



North Jersey Truck Rest Stop Study Refinement and Action Plan



North Jersey Transportation Planning Authority

Final Report
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 **Gannett Fleming**

Eng-Wong, Taub & Associates

 **CI Planning**

About the NJTPA

The North Jersey Transportation Planning Authority (NJTPA) is the federally authorized Metropolitan Planning Organization (MPO) for the 6.5 million people in the 13-county northern New Jersey region. Each year, the NJTPA oversees over \$2 billion in transportation investments. The NJTPA evaluates and approves proposed transportation improvement projects and provides a forum for interagency cooperation and public input into funding decisions. It also sponsors and conducts studies, assists county planning agencies and monitors compliance with national air quality goals. The NJTPA serves the fifth most populous MPO region in the country. The NJTPA Board consists of one elected official from each of the region's 13 counties and two largest cities, Newark and Jersey City. The Board also includes a Governor's Representative, the Commissioner of the NJ Department of Transportation, the Executive Directors of NJ Transit and the Port Authority of NY & NJ and a Citizens' Representative appointed by the Governor. NJTPA Board meetings are held bi-monthly and are open to the public. For more information: www.njtpa.org.

Disclaimer Statement

This report was prepared by the North Jersey Transportation Planning Authority, Inc. with funding from the Federal Highway Administration. The NJTPA is solely responsible for its contents.



From the Freight Initiatives Committee Chairman

On behalf of the Freight Initiatives Committee I present this North Jersey Truck Rest Stop Study. It is the second phase of a three year effort by the Committee, Study Technical Advisory and Stakeholder Committees, and our consultants. The study analyzes the region's truck parking issues and includes an action plan to address this important issue, in partnership with other public and private organizations.

Reauthorization of federal transportation funding legislation will almost certainly include provisions for freight projects and truck parking. The current legislation (SAFETEA-LU) has provided some much needed funding for truck parking initiatives. Investment should be expanded to provide drivers with rest facilities necessary to meet federal hours of service requirements that limit the amount of time drivers spend behind the wheel. This report establishes the implementation steps for northern New Jersey to address truck parking need. It is essential that we move forward on this issue and are ready when funding opportunities become available.

This report provides the steps necessary to address regional truck parking shortages. It is ready to implement as regional partners, including municipalities, neighboring MPOs, and States begin to coordinate efforts toward increased safety, benefiting an important constituent base, and supporting an important component of the regional economy.. Thank you for your interest in this very important study and we look forward to your continuing support.



Peter Palmer, Chairman
Freight Initiatives Committee
North Jersey Transportation Planning Authority



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Executive Summary

Study Purpose

The purpose of this study phase is to:

- Determine the extent of the truck parking problem in the NJTPA region,
- Identify demand, capacity, and partnering solutions, and
- Formulate an action plan to meet the region's demand.

The NJTPA recognizes the importance of a momentum building transition from study completion to implementation. An implementation strategy was developed as part of the first truck parking study phase to ensure continued issue focus.

Coordination among regions, states, and others was required to advance the recommendations from the first phase. Each recommendation requires cooperation to make them work. The cross-regional nature of truck parking and the demand for competing land uses in the metropolitan area dictate that no public or private organization is able to go it alone.

Estimated Truck Parking Demand

Recent reductions in freight movement have not impacted parking demand in high freight areas, but may affect demand in the hinterlands. Phase 1 of the Study found that truck parking demand exceeds supply by approximately 1,300 spaces within the NJTPA region, based on the FHWA methodology used in this study to estimate truck parking demand.¹ Spot counts at seven representative truck parking facilities along major highway corridors in the North Jersey region during peak periods in June 2009 show no significant changes in overall regional truck parking demand compared to those collected in August 2006. Any reduction in truck parking demand as a result of decreased overall freight activity during the current recession occurred outside the region which constitutes the region's 'spillover' effect during periods of high demand (see Table 1). This spillover includes drivers who prefer to park in the region but can't due to the lack of truck parking capacity. Reduced activity makes it possible for these drivers to now park in New York metro area facilities.

