The Value of Freight to the State of New Jersey

Prepared for

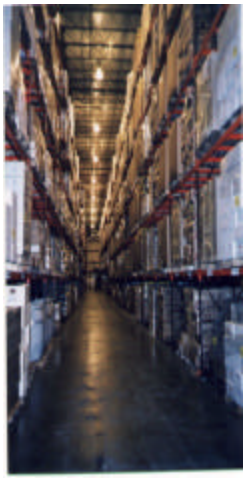
New Jersey Department of Transportation

Prepared by

Alan M. Voorhees Transportation Center
Edward J. Bloustein School of Planning and Public Policy
Rutgers, the State University of New Jersey

and

A. Strauss-Wieder, Inc.
analyses for informed decision-making



February 2001

TABLE OF CONTENTS

Appendices

Executive Summary

New Jersey's freight system is an extraordinary resource for the promotion of commerce, the creation of jobs and the elevation of our quality of life. This system includes trucking, water transport, air cargo, and rail freight carriers (and combinations thereof) as well as the terminal, warehousing distribution centers. These carriers also rely on the public and private rights-of-way – tracks, waterways, air routes, pipelines and roadways – to provide pick-up and delivery.

New Jersey has long benefited as a major crossroad and expediter of trade. The State has always been a leader in providing the infrastructure required to keep the economy on the move. Today the State is not only a major crossroads for domestic freight; it is the East Coast's leading gateway for global commerce. In other words, our sea and air facilities provide New Jersey with the East Coast's best front door to the annual $14 trillion business of world commerce.

Carriers put bananas on our supermarket shelves -- along with the milk and yogurt we buy to assemble a healthy breakfast. They collect giant coils of newsprint that become our books, journals and newspapers -- and move this media to our front door. Freight systems reach to far-flung places to gather ingredients for the New Jersey manufacture of life-saving drugs. Then they speed this vital stock to hospitals and pharmacies regardless of whether they are around the corner and around the world.

This report focuses on the essential elements of the freight system and the value it creates for businesses and consumers alike. If we better understand the system's value, and the many ways it delivers value, we can better define the actions needed to ensure efficient, environmentally sustainable operations. The report describes the value that freight produces by creating direct jobs, enhancing productivity, generating local activity and facilitating economic growth.

Creates Direct Jobs

Freight carriers, warehousemen and distribution providers, service arrangers (logistics managers) directly employ more than 484,000 New Jersey workers – that's 22,000 more jobs than is supported by all manufacturing in the state.

Enhances Productivity

New Jersey's carriers and distributors handle more than 375 million tons of goods each year. Our integrated, intermodal system is capable of providing cost and time saving features such as just-in-time delivery, real-time tracking and service tailored to almost every need and cost combination. It can meet the demands of diverse New Jersey shippers including automobile manufacturers, convenience store chains, and Barnes and Noble.com.

Generates Local Business

New Jersey is not merely the conduit for domestic and international cargo movement – New Jersey businesses add value. Two-thirds of the domestic freight originating in New Jersey goes to other New Jersey customers. However, the one-third that is sent to other states accounts for 75% of the value of all goods shipped. This happens because New Jersey firms produce the high-value goods that out-of-state customers want, and our freight system cost effectively links local industry to these customers.

New Jersey businesses turn raw materials into high-value products, such as pharmaceuticals and electronics. In addition, warehouses and distribution centers are part of the value added service chain in which New Jersey workers add value through the final assembly, accessorization and packaging of products.

Facilitates Growth

Despite constant and major changes in the demand for service, the freight system always has given New Jersey users unparalleled market access. In the State's formative years, the freight system connected New Jersey's farms, mines and factories to emerging local markets on the East Coast. From the mid 19th century to the mid 20th century, the freight system supported New Jersey's growth as a regional and national manufacturing center. As the State enters the 21st century, the freight system is evolving to meet the new needs generated by global trade, the emerging service economy and an exploding consumer market.

Freight will have a major role to play in ensuring New Jersey's future well being. We must create a strategy to exploit the emerging opportunities and minimize the gridlock and potential environmental degradation. More freight will need to move internationally. The needs of New Jersey's emerging service economy, its historical manufacturing base and its huge consumer marketplace must be met. In meeting these challenges, we must also ensure high safety standards, improve environmental performance and find the financial wherewithal to do so. As we work toward this end, we can be confident that we are engaged in an activity that has intrinsic value and adds value to related endeavors.

I. Introduction

Throughout New Jersey's history, freight transportation has played a vital role in the State's development and prosperity. This report examines the value that freight transportation provides to the State of New Jersey. The report:

- Identifies the size and strategic role of the State's freight industry;
- Provides an understanding of how this system of trucks, trains, ships, aircraft and warehouses affects New Jersey's businesses and residents; and
- Forms a basis for discussing the role of freight in the State's future.

An Extraordinary Resource

New Jersey's freight system is an extraordinary resource – it has made the State into the crossroads of commerce for the nation and the world. More than 375 million tons of freight move each year in New Jersey. Without this vital network, stores would be empty, manufacturers and farms could not move their products to market, and the daily paper would never arrive.

The responsibility for the movement of goods in New Jersey rests with the hundreds of private sector companies that provide freight service and a set of federal, state and local governmental agencies charged with investing, maintaining and managing elements of the system.

Freight transportation is a continually evolving system, adjusting and re-inventing itself to exploit new technology and meet changing transportation needs. Value is the one constant for the State of New Jersey. Freight transportation provides:

- *Economic value* through the jobs it directly generates in New Jersey and the efficient transportation of goods that it provides to meet the needs of the State's population and businesses; and
- *Economic development value* by being a national and international gateway. The concentration of freight infrastructure and services in New Jersey provides a unique opportunity for the State's businesses to market to the world and obtain materials cost effectively from around the globe.

Structure and Use of this Report

This report contains four sections:

- The Size, Scope and Economic Value of New Jersey's Freight System;
- A State Growing and Prospering because of its Freight System;

- The Role of Freight in the Daily Lives of New Jersey Residents and Businesses; and
- Freight and New Jersey's Future.

The appendix to this report provides additional information on the elements of the freight transportation system.

II. The Size, Scope and Economic Value of New Jersey's Freight System

New Jersey's extensive freight system has enabled the State to become the crossroads of commerce for the nation. This chapter describes New Jersey's freight system and the economic value that it provides to the State:

- The jobs freight generates – freight is a major employer in the State of New Jersey;
- The area freight serves – New Jersey's freight system serves the State, the nation, and the world;
- The components in the freight system – freight is an integrated system containing many components; and
- The value freight adds – freight shipments do not merely move through the State; they take part in processes that increase the value of the cargo.

A Major Employer

Freight transportation does more than move the goods – freight transportation is a major employer in the State of New Jersey. Freight transportation providers, warehouses and distribution centers employ over 484,000 workers – *more than all of the manufacturing businesses in the State* (Figure II-1).

Figure II-1:
Freight Transportation –
A Major Employer in New Jersey

Trucking Operations		64,100
Water Transportation		15,000
Rail Freight Transportation		2,400
Air Cargo Transportation	11,900	
Public and Private Warehousing		380,300
Freight Transportation Arrangement		10,400
TOTAL NJ FREIGHT EMPLOYMENT		**484,100**

Source: NJ Department of Labor, A. Strauss-Wieder, Inc., Port Authority of New York and New Jersey, Owner Operators Independent Drivers Association.

Employees work at the port, loading and unloading the vessels coming into the harbor. They operate the trucks and trains carrying freight throughout the State. Workers handle the thousands of time-sensitive letters and packages flowing through the airport. For example, Newark International Airport is FedEx's biggest freight generator, moving 385,000 pieces each night.[1] The FedEx operation at Newark alone employs over 1,500 people. The operation involves an average of 27 aircraft and 340 trucks each night.

Thousands of freight transportation employees work in warehouses and distribution centers where there may be two or three shifts of workers. These workers, located throughout New Jersey, use a full range of skills. However, they have one goal in

common – they work to expedite the movement of goods to consumers and businesses.

