

NATIONAL HIGHWAY SYSTEM CONNECTORS

to **FREIGHT FACILITIES**
in the
DELAWARE VALLEY REGION



2007

Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, intercounty and intercity agency that provides continuing, comprehensive and coordinated planning to shape a vision for the future growth of the Delaware Valley region. The region includes Bucks, Chester, Delaware, and Montgomery counties, as well as the City of Philadelphia, in Pennsylvania; and Burlington, Camden, Gloucester and Mercer counties in New Jersey. DVRPC provides technical assistance and services; conducts high priority studies that respond to the requests and demands of member state and local governments; fosters cooperation among various constituents to forge a consensus on diverse regional issues; determines and meets the needs of the private sector; and practices public outreach efforts to promote two-way communication and public awareness of regional issues and the Commission.



Our logo is adapted from the official DVRPC seal, and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole, while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

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EXECUTIVE SUMMARY

The Delaware Valley Regional Planning Commission (DVRPC) is the officially designated Metropolitan Planning Organization for the nine county Philadelphia-Camden-Trenton region. During the 2007 fiscal year DVRPC conducted a study of the key roads that connect 11 intermodal facilities to the National Highway System. These roadways are termed *NHS Connectors*, and provide the vital first and last mile that trucks travel when taking goods to or from an intermodal facility.

The Delaware Valley region has approximately 30 miles of connector roadways all of which are located near the Delaware River. There are connectors in three counties in Pennsylvania (Delaware, Philadelphia, and Bucks), and two in New Jersey (Burlington and Camden). The facilities that the connectors serve are wide ranging, with six seaports, three rail yards, one airport, and one freight village (containing both port and rail activity).

The *NHS Connectors* report summarizes the results of an existing conditions survey which was conducted by teams of planners on September 20, 2006, in coordination with another DVRPC Freight Planning effort entitled *Freight for a Day*. The purpose of the site visits was to determine the operational deficiencies along the connector roadways. Some of the things evaluators were asked to grade the roadways on were pavement conditions, turning radii, railroad grade crossings, signage, and community impacts.

Overall the connectors were found to be in generally fair condition. Due to heavy truck use, the pavement conditions are worse on connectors than on surrounding roads, but for the most part pavement was in adequate condition. In general, connectors leading to ports were found to be in worse condition than those leading to rail yards and the airport. Some key problem areas include, but are not limited to: acceleration and deceleration lanes on the principal NHS routes, ramps connecting the principal NHS routes to the connector, space for truck turns at intersections along the connector, railroad crossings along the connector, and signing leading both to and from the connector.

Section III of the report sets forth administrative recommendations, suggests capital improvement projects, and details next steps. Administrative work includes updating the connector inventory, resolving issues that are of an operational nature that do not require capital improvements, and continuing work currently going on at DVRPC such as promoting “Freight as a Good Neighbor” practices. The list of suggested capital program projects range from something as simple as repaving a stretch of road, to a redesign of the interchange with the principal NHS route. Finally, implementation opportunities and next steps are noted which list ways DVRPC can continue to improve the connectors in future years.

The support of the Delaware Valley Goods Movement Task Force, DVRPC’s freight advisory committee was essential in all stages of this report.

SECTION I: INTRODUCTION

The NHS Network

The National Highway System (NHS) is the network of highways linking major origins and destinations throughout the country. It is precisely defined as the “roadway important to the nation’s economy, defense, and mobility.”¹ The NHS is made up of 4 subsystems. The Eisenhower Interstate System consists of the major interstate freeways that cover the country. Other Principal Arterials are the secondary highways that provide access between the interstate system and a major origin or destination of people or goods. The Strategic Highway Network and the coinciding connectors consist of highways and connectors important to the nation’s strategic defensive policy. Lastly, the focus of this report, Intermodal Connectors are the last-mile of roadways that connect major intermodal facilities to the NHS network. The NHS network is deemed important enough to have its own pot of federal funding. Nationwide there are 160,000 miles of NHS roads that American citizens rely on for their transportation, and the transportation of their goods every day.

In the Delaware Valley, the NHS consists of about 1,300 linear, highway miles, of which roughly 30.34 miles are currently designated as NHS freight connectors. Highways such as I-76 and I-95 are part of the Eisenhower Interstate System, while routes such as US-611 and US-73 are Principal Arterials. The Strategic Highway Network overlays the Interstate system in many places including the major interstates 76, 295, and 95 in the Delaware Valley. It also has one non-interstate road in the region, route 31 in Mercer County, and a couple of connectors, such as Broad Street leading into the former naval base in South Philadelphia.

Intermodal Connectors and Why They Are Important

Intermodal Connectors are the “last-mile” that freight moves on the highway system. While they are often referred to as the “last-mile”, our region is more of a destination for the dispersal of goods, so the connectors often are in actuality serving as the “first-mile” that freight moves. They are public roads that connect major intermodal terminals to the NHS network. The basic criterion for an intermodal connector is that the facility (or facilities) it is serving must have an average of 100 trucks entering and exiting the facility per day. (Note: the term and concept “intermodal connector” also applies to passenger transportation facilities, but they are not treated in this report.) Connectors serve three types

¹ *Federal Highway Administration*

of facilities in the Delaware Valley region: Rail Yards, Sea Ports, and Airports. The growth of freight nationally is expected to double by the year 2020, which means the amount of goods flowing through these facilities is likely to increase steadily in the coming years.

Intermodal freight connectors handle large volumes of trucks making them integral to the movement of goods in the country. Connectors in poor condition can lead to slow freight movement, damage of goods, decreased efficiency, and safety concerns. The trucks using connectors carry all types of shipments and commodities, high and low value, containerized and bulk shipments. Almost anything that gets transported, from the food in the grocery store to the clothes at department stores travels on a connector at some point in time. The freight industry is quickly evolving and growing, so connectors must be able to handle the changes. This is why DVRPC is committed to regularly updating the connector routes and making sure the connectors are capable of performing the job given to them each and every day.

In the global marketplace, the movement of goods is essential; business is consolidating production to fewer locations and relying on supply chains to deliver the products to their final destinations. As products in supply chains travel longer distances, companies have looked for ways to lower transportation costs. One way has been to run just-in-time deliveries, creating more frequent, smaller shipments, which allow companies to decrease their inventory costs.

Another important factor is the use of connectors by the Department of Defense (DOD). The military is becoming increasingly dependent on the nation's transportation system, using commercial trains, highways, seaports, and airports to transport supplies. In 2001, the DOD spent approximately two billion dollars annually on freight services, with 90% of peacetime and 85% of wartime movements using the commercial transportation system.² Thus for the health of our nation's economy, as well for our nation's defense, the connectors must be able to handle movements from seaports, rail yards, and airports in a fast and safe manner.

Facilities

In the Delaware Valley, there are approximately 30 miles of Intermodal Connectors servicing 11 facilities. Figure 1 contains a map of the 11 intermodal facilities that meet the criteria for designation as *NHS Connectors*. Listed below are the 11 facilities that meet the criteria for an intermodal connector:

² FHWA. NHS Intermodal Freight Connectors: A Report to Congress

TABLE 1: CONNECTOR MILEAGE

| NHS CONNECTOR | LENGTH (MILES) |
|--|---------------------------|
| Norfolk Southern Morrisville Intermodal Facility | 1.41 |
| Port of Bucks | 2.56 |
| Tioga Marine Terminal | 1.67 |
| Crowley American Transport at Petty's Island | 4.05 |
| Beckett Street Terminal | 2.37 |
| Broadway Terminal & Gloucester Marine Terminal | 0.97 |
| South Philadelphia Rail & Port Complex | 1.13 |
| Philadelphia International Airport | 11.28 |
| Penn Terminals | 2.14 |
| CSX Twin Oaks Auto Terminal | 0.38 |
| CSX Transflo Facility | 2.38 |
| Total | 30.34 |

This report is an update of the October 2001 DVRPC report with the same title. In DVRPC's 2001 version of the *NHS Connectors* study, The Port of Bucks (referred to as Novolog in the 2001 report), and a proposed FastShip Port and Rail Terminal in Port Richmond were proposed as additions to the freight connectors inventory. In the meantime, The Port of Bucks has been added to the connector inventory, while the proposed FastShip terminal, which at the time was slated for construction by 2004, is currently slated for 2009 completion and will be reassessed and possibly added to the inventory during the next update to the connector report.

In This Report

Contained in this report are 2005 Aerials highlighting the intermodal connectors, facilities, and surrounding areas. Also included are close-up maps of the connector roadways, bridges, railroad crossings, traffic signals, and stop signs.

Field views and evaluations of the Delaware Valley's *NHS Connectors* were conducted in coordination with Freight for a Day (see DVRPC webpage for more details) on September 20, 2006.

More than forty professionals, from the private and public sectors, were split into 5 teams, with each team performing evaluations of two connectors. Using a 2003 Federal Highway Administration (FHWA) document entitled, NHS Intermodal Freight Connectors, Report to Congress, DVRPC developed its own questionnaire to be filled out about each connector. Each member in the team was asked to answer a few questions about the connectors viewed. Teams were first given tours of the facility the connector served so that they would have a better concept of the nature of cargo traversing on the connector. It was also a good way to show and remind people about the importance of freight in the Delaware Valley.



The evaluation team for Beckett Street Terminal and Broadway and Gloucester Marine Terminal

Below are a few facts about freight connectors nationwide from the 2003 FHWA report that helped shape the questionnaire:

- The most frequently cited deficiencies were problems with shoulders, inadequate turning radii, and inadequate travel way width.
- Approximately 38 percent of connector miles needed pavement work, including resurfacing and reconstruction of lanes and shoulders.
- Only 20 percent of total connector miles were considered to have adequate pavement

A sample questionnaire and completed evaluations can be found in Appendix C. The evaluations helped shape the recommendations for the connectors which can be found in Section III.

Report Objectives

There were three primary objectives in this study:

1. To determine which connectors in our region meet the criteria, to confirm or adjust routes, and to then use this information to update the FHWA database of connectors in Pennsylvania and New Jersey.
2. To identify the overall condition of the connectors, and to cite deficiencies.
3. To make recommendations on specific connectors that can lead to capital improvements.

Context

This study was conducted in coordination with the Delaware Valley Goods Movement Task Force. As part of the freight program at DVRPC this study is intended to help promote the freight corridors that DVRPC has identified as a key to future freight planning in the region. More extensive work may be done on the connectors in future years, as they are vital to freight's ability to move efficiently through the region.

SECTION II: EXISTING CONDITIONS

Inventory of Existing Conditions

Field views were performed on all the connectors to determine the condition of the roadways. This work was done through a questionnaire developed by DVRPC that emphasized the major deficiencies along connectors cited in a 2003 FHWA document entitled, NHS Intermodal Freight Connectors, Report to Congress. The questionnaire was broken into 9 sections, with each member of the evaluation team being responsible for one section. The sections were as follows:

- Pavement Conditions
- Operations at Connection Points
 - Questions in this section dealt mainly with the ramps connecting the primary NHS route with the connector
- Traffic Operations (a)
 - Questions in this section dealt with roadway widths and on-street parking
- Traffic Operations (b)
 - Questions in this section dealt with turning movements and gate queuing
- Railroad crossings
- Bridges
 - Both weight and height restrictions
- Signage and Striping
- Land Use and Community Impacts

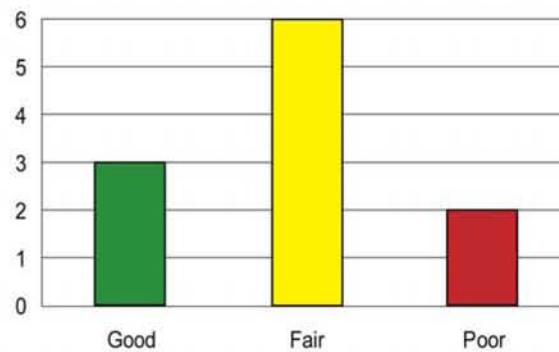
The answers to the questionnaire for individual facilities can be found in Appendix C. The following is a summary of the findings for each section of the questionnaire.

Pavement Conditions

Pavement conditions are an important issue on connector roads because poor pavement conditions can lead to safety concerns as well as shipments getting damaged. Good pavement was defined as being smooth with no potholes, bumps, or rough spots. Poor pavement was described as pavement containing major potholes, bumps or rough spots. Trucks cause a lot more damage to pavement than regular passenger vehicles, as multi-ton vehicle hitting into a hole in the road every few minutes can quickly deteriorate the surface of the road.

Pavement conditions throughout the connector highway network are in mostly fair to good condition. However, many of these roads are in worse repair than the roads surrounding them due to the stress caused by carrying high volumes of trucks. In general, roadways leading to rail yards and Philadelphia International Airport were found to be in better condition than those leading to seaports.

TABLE 2: PAVEMENT CONDITIONS



Cobblestones show through the street on the Beckett Street Terminal Connector



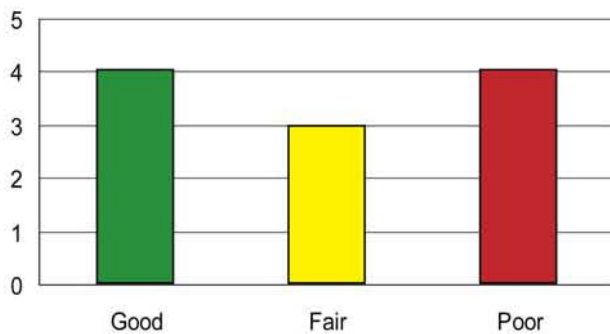
A newly paved road on the Port of Bucks Connector

Operations at Connection Points

The connection of the connector to the principal NHS route is a crucial link in providing seamless transportation. It is essential that the on- and off-ramps be suitable for truck movements. This means adequately long acceleration and deceleration lanes on the main line, as well as manageable turning radii on the ramps themselves. It takes the typical 18 wheeler 40% more time to come to a stop than a car, so the lanes leading on and off the ramps must make special accommodations for trucks at these points.

Ramps leading from the primary NHS route to the connector were found to be a point of concern in the region, with four connectors receiving poor grades. The facilities are mostly located in older industrialized areas, so the primary highways and the ramps leading on and off of them were designed many years ago, before many trucks were over 50 feet in total length.

TABLE 3: HIGHWAY ON AND OFF MOVEMENTS



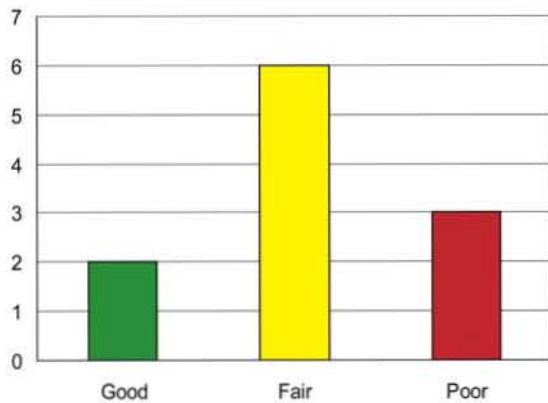
A McDonald's truck has to use the opposing lane of traffic to navigate the ramp along the CSX Twin Oaks Connector

Traffic Operations (a)

The lane width of the connectors is a problem nationwide. Roads must be wide enough for trucks to traverse without negatively impacting the ability of other users of the road. Roads should be wide enough so that a truck can pull over if need be in such a way that other vehicles can still get around it. On-street parking can also pose a problem to trucks because parking narrows the road and eliminates any shoulder.

The NHS connector system in the DVRPC region generally has adequate road width in most sections of road. In places where the road width was rated poor there is not the ability to widen the road due to the nature of the houses and businesses along the connector. It is important to note that while it was asked if there was on-street parking in the questionnaire, the possibility exists for on-street parking and heavy truck traffic associated with a connector to coexist, however the road must be wide enough to accommodate trucks traveling in both directions and parked cars.

TABLE 4: ROADWAY AND SHOULDER WIDTH

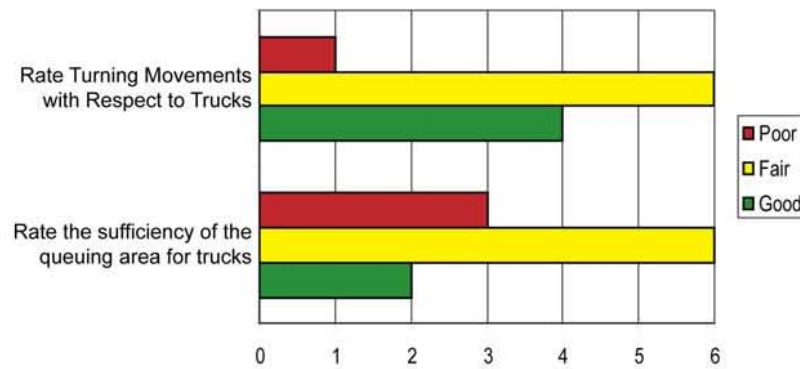


A truck passes on-street parking with no restrictions on its way to the Port of Bucks

Traffic Operations (b)

Many connector roads are located in older industrialized areas where the roads were designed long before the era of 70- to 80-foot trailers. This causes a problem today because there are intersections where trucks are forced to make wide turns into oncoming traffic in order to make necessary turns along connector roads. This causes an obvious safety concern for other vehicles along the connector, as well as an operations concern as these wide turns are taken slowly and may slow the flow of traffic. Likewise, insufficient queuing areas at gates can cause trucks to back up into the street, clogging traffic and creating a community disturbance. Examples of both of these problems in the Delaware Valley can be seen in the photos below.

