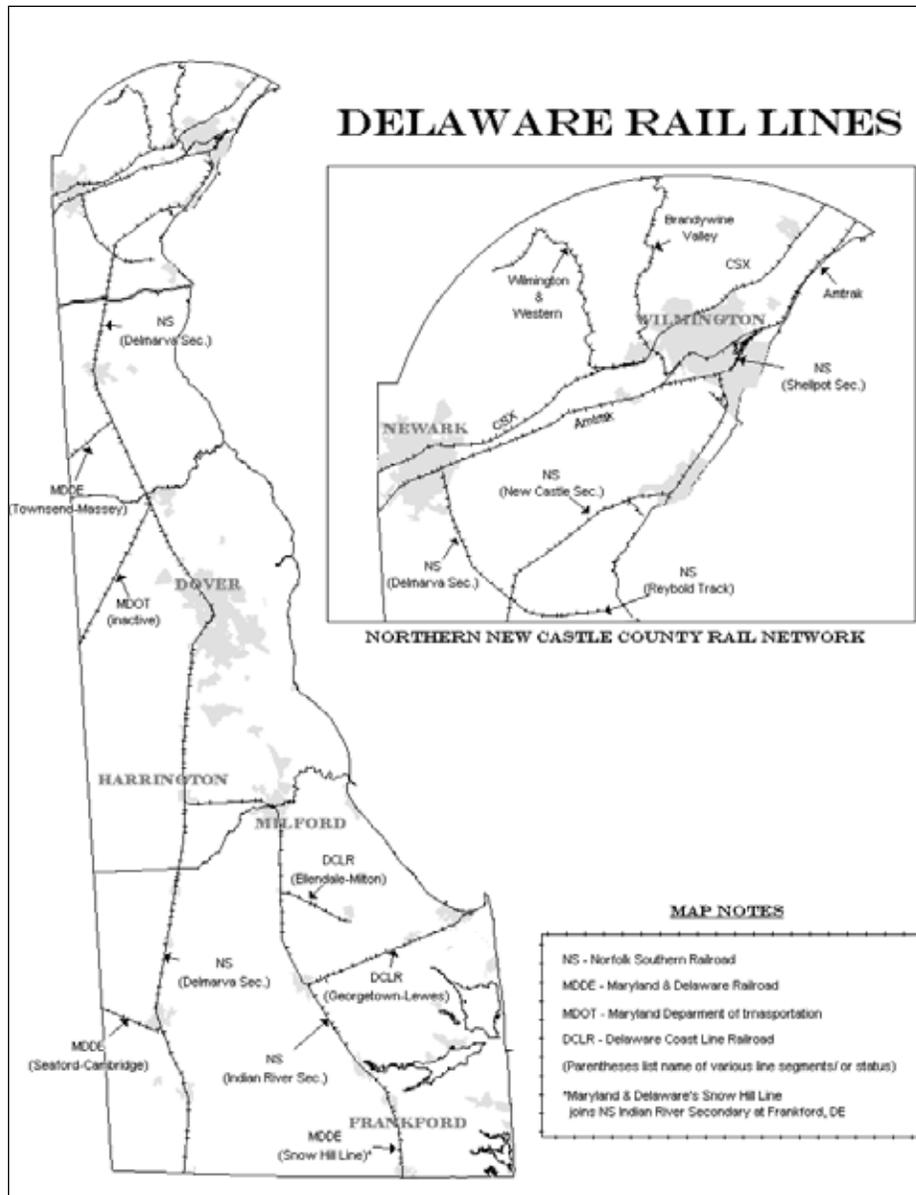
Restoration of the Shellpot route is a necessary element in the provision of quality rail freight service to Delaware and the Delmarva Peninsula, as well as in promoting increased rail traffic. Additionally, restoration of the Shellpot route eliminates the need for the existing freight traffic on the viaduct through the Wilmington passenger station. Elimination of heavy freight cars through the station will reduce stress on the station structure below, contributing to lower maintenance costs for the station and viaduct.

3. Develop a freight-only track on the NEC between Edge Moor, Delaware, and Marcus Hook, Pennsylvania, connecting to the freight-only Chester Secondary and the Conrail Philadelphia/South Jersey Shared Asset Area.

DelDOT should study the feasibility and capital cost of a freight-only, high-clearance rail route between Philadelphia and the Edgemoor Yard. This track would be developed within the right-of-way of the NEC between the Bell and Hook Interlockings, a distance of 5 miles. A connection would be built to the Chester Secondary, which is within the Philadelphia Shared Asset Area. This connection has the potential to improve the quality of rail freight service between Delaware and points north. The study would build upon findings from the feasibility analysis of improved clearance access to Newark and the Port of Wilmington.