The concentration of highest calculated truck parking demand is along the I-95 corridor closest to New York City. Table 1 shows that demand is highest (and relatively unchanged from the estimated 2006 demand) in areas closest to the terminus of most truck trips. Lower parking demand in outlying areas (as indicated) reflects not only an apparent shift in parking activity from "outer" to "inner" areas, but the possibility of higher vacancy rates in warehouse/distribution centers further away from the core of the metro area.

¹ *Study of Adequacy of Commercial Truck Parking Facilities* (FHWA, 2002)

Table 1: North Jersey Truck Parking Utilization Comparison, 2006 vs. 2009*Sample Parking Facilities*

Facility	Location	Utilization (parking spaces used)				Existing Parking Capacity	Capacity Utilization
		2006	2009	Change	Pct.		
Bethlehem (I-78 EB) Parking Area	Bethlehem, NJ	28	20	-8	-28.57%	11	182%
Bethlehem (I-78 WB) Parking Area	Bethlehem, NJ	20	16	-4	-20.00%	10	160%
Pilot Travel Center #280	Bloomsbury, NJ	27	24	-3	-11.11%	21	114%
NJ Turnpike Vince Lombardi Service Area	Ridgefield, NJ	346	365	19	5.49%	256	143%
NJ Turnpike Grover Cleveland Service Area	Woodbridge, NJ	62	82	20	32.26%	53	155%
NJ Turnpike Thomas Edison Service Area	Woodbridge, NJ	77	96	19	24.68%	53	181%
Harding Township (I-287 NB) Rest Area	Harding, NJ	35	32	-3	-8.57%	23	139%
TOTALS		595	635	40	6.72%	427	149%

Estimated Impact of Warehouse/Distribution Hours of Operation

In 2006 a large number of trucks parked for 3 to 10 hours which is a period of time longer than a short-term rest stop², but not long enough to satisfy the Federal rest requirements for commercial drivers. These drivers typically park in the early morning hours and begin their trip as warehouses begin to open. These trucks are presumably staging for pick-up and/or delivery.

Approximately 200 trucks met this profile within designated facilities. This represents about 11 percent of all trucks parked during early morning hours. In addition, trucks also parked within terminal areas, highway shoulders and other unauthorized areas, all of which are assumed to be staged for the same purpose of early pick-up or delivery. About 15 percent of all parked trucks during peak periods are staging for access to warehouse/distribution facilities.

Private Sector Truck Parking Facility Location Considerations

Private truck stops provide fuel, parking, food and other services. The commercial viability of facilities depends on the sale of these goods and services. Private truck stop developers consider many factors when looking for new locations:

- Reasonable land acquisition costs
- Heavy traffic volumes and long distance drivers
- Highway exposure (visibility)
- Highway access
- Additional revenue streams
- Controlled competition from public facilities
- Limits on public rest area commercialization
- Monitoring impacts of tolling and privatization of U.S. Interstate Highways
- Complementary local land uses
- Addressing public concerns
- Streamlining the permitting process

² As defined by the Federal Motor Carrier Safety Administration (FMCSA)

Public Sector Truck Parking Facility Location Considerations

Public sector requirements are vastly different from private facilities. Public investment requires a benefit to the public at large as rationale for using public funds. The requirements of private truck stop developers include:

- Public safety
- Increasing employment opportunities
- Increasing tax revenue
- Compliance with land use/zoning restrictions
- Addressing public concerns
- Reducing land acquisition costs
- Managing traffic volumes
- Fulfilling mobility needs
- Exploring opportunities for public facilities

There are many public and private sector investment factors that align and should be the basis for a partnership approach to address the parking need in a systematic fashion.

Economic Impact — An Example

An example has been developed for a sample parcel to show the economic benefits of a truck parking facility. This example is for illustrative purposes only.

Sample Facility Attributes

A sample 40 acre vacant parcel of land in the city of Newark, built as a modern full service private rest stop with a total building size of 30,000 square feet, could include a retail convenience store, full service restaurant, fast food, truck maintenance facility, fuel pumps, and 200 truck parking spaces.