TABLE 5: TURNING MOVEMENTS AND QUEUING AREA



A truck turns into the opposing lane of traffic to make a turn at 36th Street and River Road along the Crowley American Transport at Petty's Island Connector

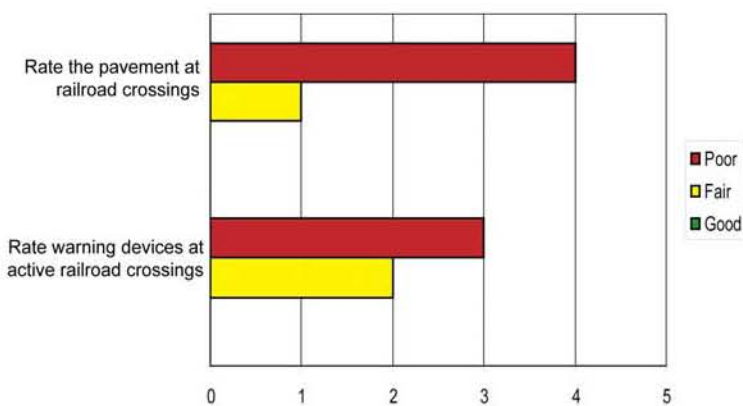


A truck waits on the connector for the gate to clear at Penn Terminals

Railroad Crossings

Railroad Crossings on connectors present three main issues: pavement conditions around the crossing, trains blocking the movement of vehicles, and warning devices at crossings. There are many types of crossing surfaces (e.g. asphalt, asphalt and timber, etc.) and as trucks and cars traverse the rail lines the conditions can deteriorate and cause unsafe conditions for both the vehicles and the trains.

TABLE 6: RAILROAD CROSSINGS



DVRPC’s survey of connector conditions found that five of the region’s eleven facilities have railroad crossings along connectors. The evaluations found that crossings along three of the connectors have no warning devices, and none of the crossings have gates. Most of the crossings are sidings into facilities and are not regularly used, so warning devices such as cross bucks, or even line painting would be adequate. Of all of the connectors traveled by rail lines, there is only one place, along the South Philadelphia Connector, where trains pose a significant problem to traffic flows. It is notable that no railroad crossings received a rating of good in any category.



Close-up of railroad crossing on the South Philadelphia Freight Complex connector



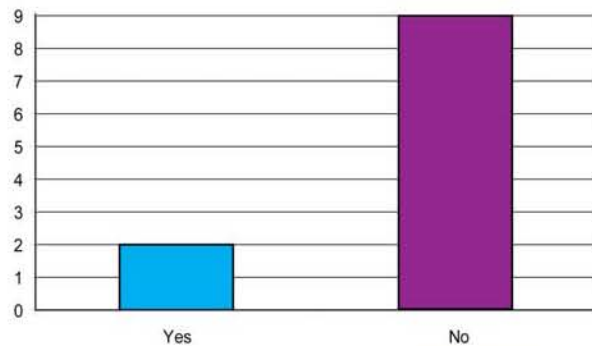
Rail line crosses Old Delaware Ave. to serve Pier 84 along the South Philadelphia Freight Complex connector

Bridges

Bridges can impede the flow of cargo by imposing height and weight restrictions. The standard height of an 18-wheeler is 13'6"³, so all bridges on a connector must allow for at least that much clearance. Specialized cargo may require greater clearance, so if there is not an alternate route for trucks, a low clearance may restrict what cargo a terminal can handle.

The DVRPC region does well in regard to bridges along its connectors with just two bridges posing height restrictions for oversized project cargo, (both seen below). The one along the Crowley American Transport at Petty's Island connector has alternate routes to avoid this clearance issue, so the cargo that it is able to serve is not impacted. Penn Terminals, however, just had its alternate route closed due to the new Harrah's racetrack and casino that opened in the adjacent property. This limits the types of project cargo that Penn Terminals can move through its terminal.

TABLE 7: OVERHEAD BRIDGES THAT RESTRICT MOVEMENT



A 14' bridge along the Penn Terminals Connector



A 13' 8" bridge across the Crowley American Transport at Petty's Island Connector

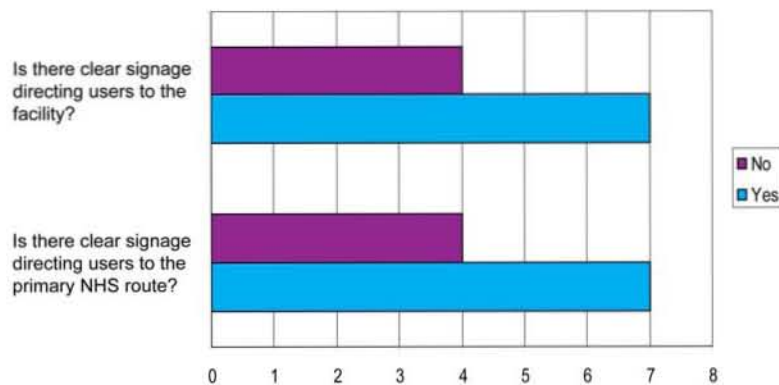
³ TheTruckersReport.com

Signage and Striping

Signage leading from the highway to the facility and vice versa is imperative to maximize the efficiency of a connector. Facilities are often served by drivers who do not have an intimate knowledge of the area, and lack of signage, particularly along longer routes, can lead to confusion. Signage is also specifically important along connectors that border residential areas to minimize truck impacts in the community. Striping is important mostly from a safety point of view. Connectors are roads used by both passenger and trucks and it is important to clearly delineate lanes and shoulders.

There are two connectors that were rated as having deficient signage both to and from facilities. Both of these connectors are in or near residential areas, so the lack of signage creates a problem because it is important that the trucks stay on the highways and the connectors. All connectors were rated as having adequate striping.

TABLE 8: SIGNAGE



A sign at the Philadelphia International Airport directs users to different cargo areas



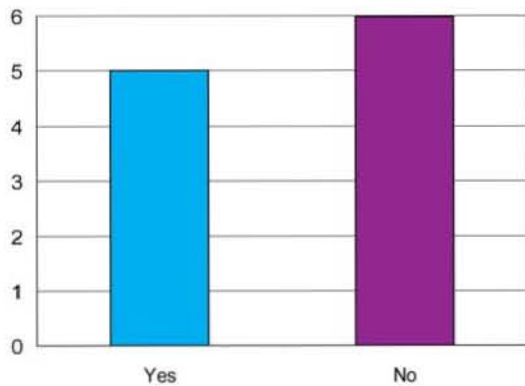
A sign at the Philadelphia International Airport directs users to the NHS routes nearby

Land Use and Community Impacts

Freight facilities are vital to the region because they provide a strong industry presence, which leads to good jobs and tax revenue. However, freight can also be a burden on the host community because trucks that service freight facilities can be loud and create safety concerns for the residents in the surrounding communities. Thus, DVRPC is committed to promoting Freight as a Good Neighbor practices which attempt to allow for the freight to flow through the community with as few negative impacts as possible. The importance of signage and pavement is increased along these connectors in order to minimize conflicts with the neighborhoods that exist along the connectors.

Five of the eleven connectors are located in or near residential communities. All the issues that are dealt with in this report are magnified for these five connectors. The following is a list of townships and communities that have NHS freight connectors amongst them: Falls Township (Bucks County), Port Richmond (Philadelphia City), Pennsauken Township (Camden County), Camden City (Camden County), Eddystone Borough (Delaware County).

TABLE 9: POSSIBLE IMPACTS WITH A RESIDENTIAL COMMUNITY



A truck prepares to make a left-hand turn onto the primary NHS route serving Tioga Marine Terminal; ahead of it is the Philadelphia city neighborhood of Port Richmond.

SECTION III: RECOMMENDATIONS

The following recommendations are the result of numerous site visits by DVRPC staff and a questionnaire filled out by diverse teams of planning partners on September 20, 2006. For the completed questionnaire on an individual connector please see Appendix C and for maps of an individual connector please see Appendix A. The recommendations are grouped into three categories: administrative recommendations to be taken on by DVRPC and its planning partners; suggested projects, which would make truck movements along the connectors safer and more efficient; and implementation and next steps which lay out ways to advance the suggested projects.

Administrative

1) UPDATE CONNECTOR INVENTORY AND ROUTES

- The FHWA keeps an inventory of all *NHS connectors*. Through working with the state DOTs DVRPC proposes the following changes:
 - Change facility name from Novolog Port Facility to The Port of Bucks
 - Adjust the primary NHS route for Philadelphia International Airport due to the closure of PA-291
 - Adjust NHS Connector route for Philadelphia International Airport, to add the western half of Hog Island Ave. as well as extend Bartram Ave. to Island Ave. to allow for all movements.

2) RESOLVE SOUTH PHILADELPHIA INTERSECTION BOTTLENECK

- The intersection of Packer Ave., Old Delaware Ave. and Columbus Blvd. was discovered to be an occasional bottleneck in access to Packer Avenue Marine Terminal and CSX Greenwich Intermodal Yard. This area is the largest intermodal complex in the region so it is vital that the bottleneck be removed. The bottleneck is formed when trains serving Delaware Avenue Enterprises cross Old Delaware Ave. right before the intersection. A meeting should be held, possibly in conjunction with a future Delaware Valley Goods Movement Task Force meeting, of the owners and operators of the affected facilities to discuss the best resolution.



Two different views of the rail line crossing the connector in South Philadelphia; when a train is on this line trucks cannot serve Packer Ave Marine Terminal or CSX Greenwich Intermodal Yard

3) MANAGE TRUCK STAGING ISSUES

- There is a problem of truck parking and staging around certain intermodal facilities and along their associated connectors. Trucks arriving before the gate opens have no designated place to park, so they sit along the connector. Also, containers and chassis are occasionally left along the side of the connector temporarily. These pose both safety and security risks and can be solved with additional enforcement and posted parking restrictions. A possible future work program project at DVRPC would be an in-depth study of truck parking in the region.



Trucks and trailers separately staged along the South Philadelphia Freight Complex Connector

4) PROMOTE IMPORTANCE

- To better promote the consideration of connectors in the planning process, a quantitative analysis of the economic benefits and number of jobs associated with the facilities that the *NHS connectors* in the Delaware Valley serve should be performed.

5) CONTINUE FREIGHT AS A GOOD NEIGHBOR PRACTICES

- Five of the ten National Highway System Connectors in the region traverse residential districts. It is imperative that freight continue to operate as a good neighbor to the residents in these neighborhoods. Freight as a good neighbor practices can be found in The Transportation Research Board's *National Cooperative Highway Research Program (NCHRP) Synthesis Report 320: Integrating Freight Facilities and Operations with Community Goals*.

6) PLAN FOR RAIL INFRASTRUCTURE

- In an attempt to promote multimodalism, the connector questionnaire asked if there were projects needed to improve the rail access into the facility. Nine of the ten facilities reported needing additional rail projects to improve access. Many of these projects are noted in the Mid-Atlantic Rail Operations Study (MAROps), but DVRPC should continue to study ways to improve the rail network in the Delaware Valley so that these facilities can have optimal multimodal connections.

Suggested Projects

1) RECONSTRUCT ENTRANCE AND EXIT RAMPS

- a. CSX Twin Oaks
 - Add acceleration and deceleration lanes for both directions on both ramps of US-322
 - Reconstruct ramps to remove 180 degree turn coming off eastbound US-322

NOTE: There are multiple current TIP items whose design and implementation could affect these ramps. MPMS #14747 deals with the widening of US-322 from Cherry Tree Road to I-95, a stretch of road that covers the interchange for the Twin Oaks Terminal.

- b. Port of Bucks
 - Add acceleration and deceleration lanes for all four ramps of US-1
 - Reconstruct ramps for easier truck movements

2) RE-PAVE

- a. South Philadelphia Freight Complex
 - The section of Packer Ave. that connects Columbus Blvd. to Old Delaware Ave. This section of road is also traversed by an active rail line.
 - From Delaware Avenue Enterprises to Pier 84
- b. Beckett Street Terminal
 - Along Ferry Ave. where the old cobblestones show through the pavement

3) REMOVE OR PAVE OVER INACTIVE RAIL CROSSINGS

- a. Tioga Marine Terminal
 - Multiple crossings along North Delaware Ave.
- b. South Philadelphia Freight Complex
 - Multiple crossings along Old Delaware Ave. mostly between Delaware Avenue Enterprises and Pier 84.

NOTE: The affected industry, private property owner and the serving railroad should be notified before any specific work is contemplated. Most railroad-industry connections are covered by sidetrack agreements, in which the maintenance of the crossing is usually assigned to the industry. If an unused crossing is paved over or removed without the industry consent, it may cause the industry and/or private property owner additional expense when and if they wish to utilize rail.

4) ADD WARNING PROTECTION AT RAIL CROSSINGS

- a. Tioga Marine Terminal
 - On Allegheny Ave. right before intersection with N. Delaware Ave.
 - On N. Delaware Ave. between Allegheny Ave. and Tioga St.
- b. South Philadelphia Freight Complex
 - Rail crossing along the intersection of Packer Ave., Old Delaware Ave., and Columbus Blvd.
- c. Beckett Street Terminal
 - On 2nd St. just south of Beckett St.

5) ADD SIGNS DIRECTING TRUCKS TO THE FACILITY AND BACK TO THE NHS

- a. Tioga Marine Terminal
 - Signs on Allegheny Ave. directing trucks to the facility.
 - Signs at exit gate of facility pointing trucks in different directions for northbound and southbound I-95.
- b. Crowley American Transport at Petty's Island
 - Sign at intersection of 36th and River Rd. directing trucks to facility gate and back to NJ-73

6) WIDEN ROAD

- a. Beckett Street Terminal
 - Beckett St. and Ferry Ave. are narrow and have no shoulders. Roads can not be widened due to their proximity to industrial facilities, however shoulders should be introduced where possible, to allow a place for trucks to pull over.

7) REDESIGN INTERSECTION

- a. Penn Terminals
 - The intersection of PA-291 and Saville Ave. would benefit from a left hand turn lane off of southbound PA-291 onto Saville Ave. Also, the sight distance for turns onto northbound PA-291 from Saville Ave. is not adequate. A "No Turn on Red" sign could resolve this issue.

Implementation/Next Steps

1) HARNESS MAINTENANCE FUNDS

- For some of the suggested projects, like those calling for new pavement, maintenance funds from the state DOTs and others may be used to complete the projects quickly, without having to go through the process of programming a project on the TIP.

2) INCORPORATE IN TIP PROCESS

- The suggested projects listed in the previous section are eligible for federal funds due to being part of the National Highway System. In order to do this, the projects must be further developed with projected costs.

3) CONTINUE WORK IN FUTURE YEARS

- Maintain connector inventory. Two new facilities will likely need to be added: a new port facility in Paulsboro and the new highway into the former Philadelphia Naval Base to service Norfolk Southern's Mustin Field Intermodal Yard.
- Perform traffic counts along the connector routes as needed.
- Collect crash data along the connector routes to help demonstrate the importance of the suggested projects.
- Investigate the eligibility of refineries in the Delaware Valley to be added to the NHS Connector inventory.
- Track the movement of the FastShip Terminal and add it to the inventory if it meets criterion.
- Re-evaluate CSX Transflo Terminal at 36th and Moore St. in 2008. The facility was included in the existing conditions and appendices despite not meeting the criteria of 100 trucks a day. It remains of the connector inventory for the state. FC Haab another facility along the connector partnered with CSX and has started to increase their business, so it is recommended that DVRPC re-visit the site in one year to evaluate whether it meets the criteria.

APPENDIX A:

Aerials and Road Maps of Connectors

A-1 – A-20

APPENDIX B:

Participants in Field Views

B-1 – B-2

APPENDIX C:

Completed Evaluation Forms

C-1 – C-30

Norfolk Southern Morrisville Intermodal Facility



DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
JULY 2006

NHS Connector
Intermodal Facility

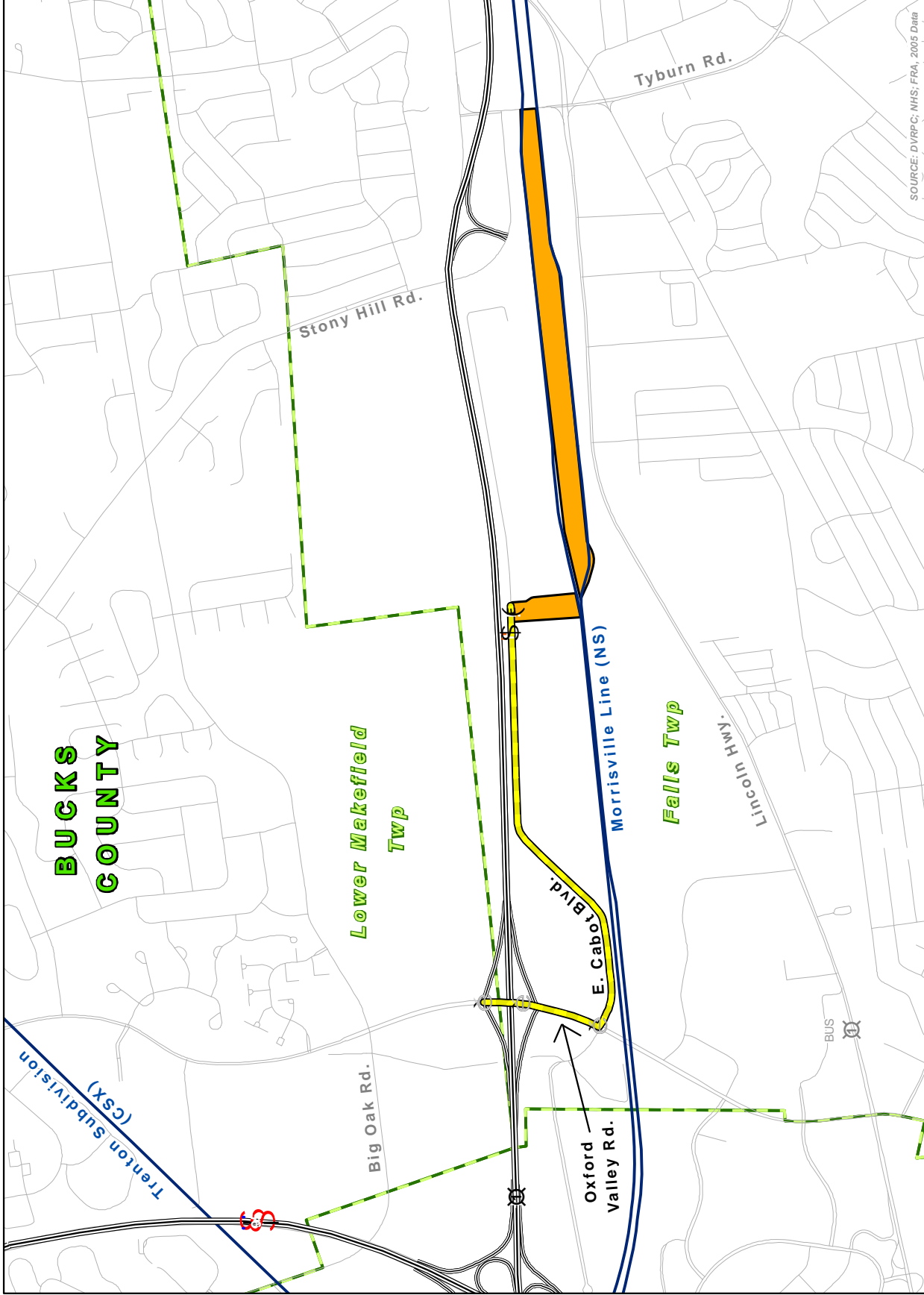
County Border
Municipal Boundary

Rail
NHS Route

State Border

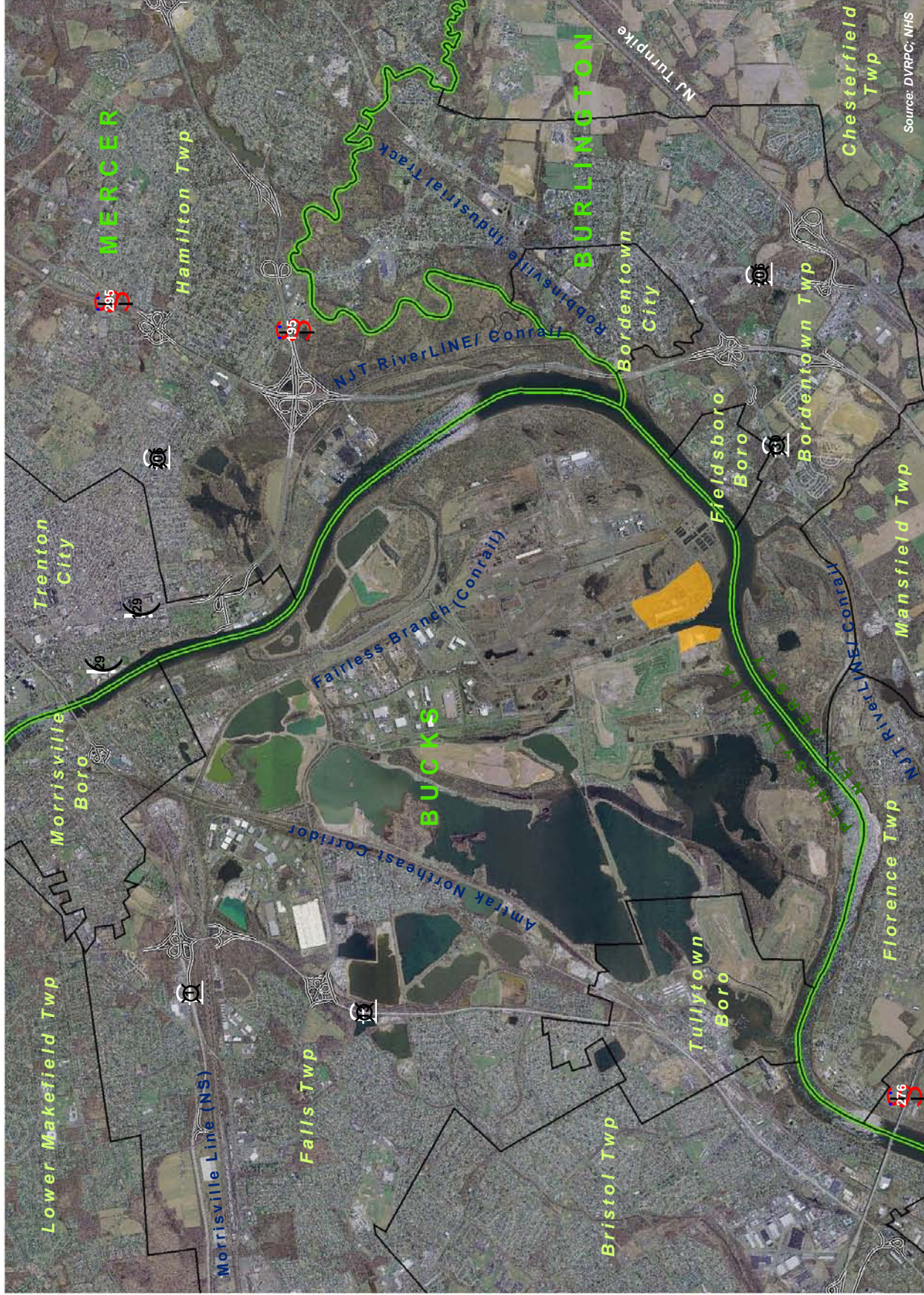
Miles

1: Norfolk Southern Morrisville Intermodal Facility



| | | | | | |
|--|-----------------------|--|---------------|--|---------------------|
| | Bridge/Tunnel | | NHS Route | | State Border |
| | Active Grade Crossing | | NHS Connector | | Intermodal Facility |
| | Entrance | | Rail | | County Border |
| | Stop Sign | | Signal | | Municipal Boundary |

: Port of Bucks



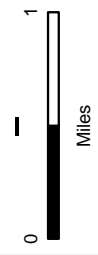
Source: DVRPC, NHS

2: Port of Bucks



Source: DVRPC; NHS; FRA, 2005 Data

| | | | | | | | |
|--|-----------------------|--|---------------|--|---------------------|--|--------------------|
| | Bridge / Tunnel | | NHS Route | | State Border | | County Border |
| | Active Grade Crossing | | NHS Connector | | Intermodal Facility | | Municipal Boundary |
| | Entrance | | Rail | | | | |
| | Stop Sign | | | | | | |
| | Signal | | | | | | |
| | Exit | | | | | | |



: Tioga Marine Terminal

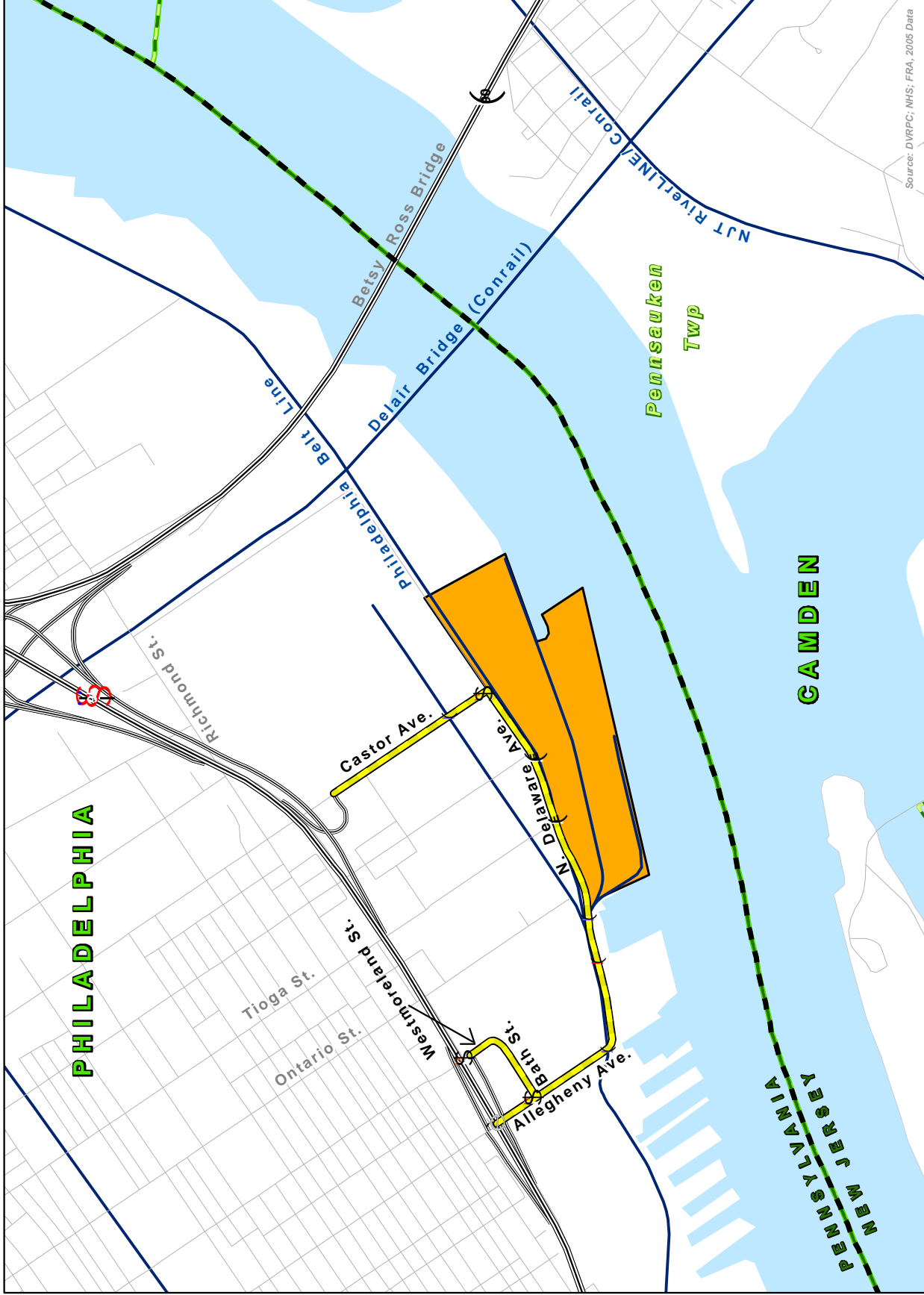


Source: D/PPC, NHS

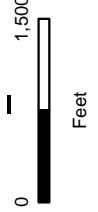
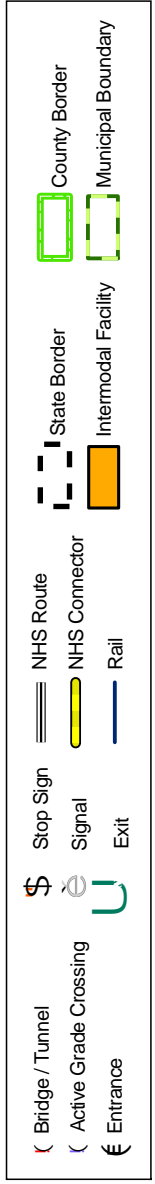
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
JULY 2006

- NHS Connector
- County Border
- Rail
- NHS Connector
- Intermodal Facility
- Municipal Boundary
- NHS Route
- State Border
- Miles

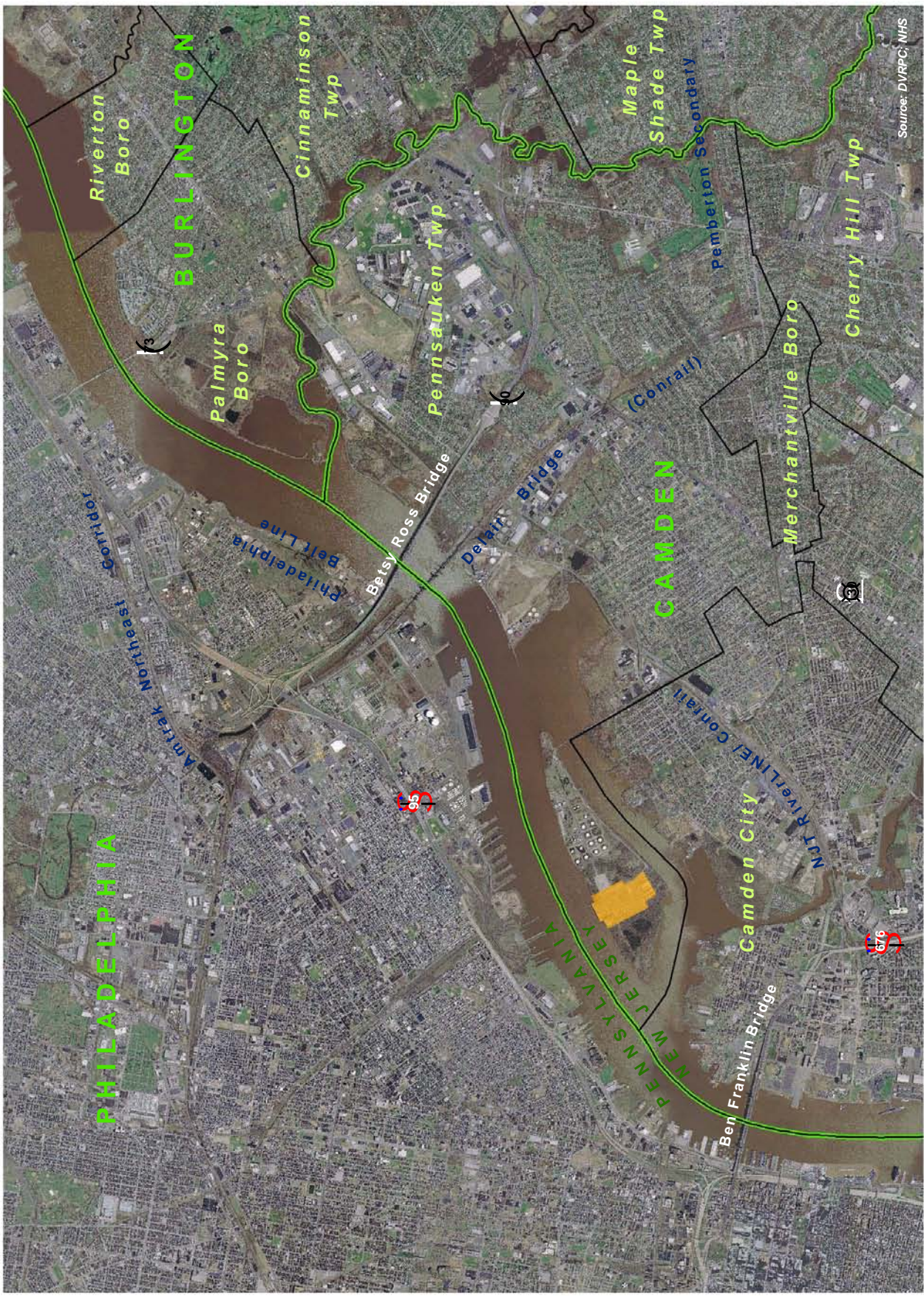
3: Tioga Marine Terminal



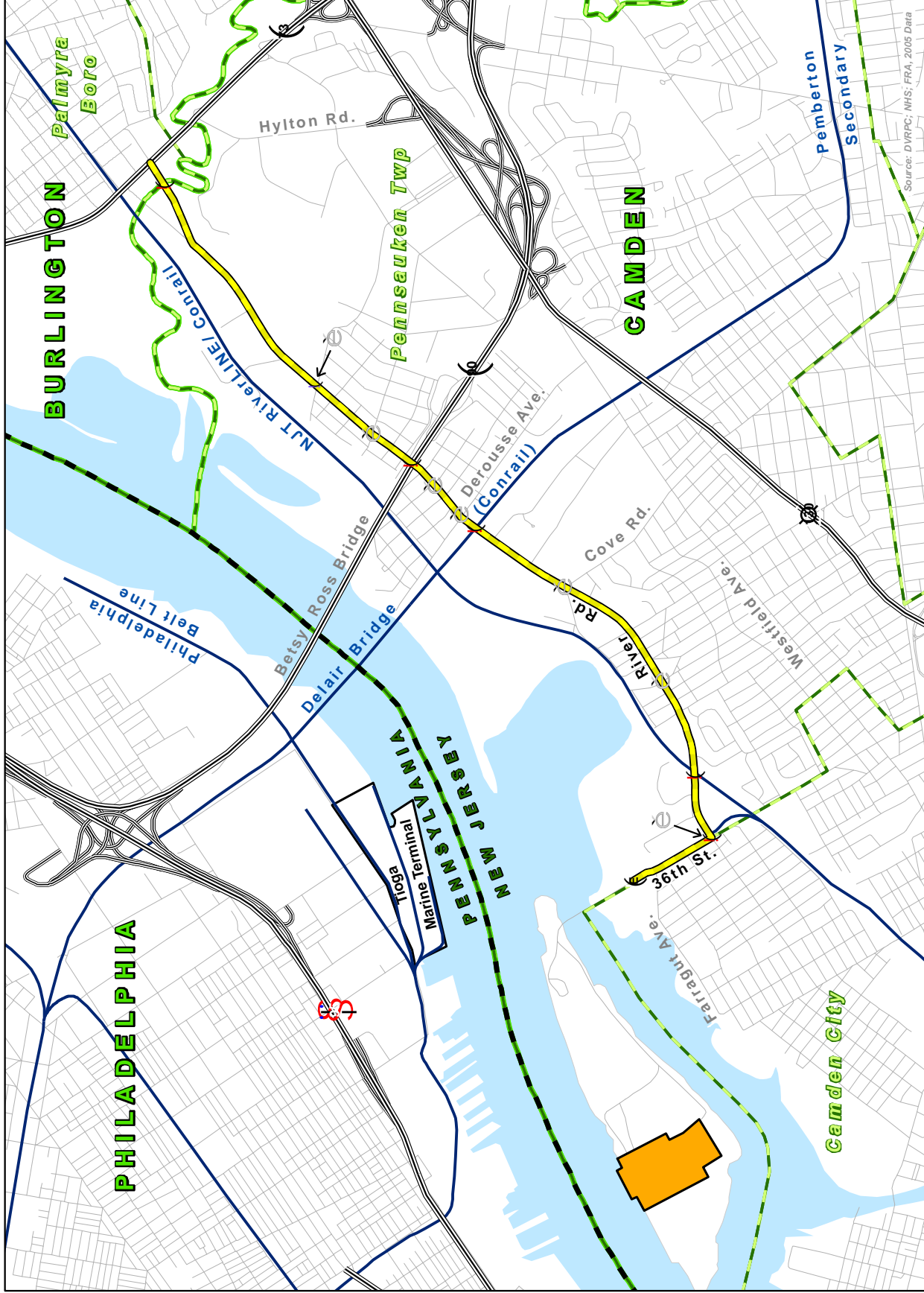
Source: DVRFC; NHS; FRA, 2005 Data



: Crowley American Transport at Petty's Island

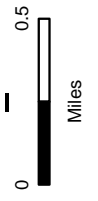


4: Crowley American Transport at Petty's Island



Source: DVRPC, NHS, FRA, 2005 Data

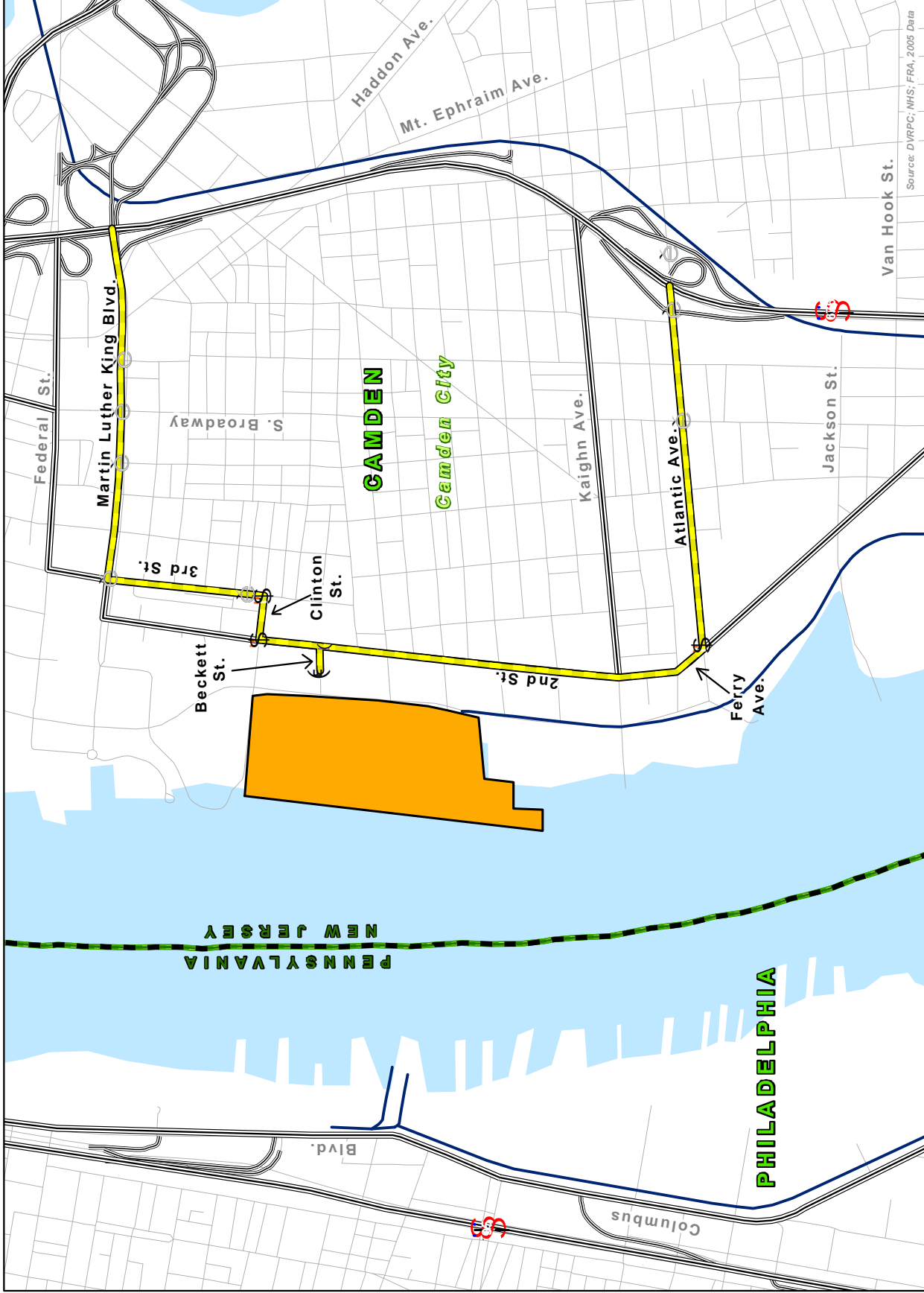
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|--|-----------------------|--|---------------|--|---------------------|--|--------------------|
| | Bridge / Tunnel | | NHS Route | | State Border | | County Border |
| | Active Grade Crossing | | NHS Connector | | Intermodal Facility | | Municipal Boundary |
| | Entrance | | Rail | | Exit | | |
| | Stop Sign | | | | | | |
| | Signal | | | | | | |



: Beckett Street Terminal



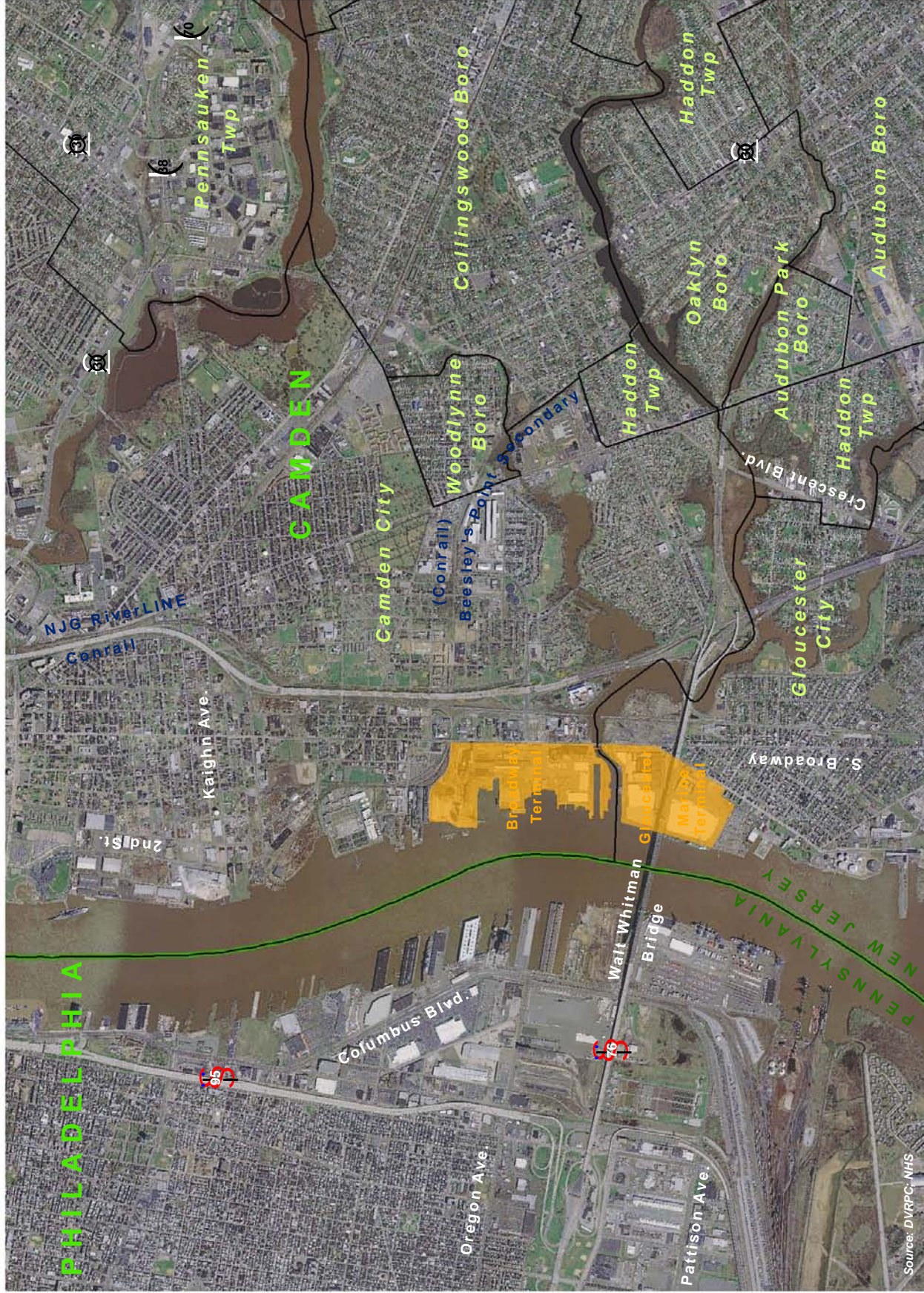
5: Beckett Street Terminal



Source: DVRPC; NHS; FRA, 2005 Data

| | | | | | | | |
|--|-----------------------|--|---------------|--|---------------------|--|--------------------|
| | Bridge / Tunnel | | NHS Route | | State Border | | County Border |
| | Active Grade Crossing | | NHS Connector | | Intermodal Facility | | Municipal Boundary |
| | Entrance | | Rail | | | | |
| | Stop Sign | | | | | | |
| | Signal | | | | | | |
| | Exit | | | | | | |

: Broadway Terminal & Gloucester Marine Terminal



Source: DVRPC, NHS

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NHS Connector
Intermodal Facility

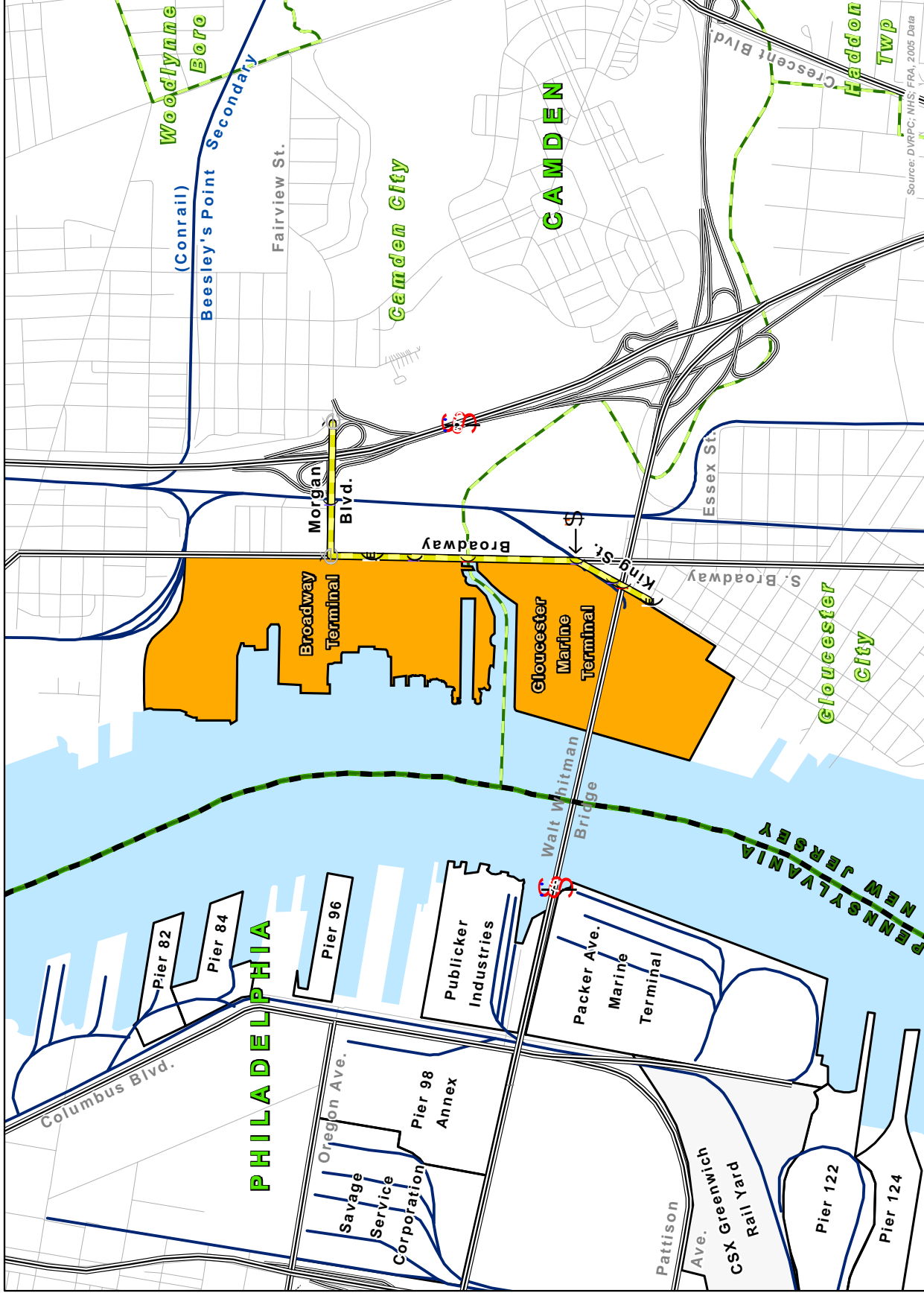
County Border
Municipal Boundary

Rail
NHS Route

State Border
Miles

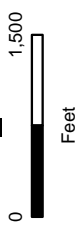
1

6: Broadway Terminal & Gloucester Marine Terminal

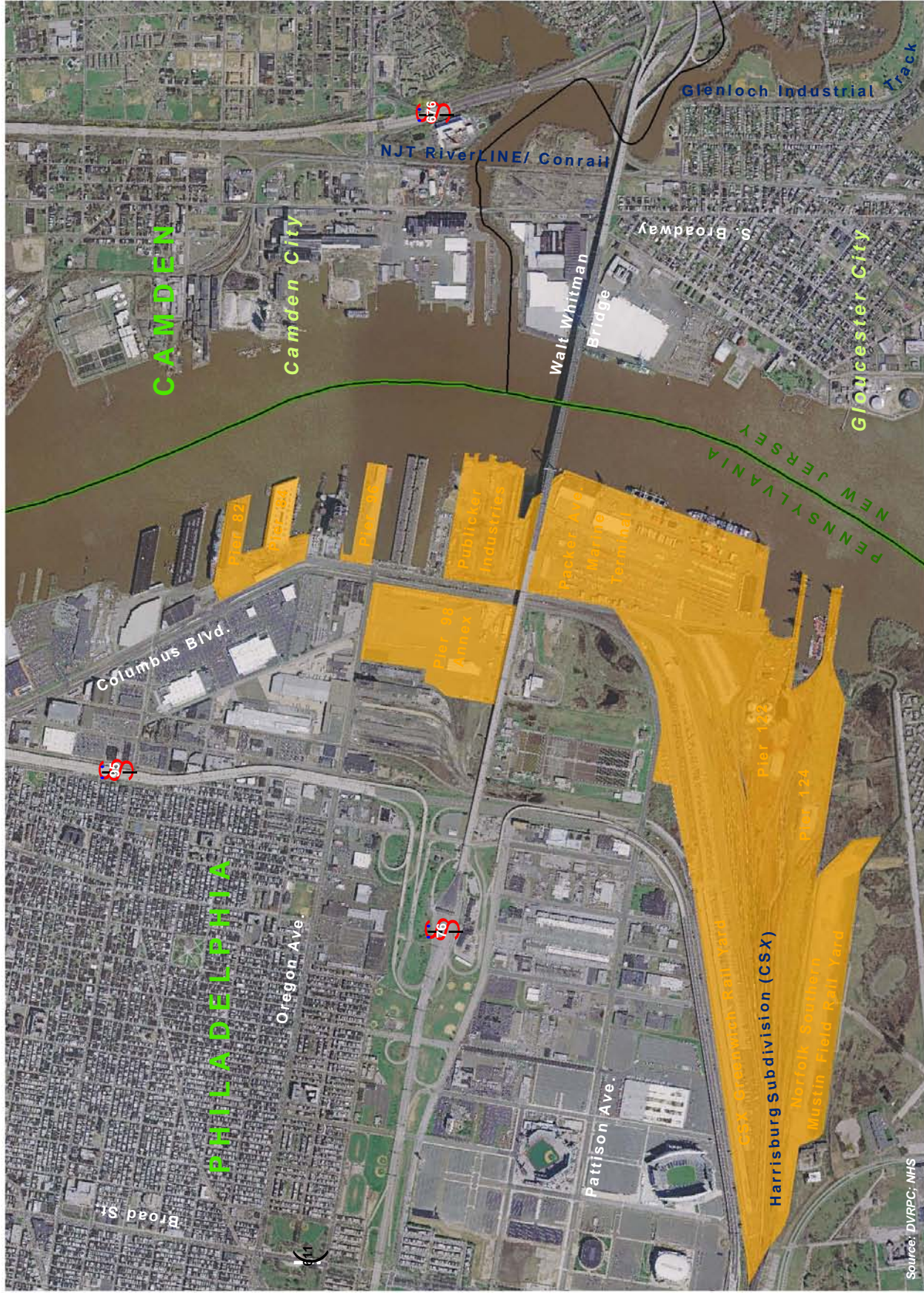


Source: DVRPC, NHTS, FRA, 2005 Data

| | | | | | |
|--|-----------------------|--|---------------|--|---------------------|
| | Bridge / Tunnel | | NHS Route | | County Border |
| | Active Grade Crossing | | NHS Connector | | State Border |
| | Entrance | | Rail | | Intermodal Facility |
| | Stop Sign | | Exit | | Municipal Boundary |



: South Philadelphia Rail & Port Complex



Source: DVRPC; NFS

DELAWARE VALLEY
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NHS Connector
Intermodal Facility

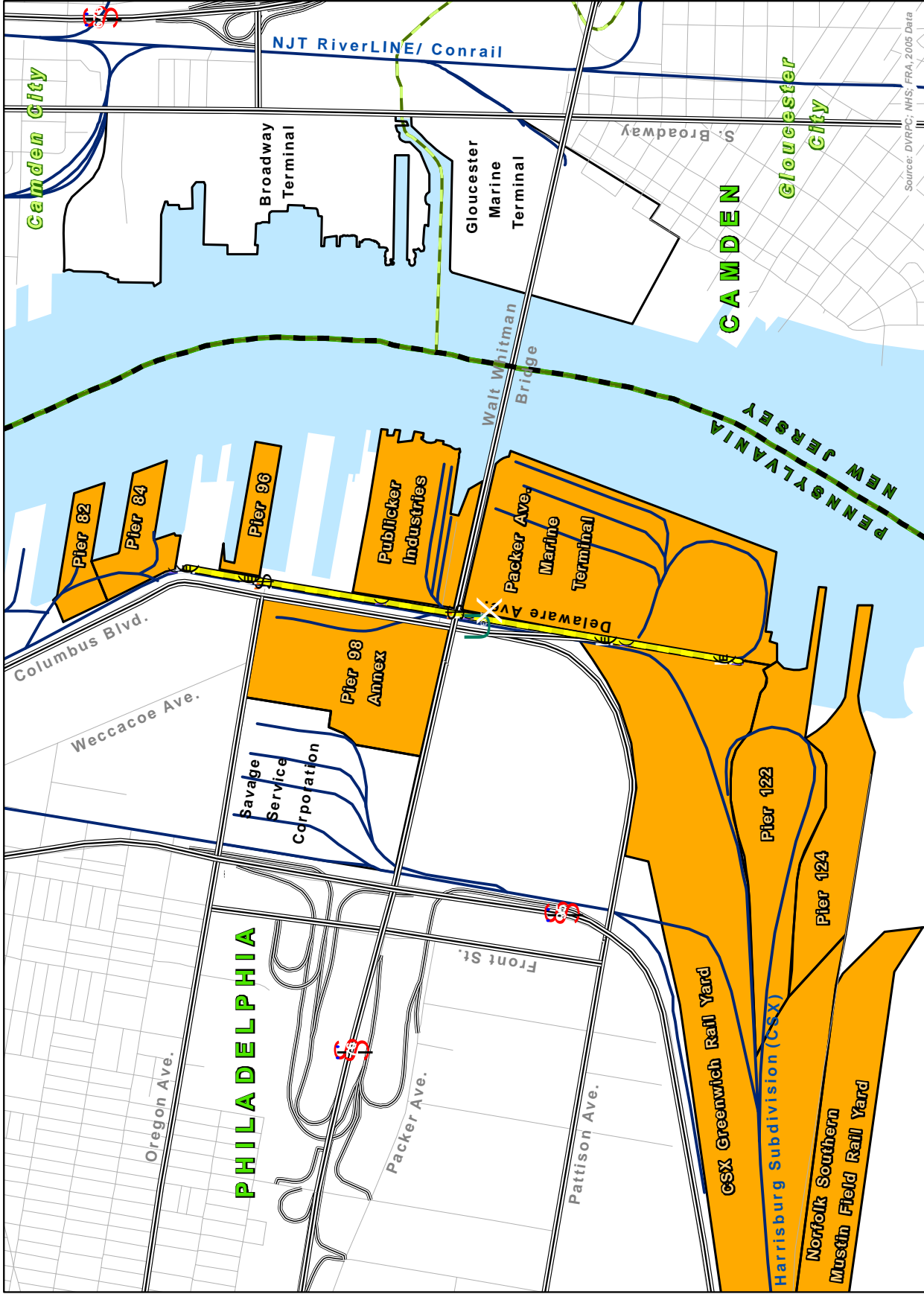
County Border
Municipal Boundary

Rail
NHS Route

State Border

0 0.5
Miles

7: South Philadelphia Rail & Port Complex



Source: DVRPC; NHS; FRA, 2005 Data

Legend:

- Bridge / Tunnel
- Active Grade Crossing
- Entrance
- Stop Sign
- Signal
- NHS Route
- NHS Connector
- Rail
- State Border
- Intermodal Facility
- County Border
- Municipal Boundary

Scale: 0 to 1,500 Feet

Philadelphia International Airport



Source: DIVPC, NHS

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
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NHS Connector
Intermodal Facility

County Border
Municipal Boundary

Rail
NHS Route

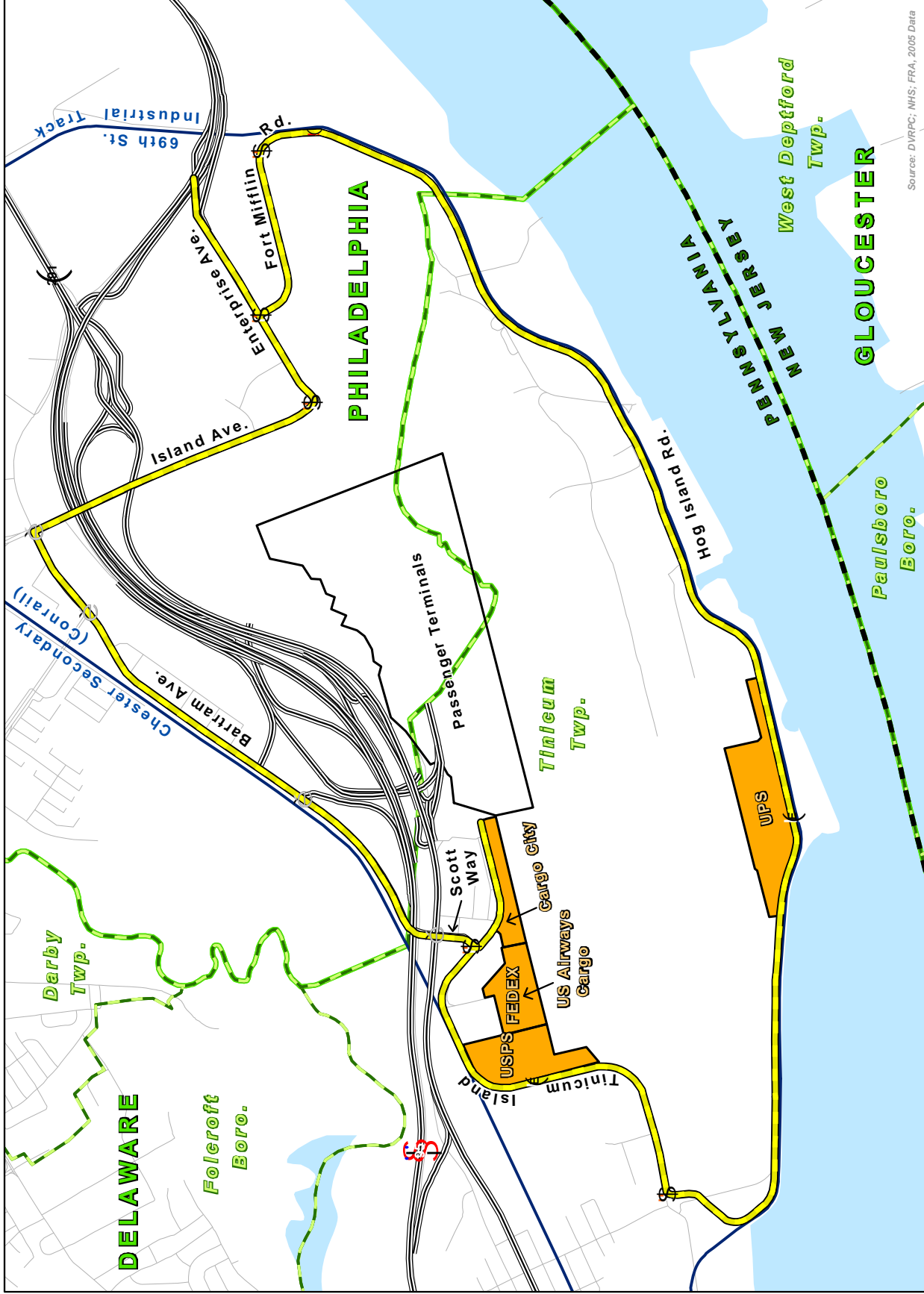
State Border

Miles

1

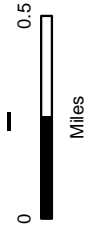
0

8: Philadelphia International Airport

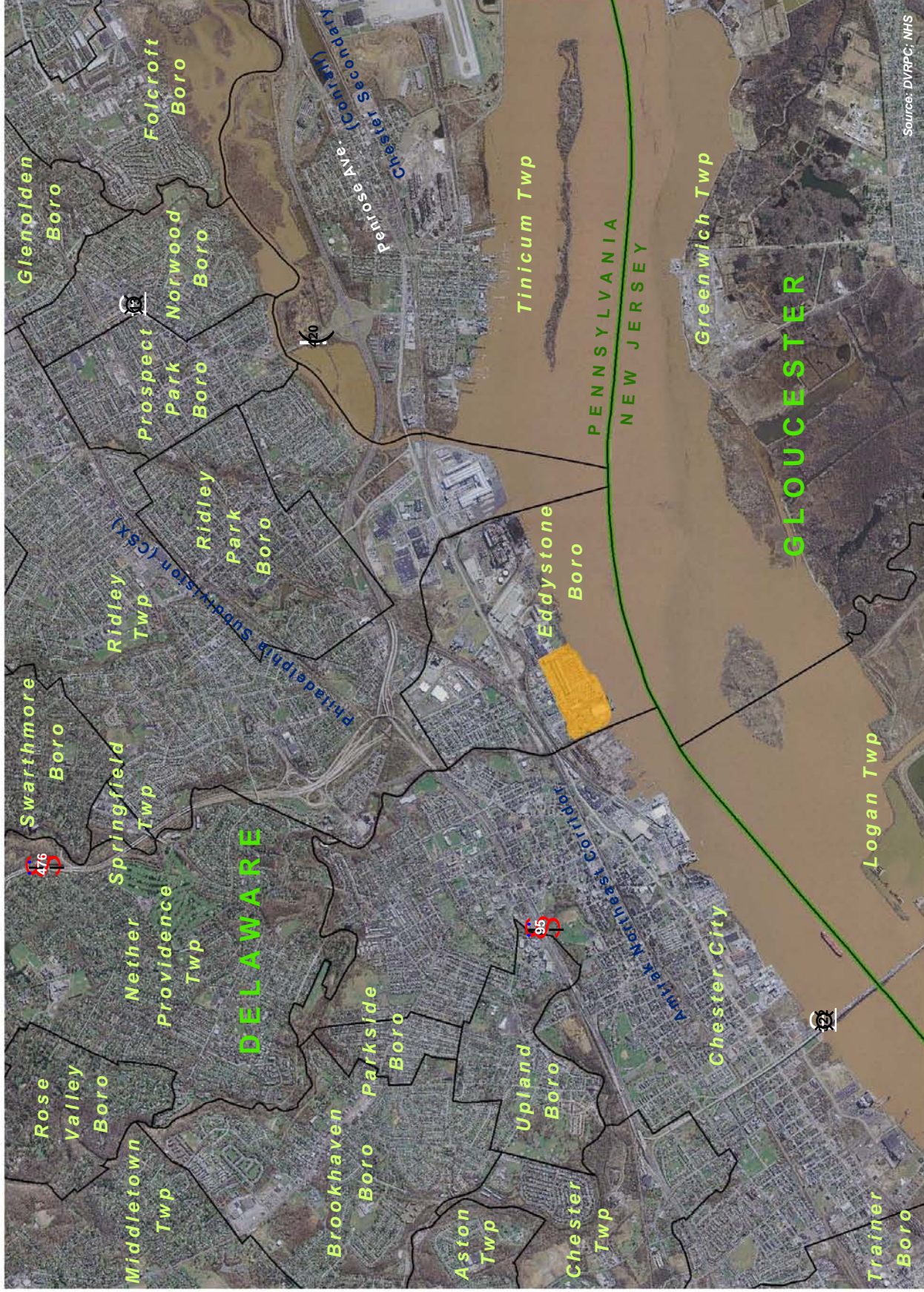


Source: DVRPC, NRS, FRA, 2005 Data

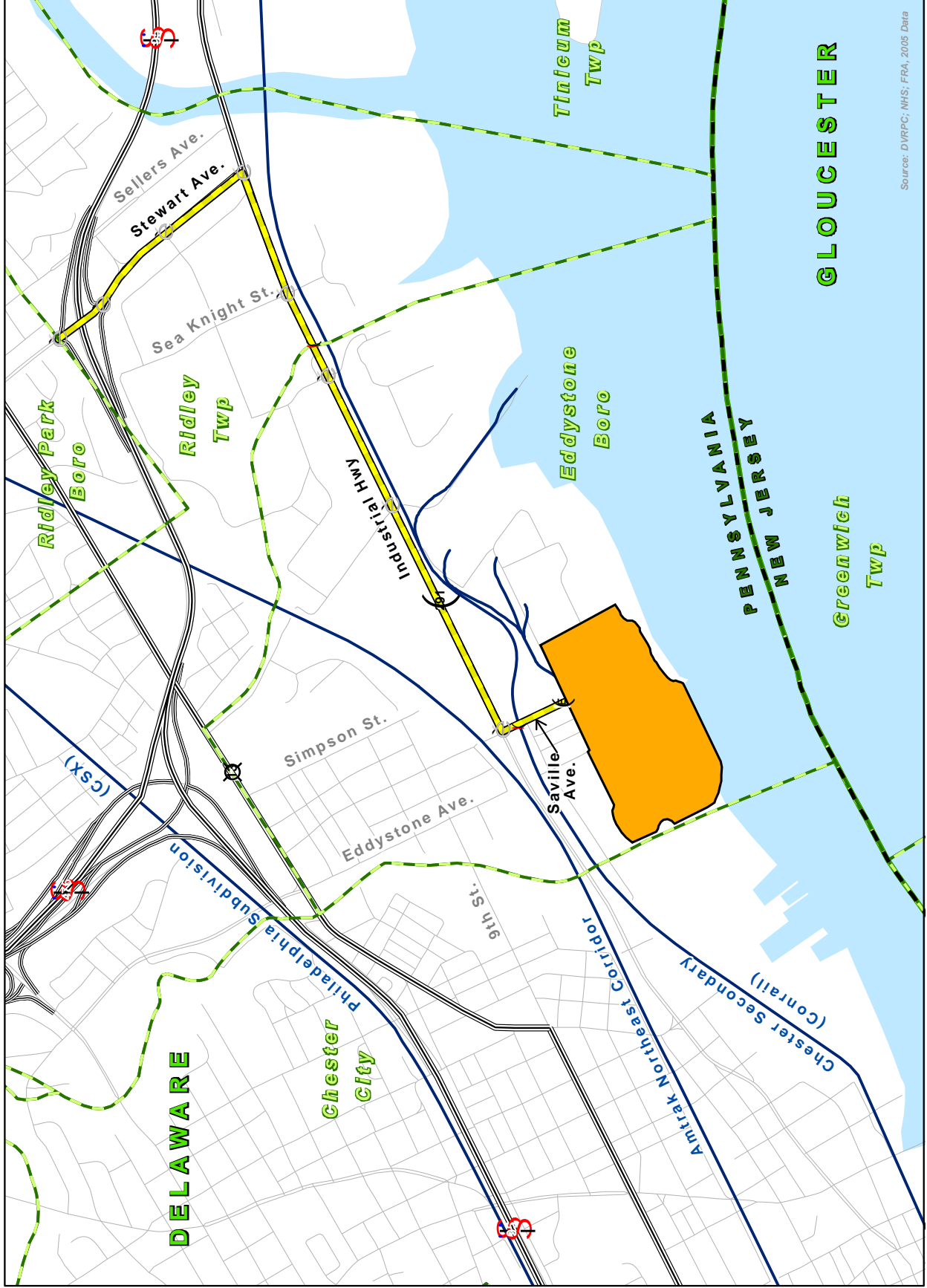
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|--|-----------------------|--|-----------|--|---------------------|--|---------------|--|---------------|
| | Bridge / Tunnel | | NHS Route | | Stop Sign | | NHS Connector | | State Border |
| | Active Grade Crossing | | Signal | | Intermodal Facility | | Rail | | County Border |
| | Entrance | | Exit | | Municipal Boundary | | | | |



: Penn Terminals

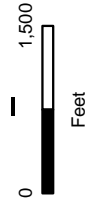


9: Penn Terminals

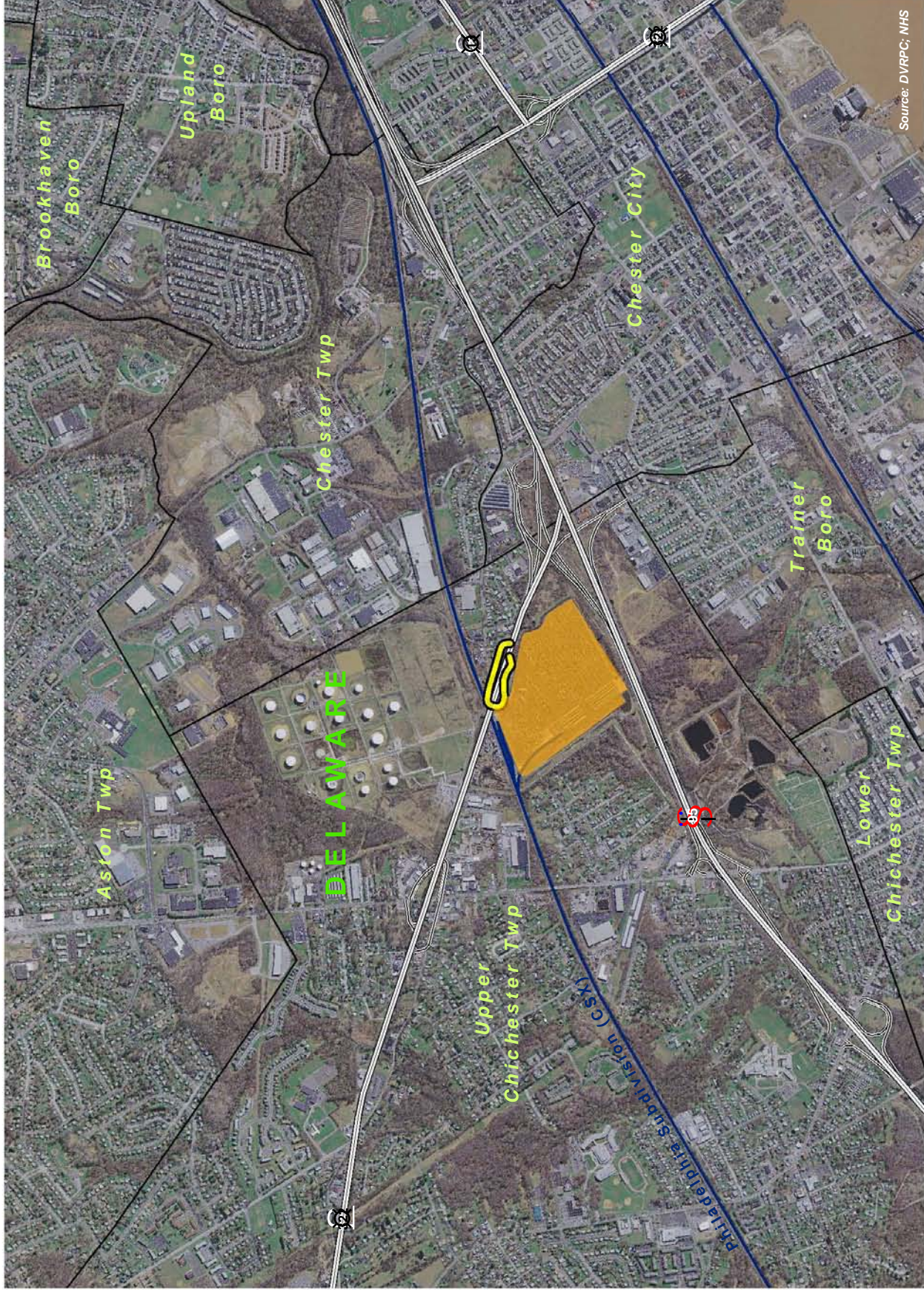


Source: DVRPC; NHS; FRA, 2005 Data

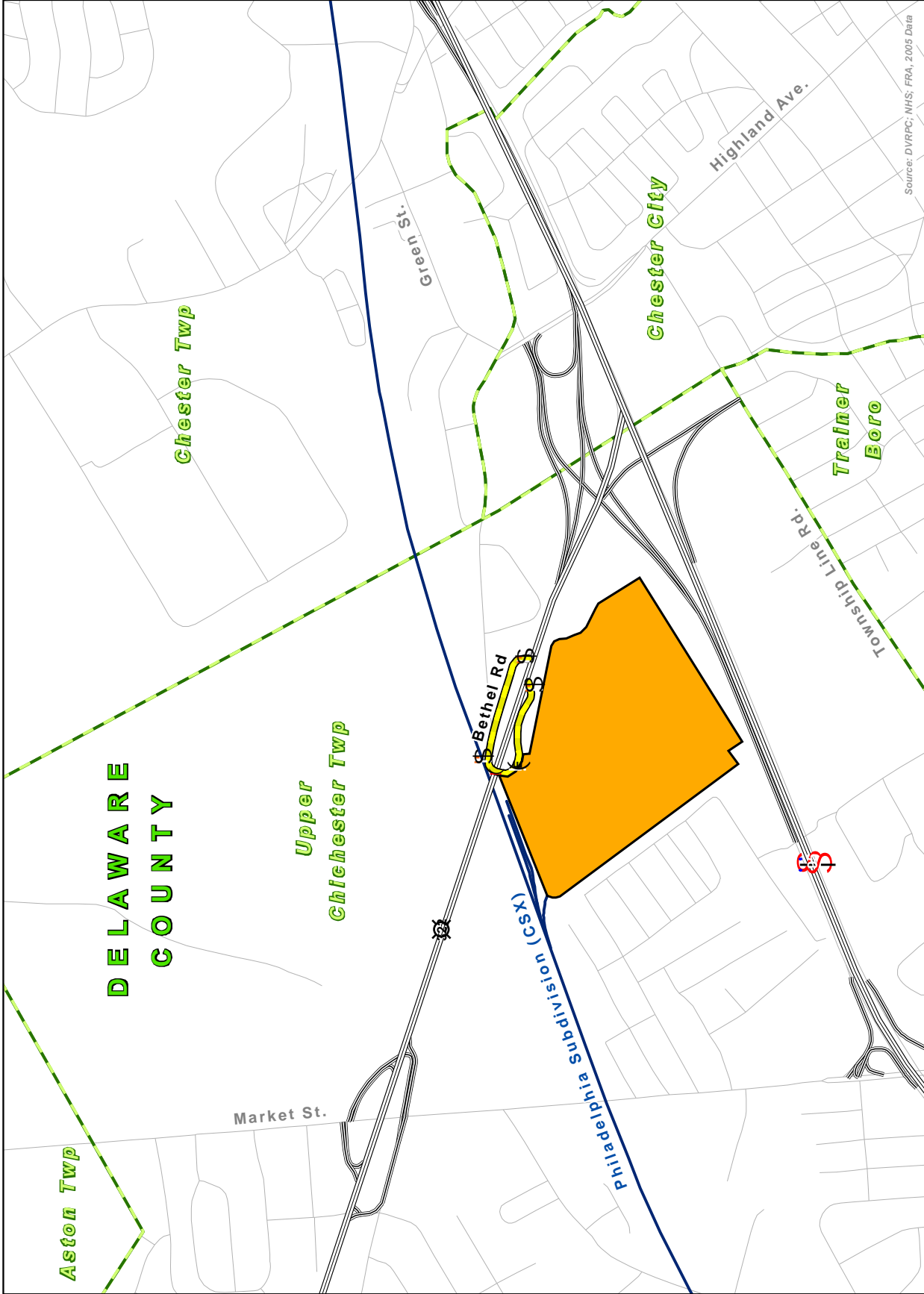
| | | | | | | | | | |
|--|-----------------------|--|---------------|--|-----------|--|---------------------|--|--------------------|
| | Bridge / Tunnel | | NHS Route | | Stop Sign | | State Border | | County Border |
| | Active Grade Crossing | | NHS Connector | | Signal | | Intermodal Facility | | Municipal Boundary |
| | Entrance | | Rail | | Exit | | | | |



: CSX Twin Oaks Auto Terminal



10: CSX Twin Oaks Auto Terminal

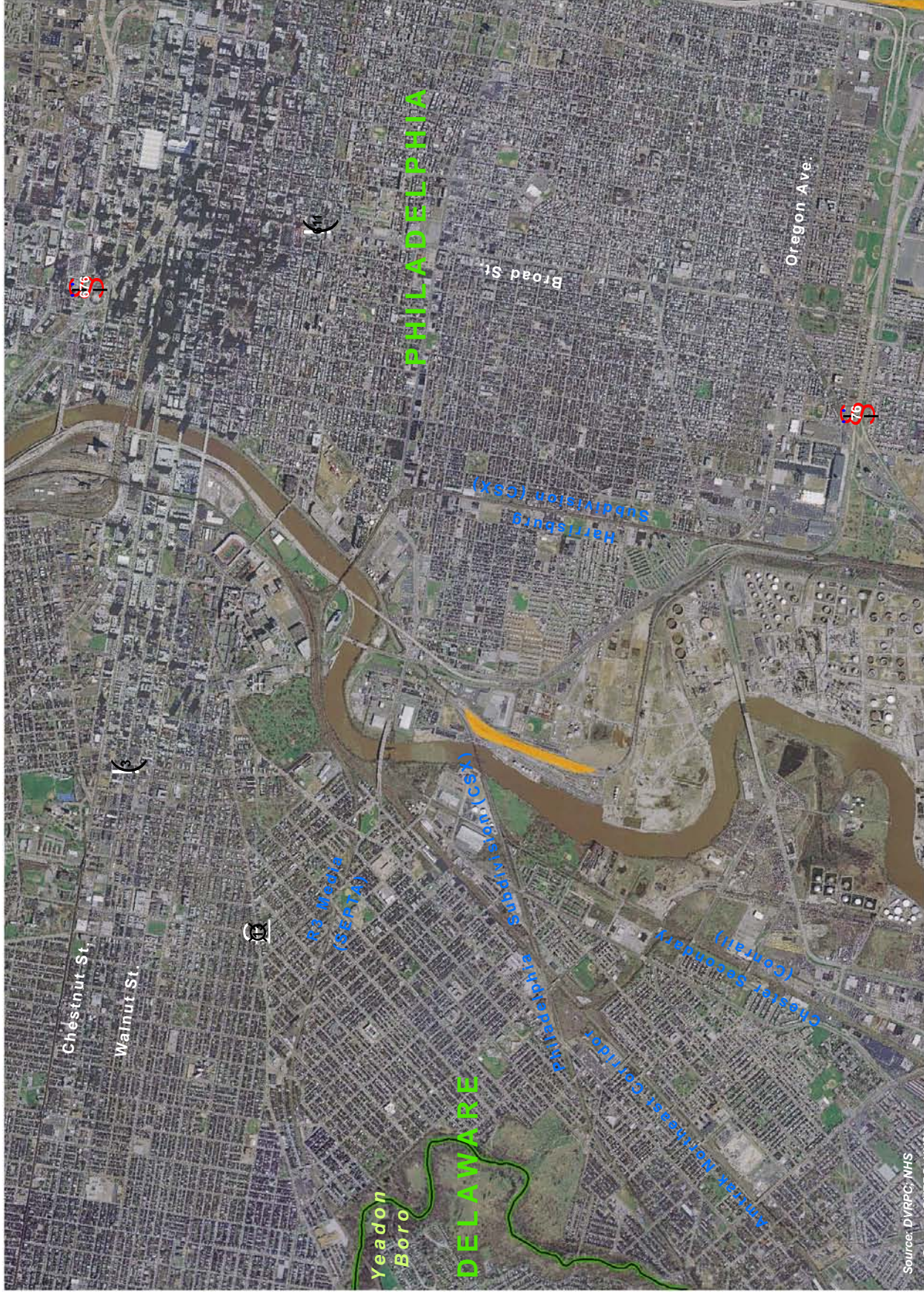


Source: DVRPC, NHS, FRA, 2005 Data

| | | | | | | | | | |
|--|-----------------------|--|-----------|--|---------------|--|---------------------|--|--------------------|
| | Bridge / Tunnel | | Stop Sign | | NHS Route | | State Border | | County Border |
| | Active Grade Crossing | | Signal | | NHS Connector | | Intermodal Facility | | Municipal Boundary |
| | Entrance | | Exit | | Rail | | | | |

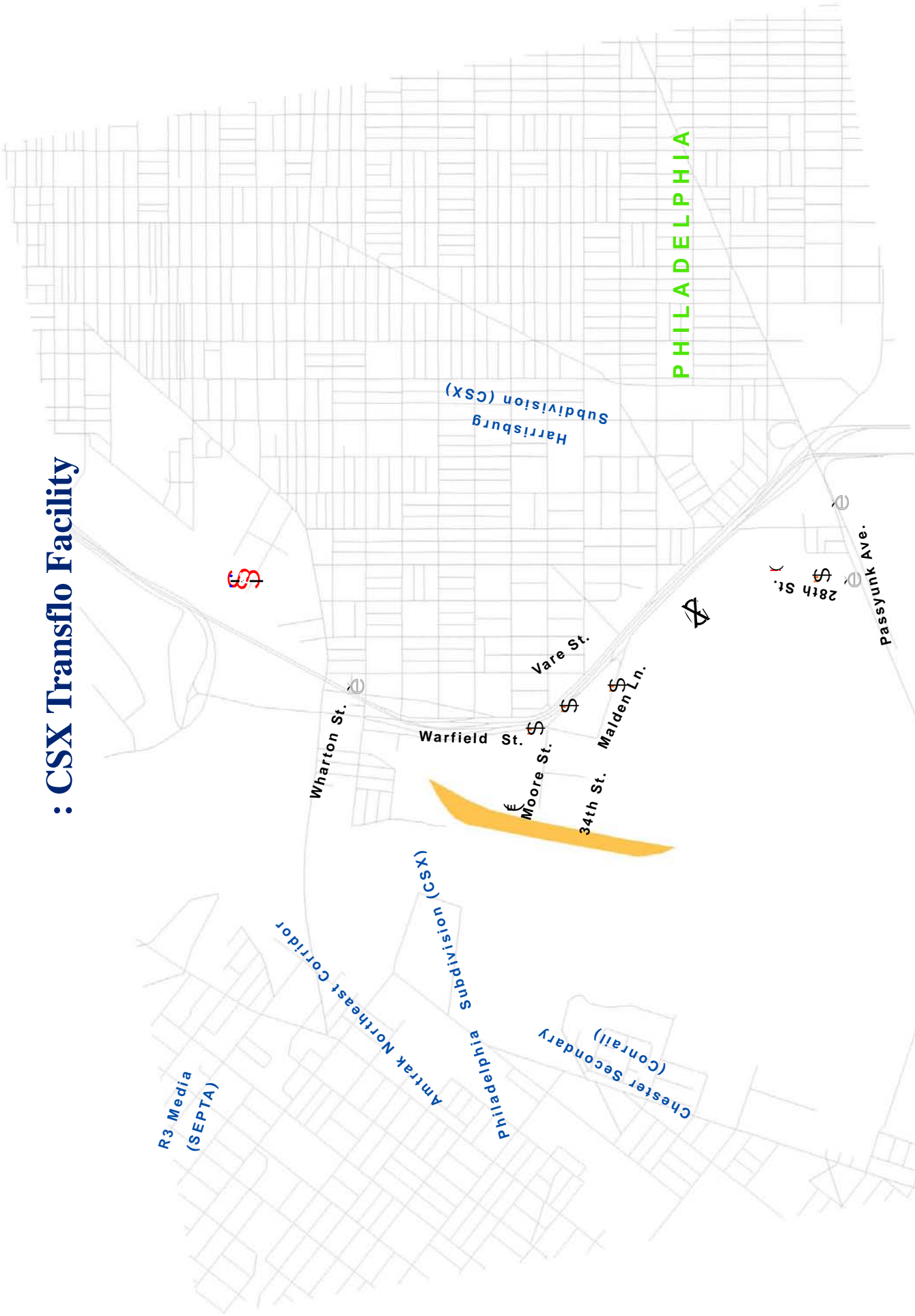


: CSX Transflo Facility



Source: DVRPC, NHS

: CSX Transflo Facility



Source: DV/RPC; NHS; FRA, 2005 Data

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
JULY 2006

- (Bridge / Tunnel
- (Active Grade Crossing
- € Entrance

- \$ Stop Sign
- € Signal
- U Exit

- NHS Route
- NHS Connector
- Rail

- State Border
- Intermodal Facility

- County Border
- Municipal Boundary



PHILADELPHIA

APPENDIX B: PARTICIPANTS IN FIELD VIEWS

Beckett Street, Broadway, and Gloucester Marine Terminals:

Driver:

Jienki Synn – DVRPC

Facility Contacts:

Beckett Broadway: Hank D’Andrea and Jay Jones

Gloucester Marine: Jeff Gillespie

Participants:

Linda Hayes – DRPA

Miki Krakauer – NJ DOT

John Powers – NJ DOT

Andrew Ludasi – NJ DOT

Paul Truban – NJ DOT

Joung Lee – FHWA

Elizabeth Schoonmaker – DVRPC

Kelvin MacKavanagh – MacKavanagh Consulting

Natalia Olson – DVRPC

Penn Terminals and CSX Twin Oaks Yard:

Driver:

Eric Grugel – DVRPC

Facility Contacts:

Tony Giobbie – CSX Twin Oaks

Jeff Culbertson – Penn Terminals

Participants:

Matt Smoker – FHWA

Parry Pandya – EPA

Tom Shaffer – Delaware County Planning

Randy Waltermeyer – Chester County Planning

Matthew Anderson – Chester County Planning

Jeff Reed – PennDOT

Ted Dahlburg – DVRPC

Elise Denmon – DVRPC

Ed Reagle – DMJM Harris

Tioga Marine Terminal and Petty’s Island

Driver:

Sean Greene – DVRPC

Facility Contacts:

William Keller – Tioga Marine Terminal

Veera Yarlagadda – Petty’s Island

Participants:

Charnelle Hicks – CH Planning Limited

Linda Forrester – NJ DOT

Paul Smith – DVRPC

Zoe Robertson – Valley Forge TMA

Gerry Coyle – Evans Delivery Co.

Brian Wall – PennDOT

South Philadelphia Freight Complex and Philadelphia International:

Driver:

Walker Allen – DVRPC

Facility Contacts:

Dave Harvey – Packer Avenue Marine Terminal

Virginia McDonald – Philadelphia International Airport

Participants:

Dennis Rochford – Maritime Exchange

Dave Knapton – Philadelphia City Planning Commission

Lugene Bastian – PennDOT

Cathy Popp-McDonough – SEPTA

Justin Dula – Delaware County

Eric Cheung – Clean Air Council

Don Shanis – DVRPC

Norfolk Southern Morrisville Intermodal Facility and Port of Bucks:

Driver:

David Anderson – DVRPC

Facility Contacts:

Peggy Adams – Port of Bucks

Phil DiPietro – NS Morrisville

Participants:

Kevin Fisher – Nexus Distribution Corp.

Peggy Adams – Port of Bucks

Len Crezenzo – Steelworkers Union

Tom Jennings – Waste Management

Rich Brahler – Bucks County Planning

Jim Mosca – PennDOT

Jim Boylan – Tyburn Railroad

Matt Lawson – Mercer County Planning

Eulois Checkley – Wilbur Smith Assoc.

APPENDIX C: COMPLETED EVALUATION FORMS

Sample Form

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Please check your answer in the space provided. If there is a spot or section of road is different from the overall connector please specify in the comments section.

Map/Aerial

Verify NHS connector routing.

Verify limits of intermodal facility.

Verify all map information and correct and augment where necessary.

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific problem spots.

Good _____ Fair _____ Poor _____

Comments: _____

Good = Pavement smooth with no potholes, bumps, or rough spots.

Fair = Mostly Smooth with few and minor potholes, bumps, or rough spots.

Poor = Major potholes, bumps, or rough spots.

(If there is a specific area or spot that is of different grade the rest of the connector please explain and note where it is in the comments section)

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good _____ Fair _____ Poor _____

Comments: _____

Good = Long ramps with more than adequate space for vehicles with slow acceleration to merge.

Fair = Adequate ramps reasonable for truck acceleration and deceleration.

Poor = Little space for merge / poor sight distance at merge.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good _____ Fair _____ Poor _____

Comments: _____

Good = Wide enough for truck pull off at all points.

Fair = Wide enough for truck pull off at most points

Poor = Wide enough for truck pull off at few points

Does on-street parking pose any problems? If so, where?

Yes _____ No _____

Comments: _____

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good _____ Fair _____ Poor _____

Comments: _____

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good _____ Fair _____ Poor _____

Comments: _____

Good = There is space for up to 5 trucks to queue without impeding on local traffic

Fair = There is space for 1 - 5 trucks to queue without impeding on local traffic

Poor = There is no space for trucks to queue without impeding on local traffic

Railroad Crossings:

Rate warning devices at active railroad crossings.

Good _____ Fair _____ Poor _____

Comments: _____

Good = Full gates are provided.

Fair = Cross bucks are provided.

Poor = No warning devices are provided.

Rate the pavement at railroad crossings.

Good _____ Fair _____ Poor _____

Comments: _____

Do train movements at active crossings impede traffic flows?

Yes _____ No _____

Comments: _____

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes _____ No _____

Comments: _____

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No _____

Comments: _____

Are there any projects needed to improve rail access to the intermodal facility?

Yes _____ No _____

Comments: _____

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes _____ No _____

If no, where are more signs needed?

Are there clear signs from the facility leading back to the primary NHS route?

Yes _____ No _____

If no, where are more signs needed?

Is the facility gate adequately marked? Yes _____ No _____

Is there clear line painting on the connector? Yes _____ No _____

If no, where is additional painting needed?

Land Use:

Does the Facility traverse any residential areas?

Yes _____ No _____

Is there any community issues due to operations associated with the intermodal facility?

Other:

Are there any other problems not addressed in the questions above?

Norfolk Southern Morrisville Intermodal Facility

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific.

Good Fair Poor

Comments: E. Cabot Blvd, Falls Twp., Very good. Major repaving completed in 1996. The side road paved in 2005 and the main yard road is likely to be repaved within a couple of years.

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good Fair Poor

Comments: All ramps were recently reconstructed.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good Fair Poor

Comments: No shoulder on Cabot Blvd.

Does on-street parking pose any problems? If so, where?

Yes No

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good Fair Poor

Comments: None

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good Fair Poor

Comments: Room for about 4 in each lane, and 2 or 3 lanes exist.

Railroad Crossings:

There are no crossings on this connector.

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes No

Comments: None

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No X .

Comments: None

Are there any projects needed to improve rail access to the intermodal facility?

Yes X No _____.

Comments: The MARops program identified a 2nd main track need west of the station all the way to the Norristown area. Track is currently all single track on this line.

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes X No _____.

Are there clear signs from the facility leading back to the primary NHS route?

Yes X No _____.

Is the facility gate adequately marked? Yes X No _____.

Is there clear line painting on the connector? Yes X No _____.

Land Use:

Does the Facility traverse any residential areas?

Yes _____ No X .

Are there any community issues due to operations associated with the intermodal facility?

Comments: None known.

General Comments:

Exit at Rt. 1 has short acceleration and deceleration lanes.

Exiting from Route 1 north trucks must go right and then immediately get into left lane to make turn to East Cabot Boulevard.

Port of Bucks

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific.

Good _____ Fair Poor _____.

Comments: Rt 1 and S Pennsylvania Ave are in fair condition, but the lead-up to the gate is in good condition.

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good _____ Fair _____ Poor .

Comments: All US 1 ramps have inadequate acceleration and deceleration lanes. Tyburn Rd East to Penn Ave N ramp radius is too small for trucks to easily negotiate.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good Fair _____ Poor _____.

Comments: None

Does on-street parking pose any problems? If so, where?

Yes _____ No .

Comments: Access through residential area.

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good _____ Fair Poor _____.

Comments: No deceleration lane from Rt. 1 North to Pennsylvania Ave. Short lanes from PA. Ave to Rt. 1 North and South.

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good Fair _____ Poor _____.

Comments: Gate area is confusing.

Railroad Crossings:

There are no crossings on this connector.

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes _____ No X .

Comments: None

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No X .

Comments: None

Are there any projects needed to improve rail access to the intermodal facility?

Yes _____ No X .

Comments: None.

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes X No _____.

Are there clear signs from the facility leading back to the primary NHS route?

Yes X No _____.

Is the facility gate adequately marked? Yes X No _____.

Is there clear line painting on the connector? Yes X No _____.

Land Use:

Does the Facility traverse any residential areas?

Yes X No _____.

Are there any community issues due to operations associated with the intermodal facility?

Comments: Heavy truck traffic which leads to noise pollution as well as additional congestion.

General Comments:

Substandard ramps to and from US 1.

Tioga Marine Terminal

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific problem spots.

Good _____ Fair X Poor _____.

Comments: None

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good X Fair _____ Poor _____.

Comments: Possible stacking problem at Allegheny Ave during peak fruit season.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good X Fair _____ Poor _____.

Comments: None.

Does on-street parking pose any problems? If so, where?

Yes _____ No X .

Comments: Wide streets with good parking for waiting trucks.

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good X Fair _____ Poor _____.

Comments: None

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good _____ Fair X Poor _____.

Comments: Because of nature/width of road more queuing area not needed

Railroad Crossings:

Rate warning devices at active railroad crossings.

Good _____ Fair _____ Poor X .

Comments: 2 Active rail crossings with no signage. One active rail crossing with cross bucks at Castor.

Rate the pavement at railroad crossings.

Good _____ Fair _____ Poor X .

Comments: Concrete around rail is cracked and raised, considerable speed reduction is required.

Do train movements at active crossings impede traffic flows?

Yes _____ No X .

Comments: Unable to determine, but discussion with Tioga Rep suggests it's not an issue.

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes _____ No X .

Comments: None.

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No X .

Comments: None

Are there any projects needed to improve rail access to the intermodal facility?

Yes X No _____.

Comments: There is no capability for double stack trains to enter the facility.

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes _____ No X .

If no, where are more signs needed? At the end of the exit ramp from 95.

Are there clear signs from the facility leading back to the primary NHS route?

Yes X No _____.

If no, where are more signs needed? Leaving the terminal

Is the facility gate adequately marked? Yes X No _____.

Is there clear line painting on the connector? Yes X No _____.

Land Use:

Does the Facility traverse any residential areas?

Yes Yes _____ No X .

Are there any community issues due to operations associated with the intermodal facility?

None known.

General Comments:

I-95 Northbound exit to Bath Street is very tight. No signage to port from this intersection.

2 Inactive rail spurs with poor pavement.

Several rail lines appear to be in poor condition.

There is a park between Allegheny, Westmoreland, & Bath. Even though it looks dilapidated it is still used. There are no crosswalks for the park and both sidewalks are in bad shape.

Poor signage all over and around the terminal; one sign for 95 had arrow covered by sticker.

Crowley American Transport at Petty's Island

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific problem spots.

Good Fair Poor .

Comments: None

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good Fair Poor .

Comments: None

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good Fair Poor .

Comments: 36th St. is a narrow residential street with no signage.

Does on-street parking pose any problems? If so, where?

Yes No .

Comments: Wide streets with good parking for waiting trucks.

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good Fair Poor .

Comments: Intersection of River Road and 36th street is unsuitable for trucks. Must turn into oncoming traffic to make the turn.

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good Fair Poor .

Comments: None

Railroad Crossings:

Rate warning devices at active railroad crossings.

Good Fair Poor .

Comments: Cross bucks are provided at an at-grade crossing near John Tipton Road.

Rate the pavement at railroad crossings.

Good _____ Fair _____ Poor X .

Comments: Considerable speed reduction required, not sure of material used to minimize impact for vehicles around tracks.

Do train movements at active crossings impede traffic flows?

Yes _____ No X .

Comments: None

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes X No _____.

Comments: Delair crossing rail bridge clearance of 13' 8", and is only marked on one side.

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No X .

Comments: None

Are there any projects needed to improve rail access to the intermodal facility?

Yes _____ No X .

Comments: None

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes _____ No X .

If no, where are more signs needed?

No sign for River Road from NJ 73 visible.

Are there clear signs from the facility leading back to the primary NHS route?

Yes _____ No X .

If no, where are more signs needed?

The connector goes through dense residential neighborhoods and is very lengthy.

Is the facility gate adequately marked? Yes X No _____.

Is there clear line painting on the connector? Yes X No _____.

Land Use:

Does the Facility traverse any residential areas?

Yes X No _____.

Are there any community issues due to operations associated with the intermodal facility?

None Known.

General Comments:

River Road runs through residential area and turn onto 36th street is very poor.

Tight turn River Road and 36th St at RR Bridge.

The Delair Bridge going over River Rd looks old and rusty.

Beckett Street Terminal

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific.

Good _____ Fair _____ Poor X .

Comments: Pavement along Ferry Ave. is in bad shape, cobblestones are coming through in spots. Pavement along most of the connector is rough.

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good _____ Fair X Poor _____.

Comments: None.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good _____ Fair _____ Poor X .

Comments: Road is narrow and lacks shoulders along most of the connector, especially along Ferry Ave.

Does on-street parking pose any problems? If so, where?

Yes X No _____.

Comments: The narrow roads make it so any on-street parking is a serious problem for trucks.

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good _____ Fair _____ Poor X .

Comments: Trucks leaving the facility must make wide turn into opposing lane.

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good _____ Fair X Poor _____.

Comments: Maximum space is roughly 4 trucks.

Railroad Crossings:

Rate warning devices at active railroad crossings.

Good _____ Fair _____ Poor X .

Comments: Not clear which are active. None have signs marking them as crossings.

Rate the pavement at railroad crossings.

Good _____ Fair _____ Poor X .

Comments: Not much worse than general road.

Do train movements at active crossings impede traffic flows?

Yes _____ No X .

Comments: None witnessed.

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes _____ No X .

Comments: No apparent height/clearance issues.

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No X .

Comments: None apparent.

Are there any projects needed to improve rail access to the intermodal facility?

Yes X No _____.

Comments: Very little rail traffic into this terminal due to the nature of cargo and its destinations.

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes X No _____.

Are there clear signs from the facility leading back to the primary NHS route?

Yes X No _____.

Is the facility gate adequately marked? Yes X No _____.

Is there clear line painting on the connector? Yes X No _____.

Comments: Line painting is fading, but existent.

Land Use:

Does the Facility traverse any residential areas?

Yes X No _____.

Are there any community issues due to operations associated with the intermodal facility?

Comments: There is a 'no trucks' sign on Ferry Rd. which suggests there was a concern of trucks impeding on the community in that location, hopefully the sign has resolved all problems. While the connector traverses residential areas, it is only for a very small portion of the connector.

Broadway Terminal & Gloucester Marine Terminal

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific.

Good _____ Fair X Poor _____.

Comments: None.

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good _____ Fair X Poor _____.

Comments: None.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good _____ Fair _____ Poor X .

Comments: Condition is good but road is narrow at many points.

Does on-street parking pose any problems? If so, where?

Yes X No _____.

Comments: Connector has narrow portions, but there is not much non-port traffic on the connector, therefore widening probably not highly necessary.

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good _____ Fair X Poor _____.

Comments: Better than at Beckett St.

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good _____ Fair X Poor _____.

Comments: Broadway Terminal rates poor. Gloucester rates good.

Railroad Crossings:

Rate warning devices at active railroad crossings.

Good _____ Fair X Poor _____.

Comments: All Railroad crossings should have signage – but whether gates are appropriate is determined on an individual basis, good/fair/poor is not an accurate characterization.

Rate the pavement at railroad crossings.

Good _____ Fair X Poor _____.

Comments: Not much worse than road.

Do train movements at active crossings impede traffic flows?

Yes _____ No X .

Comments: None witnessed.

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes _____ No X .

Comments: No apparent height/clearance issues.

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No X .

Comments: None apparent.

Are there any projects needed to improve rail access to the intermodal facility?

Yes X No _____.

Comments: Broadway Rail crossing Improvement project needs to be completed. Rail demand is sporadic.

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes X No _____.

Are there clear signs from the facility leading back to the primary NHS route?

Yes X No _____.

Is the facility gate adequately marked? Yes X No _____.

Is there clear line painting on the connector? Yes X No _____.

Comments: Fading but existent.

Land Use:

Does the Facility traverse any residential areas?

Yes _____ No X .

Are there any community issues due to operations associated with the intermodal facility?

Comments: The terminal is adjacent to residential area, but good gates lead to little to no truck interface with the community.

South Philadelphia Rail & Port Complex

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific.

Good _____ Fair _____ Poor X .

Comments: Wavy, but generally drivable, some patching, rail crossings cause bumpiness, some inactive.

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good _____ Fair _____ Poor X .

Comments: S. Delaware Ave. access road congestion at north end from Oregon to Packer.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good _____ Fair X Poor _____.

Comments: Road should be wider – when trucks are on the roadway waiting to get in there is not room for other traffic to move – put a train in the mix and traffic stands still

Does on-street parking pose any problems? If so, where?

Yes X No _____.

Comments: A parking lot or building garage would be a great asset for employees, also would leave room for truck to queue.

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good _____ Fair X Poor _____.

Comments: Turning right out of North gate there is not enough room for a truck to turn in its own lane, turns into opposing lane before it can straighten out.

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good _____ Fair X Poor _____.

Comments: Good at South Gate. Poor at North Gate. For South Gate, there is a queuing lane on the right hand side, facility representative feels it is adequate for more than 5 trucks to queue without impeding local traffic. For North Gate, there is no queue lane and truck traffic gets backed up often. Overall this congestion occurs at peak times when ships are in the ports or a train is at the CSX facility.

Railroad Crossings:

Rate warning devices at active railroad crossings.

Good _____ Fair Poor _____.

Comments: Most crossings are in the line of sight.

Rate the pavement at railroad crossings.

Good _____ Fair _____ Poor .

Comments: The rail crossing that exits at the intersection over the piece of Packer Ave. that connects Old Delaware Ave to Columbus Blvd. is congested and in disrepair.

Do train movements at active crossings impede traffic flows?

Yes No _____.

Comments: When trains cross at Packer Ave they back up trucks and cause congestion.

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes _____ No .

Comments: None

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No .

Comments: The Walt Whitman bridge may restrict trucks departing from the complex because there is a 80,000lb weight limit which trucks full of frozen meat often exceed. They are in the process of trying to increase the limit to 107,000 lbs.

Are there any projects needed to improve rail access to the intermodal facility?

Yes No _____.

Comments: Some rail lines under Broad Street do not allow for double stack trains.

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes No _____.

Are there clear signs from the facility leading back to the primary NHS route?

Yes _____ No .

If no, where are more signs needed? No signs point drivers back to the main NHS route, but it is so close to the connector that it is probably not needed.

Is the facility gate adequately marked? Yes _____ No .

Is there clear line painting on the connector? Yes No _____.

Comments: Faded in parts but generally line painting is adequate, although traffic does not seem to follow it. Traffic often drives in middle of road regardless of lane lines.

Land Use:

Does the Facility traverse any residential areas?

Yes _____ No X

Are there any community issues due to operations associated with the intermodal facility?

Comments: None known.

General Comments:

Create queuing lanes for the major terminals.

The Packer Ave/Columbus Blvd./Old Delaware Ave intersection needs signage (street names, yields, stops, cross bucks etc.). This intersection also needs to be repaved, but the rail lines may make that difficult.

Philadelphia International Airport

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific.

Good _____ Fair Poor _____.

Comments: Very few patches of rough spots.

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good Fair _____ Poor _____.

Comments: None.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good _____ Fair Poor _____.

Comments: Could be wider, employee parking on street in spots is a concern.

Does on-street parking pose any problems? If so, where?

Yes No _____.

Comments: There is a parking crunch at the airport that leads to some employees parking on the streets and shoulders. This is not a good idea when mixed with truck traffic.

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good _____ Fair Poor _____.

Comments: Good in the area of Island to Enterprise Ave. However, from Tinicum on to Mifflin Road trucks have to negotiate and right hand turn at a 90 degree angle. Trucks were observed going into opposing lane to turn.

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good _____ Fair Poor _____.

Comments: In Cargo City trucks were observed queuing on the side of the road to enter. There is no dedicated lane or space for queuing. Airport Representative stated they are waiting for space to open up at a loading bay. Per the team leader on occasion greater congestion has been observed. Traffic depends on when cargo arrives not on specific hours of operation.

Railroad Crossings:

Questions are N/A because there are no railroad crossings on the connector.

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes _____ No X .

Comments: There is a tunnel on Hog Island Road, but it has plenty of clearance for trucks.

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No X .

Comments: None

Are there any projects needed to improve rail access to the intermodal facility?

Yes X No _____.

Comments: An Increase in Passenger service for travelers and employees would help alleviate the parking issues that exist. There is currently no rail access for freight, it is probably not highly necessary.

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes X No _____.

Are there clear signs from the facility leading back to the primary NHS route?

Yes X No _____.

Is the facility gate adequately marked? Yes X No _____.

Is there clear line painting on the connector? Yes X No _____.

Land Use:

Does the Facility traverse any residential areas?

Yes _____ No X .

Are there any community issues due to operations associated with the intermodal facility?

Comments: None known.

General Comments:

When PA-291 is closed new directional signs will be needed to get from terminals to I-95 with less confusion.

There are different ways to get to I-95. With 291 closing 10/1/06 Bartram Ave. will be main route to enter and exit airport. This road will be carrying a lot more truck traffic. While it is not a residential street, if there were funding to do so, there is enough land around the sharp turns that they could be improved with regards to trucks.

Penn Terminals

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific problem spots.

Good _____ Fair X Poor _____.

Comments: Pavement joints and condition at intersections were primary issues. "Carpeting" of asphalt was noticeable at several intersection approaches. It seems the the high volume of truck/heavy traffic is taking its toll on the roadway.

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good _____ Fair _____ Poor X .

Comments: Acceleration and deceleration ramps at I-95 are fair with regards to their lengths. But the tops of the ramps are poor with regards to sight distance and turning issues.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good _____ Fair X Poor _____.

Comments: None

Does on-street parking pose any problems? If so, where?

Yes _____ No X .

Comments: None

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good _____ Fair _____ Poor X .

Comments: Saville Ave is a narrow road, and there is no turning light (for left turns onto Saville from 291). This intersection is a high accident area. Operator also expressed concern about trucks turning right onto PA 291 from Saville Ave. As well as, poor sight distance for traffic approaching NB PA 291.

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good _____ Fair _____ Poor X .

Comments: Not much room for trucks to queue if there are more than a couple of trucks. Because of the width of the road the trucks get backed up.

Railroad Crossings:

Questions are N/A because there are no crossings on the Connector.

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes No .

Comments: There is a 14' 0" overhead bridge on Saville Avenue. The bridge results from the overhead crossing of the Chester Secondary rail line, and this restricts the flow of project cargo to and from the terminal. There was formerly an additional routing; departing from the terminal in a southerly direction, but this is no longer available due to the new race track.

Are there any weight restricted bridges which restrict truck movement?

Yes No .

Comments: None

Are there any projects needed to improve rail access to the intermodal facility?

Yes No .

Comments: There is a 17' 8" restriction for rail moves to and from the terminal. This restriction is off-site and not in the immediate area.

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes No .

Are there clear signs from the facility leading back to the primary NHS route?

Yes No .

Is the facility gate adequately marked? Yes No .

Is there clear line painting on the connector? Yes No .

If no, where is additional painting needed?

Lane lines covered by crack seal along 291.

Land Use:

Does the Facility traverse any residential areas?

Yes No .

Are there any community issues due to operations associated with the intermodal facility?

Sometimes trucks idling overnight in the facility are noisy for neighbors.

General Comments:

Investigate the intermodal connector's drainage. Does collect in pond or flow across the roadway? Also, are there freezing issues in the winter?

Potential conflict with 291 signed as PA Bicycle Route.

The intersection at 291 and Saville Road needs to be upgraded. No dedicated left turn lane at the intersection. Also poor signage prior to this intersection indicating left turn in a ¼ mile. Turning on and off of 291 is poor and highway speed is also a factor with increase in traffic from casino.

CSX Twin Oaks Auto Terminal

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific problem spots.

Good Fair Poor .

Comments: Pavement conditions were satisfactory throughout the NHS connector. Other issues (sight distance, turning restrictions, etc.) were far more prominent.

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good Fair Poor .

Comments: Very sharp turns near the facility. No acceleration or deceleration ramps were present. Lack of sight distance is also an issue.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good Fair Poor .

Comments: Very little, if any, shoulder along side of the roads. All movements seem highly restrictive.

Does on-street parking pose any problems? If so, where?

Yes No .

Comments: None

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good Fair Poor .

Comments: Connector narrow and curvy, can't make left-hand turn out of facility back to connector.

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good Fair Poor .

Comments: Facility has parking lot that trucks could use if the gate became backed-up.

Railroad Crossings:

Question are N/A because there are no crossings on the Connector.

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes No .

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No X .

Are there any projects needed to improve rail access to the intermodal facility?

Yes X No _____.

Comments: Increased vertical clearances are needed to permit auto-carrier cars north of Twin Oaks terminal (for example, to reach the Doremus auto terminal in northern New Jersey)

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes _____ No X .

If no, where are more signs needed?

More signs probably not necessary since facility is mainly used by drivers on a regular basis and are thus familiar with the facility.

Are there clear signs from the facility leading back to the primary NHS route?

Yes X No _____.

Is the facility gate adequately marked? Yes X No _____.

Is there clear line painting on the connector? Yes X No _____.

Land Use:

Does the Facility traverse any residential areas?

Yes X No _____.

Are there any community issues due to operations associated with the intermodal facility?

Passes one or two homes, but no serious community issues associated.

General Comments:

Work with PennDOT project manager to ensure track movements are factored into the re-design of the ramps.

No signage indicating the speed limit on the so-called ramps.

Rt. 322 ramps are deficient with very tight radius.

No Left turns out of facility due to bridge and turn radius.

CSX Transflo Facility

Prepared by Delaware Valley Regional Planning Commission in conjunction with the Delaware Valley Goods Movement Task Force

Pavement Conditions:

Rate overall pavement conditions along the connector; please specify any specific problem spots.

Good _____ Fair X Poor _____.

Comments: None

Operations at Connection Points:

Rate acceleration and deceleration ramps at the primary NHS route with regards to truck movements.

Good _____ Fair X Poor _____.

Comments: Potential conflict at merge coming off of 76 East Bound.

Traffic Operations (a):

Rate roadway and shoulder widths. Is it adequate at all points?

Good _____ Fair X Poor _____.

Comments: Connector is predominantly adequate – however, there are spot locations with limited space and commercial vehicle activity; observed little parking on shoulders.

Does on-street parking pose any problems? If so, where?

Yes _____ No X .

Comments: None.

Traffic Operations (b):

Rate turning movements with respect to trucks. If there are turns which are difficult for trucks to negotiate, please note in the comments section.

Good _____ Fair X Poor _____.

Comments: One tough turn – right onto Maiden from Vare St., however it appears that most trucks come from 76 W and take a left on Warfield avoiding this turn. The route in general is lengthy and circuitous.

Rate the sufficiency of the queuing area for trucks at the facility entrance.

Good _____ Fair X Poor _____.

Comments: Little queuing space, but little additional traffic. Access road acts similarly to a “cul-de-sac”

Railroad Crossings:

There are no crossings along this connector.

Bridges:

Are there any overhead bridges which restrict truck movements?

Yes _____ No X .

Comments: None.

Are there any weight restricted bridges which restrict truck movement?

Yes _____ No X .

Comments: None

Are there any projects needed to improve rail access to the intermodal facility?

Yes _____ No X .

Comments: None Known.

Signage/Striping:

Are there clear signs directing users to the facility from the primary NHS route?

Yes _____ No X .

If no, where are more signs needed? Street signs are present and visible, but there are no signs leading to facility. Signs at the corners of Vare St. and Maiden Lane, as well as at the intersection of Warfield and Moore St. would make facility easier to find.

Are there clear signs from the facility leading back to the primary NHS route?

Yes X No _____.

If no, where are more signs needed? While there are few signs along the connector and around the facility, there is only one way you can leave the connector and when you get to a decision point there is adequate signage, thus no additional signage is necessary.

Is the facility gate adequately marked? Yes X No _____.

Is there clear line painting on the connector? Yes X No _____.

Land Use:

Does the Facility traverse any residential areas?

Yes _____ No X .

Are there any community issues due to operations associated with the intermodal facility?

None known.

General Comments:

None.

Title: National Highway System Connectors to Freight Facilities in the Delaware Valley Region

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Geographic Area Covered: Portions of the nine county DVRPC region, all in close proximity to the Delaware River; specifically, Burlington and Camden counties in New Jersey, and Bucks, Delaware, and Philadelphia counties in Pennsylvania.

Key Words: NHS Connector, goods movement, truck travel, intermodal freight facilities, rail / truck / port / terminals, airports, highway conditions.

Abstract: This project studies 30.34 miles of highways that connect 11 major intermodal facilities to the National Highway System. NHS connectors are a vital piece of the supply chain throughout our country and often go overlooked in the traditional transportation planning process. The analytical work includes an inventory of existing conditions both of a physical and operational nature. Most connectors were found to be in fair condition, with those connecting to rail yards and one airport in better condition than those connecting to sea ports. The scope of recommendations includes administrative updates, suggested highway projects, and meetings with owners on how to resolve operational issues. This project was conceived of and supported by DVRPC's freight advisory committee, The Delaware Valley Goods Movement Task Force.

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