4. Expand the operational function and capacity of the Edgemoor Yard to accommodate general merchandise, through-train service on the NEC.

In conjunction with restoration of the Christina River movable bridge, the Edgemoor Yard would regain a major role as an origin for local train service in New Castle County, because through-freight trains would set-off and pick-up traffic at the yard. The Edgemoor Yard would perform some of the functions now performed at Newark, such as serving Reybold Industrial track customers at Delaware City. The proposed change in function at Edgemoor Yard would require restoration of some track capacity to



accommodate increased switching and through-train activity. Present use of the yard for rail access by Dupont's Edge Moor titanium dioxide plant would have to be accommodated in any revised yard configuration and functions. The reduced level of activity at the Newark Yard could provide capacity for other functions, such as increased rail traffic to Daimler-Chrysler, including NS Triple Crown intermodal service.

5. Prepare a Delmarva rail service contingency plan.

In association with state rail agencies in Maryland and Virginia, DeIDOT should take the lead in preparing a contingency plan for Delmarva rail service, premised upon the possible loss of unit coal train traffic if the Indian River generating station were to cease operation, or convert to an alternative fuel. Loss of this traffic, with or without the loss of other significant bulk volumes on the Delmarva, would alter the strategic value to NS of

lines south of the C&D Canal. The contingency plan should explore the creation of a multi-state, regional authority to acquire these assets and lease them to a regional rail carrier in the event of a significant decline in the interest and commitment of NS to this service. The regional carrier would provide an integrated local service on the Delmarva, including local rail movements of corn, soybeans, and other commodities. A multi-state regional authority could also discuss other rail service issues of mutual interest through regular meetings with NS.

6. Improve the rail interchange in Wilmington to allow CSXT better access to the Port of Wilmington or encourage NS and CSXT to negotiate more efficient handling of interchange traffic.

The interchange at West Yard in Wilmington between NS and CSXT has a restricted vertical clearance that does not accommodate covered tri-levels. It is not certain that automotive traffic between CSXT/West Yard and the port would use this route, even if an adequate clearance were available. Commercial, rather than operating reasons, would likely prevail, because neither NS nor CSXT would intentionally short-haul itself.



One approach is to perform a traffic analysis of the feasibility of NS and CSXT interchanging Delaware traffic at other locations, such as Bay View Yard in Baltimore and/or Philadelphia, to determine if a local interchange would be more efficient and beneficial

for both the railroads and Delaware. A formula, similar to a haulage agreement, may be feasible. Port of Wilmington officials may find this to be a satisfactory way to obtain port access by both railroads.

7. Develop an intermodal terminal in Delaware.

Implementation of the preceding, recommended rail improvements should achieve the quality of downstate rail access needed to provide reliable intermodal service. If commercial prospects also indicate promise, an intermodal terminal, scaled to the traffic level, could divert some truck traffic from highways and would add traffic to the Delmarva rail network.

Due to the relative proximity of Delaware to Norfolk Southern and CSXT's Philadelphia intermodal terminals, there is little demand for a similar facility in Delaware. However, intermodal terminals can be developed at relatively low capital cost by using RoadRailer

and/or other technologies. Instead of trailer-on-flatcar-type configurations where the trailer sits upon the rail car, RoadRailer utilizes a rail-wheel 'bogie' placed under the rear and front of the truck trailer, converting it into a rail car. These intermodal



technologies do not require expensive lift equipment or extensive locomotive horsepower per revenue ton, since they have a low tare weight compared to traditional intermodal configurations. This type of intermodal yard requires only about 15 acres of relatively flat land with good rail and highway access.

8. Improve the rail interchange between the NS and the Maryland & Delaware (MDDE) rail lines at Frankford, Delaware.

The Frankford interchange between the NS and the MDDE should be relocated to a point north of the existing inefficient interchange. A new interchange will also assist industries that may employ unit grain trains.

Interchange switching requires many back-and-forth train movements across the streets in Frankford, because cars are being delivered to, or received from, the NS and MDDE. An NS train coming into Frankford from the north has two basic functions in addition to serving the Mountaire Farms feed mill: (1) leave cars for the MDDE and (2) pick up cars left previously by the MDDE for NS. Because of limited tracks in Frankford, picking up and leaving cars requires many back-and-forth movements, as groups of cars are uncoupled, placed on one track, then another group of cars are coupled and moved to another track.