Such a truck stop would bring jobs and tax revenue to the city and county from approximately \$13.5 million in sales (in 2008 dollars) generated by the facility, based on sales averages for 2002 reported by the National Association of Truck Stop Operators and inflated to 2008 using the Consumer Price Index.

Employment and Earnings

A scenario of a 60/40 retail and food service split would result in a projection of 120 total jobs (32 in retail and 88 in food services). Annual payroll of those employees would be approximately \$2.5 million.

A local multiplier economic effect is also expected, as the operations at the facility entail the purchases of its own and the employees spend much of their wages locally. Direct

effects employment and earnings from the facility would be 9 additional (multiplier) jobs in Newark and \$385,000 in payroll for these indirect jobs.

Taxes

A full service truck parking facility would benefit the City through sales, payroll, and property taxes. Under New Jersey's Urban Enterprise Zone (UEZ) program many of the items purchased in the City of Newark are subject to a reduced (3.5 percent) sales tax, and the sales tax revenue from these UEZ transactions is allocated to the City's economic development fund. Assuming that 25 percent of the projected \$13.5 million in annual sales meet the UEZ criteria, this fund would receive nearly \$120,000 in sales tax revenue. A one percent payroll tax would bring the City treasury nearly \$30,000 on the direct and multiplier payroll generated by the truck parking. And finally, constructing the 30,000 square foot building would add \$7.5 million to the total assessed value of property within the City. At the current property tax rate of 2.599%, the facility would add nearly \$200,000 in local property tax revenue.

NJTPA Regional Truck Parking Summit

On April 22, 2009, NJTPA hosted a "Truck Parking Summit." Participants included public sector representatives from 16 agencies who provided varied perspectives and experiences regarding truck parking issues. The session yielded a preliminary prioritization of issues and practices to address truck parking throughout the northeast and mid-Atlantic region. Participants acknowledged that effective solutions to the truck parking problem must be addressed in both an intra and inter-regional manner and solutions may range from new federal policies and programs to a greater use of technology, to operations and logistical changes, to providing more parking capacity through a combination of public and private facilities.

Through the discussion, several common themes emerged that lay out the truck parking challenges and provide opportunities for addressing the issue. These include:

- Remove trucks from highway shoulders as the overarching goal . . . parking alternatives remain *the* issue.
- Public opposition to new or expanded truck parking facilities must be constructively addressed. Educate and engage the public and community leaders as part of the problem solving process.
- Truck idling reduction is an across-the-board initiative by states and municipalities—presenting opportunities to make truck parking more community friendly.
- The roles and responsibilities of the public and private sectors in providing truck parking need to be addressed.
- Current initiatives focus on real time parking information to optimize the current truck parking system/inventory without adding physical truck parking capacity.

- Existing undesignated truck parking sites provide potential increased capacity, but do not represent an ideal solution for expanding truck parking capacity.
- Collaboration and partnership among public sector agencies and with the private sector is essential.
- Current public investment is inadequate to successfully address the problem.
- Addressing truck travel demand could have some benefit relative to parking need; this might be addressed through intermodal elements such as rail or waterborne.
- The public and private benefits of truck parking should be quantified to better inform decision makers and the public, as well as to help shape funding strategies.
- When assessing the potential for specific facilities it is important to identify the particular market each facility will serve.

Action Plan

In an effort to enhance on-going efforts, additional actions have been identified that will progress the task of addressing truck parking issues region-wide. These actions provide additional steps that NJTPA and its partners can take to further these initiatives.

Outreach

Action: Educate the public on the need for and benefits of truck parking facilities.

Expanding Capacity

Action: Evaluate potential alternatives for increasing truck parking capacity utilizing existing infrastructure.

Action: Evaluate potential for increasing regional truck parking capacity.

Funding

Action: Pursue policy initiatives at the federal level that promote truck parking development and innovative public private approaches.