Figure II-2:
The Amount of Freight Moving in NJ
(in millions of tons)

Truck	283.1
Water	66.5
Rail	24.4
Air	1.2
TOTAL	**375.2**

Sources: Reebie Associates, A. Strauss-Wieder, Inc., Port Authority of New York and New Jersey, Port of Philadelphia and Camden. Estimated for 1998. Does not include pipeline movements.

Serving the State, Nation and World

More than 375 million tons move in New Jersey each year, originating or terminating at a New Jersey location or passing through the State (Figure II-2). Over three-quarters of this is moved by truck – approximately 283 million tons. The ports and waterways move approximately 66 million tons of freight. Over 24 million tons are transported by the railroads, and over one million tons move by air. Although air cargo accounts for a fraction of the tonnage moved, the time sensitivity and value of its cargo is extraordinarily high.

Freight providers move all of the ingredients necessary to sustain the daily lives of New Jersey's residents and businesses. These commodities include the raw materials for New Jersey businesses, all of the products for New Jersey's stores, the products from New Jersey's farms, the fuel for New Jersey's power plants, and all the mail, packages and printed material.

An Integrated System with Many Components

Freight movement is a system of related and integrated businesses composed of infrastructure, equipment, personnel and information systems. The system includes trucks, railroads, aircraft, maritime vessels, pipelines, warehouses and terminals. While each of these components has some independent capabilities, they are like the organs in a human body – they must work collectively and cooperatively to sustain the whole body or, in the case of freight, the economy.

New Jersey's freight transportation infrastructure is the connective tissue that ties the components together. New Jersey's freight infrastructure includes:

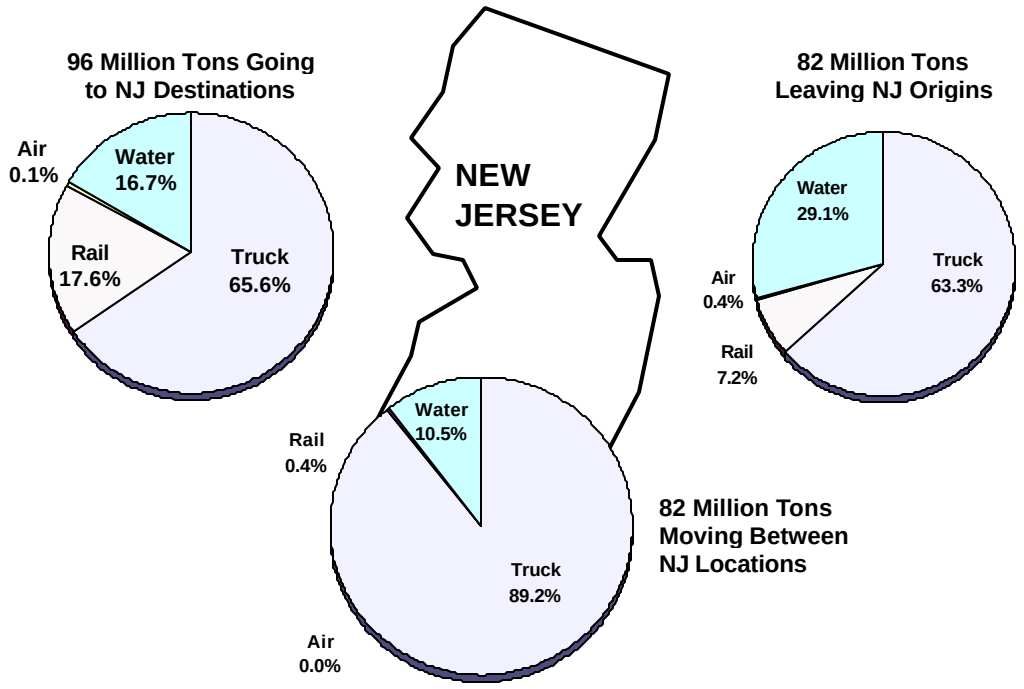
- 35,920 miles of public highways, including 420 miles of the federal interstate system;
- 1,200 miles of railroad track;
- Nearly 440 million square feet of warehousing and distribution space;
- Extensive port facilities, including Port Newark/Elizabeth, Global Marine Terminal, the North East Auto Terminal, the Gloucester Marine Terminal, Petty's Island, the New Jersey facilities of the Port of Philadelphia and Camden, the Port

of Salem, and the petroleum ports in Paulsboro and along the Arthur Kill in northern New Jersey; and

- Newark International Airport, which handles more than one million tons of air cargo annually and is one of the busiest airports in the US.

Trucks dominate the movement of freight into, out of and within New Jersey (Figure II-3). This dominance is not surprising – trucks are the preferred means for local pick-up and delivery, that is, trips between New Jersey locations. Trucks can use the vast network of streets and highways to serve businesses, offices and residences. Trucks connect the ports, airport and rail yards to each other and to customers. The flexibility of trucks allows them to carry multiple shipments for multiple customers and to pick-up and deliver these goods according to schedules prescribed by the customers.

Figure II-3: How New Jersey Freight Moves



Information for 1998. Does not include approximately 114 million tons that originate or terminate outside New Jersey and go through the ports or airport or over the roads or railroads. Tons that move through pipelines are also not included.

Source: Reebie Associates, A. Strauss-Wieder, Inc.

Trucks also play a key role in New Jersey's support of long-distance commerce in North America and international trade. They can expedite shipments to more dis-

tant locations and excel in situations where multiple locations must be served in a single trip.

Rail Freight also moves a large amount of goods. Rail lines can efficiently move large quantities of freight long distances, as well as bulkier loads short distances. These characteristics are the reason that the railroads handle large quantities of consumer goods traveling from the West Coast to New Jersey; movements between New Jersey's ports and the Midwest; and the movement of such goods as plastic resins, chemicals, paper, lumber and steel directly to businesses in the State. Rail freight, however, cannot always be a substitute for truck movements – railroads are not as flexible or fast as trucks in handling smaller shipments; they require tracks – they cannot use the vast street network to reach the doors of many companies. Railroads and trucks often work together to move goods – using the best of each of the modes to cost effectively handle the freight.

Maritime Vessels are the principal means for handling international freight. The millions of tons of freight that move through New Jersey's ports are carried on a range of vessels, including mega-ships carrying thousands of cargo containers, barges, vessels transporting fresh fruit and auto carriers containing thousands of vehicles. New Jersey's ports, among the busiest in the nation, form the State's gateway to the global marketplace.

Air Cargo handles far less tonnage than the other freight methods, but it specializes in cargo that is high value and time sensitive. Air cargo carriers, for example, handle the letters and packages that must reach their destination by 10:30 AM; the critical components to keep assembly lines going; and perishable items such as flowers.

Warehouses and Terminals are the nerve centers in the system. Terminals are the location where freight seamlessly moves from carrier to carrier – among maritime vessels, trucks and rail lines; between aircraft and trucks; and between railroads and trucks. Warehouses are no longer dusty storage facilities – they are frequently places where advanced technologies are employed to speed cargo movements and where value is often added to the freight moving through them.

Adding Value to Products Moving through New Jersey

New Jersey is not merely a conduit for domestic and international freight movement. Businesses in the State turn raw materials into high value products, such as pharmaceuticals and electronics. Workers at warehouses and distribution centers in the State add value to the products moving through them as they:

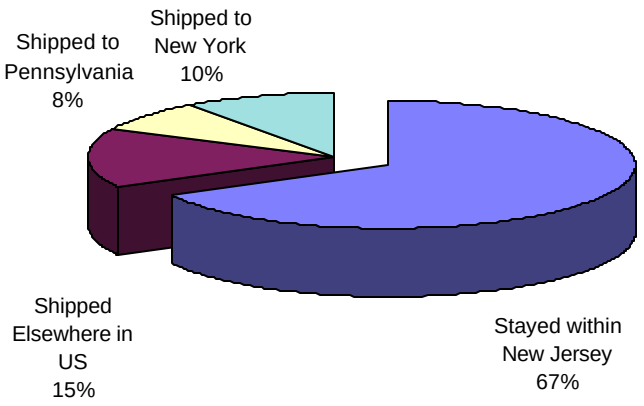
- Select, package and move fresh fruit;
- Do final assembly of furniture and other products;
- Get products to stores and homes, including final pressing, tagging and customization; and

- Ensure that time-sensitive letters and packages arrive as specified.

The value added by New Jersey businesses supports the State and the nation.

The 1997 *Commodity Flows Survey* showed that New Jersey companies add value to the freight shipments originating in the State. The survey found that most of the freight tonnage originating at a New Jersey location (excluding the ports and air-ports) stayed within New Jersey – two-thirds of the tons originating in New Jersey stay in New Jersey (Figure II-4). Examples of the types of freight shipments that generate the most tonnage include chemicals, petroleum and other bulk materials needed to support New Jersey businesses and residents.

Figure II-4:
Most of the Freight Tonnage that Originates in New Jersey Stays in New Jersey

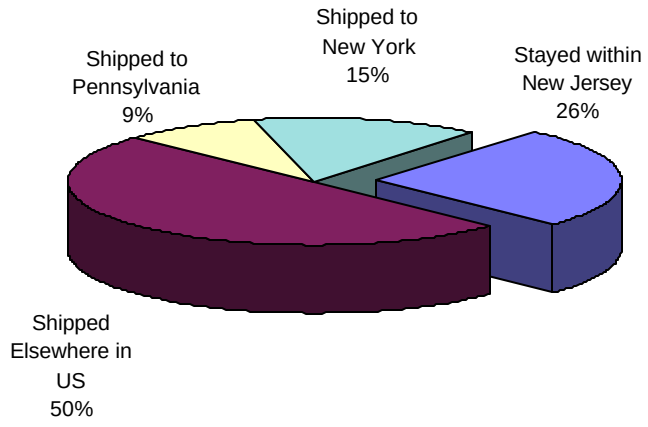


Source: 1997 Commodity Flow Survey

However, almost 75 percent of the domestic freight shipments, *as measured in terms of dollar value*, originating in New Jersey is exported to other states in the US (Figure II-5). The value of the domestic freight shipments originating in New Jersey alone is nearly $286 billion. Many of the products that New Jersey produces and sends to other states are lightweight, high-value items. New Jersey businesses turn raw materials into a full range of products, including pharmaceuticals, printed material, electronics and other specialized equipment, and food products.

New Jersey's domestic market continues to include Pennsylvania and New York, the State's historical domestic markets. In addition, New Jersey's hinterland also now includes – in terms of value – major shipments to other states throughout the US, particularly to California, Ohio, Florida, and Massachusetts.

Figure II-5:
Most of the NJ-Originating Freight Shipments as Measured in Dollar Value are Destined for Other States



Source: 1997 Commodity Flow Survey

Notes

[1] "A Day in the Life of Newark Airport," *The New York Times*, July 2, 2000, Section 14, page 8.

III. A State Growing and Prospering because of its Freight System

From early in its history, New Jersey has been the *crossroads of commerce*, growing by serving the nation and then the world. This chapter:

- Examines the key role that freight played in the growth of New Jersey; and
- Discusses how freight transportation has evolved to meet the changing needs of New Jersey residents and businesses.

Freight transportation in New Jersey has:

- Facilitated the State's development;
- Supported New Jersey's growth as a manufacturing center; and
- Ensured prosperity through the 20th century.

As New Jersey enters the 21st century, the State's freight system is restructuring itself to meet the expansion of international commerce, the increasing consumer needs of New Jersey's population, and the Internet revolution. The ability of New Jersey's freight system to restructure itself and respond to these changing needs will determine how successful the State will be in the new century.

Facilitating New Jersey's Growth

During the colonial period and into the 19th century, New Jersey formed the bridge between Philadelphia and New York City – the two leading ports on the East Coast. New Jersey also linked the New England states to the southern states.

Being at the crossroads meant hosting the convergence of important transportation facilities. These transportation facilities not only linked the various regions through New Jersey but also gave the farms, mines, and factories of the State unparalleled access to key markets. Freight transportation provided the framework for the economic growth of New Jersey.

Historical accounts of New Jersey[2] point to the investment made by the State and private operators in freight infrastructure:

- By 1830, the State Legislature had chartered more than 50 turnpike companies, and 550 miles of roads were built.
- The Morris Canal was built in 1831 to transport the iron of Morris County and to link the upper Delaware River with the Atlantic Ocean.
- The Delaware and Raritan Canal opened in 1834, providing an all-water route between New York City and Philadelphia.

- In 1825, John Stevens operated the first steam locomotive in Hoboken. Shortly thereafter, he began the Camden and Amboy Railroad between New York City and Philadelphia. From this humble beginning, the railroads in the State created the most densely developed system in the nation, which served New Jersey's growing manufacturing base.

Figure III-1:
A Picture of the State:
The Top Ten Manufacturers in New Jersey in 1900

1. Copper Smelting and Refining
2. Silk and Silk Goods
3. Foundry and Machine Shop Products
4. Slaughtering and Meat Packaging
5. Woolen, Worsted and Felt Goods
6. Wire
7. Leather
8. Tobacco Manufacture
9. Electrical Machinery
10. Chemicals

Source: New Jersey Review and Economic Outlook for 2000-2001, New Jersey Council of Economic Advisors.

Supporting New Jersey's Growth as a Manufacturing Center

As additional railroads began service in the State, New Jersey's towns became the industrial centers of the 1860s:

- Camden and Trenton housed foundries.
- Paterson manufactured silk and locomotives and became the location of numerous machine shops.
- Newark emerged as an industrial complex, manufacturing such items as leather products, jewelry, tools and coaches.

In 1900, manufacturing was New Jersey's largest employer – 35 percent of New Jersey's workforce, or 326,000 people, were employed in manufacturing.[3] Nearly 2 million people lived in the State, ranking New Jersey 16th in the US and third in population density.

New Jersey produced a full range of goods to serve the nation, particularly the growing population centers along the East Coast. Manufacturers in the State produced garments, packaged meats, shaped metal into equipment, and processed chemicals (Figure III-1).

Ensuring Prosperity in the 1950s

By 1950, New Jersey had more than doubled its population. Nearly 5 million people lived in the State. Manufacturing continued to grow – employing nearly 50 percent of New Jersey's workforce, or 756,000 people.

Industry had also changed. The increased use of electricity fostered the growth in businesses that produced electrical equipment and machinery – nearly 100,000 people produced electrical equipment in the State where Edison invented and mastered it. Electrical equipment and machinery generated the greatest employment in 1950 (Figure III-2).

In this golden age of manufacturing, New Jersey also generated the full range of products needed to serve its growing population and the needs of the nation. New Jersey businesses produced apparel, all types of chemicals (including pharmaceuticals and soaps), food products and transportation equipment. In the 1950s, an expansive rail network and a nascent freight service provider – the trucking industry -- served New Jersey's manufacturers, which were still clustered in the State's cities.

Figure III-2:
Top Industries in the Golden Age of Manufacturing

1. Electrical Goods and Machinery
2. Apparel
3. Chemicals
4. Textiles
5. Food Products
6. Machinery (except electrical)
7. Fabricated Metal Products
8. Primary Metal Products
9. Transportation Equipment
10. Stone, Clay and Glass Products

Source: US Bureau of Labor Statistics for 1950

In this booming post-World War II period, however, significant changes were beginning to reshape the locations of manufacturing plants and their transportation requirements. Increasingly, multi-story manufacturing plants gave way to more efficient, single-story facilities located along the emerging highway system, most notably the New Jersey Turnpike (which was completed in the early 1950s). The State's population was also on the move, creating new suburbs throughout New Jersey. Retail stores and complexes followed the population, creating the first generation of shopping centers.

Manufacturing employment in New Jersey continued to grow until 1969 and then entered a long period of decline. Competitive forces began to shift manufacturing out of New Jersey, out of the northeastern states and out of the US. New Jersey businesses and neighborhoods went through seismic changes during this period, as did the freight transportation system. Some components of the freight system suffered substantial business losses, such as the railroads. Other components prospered, most notably the trucking industry, which could use the new highway network to serve businesses efficiently. Warehouses, similar to manufacturing plants, shifted to single-story efficient facilities in more rural areas and remained tied to their customers through the new, expansive interstate highway network and New Jersey Turnpike.

The maritime industry also began to shift its location. Port Newark/Elizabeth, with abundant acreage and easy access to the Turnpike, grew into a major maritime center as the industry shifted to using containers for moving international cargo. The older piers were not as suitable for this type of maritime cargo handling.

In addition, as aviation took flight as a new means for transporting passengers, it also became a new means for moving high value, time sensitive cargo (including mail). Newark International Airport was an early hub for the aviation industry.

Evolving to Meet the New Needs of New Jersey – Global Trade, the Service Economy and the Consumer Market

The 21st century brings a new age to New Jersey and new challenges:

- A growing global economy;
- A shifting focus to a service-based economy; and
- A swelling population of consumer.

The Crossroads of Commerce

New Jersey continues to be the crossroads of commerce. As the State enters the 21st century, commerce has taken on a global definition. New Jersey is now the leading gateway on the East Coast for international trade, emerging as a center for both the importing and exporting of cargo. In keeping with its heritage, New Jersey's freight transportation system provides unique access and advantages for the State's businesses and population:

- Port Elizabeth contains the largest container terminals on the East Coast;
- New Jersey is the leading importer of vehicles;
- Competitive North American rail service was restored to New Jersey, with three major railroads – CSX, Norfolk Southern and Canadian Pacific – available to serve New Jersey's businesses and maritime terminals.
- The Port of Philadelphia and Camden is a hub for the importing of fresh fruit, bananas, steel, paper and cocoa; and
- Newark International Airport handles more than one million tons of cargo annually.

These international gateways are tied into the State's highways and railroads, providing a freight transportation backbone that connects New Jersey's businesses to today's marketplace.

New Jersey remains a major hub of manufacturing because of its location and unparalleled freight transportation system:[4]

- New Jersey is ninth nationwide in exports, sending products made in the State to over 200 destinations worldwide.
- New Jersey's exports include pharmaceuticals, chemicals, electric and electronic machinery and computer-related equipment.
- New Jersey is ranked fifth in the US in terms of foreign investment – overseas firms that have decided to locate operations in the State – with more than 1,200 foreign firms located in the State.

- Export trade is the fastest growing component of New Jersey's Gross State Product.

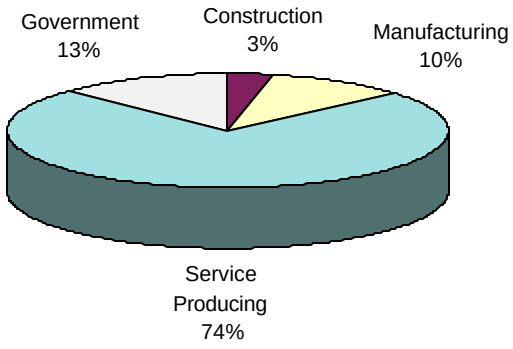
A Shifting Focus to a Service Economy

While New Jersey remains a leading industrial center, the State's economy has shifted. Today, only ten percent, or 462,000 people, are employed in manufacturing (Figure III-3).

New Jersey's leading industry – with nearly three-quarters of the employment in the State – is now the service-producing sector, with over 3.3 million workers.[5] The service sector includes retail trade, business services, and financial and insurance firms.

Figure III-3:

Composition of New Jersey's Economy in 2000



Includes estimates for railroad employees and independent truck drivers.
Source: New Jersey Department of Labor, A. Strauss-Wieder, Inc.

Retail trade supports New Jersey's residents, and the industry's distribution centers serve the huge North American consumer market surrounding the State. The freight system serves retail trade by ensuring that the products are on the shelves when the consumers want them. These goods come from all over the world – they come to New Jersey in maritime containers, in trucks, on rail cars and in aircraft bellies. These products move through the State's state-of-the-art warehouses, where they are readied for store shelves.

Figure III-4:
New Jersey Today –
The Top 10 Manufacturers in 2000

1. Chemicals
2. Food
3. Petroleum/Coal
4. Printing and Publishing
5. Industrial Machinery
6. Electronic Equipment
7. Instruments
8. Transportation Equipment
9. Fabricated Metals
10. Paper

Source: New Jersey Review and Economic Outlook for 2000-2001, New Jersey Council of Economic Advisors.

The growth in business services, financial institutions, and insurance companies calls for the expedited movement of documents and office supplies. Growth in these sectors has fueled the increased use of Newark International Airport by companies such as UPS, FedEx and the US Postal Service. Trucks belonging to these organizations, office suppliers, office equipment repair companies and courier services increasingly move on New Jersey's roadways, providing a critical support system for these business sectors.

The State remains a major US manufacturing center. Indeed, manufacturing employment has begun to grow again in the State, ending the long period of decline.

New Jersey is the largest chemical-producing state in the United States – the chemicals produced include pharmaceuticals, cosmetics, soaps, cleaners, and heavier bulk items (Figure III-4). Chemical production occurs throughout the State. Petroleum refining is another large activity in New Jersey. The crude oil arrives by tanker ship from overseas. Refined petroleum products depart in railroad cars and barges, as well as through pipelines.

Manufacturing activities are, however, more competitive than ever before – the competition is global. To remain competitive, New Jersey's manufacturers require a freight transportation system that is as efficient and cost effective as possible.

Serving a High Consumer Market

New Jersey's population has grown, numbering 8 million today – far more than the 2 million residents in the State in 1900 and the 5 million residents in 1950. As the most densely populated state in the country, New Jersey now consumes more than it produces. The State, therefore, increasingly relies on its freight transportation system to bring in efficiently the supplies, food and materials needed to support its residents and businesses.

With the nation's second highest per capita income, New Jersey is an attractive consumer market. Therefore, it is not surprising that northern New Jersey has the distinction of having the most shopping malls in one area in the world, with seven major shopping malls in one 25-mile radius alone.[6] Retail sales alone in New Jersey are likely to approach $100 billion in 2000.[7] Further, New Jersey is located at the center of a huge North American consumption market – there are 25 million consumers immediately around the State and an additional 79 million people within one day's drive of New Jersey.[8]

This nexus of consumer activity and population density, combined with the State's well-articulated freight transportation system, has made New Jersey the ideal location for distribution centers. Indeed, 440 million square feet of warehousing and distribution space is estimated to exist in the State, one of the largest concentrations in North America. For example, Webvan, an Internet-based grocery chain, chose North Bergen, New Jersey for the site of its warehouse for the area.[9] Products flow into these warehouses by train, plane, truck and water. They leave the warehouses in trucks, going to multiple destinations throughout the State and the US.

These distribution centers are not just big storage boxes – they are job generators. They are the location of value added and light assembly activities. The speed, responsiveness and precision of these distribution centers are one of the key reasons why goods move so quickly to residents and businesses in the State.

Notes

[2] "New Jersey," *Microsoft Encarta Online Encyclopedia 2000*.

[3] *New Jersey Review and Economic Outlook for 2000-2001*, New Jersey Council of Economic Advisors.

[4] Facts from *State.nj.us/business*.

[5] New Jersey Department of Labor, Covered Employment Statistics for April, 2000.

[6] *New Jersey Fast Facts and Trivia*, 50states.com.

[7] *New Jersey Review and Outlook*, op. cit.

[8] *Conrail-CSX Norfolk Southern Merger*, 1997, p. ii.

[9] R. Garbarine, "E-Commerce Tenants Spur the Need for Warehouses," *The New York Times*, March 19, 2000.

IV. The Role of Freight in the Daily Lives of New Jersey Residents and Businesses

This chapter provides two examples of the intricate, largely invisible interplay of freight transportation providers, infrastructure, and warehousing necessary to support the daily lives of residents and businesses:

- How bananas arrive on supermarket shelves; and
- How Internet purchases arrive at the purchasers' homes.

Freight is sometimes taken for granted, because we have come to assume that the bananas will be there when we want them in the supermarket; that there will be a large selection of items when we go to the mall; and that, when we purchase something on the Internet, it will arrive as specified. If an item is out-of-stock or not delivered as promised, we tend to blame the store or vendor.

It is, ultimately, the store's responsibility to ensure that the products are there when we, the consumers, want them. To accomplish this goal, the store, in turn, relies on a network of freight service providers to move its products. The freight service providers, in turn, rely on a combination of public and private sector transportation infrastructure to move the goods. The efficiency of the freight service providers and the transportation infrastructure factors into the cost and availability of the products.

Getting Bananas without Going Bananas

The process begins with the consumer demand for bananas. Bananas are the most popular fruit in America. The average person eats 33 pounds of bananas a year.[10] Consumers expect to find ripe, yellow bananas when they go to their supermarkets. Consumer demand drives the stores' decisions on how many pounds of bananas to buy. The stores purchase the product and issue the transportation orders for delivering the bananas. The freight transportation providers determine the best means for delivering the bananas cost effectively.

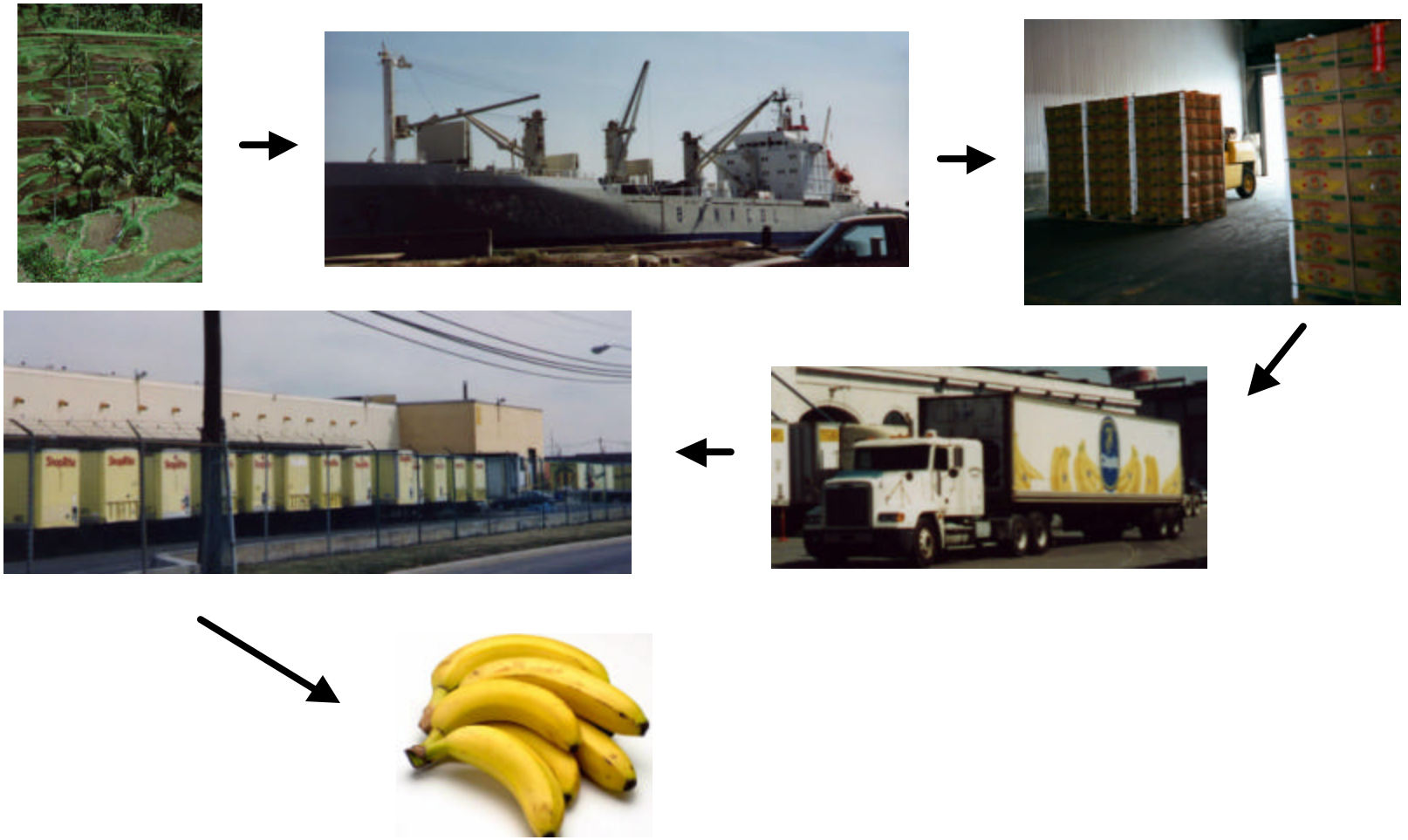
Following bananas from the plantation to the supermarket illustrates how various elements of the freight transportation system must work seamlessly together to ensure their availability at supermarkets. As shown in Figure IV-1, bananas are not produced locally in New Jersey. They come from plantations, typically in Central and South America. Once picked and packed for shipment to the US, bananas travel by ship to a port on the East Coast. New Jersey, with two major ports – the Port of New York and New Jersey and the Port of Philadelphia and Camden – is a hub for the importing of fresh fruit. The Port of Philadelphia and Camden is the leading port in the US for the handling of refrigerated cargoes, such as fresh fruit.

Once the bananas arrive at the port, they are unloaded from the vessel and moved directly into temperature-controlled warehouses at the port. From the port warehouses, the bananas move by truck to the warehouses of supermarket chains and food vendors. At these warehouses, the bananas are divided into shipments for individual stores, combined with other products for the stores, and delivered by truck. Trucks are used because of the time sensitivity and nature of the product – bananas must arrive when they are ripe. Time delays can cause the fruit to spoil.

Notes

[10] www.dole5aday.com.

Figure IV-1: Getting Bananas without Going Bananas



Source: A. Strauss-Wieder, Inc.

From Home Computer to Home Delivery

Buying over the Internet is growing in popularity. Statistics from the 1999 Holiday season confirm this trend – an analysis by VISA estimates that "Internet shoppers using its cards spent $1.47 billion this November and December, 179 percent more than in those months last year."[11] Similarly, a New York Times/CBS News poll found that 17 percent of the adults surveyed bought gifts over the Internet compared with seven percent in 1998.[12]

Consumers expect to receive their purchases with the same speed and efficiency as their Internet ordering experience. In a recent survey, 54 percent of e-commerce customers indicated that they expected to receive delivery of their order in less than three days.[13] To meet this expectation, freight transportation of the goods purchased has to be carefully orchestrated and tightly integrated.

As shown in Figure IV-2, a customer places an order at a company's web site. The order is automatically transmitted to the warehouse to be filled. The first transportation step in the process is to ensure that the products are stocked at the warehouse. Freight transportation of all types may be used to bring those products to the warehouse:

- Goods manufactured overseas (which is increasingly common) may arrive in the US by air or in oceanborne containers. Once the goods arrive in the US, they may be sent overland by rail to a yard near the warehouse and then trucked to the warehouse. Alternatively, the goods may arrive directly by truck after they are unloaded from the vessel.
- Products manufactured in the US may arrive by truck, rail and air. One or more of these freight services may be used to get the products to the warehouse.

Overall cost efficiency drives the decisions on how the freight moves to the warehouse. Efficiency and speed also drive the activities within the warehouse. Warehouses that handle e-commerce activity are generally equipped with computers and conveyor systems that help employees quickly pick the orders that arrive from the web site.

While these warehouses may look like large boxes from the road, they are hubs of employment and activity. The Barnes and Noble Distribution Center in Jamesburg, NJ (visible from the New Jersey Turnpike near Exit 8A) processes orders from both Internet customers and its stores. The building can hold 16 million books, with potentially 100,000 titles, and moves 150 million pounds of freight annually.[14]

After the Internet order is assembled at the warehouse, it must be moved to the customer. That responsibility is usually left to the package delivery services with which New Jersey residents are familiar, such as UPS, FedEx and the US Postal Service. These freight transportation providers have their own network for moving goods, which can involve aircraft, moves by railroad, and trucks. The means used to move

the shipments are determined by the relative locations of the warehouse and purchaser and how quickly the purchaser requires delivery of the shipment. In the end, however, it is the familiar delivery truck that appears at the purchaser's residence.

---

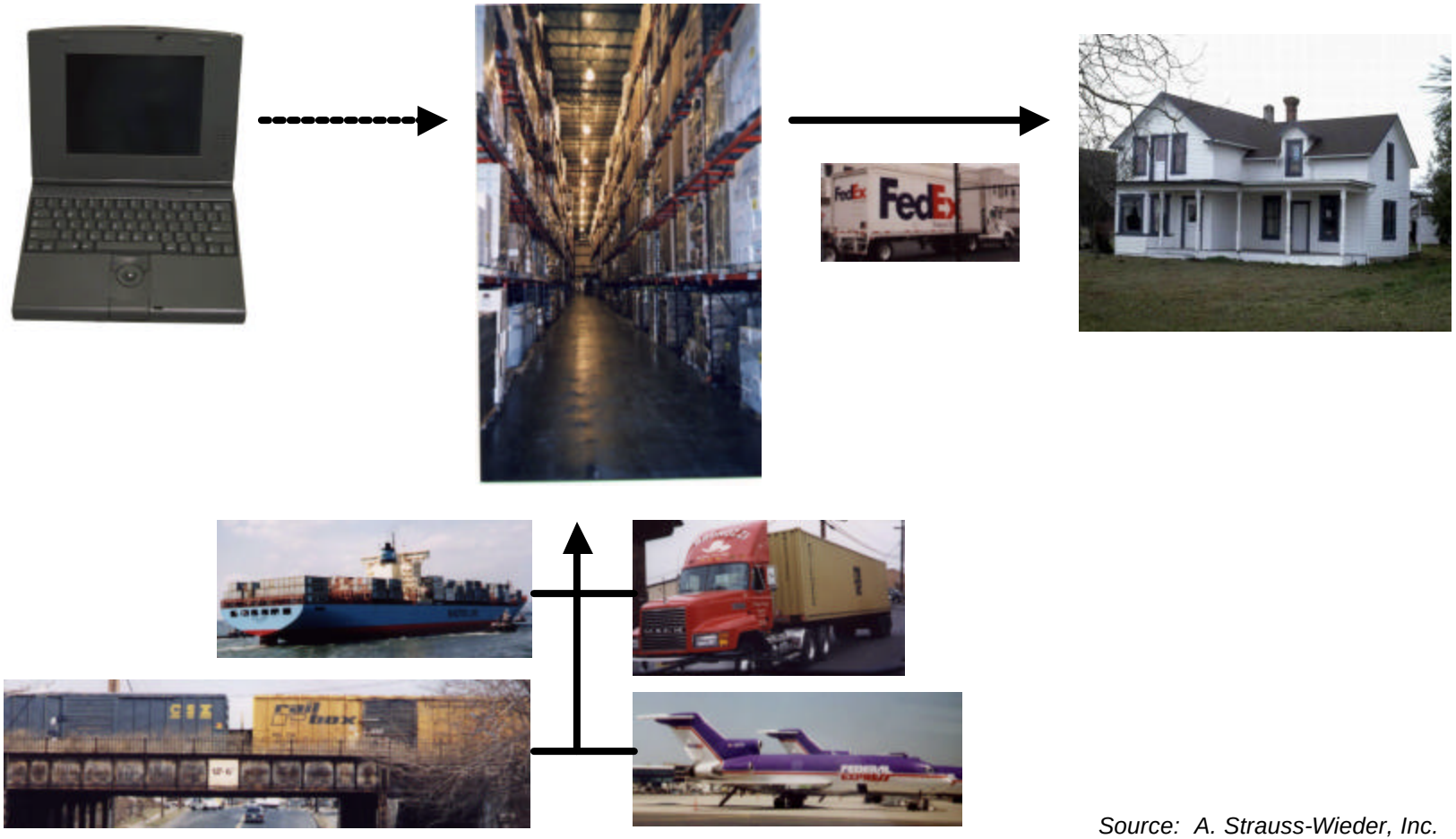
[11] S. Hansell, "Retailers Look Back and See Online Shopping Is Gaining," *The New York Times*, December 24, 1999.

[12] *New York Times*, op. cit.

[13] December, 1999 DHL Worldwide Express as reported in "Uncovering Cost: Express Carriers Want to Blow the Lid Off International Commerce," *American Shipper*, February, 2000, p. 28.

[14] Material Handling Society of New Jersey, Inc. Newsletter, January/February, 2000.

Figure IV-2: From Home Computer to Home Delivery



Source: A. Strauss-Wieder, Inc.

V. Freight and New Jersey's Future

Freight has played a crucial role in the formation and growth of the State of New Jersey. As the State moves forward into the 21st century, it is clear that freight will be key to New Jersey's continued prosperity. Freight's role in New Jersey will be shaped by opportunities and challenges, including:

- Meeting the emerging freight needs of New Jersey's residents and businesses;
- Building on New Jersey's competitive strength in global and North American freight and distribution to maximize the opportunities for New Jersey's residents and businesses; and
- Balancing the need to expand freight capacity with maintaining the quality of life in New Jersey.

Meeting Emerging Freight Needs

Throughout its history, the freight industry has reshaped itself to meet the changing needs of its customers, including the residents and businesses of New Jersey. As New Jersey begins the 21st century, those needs are evolving:

- More freight needs to move internationally;
- The needs of the service economy and New Jersey's extensive manufacturing base must be addressed; and
- The needs of the area's huge consumer market must be satisfied.

Companies and consumers want shipments to move faster, more flexibly and more efficiently – they seek the most cost-efficient means for moving freight. The equation for cost efficiency involves overall system efficiency – efficiency in each element of the freight system and connectivity among the elements.

In situations where the best means for moving freight is not available, then the next best combination of moves is used. If vessels cannot come into the maritime terminals, then the freight will move by rail and truck. If certain freight movements cannot travel by rail, then trucks will be used.

The freight shipments will move – consumers and businesses demand it even if it's by a second-choice route. However, "second choice" may mean higher cost – both monetary and environmental – for businesses and consumers. For example, when a major steamship line – P&O Nedlloyd – announced that it would no longer directly serve the Port of Boston by water, the cost of delivering a container of freight to Boston was expected to rise by $450.[15] The environmental consequences will also be higher – with limited water and rail access, the freight will be increasingly moved into Boston by truck, increasing congestion and air pollution emissions.

The greatest threat to ensuring that the needs of New Jersey's residents and businesses are met may be complacency. While New Jersey has a highly developed freight system, it is a system that needs continual investment and improvement. Each element of the freight system – air, water, truck, rail and pipeline, as well as the connectivity among the elements, has to be optimized to produce cost efficiencies and minimize congestion and emissions. Connectivity is often the key to overall system efficiency.

Building on New Jersey's Competitive Strength and Maximizing Opportunities

New Jersey has a competitive strength in freight transportation and distribution. The State can maintain and gain from this strength by:

- Recognizing the value of freight services; and
- Maximizing the opportunities derived from freight movement.

The first step in building on a competitive strength is recognizing and understanding that strength. New Jersey's competitive strength in freight movement emanates from the State's world-class ports and airports, highways and railroads, and substantial number of warehouses and distribution centers. These individual elements link together to create a unified freight system that serves New Jersey, North America and the world. New Jersey has benefited directly from this system through the jobs it generates in the State and the cost-efficient access that the freight system provides to the State's residents and employees.

Concurrent with optimizing the freight system, New Jersey can explore and develop the opportunities it can derive from its transportation investment. The freight system already offers New Jersey businesses unique access to North American and world markets, which can be expanded into new opportunities for import and export trade.

In addition, as the Nation's gateway, New Jersey can add value to the cargo moving through it, building on its expertise to refine and manufacture products, do final assemblies and customizations, and prepare goods for retail consumption. These value added activities generate business opportunities for the full range of businesses, from small, entrepreneurial operations to New Jersey's Fortune 100 organizations, along with a wide spectrum of employment possibilities, from unskilled to highly skilled.

Balancing the Need to Expand Freight Capacity with Maintaining the Quality of Life in New Jersey

New Jersey is the most densely populated state in the nation, with a congested, older transportation system. Retrofitting and refurbishing its freight transportation infrastructure to meet emerging needs is complicated, costly and, sometimes, controversial. Nevertheless, the current and future needs of New Jersey's residents and businesses must be met if the State is to prosper in the 21st century.

These conditions require that the need to move freight be balanced with the need to maintain the quality of life in New Jersey. Quality of life is a complex subject: It concerns not only to how we live in New Jersey; it also refers to maintaining and expanding the options for business and employment within the State.

Balance between freight transportation needs and quality of life concerns contains many elements, including:

- Enhancing both freight and passenger transportation capacity;
- Choosing new uses for underutilized land; and
- Expanding freight operations while minimizing the impacts on surrounding communities.

The robust growth of New Jersey's economy will likely require an expansion in freight capacity within the State. The expansion of freight capacity may require investments in infrastructure – the "bricks and mortar" of our transportation system, as well as expanded use of the emerging set of information and telecommunications technologies that can help optimize transportation systems.

The need for freight capacity will need to be balanced with the need for expanded passenger travel, both on the roads and the rail tracks. Passenger and freight uses are increasingly being asked to share roadways (passenger vehicles and trucks) and rail (freight trains and commuter or light rail). New Jersey's residents and businesses both have legitimate needs for these transportation resources: New Jersey's residents need to travel to work and access retail and recreational areas. At the same time, New Jersey's residents and businesses require efficient freight service.

The need for additional freight capacity could translate into opportunities for some of New Jersey's underutilized properties. Hundreds of brownfield sites – properties requiring environmental mitigation – exist throughout the State. Many of these sites are located near freight facilities, providing opportunities for public/private ventures to redevelop the properties for freight uses. Brownfield redevelopment can generate more productive use of these properties, expand the value added element and efficiency of the system, increase tax revenues for their communities, and, potentially, reduce the need for property acquisition elsewhere. These opportunities will need to be harmonized with the expectations of the communities.

Investments, such as brownfield redevelopment, are examples of how optimizing and expanding the State's freight system can also be sensitive to the communities where freight facilities are located and through which freight must pass. The objective is to minimize the impacts of freight operations and maximize the economic benefits that accrue to these communities. The transportation community will need to address issues involving noise, mixtures of local and long distance movements, traffic safety, congestion and environmental impacts. Similarly, communities will need to recognize both the important role that freight movement plays in their daily lives and the potential economic development opportunities that could be developed from freight access and facilities.

New Jersey has used its freight system to develop and prosper. The State has become the crossroads of commerce, first for the nation and now for the world. Moving freight will be one of the ways that New Jersey moves into the 21st century. Building on New Jersey's competitive strength in freight will require that all parties – private freight transportation providers, governmental agencies, businesses, communities, and other stakeholders – work together to achieve this vision.

Endnotes

[15] P. Tirschwell, "P&O Nedlloyd to halt direct calls," *Journal of Commerce*, April 25, 2000.

Appendix:
Profiles of New Jersey's Freight System

Trucking

Definition:

Trucking refers to the range of vehicles that transport freight over the roadway system. The trucking industry includes couriers in vans and long distance over-the-road movements with 53-foot trailers or two trailers in tandem. Trucking firms often interface with other types of freight movement, such as rail, water and air cargo, to pick up and deliver shipments seamlessly.

Truck movements are usually divided into truckload, less-than-truckload (LTL), and private, dedicated movements. Trucks may be seen hauling ocean containers, as well as oversized loads. The truck category also includes vehicles belonging to the freight services most familiar to New Jersey residents and businesses, such as UPS, FedEx, DHL, Airborne and the US Postal Service.

Trucks move the largest amount of freight in New Jersey. Their strength is derived from their flexibility in delivering or picking up freight at diverse locations, as well as their ability to alter schedules and routes quickly to accommodate customer needs. Trucking is also seen as highly reliable with on-time performance standards approaching 100 percent becoming commonplace among customers.

Trucking firms range considerably in size, organizational structure and service area. Some trucking operations span the entire US, while other firms are more regionally or locally focused. Many trucks are driven by "owner-operators," who are independent contractors working for trucking organizations.

Approximate Amount of Freight Moved in NJ: 283 million tons

Estimated NJ Employment: 64,100 workers

Types of Freight Moved: Trucks handle all types of freight, from high-value, time-sensitive goods to low-value, less time-sensitive items.

Location of Major Activities: Trucks can be found on most of the roadway systems in New Jersey, particularly on the State's highway system. Some 35,920 miles of public highways, including 420 miles of the

federal interstate system, exist in New Jersey.

Truck terminals, where freight shipments are handled, can be found throughout the State. Concentrations of these operations can be found in the vicinity of major freight gateways, such as Port Newark/Elizabeth, the marine facilities in Camden and Gloucester, and Newark International Airport.

The Ports and Waterways

Definition: Ports contain terminals that handle cargo and passengers moved on maritime vessels. The waterways are the navigable waters that the vessels use (including the Delaware River, the Kill Van Kull, and the Arthur Kill). The ports and waterways serve as key gateways for the movement of international cargo by maritime vessels. Maritime vessels provide a cost efficient and environmentally responsible means for moving large quantities of goods.

Maritime traffic includes a wide variety of vessels, including barges, ships holding thousands of containers, vessels carrying automobiles, tankers hauling petroleum and chemicals, and vessels carrying a large range of products (including fresh fruit, forest products, steel, paper and consumer goods).

Many of the maritime facilities are owned and operated by public authorities, such as the Port Authority of New York and New Jersey and the South Jersey Port Corporation. However, there are also significant private sector maritime operations, including the petrochemical terminals, the Global Terminal in Jersey City, and the Holt Cargo Systems and Del Monte Terminals in Camden and Gloucester, and Crowley American Transport in Pennsauken (Petty's Island).

The ports interface with trucking operations and railroads to move freight to and from inland locations.

Approximate Amount of Freight Moved in NJ: 66.5 million tons

Estimated NJ Employment: 15,000 workers

Types of Freight Moved:

Maritime vessels carry a full range of cargo, though the freight is generally less time-sensitive than air cargo. Cargo is generally classified into containerized cargo (moved in a metal box or frame); breakbulk, the traditional means of moving maritime cargo which includes such items as cocoa, coffee, lumber and steel; bulk, which includes petroleum, chemicals, coal and grain; roll-on, roll-off cargo (RO/RO), which includes automobiles; and "project cargo," which includes over-dimensional cargo such as yachts, diners and modular housing.

Major commodities handled through the port facilities in New Jersey include petroleum products, consumer goods in containers, food (such as fresh fruit, meat, cheeses, and juices), automobiles, lumber, steel, and scrap (such as metals and paper). Maritime vessels may also be used to carry military cargo when mobilization is required.

Location of Major Activities:

The leading areas of port activity in New Jersey are:

- Port Newark/Elizabeth, Global Marine Terminal and the Northeast Auto Terminal (NEAT) in northern New Jersey;
- The facilities of the South Jersey Port Corporation, Holt Cargo Systems in Gloucester and Crowley American Transport in Pennsauken (Petty's Island);
- The petro-chemical terminals along the Arthur Kill in northern and central New Jersey and in Gloucester and Camden in southern New Jersey; and
- The Port of Salem.

These maritime facilities are extensive operations. For example, Port Newark/Elizabeth encompasses 2,100 acres in Essex and Union Counties. The complex is the largest port on the East Coast. Port Newark/Elizabeth includes the new hub for Maersk/Sealand, Maher Terminals and 300 acres devoted to handling the movement of automobiles.

In Camden and Gloucester, the port facilities include:

- The Broadway Produce Terminal operated by Del Monte Fresh Produce, which occupies 26 acres and has a worldwide reputation for handling bananas, pineapples and other fresh fruit;
- The Broadway Terminal, which occupies 180 acres and handles petroleum coke, coal, steel, wood, cocoa beans and other products;
- The Beckett Street Terminal, which occupies 105 acres and handles scrap metal, wood products, cocoa beans and other products; and
- Holt Cargo Systems Terminal, which handles major quantities of fresh fruit.

Air Cargo

Definition: Air cargo refers to freight that travels in the bellies of commercial passenger aircraft, in cargo-only aircraft and in the aircraft of such "integrated carriers" as FedEx, UPS, DHL and Airborne.

Air cargo operations typically interface with trucking operations to move the shipments at each end of the trip.

Approximate Amount of Freight Moved in NJ: 1.2 million tons

Estimated NJ Employment: 11,900 workers

Types of Freight Moved:

While the amount of freight moved by air may seem relatively small when compared to the other freight modes, air cargo plays an extremely important role in goods movement and the support of New Jersey's businesses and residents.

Cargo that moves by air tends to be time sensitive and/or high value. Air cargo includes the time-specific packages and letters, as well as perishable foods, high-end electronics and pharmaceutical products. When companies need critical parts in a hurry, they generally move by air.

Most all-cargo aircraft move at night, which allows many shipments to leave late in the business day and arrive by the next morning. Air cargo is one of the fastest growing freight modes. This trend reflects the fact that more cargo is required to move faster.

Location of Major Activities:

Newark International Airport (EWR) is the major location of air cargo activity within New Jersey. Some air cargo for southern New Jersey flows through Philadelphia International Airport, and some international air cargo flows through John F. Kennedy International Airport.

More than one million tons of air cargo, valued at over $52 billion, moves through Newark International Airport, making it one of the largest freight hubs in the United States. Cargo activity at EWR has experienced double digit growth annually over the last several years. All of the integrated carriers have cargo operations at the airport, along with the US Postal Service and several major passenger airlines.

Newark International Airport occupies 2,027 acres in Union and Essex counties. The cargo complexes include the South Area Cargo Complex comprised of 265,000 sq. ft. of warehouse space and 55,000 sq. ft. of office space. The complex,

which has ramp access and parking for aircraft, opened in 1993. The FedEx Cargo Complex, located adjacent to the South Area Cargo Complex, underwent a $60 million expansion and added a state-of-the-art automated sort facility in 1995. UPS built and opened its $11 million, 28-acre package-handling and distribution complex in September, 1987. The U.S. Postal Service's 36,000 sq. ft. complex, which cost $2.6 million, opened in October 1983. A new International Air Cargo Center was also recently completed at the airport.

EWR is one of FedEx's biggest freight operations, moving 385,000 pieces each night.[16] The FedEx operation at Newark alone employs over 1,500 people. It involves an average of 27 aircraft and 340 trucks each night.

[16] "A Day in the Life of Newark Airport," *The New York Times*, July 2, 2000, Section 14, page 8.

Rail Freight

Definition: Rail freight refers to cargo that is handled by the railroads. Railroads generally work with ports and trucking firms to move both domestic and international shipments. There are two major types of rail freight:

- *Containerized or "intermodal*," which consists primarily of containers or truck trailers moved on rail cars. When containers are stacked two-high on a specialized railcar platform, it is referred to as "doublestack;" and
- *Carload traffic*, which includes boxcars, hopper cars, gondola cars and tanker cars.

Containerized rail traffic include containers that arrive on vessels at US ports and are transferred to special rail platforms, as well as "domestic" containers that can hold as much as a truck trailer. Containers can also be efficiently shifted between the rail platforms and trucks. Doublestack trains are, therefore, considered an integral part of a highly cost efficient system for moving cargo long distances.

Boxcars move such commodities as paper, cocoa, and bulkier items. Hopper cars transport cargo such as flour. Tanker cars can carry corn syrup, food grade oils, petroleum products and chemicals.

New Jersey has access to three major North American or "Class I" railroads – Norfolk Southern, CSX and Canadian Pacific. The State is also served by many "short-line" or smaller railroads that move freight shorter distances and interface with the Class I railroads. The short-line railroads in New Jersey include:

- Ashland Railway Inc.
- Bayshore Connecting Railroad
- Belvidere & Delaware River Railway Co.
- Black River and Western Railroad
- Bound Brook and Raritan Terminal
- Durham Transport Inc.
- East Jersey Railroad & Terminal Co.
- Morristown & Erie Railway, Inc.

	• New York Cross Harbor Railroad Terminal Co. • Port Jersey Railroad; • SMS Rail Service, Inc. • Southern Railroad Company of NJ • Winchester & Western Railroad Co.
Approximate Amount of Freight Moved in NJ:	24.4 million tons
Estimated NJ Employment:	2,400 workers
Types of Freight Moved:	The railroads handle all types of freight, from high-value consumer goods to low-value materials (such as stone). Rail freight is particularly cost efficient for moving large quantities of materials over long distances. However, goods moving by rail are generally less time sensitive than shipments moving by air or truck.
Location of Major Activities:	Some 1,200 miles of rail track exist throughout New Jersey. Rail terminals, where cargo shipments are shifted either to maritime vessels or trucks, exist throughout the State.

Warehousing and Distribution Centers

Definition:

Warehouses and distribution centers are defined as structures that are primarily used for the receipt, temporary storage and distribution of goods en route from production sites to points of consumption. These facilities are often sites where value is added to the products moving through them. Examples of value added activities include final assembly and customization of products and final preparation for the sales floor (including tagging and packaging).

There are three types of warehouses and distribution centers:

- *Public warehouses*, which are open to all customers seeking to store their goods;
- *Contract warehouses*, which handle two-to-three large customers; and
- *Private warehouses*, which handle products for a single customer.

All three types of facilities exist in New Jersey.

The structures housing warehousing operations vary considerably in size, ranging from just a few thousand square feet to buildings that are over one million square feet. Warehouses may contain temperature-controlled space, which is essential for maintaining perishable food. Warehouses and distribution centers may also contain a significant amount of automation and technologies to expedite the movement of goods through the facility, including bar coding, conveyor systems, and radio-frequency technologies.

Warehouses and distribution centers are located at airports and ports to support cargo operations. Warehouses may also have rail sidings. However, trucks handle the majority of the freight moving from warehouses and distribution centers. Accordingly, warehouses and distribution centers tend to be located near major highways.

Approximate Amount of Space in NJ

Over 440 million square feet

Estimated NJ Employment: 380,300 workers in public, contract, and private warehouses and distribution centers

Types of Freight Handled: Warehouses and distribution centers handle all kinds of freight.

Location of Warehousing and Distribution Space in NJ:

Over 735 million square feet of warehousing and industry space exist throughout New Jersey (Figure A-1). Of this space, over 440 million square feet is estimated to be devoted to warehousing and distribution activities. The largest concentration of space is located near Exit 8A on the New Jersey Turnpike in Middlesex County. More than 25 million square feet of warehousing and distribution space is estimated to be near this interchange.

Figure A-1:
Warehousing and Industrial Space in Northern and Central New Jersey
As of the third quarter of 2000

County	*Existing Space*	*Vacant Space*	*% Available*
Bergen	118,519,022	7,307,206	6.13%
Essex	87,787,772	7,918,457	9.02%
Hudson	105,438,640	6,621,547	6.28%
Morris	39,451,767	2,085,338	5.25%
Passaic	57,339,276	4,977,049	8.68%
Hunterdon	2,813,105	1,640,322	58.31%
Mercer	19,406,277	324,085	1.67%
Middlesex	158,622,373	9,915,877	6.14%
Monmouth	21,755,278	911,546	4.19%
Somerset	37,243,939	1,757,914	4.72%
Union	87,360,494	3,996,945	4.57%
Total Northern/Central NJ	**735,737,943**	**45,711,352**	**6.18%**

Source: CB Richard Ellis.

Note: Additional warehousing and distribution space is located in southern New Jersey. For example, in Camden, the South Jersey Port Corporation has 700,000 square feet of warehousing space at the Beckett Street Terminal. Del Monte and Holt also have large quantities of temperature-controlled warehousing space in the area.