Inefficient switching and interruption to highway traffic in Frankford could be eliminated by the construction of a new interchange track facility north of town. For purposes of this report, the need to accommodate a 50-car unit train is assumed. The track facility should be the equivalent of about a mile in length, allowing about 3,000 feet for a unit train and about 2,000 feet for about 35 other cars.

9. Work with the poultry industry to achieve efficiencies associated with 75-car unit grain trains at feed mills, including rail car siding length requirements.

The poultry industry is currently considering the use of 75-car unit grain trains instead of the existing 50-car trains. If the economies and efficiencies of the longer trains are sufficiently attractive to the poultry industry to justify its investment in either expanding existing facilities or developing new ones, state and local agencies may be able to assist in implementation. This assistance could take several forms, including working with the railroad to resolve possible land use impacts and grade crossing questions.

Proposed Waterborne Freight Improvements

The discussion of proposed waterborne freight improvements focuses primarily upon the long-range vision for the Diamond State Port Corporation's (DSPC) Port of Wilmington. Preceding sections on proposed rail, intermodal, and motor carrier freight improvements include projects to improve landside port access and land use and circulation conditions in the area surrounding the port. The generalized description of proposed improvements discussed below are drawn from the DSPC Master Plan report, and the reader is referred to that document for a more detailed description of and rationale for them.⁵ The long-term vision for the port is that all berths will be located on the Delaware River in order to assure the port's efficiency in handling ocean-going vessels.

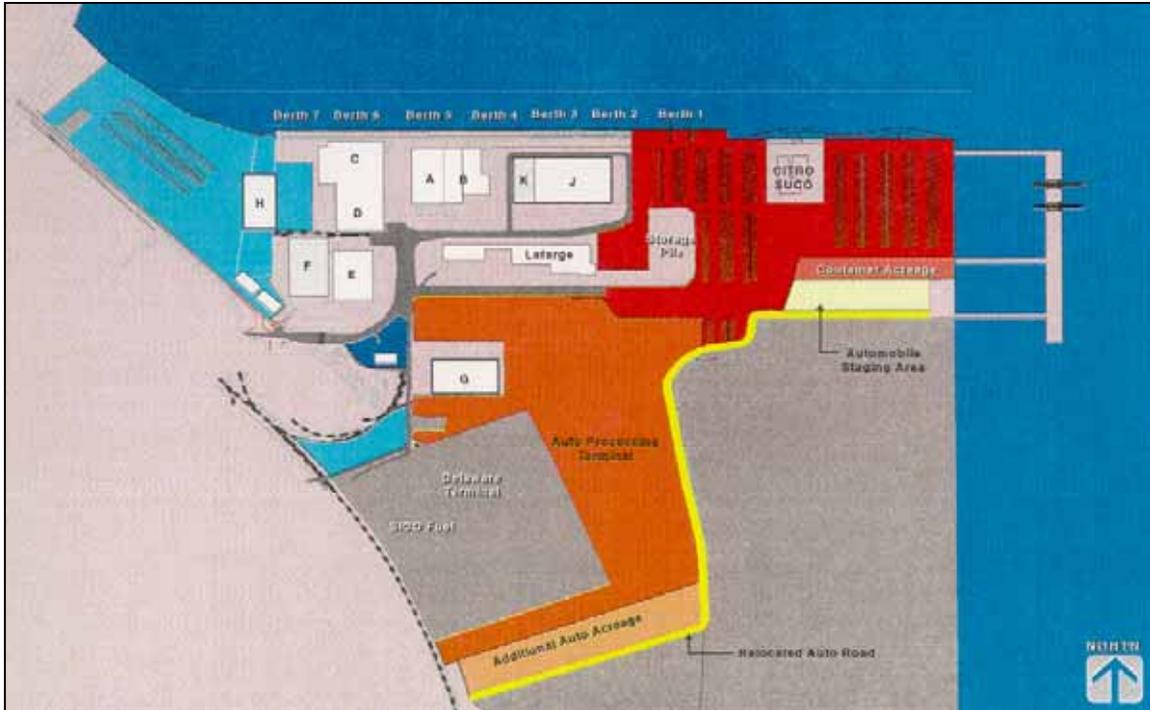
Proposed Port Improvements

The 1997 Master Plan identified 24 improvement projects, having an estimated cost of \$235 million and implementation staged through 2018. The Master Plan recommended improvements in several areas including land use and acquisition, ship berthing, warehousing and value-added services, and internal circulation.

The Port is somewhat constrained in its operations by the necessity for vessels to maneuver in and out of the Christina River. The rapid silting of the Christina River channel and berths is an added expense and complication for port operations. New berths that are proposed for development on the Delaware River will not silt-up as rapidly as the existing berths and will be deeper and easier to access from the Delaware River channel.

Improvements in warehousing and storage will focus on expanding existing businesses, such as auto import/export and refrigerated fruit warehousing. Improved facilities will be attractive to new businesses as well.

⁵ *Port of Wilmington Strategic Master Plan*. Prepared for the Diamond State Port Authority by Vickerman Zachary Miller. June 1999.



While the Diamond State Port Corporation is responsible for and is receives state funding to develop infrastructure and operations within the port, various land use, environmental, and transportation agencies have jurisdiction of the areas outside the port.

DelDOT can work with the port to ensure that traffic circulation in the areas adjacent to the port and access to and from the port is maintained at an optimum level. DelDOT has expanded Terminal Avenue to four lanes and installed a signal light at the intersection of Terminal and Pigeon Point Road to facilitate truck movements to and from nearby I-495. DelDOT may also assist in developing truck support/rest areas that serve the port area as well as coordinating improvements in rail service to the port.

As with most businesses, operations at the port are subject to the fluctuations in economic trends and strategies of private businesses. While the Port can attempt to plan for future conditions, trends, and business opportunities, they must remain flexible to respond to rapid and dramatic changes in tenants and their desired services. Long term goals and visions can be laid out in a plan, but the other elements may be subject to change to accommodate market or customers. The DSPC may change these plans, but certain principles, such as the importance of reliable and efficient transportation will remain and close coordination between the DSPC and DelDOT will allow mutually supportive planning and operations.

DelDOT will be an active partner in discussions of port-supportive land use development in the area with the ultimate goal of creating a 'Freight Village' in the vicinity of the Port. The 'Freight Village' concept involves the development of a nexus of port-supportive services around a port that add value to import and export products, thus adding to the efficiencies offered to potential port tenants and adding higher-paying jobs to the local

economy. Transportation services, such as well-maintained roadways, rail access, and intermodal transfer facilities certainly can add to the viability of a port facility.

Barge Shipping/Feeder Port

Delaware has another potential waterborne freight asset that could prove useful in the future. That asset is the state's strategic location in the center of the Eastern Seaboard and the unique water commerce resources of the Delaware River and Bay and the C & D Canal. These attributes position Delaware as a possible future center of coastal shipping, using barges or self-propelled vessels. As congestion grows on coastal highway corridors such as I-95 and landside access becomes less available at large, deep-water ports like New York/New Jersey, coastal shipping could become an alternative mode for distributing freight from major ports and accommodating interstate movements for bulk commodities. The major deterrent to coastal shipping is the cost of the intermodal shifts required at each end of the trip.

The Port of Wilmington is still considered a potential feeder port for PONY/NJ as part of their recently proposed Port Inland Distribution Network (PIDN) plan. DelDOT and the Diamond State Port Authority should continue to monitor markets and look for opportunities to stimulate or assist in developing coastal shipping.

Proposed Air Freight Improvements

The key question for the future of air freight in Delaware is whether the local market for this type of freight service will grow to the point of making it desirable and profitable for air freight carriers (Fed Ex, Airborne, UPS, and others) to fly directly into Delaware airports. Highway congestion could ultimately affect this decision, if it reaches levels that severely constrain the timeliness and reliability of ground pick-up and delivery in Delaware for air freight being flown in and out of Philadelphia.

For the foreseeable future, Delaware's best posture is to keep its options open. This means preserving the capability of New Castle County Airport (NCCA) and the civil air terminal at Dover Air Force Base to accommodate cargo aircraft and landside air freight operations. It seems likely that non-scheduled air freight service may grow at NCCA, as more industries in that area require just-in-time deliveries of non-bulk, high-value key components and materials.

Dover Air Force Base may present a unique, long-term opportunity for the creation of a domestic and international air freight distribution center. Its runways can accommodate the largest cargo aircraft in the world. It is not congested by air passenger traffic. It has excellent regional and inter-regional highway access via SR 1 and its connections to the interstate highway system. Opportunities are available to develop commercial and industrial sites adjacent to the airport to accommodate related businesses that would support and/or require such service. The uncertainty surrounding joint use of an active military facility seems to have stymied any discussion of this idea for the near future, but as capacity is needed, the idea may become more viable.

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