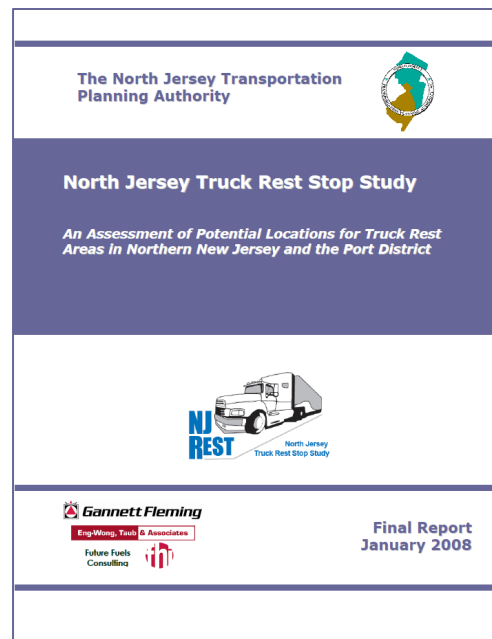
Action: Encourage funding priority for projects that indirectly support truck parking and reduce the demand for truck parking by improving the flow of goods.

Action: Identify existing funding sources to facilitate development of truck parking facilities.

Background/Introduction

First Phase Results Summary

The *North Jersey Truck Rest Stop Study: An Assessment of Potential Locations for Truck Rest Areas in Northern New Jersey and the Port District* was completed in December, 2007, with findings and recommendations accepted by the North Jersey Transportation Planning Authority (NJTPA) Board of Trustees in January, 2008 (<http://www.njtpa.org/plan/Element/Freight/documents/truckstop.pdf>). The NJTPA conducted the study as part of its comprehensive freight planning program. It outlines the Federal requirements impacting the need for truck rest areas, analyzes the issues associated with truck rest areas, identifies and ranks the key corridors where truck parking is deemed to be inadequate and inventories possible sites for new rest areas to help meet growing demand.



The study stemmed from a growing recognition that truck rest and service area capacity was not adequate. Truck drivers are subject to federal drive time limitations and required rest periods, and often park on secondary streets or highway shoulders. Few, if any of these locations, offer truck drivers legal parking space or amenities such as food, showers, and repair services. This raises safety and environmental concerns throughout the region and also creates a potentially dangerous situation for truck drivers and others.

Deficiencies in regional truck parking capacity at existing facilities have become apparent in recent years. The most visible evidence of this problem is at existing rest areas on I-78 and I-80, and at service areas on the New Jersey Turnpike (I-95). Truck parking demand often exceeds the available capacity of these facilities (particularly during overnight hours) and trucks can be found parked along entrance and exit ramps.

Study Purpose

The purpose of the second study phase is to determine the extent of the truck problem in the NJTPA region and identify demand, capacity, and partnering solutions, as well as formulate an action plan to meet the region's demand.

An implementation strategy was developed as part of the first phase to ensure that the issue continues to be addressed through a constructive and timely course of action. This strategy was the impetus for this second phase.

Coordination is to moving forward with the first phase's recommendations. Each of the recommendations requires cooperation to make them work. The nature of truck parking and demand for competing land uses in the New York metropolitan area dictate that no public or private organization is able to go it alone.

In addition, there is a need to understand the factors that impact truck parking demand. These include those related to funding, partnering, economics, logistics, regulations, and others. The goal of this report is to formulate an understanding of these factors and an action plan to address truck parking issues region-wide.

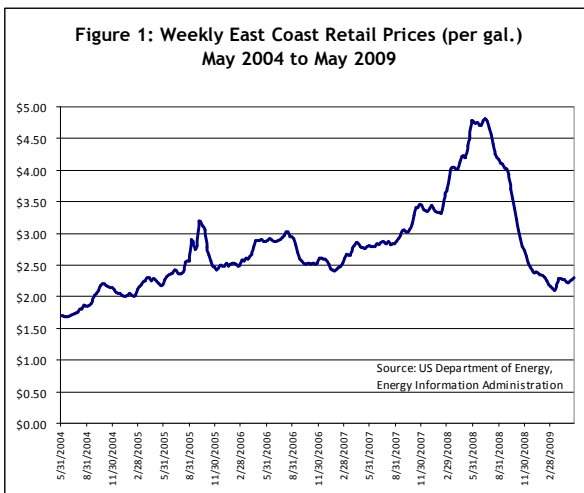
Recent Truck Trends

Throughout the course of this study, there were frequent discussions about the impact of recent economic events on truck parking demand. The 2008 recession has impacted the freight sector as a whole. The demand for raw materials and consumer products has declined with a proportional downward trend in trucking activity. However, short-term trends should not delay progress on solving the long-term truck parking demand issue. In addition, the reduction in calculated truck parking demand is not to the level that it meets or is below capacity. In fact, it is estimated that there is little or no change to the regional truck parking demand, because of the unique position Northern New Jersey has as a large consumer market, freight hub, and economic center.

It is important to understand the factors that affect the truck parking demand and how these factors might influence long term demand. Diesel fuel prices, consumer confidence, and truck vehicle miles traveled (VMT) are a few of the important factors that affect freight movement generally and truck parking specifically.

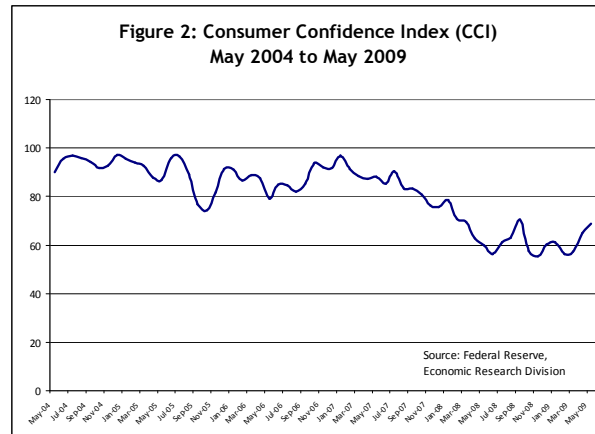
Diesel Fuel Prices

Between July 2005 and July 2008 diesel fuel prices increased 97 percent causing speculating that truck travel would be dramatically reduced. Prices have since stabilized and in May 2009 were at 2005 levels. The prime causal factor for the continued decrease in truck activity is the overall economic picture resulting in the decline of consumer confidence which results in decreased demand for retail goods and less freight moved overall.



Consumer Confidence

Consumer confidence has decreased significantly since January 2007. As fuel prices increased there was a corresponding downturn in the Consumer Confidence Index (CCI). Because the cost of petroleum products impacts almost all goods and services, consumer jitters and contraction are to be expected. Other factors such as housing foreclosures also contributed to consumer concern.



Truck Tonnage

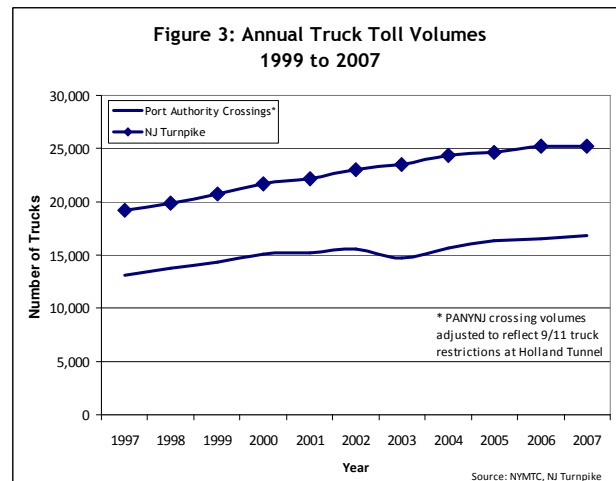
Truck parking demand is also linked with truck tonnage trends. The American Trucking Associations' advance seasonally adjusted (SA) For-Hire Truck Tonnage Index fell 2.2 percent between March and April 2009, after falling 4.5 percent a month earlier. This was its lowest level since November 2001. Compared with April 2008, tonnage fell 13.2 percent, which was the largest drop in thirteen years. In March 2009, tonnage dropped 12.2 percent from the prior year.

Truck tonnage trends are a good indicator of truck parking demand, but are not the sole measure. Tonnage may be down, but this could be an indicator of lighter loads and not necessarily a reduction in the number of trucks on the road in need of truck parking.

Truck Volumes

Truck volumes on Port Authority bridge and tunnel crossings and on the NJ Turnpike increased by approximately 25% during the previous decade. These volume increases began to level off in 2005 on these facilities. This leveling off of truck activity is a result of the slowing nationwide and global economies during this time and the related decrease in truck tonnage.

Truck volumes at crossings and along the Turnpike are a major indicator of trucking activity and a leveling off of volumes is a key indicator of associated truck parking demand.



Safety

According to the US Department of Transportation³, 5.3 percent of all crashes nationwide involving trucks were the result of the driver being drowsy, asleep, or fatigued. There have been several high profile incidents involving vehicles striking trucks parked on highway shoulders and ramps as a result of truck parking facilities being over capacity. By applying the federal 5.3 percent factor to the 3,800 truck crashes that involved injuries in the NJTPA region, it is estimated that in 2008 fatigue accounted for nearly 200 of these incidences.

Though large truck crashes constitute a small percentage of overall incidents, they are more likely than accidents involving cars only to result in fatalities. Improved highway safety remains the primary objective of increasing the availability of truck parking as part of a coordinated region-wide effort.

Table 1: Police-Reported Motor Vehicle Traffic Crashes Nationwide (2006)

Crash Type	Large Trucks	All Vehicles	Truck as % of Total
Fatal	4,321	38,588	11%
Injury	77,000	1,746,000	4%
Property Damage Only	287,000	4,189,000	7%
Total	368,000	5,974,000	6%

Source: Federal Motor Carrier Safety Administration

Table 2: NJTPA Region Annual Injuries Involving Large Trucks by County

COUNTY	2004	2005	2006	2007	2008
BERGEN	579	498	358	530	425
ESSEX	452	416	317	286	268
HUDSON	347	376	262	308	241
HUNTERDON	92	122	115	70	47
MIDDLESEX	685	607	493	431	433
MONMOUTH	240	248	160	158	162
MORRIS	249	258	210	265	264
OCEAN	232	154	136	151	134
PASSAIC	213	195	180	182	177
SOMERSET	182	140	160	180	147
SUSSEX	35	60	50	40	37
UNION	382	305	336	340	303
WARREN	90	117	51	86	97
Total	4,976	4,616	3,842	4,069	3,744

Source: Federal Motor Carrier Safety Administration

Current Truck Parking Activity and Estimated Demand

The recent leveling of freight movement does not significantly impact parking demand within the NJTPA region but may affect demand in surrounding and outlying areas. Phase 1 of the Study determined that there were 1377 total available parking spaces in the region. Calculated truck parking demand was found to exceed this supply by approximately 1,300 spaces within the NJTPA region, based on the FHWA methodology that served as the basis for estimating truck parking demand during both phases of this study. Spot counts at seven representative truck parking facilities (see Table 3) during peak overnight periods in June 2009 show no significant changes in overall regional truck parking demand compared to those collected in August 2006. Any reduction in truck parking demand as a result of decreased overall freight activity will likely affect

³ Analysis Division Federal Motor Carrier Safety Administration January 2008

demand outside the region which constitutes the region's 'spillover' effect during periods of high demand. This spillover includes drivers who prefer to park in the region, but are unable to do so due to the lack of truck parking capacity. Reduced activity makes it possible for these drivers to now park in facilities within the region.

Truck Parking Activity

Table 3 below compares the utilization of seven regional facilities in 2006 and 2009. These sites were selected for 2006-2009 control counts based on several factors, including: (a) their location along key regional roadways with heavy parking activity (I-78, I-95 and I-287) in the NJTPA region; (b) the variety of different types of parking facilities (parking areas with no amenities, designated rest areas with limited amenities, NJ Turnpike service areas with fuel and food services, and off-highway private truck stops); and (c) the location of some facilities along the NJ Turnpike corridor, where the facilities recommended for expansion in the Phase I study are located. The survey shows little change in total truck parking utilization in the region even as truck VMT and overall freight activity has declined. It is likely that drivers who previously parked in areas outside Northern New Jersey are now able to find parking in the region as a result of overall reduced demand related to the recent decline in overall economic activity.

Truck parking demand is greatest along the I-95 corridor closest to New York City (see Table 3). Demand is highest (and relatively unchanged from the 2006) in areas closest to the terminus of most truck trips in Northern New Jersey. Lower parking demand in outlying areas (as indicated) reflects an apparent shift in parking from "outer" to "inner" areas as well as the possibility of higher vacancy rates in warehouse/distribution centers further away from the metro area.

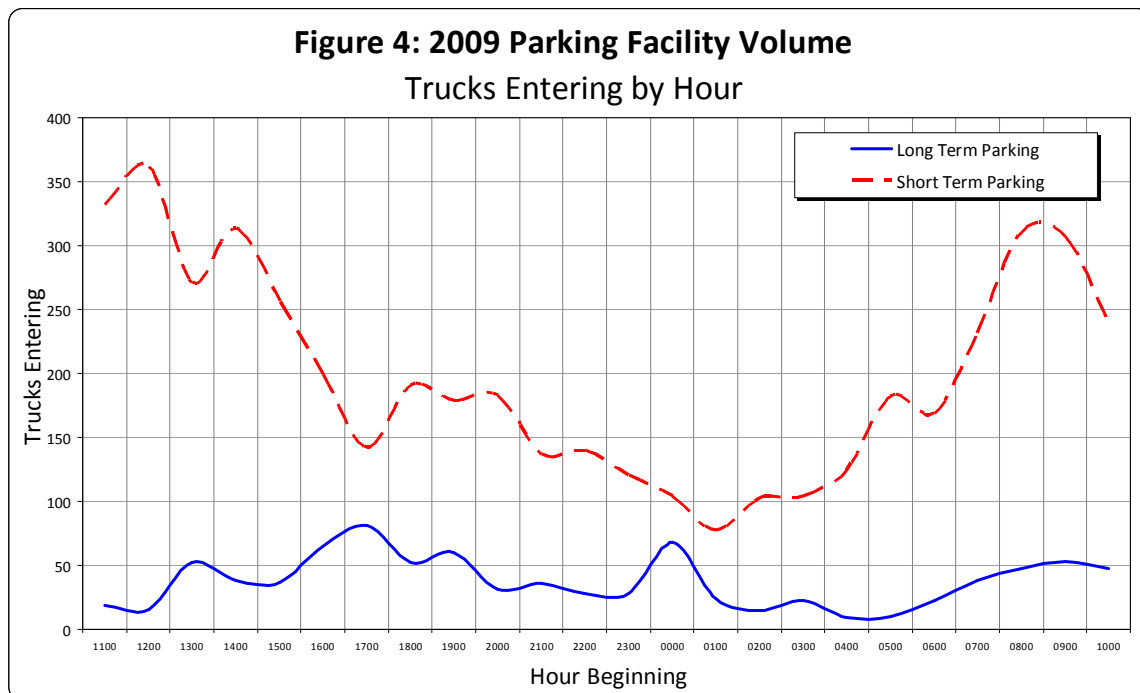
Table 3: North Jersey Truck Parking Utilization Comparison, 2006 vs. 2009
Sample Parking Facilities

Facility	Location	Utilization (parking spaces used)				Existing Parking Capacity	Capacity Utilization
		2006	2009	Change	Pct.		
Bethlehem (I-78 EB) Parking Area	Bethlehem, NJ	28	20	-8	-28.57%	11	182%
Bethlehem (I-78 WB) