

**PORT INLAND DISTRIBUTION NETWORK  
SOUTH JERSEY SITE EVALUATION AND FEASIBILITY DEVELOPMENT STUDY**

**NEW JERSEY DEPARTMENT OF TRANSPORTATION AND THE DELAWARE VALLEY REGIONAL PLANNING COMMISSION**

**EXECUTIVE SUMMARY**

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**INTRODUCTION**

The volume of international containerized trade has steadily increased since its introduction over 40 years ago. Significant growth in container volumes through the Port of New York and New Jersey (PONY&NJ) has followed a similar trend and is projected to double by the year 2010. The significant growth in container volumes is due to a number of economic factors including the growth of global trade and a shifting of trade lanes from transpacific routes calling at U.S. west coast port facilities to a combination of all-water services via the Panama Canal and all-water services utilizing the Suez Canal, Mediterranean Sea and the Atlantic Ocean. Container volumes are a response to consumer demand in the region.

**PIDN CONCEPT**

In anticipation of this growth, a concept titled, Port Inland Distribution Network (PIDN) has been developed as one of the strategies designed to improve freight movements between the port and inland destinations. In addition to freight movement efficiencies and redundancy, public sector benefits that may also develop as part of a successful PIDN include congestion mitigation along particular roadway segments, new job generation, brownfield redevelopment, supply chain enhancement that could lead to cost reductions for local consumers, an increased tax base for local and state entities and an overall improvement in the competitive nature of a specific region.

**SOUTH JERSEY PIDN**

A South Jersey based PIDN (SJ-PIDN) service is currently being evaluated due to a combination of continued growth in regional consumer demand, the reliance on over-the-road truck haulage for inland transport, and increasing congestion along major interstates and local connector highways. If roadway or highway congestion is left unchecked throughout New Jersey, significant negative impacts to economic growth and regional air quality may result. A SJ-PIDN offers the potential to relieve some of the congestion along the NJ Turnpike corridor by increasing transportation's modal split for containers destined to inland locations through the use of a two-way feeder barge or line-haul rail service that directly connects the PONY&NJ with a South Jersey container facility. In addition, a successful feeder service could act as a catalyst for the creation of economic development opportunities through the combination of industrial, trade, service and logistic programs on a single site, where each business element benefits from the capabilities of other elements.



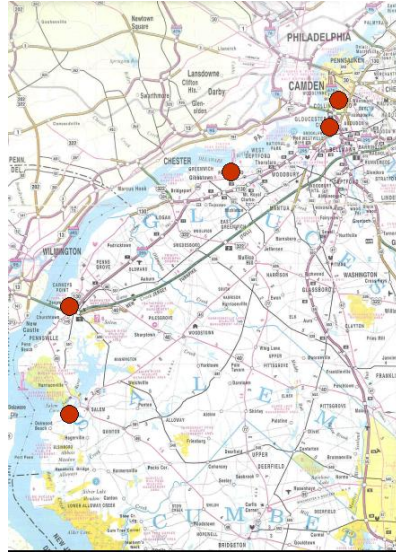
Feeder Barge Service



Line-Haul Rail Service

## STUDY PURPOSE

The purpose of the South Jersey Site Evaluation and Feasibility Development Study was to: (a) evaluate the potential to accommodate PIDN developments at five (5) prospective sites: Camden, Gloucester City, Paulsboro, Pennsville and Port Salem, (b) to recommend which sites, if any, should be considered as potentially viable inland distribution locations, and (c) to explore the potential for value added development around the PIDN or feeder port locations. The Study was intended to assist decision makers in evaluating the merits of supporting PIDN development and to specify appropriate “Next Steps” if one or more PIDNs in South Jersey are feasible.



## SITE EVALUATION

The following Site Criteria Matrix provides a summary comparison of each potential South Jersey site location. Based on on-site and off-site characteristics, such as barge and/or rail travel time from the PONY&NJ, sufficient water depth along the existing berth, available and adequate wharf infrastructure, proximity to upland terminal acreage, existing and condition of warehouse facilities, existing rail capability and proximity of interstate highway access, the Camden and Salem facilities are recommended herein for further consideration regarding the potential feasibility of establishing a viable inland distribution network via the PONY&NJ.

COMPARISON OF FIVE SOUTH JERSEY POTENTIAL PIDN SITES																	
SITE / CRITERIA	Barge Travel Time to PANYNJ	Berth Water depth	Berth Length	Proximity to Container Yard	Cost to Develop Container Yard	Available Warehouse S.F.	Available Container Handling Equipment	Established Maritime Labor	Local Connector Access Route	Interstate Highway Access	Early Service Commencement	Access to Public Funding	On-Facility Rail Service	Rail Travel Time to PANYNJ	Compatibility with Existing Operation	Further Consideration	
<b>Broadway Terminal</b>	O	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	Y
<b>Salem</b>	+	+	+	+	+	+	+	+	O	+	+	+	O	O	+	+	Y
<b>Gloucester Point</b>	O	-	+	+	-	-	-	-	-	+	-	-	-	O	O	-	N
<b>BP Paulsboro</b>	O	+	-	+	-	-	-	-	+	+	-	-	+	O	-	-	N
<b>Deepwater Dupont</b>	O	+	-	O	-	-	-	-	-	+	-	-	-	O	O	-	N

## SITE SELECTION

Based on origin and destination data derived in the Port Authority of New York and New Jersey’s (PANY&NJ) - PIDN analyses, it was determined that in 1998/99, the overall market for the Southeastern Pennsylvania and South Jersey region represented nearly half a million TEUs (i.e. 358,200 TEU of imports and 137,400 TEU of exports – a TEU is an internationally recognized unit of measure and equates to “one twenty foot equivalent unit”).

For the purposes of the SJ-PIDN analysis, the potential market is considered to be located within a 20-mile radius of a designated PIDN node. Predicated on a New Jersey only market, centered on Camden, a target market of approximately 280,000 TEUs is generated. The 20-mile roundtrip distance is

utilized in order to minimize final over-the-road drayage operations, thereby maximizing the number of deliveries a trucker can make in one day while also minimizing per TEU drayage costs.

In a similar fashion, the potential market located within a 20-mile radius, centered on Salem, generates a target market of only 12,000 TEU. Based on this analysis, the potential 20-mile market available to a Salem Terminal is less than 5% of the potential market for a Camden Terminal. Due to the significant decrease in Salem's potential 20-mile market demand, it is recommended that a Salem based PIDN location be considered as a secondary alternative or potential "add on service offering" to a successful Camden based – SJ-PIDN operation.

Specifically, the current lack of market demand for containerized freight within close proximity to the Salem Terminal will require longer final over-the-road drayage distances (i.e. to the north where population densities and current industries exist), thereby negatively impacting the cost effectiveness of a Salem-only based PIDN feeder service.

Based on the geographical distribution of Camden's 20-mile market, combined with the fact that nearly 50% of this market moves via the PONY&NJ, a total SJ-PIDN Year 1 "Start-Up" volume of 140,000 TEU through a Camden Terminal is possible. Predicated on a medium capture rate (20%) of containers currently moving through the PONY&NJ, it is estimated that a start-up volume of 28,000 TEUs annually, or approximately 16,500 boxes is feasible. From a qualitative standpoint, the start-up service volume is predicated on handling one out of every four import containers that currently move via truck from the PONYNJ to a destination within a 10-mile radius of a Camden terminal. Furthermore, if a 4% annual growth rate is utilized, the start-up service volume could increase to nearly 40,000 TEUs, or approximately 25,000

boxes, by the end of the fifth year, further increasing to nearly 60,000 TEUs, or approximately 35,000 boxes, by the end of the tenth year.

## **RECOMMENDATIONS**

Implementing a cost competitive feeder service for containers, utilizing either barge or rail transport, will be a challenging endeavor that will require a combination of an effective transportation solution integrated with a successful value-added warehouse and distribution program. The difficult cost competitive transport situation is the result of either the extensive barge sailing time of roughly 3 days per roundtrip, or the circuitous and congested rail route between North and South Jersey.

An operating cost comparison indicates that the existing over-the-road truck movement is the most cost-effective transport mode. This cost analysis compares the total cost of handling and transporting one container via truck, barge or rail. But if a feeder service is able to modify the current supply chain process by (1) achieving economies of scale from operating at high equipment utilization ratios (i.e. handling 200 containers per one-way barge or rail move), (2) capturing a significant number of "over-weight" containers, (i.e. containers in excess of the over-the-road weight restrictions – 40,000 lbs or 20 tons/load) and (3) combine the feeder service with on-terminal value-added warehouse, distribution and anchor tenant activities, a SJ-PIDN service via Camden is likely to provide a feasible alternative to over-the-road transport.

In addition to the potential to achieve a cost-effective transport alternative to over-the-road trucking, which would utilize mode shift to benefit regional users through the optimization of existing roadway capacity, reduce roadway maintenance requirements and potentially enhance air quality, the feeder service can complement local smart growth initiatives and

generate economic development. Two specific value-added or anchor tenant concepts are possible: (1) a Food Distribution PIDN and/or (2) a Retail-Oriented PIDN. Both value-added concepts support cargo transport, local and community focused economic development, fit surrounding uses and policies, and are predicated on achieving financial self-sufficiency. For example, the Food Distribution PIDN would combine the flow of food and beverage products from overseas with locally produced goods and raised products. In so doing, the complex could be integrated with existing port operations in New Jersey, Philadelphia and Wilmington, Delaware, as well as with the concentration of farms in the middle and southern regions of New Jersey.

The demand for these products comes from the major markets for food purchases in the vicinity of the proposed site in Camden. Atlantic City, Cape May, Philadelphia and areas of New York – New Jersey (via back-haul transport) are within the market area of a Camden site. The agglomeration and variety of products that would be offered at the site would be designed to attract the attention of restaurants, specialty stores and food markets in the area.

A series of “Next Steps” have been developed in order to refine the economic considerations and potential for economic viability. The Next Steps include:

- Establish public partner(s),
- Confirm terminal availability, labor relationships, service offerings and capability to provide cost-effective SJ-PIDN operations,
- Work with the local community to identify and incorporate specific concerns and ideas,

- Identify specific throughput source(s) such as shippers, trucking companies and shipping lines, and refine the boundaries of the SJ-PIDN geographically,
- Based on the specific throughput, geographical boundaries and community issues, develop environmental benefits such as reduced over-the-road drayage requirements, corresponding air quality benefits and reduced roadway maintenance provisions,
- Predicated on the defined public partners, terminal selection and throughput volume, establish preliminary public – sector financial sources including federal, state and local entities,
- Based on the defined financial sources, establish preliminary financial uses including infrastructure development, capital equipment purchases and operational considerations,
- Identify specific value-added anchor tenant(s) and other business requirements, such as synergistic partnerships with Pennsylvania and Delaware, as well as back-haul opportunities that will be critical to the viability of the SJ-PIDN feeder service,
- Enhance economic development opportunities for local and regional communities, and plan for SJ-PIDN related programs including job-training, education-internship opportunities, and transportation options.

**ACKNOWLEDGEMENTS**

The South Jersey Site Evaluation and Feasibility Study was conducted in cooperation with the following Steering Committee Members: DVRPC, NJDOT, DRPA, SJPC, SJTPO, PANY&NJ and other city, county and regional stakeholders.



Potential PIDN Container Handling Process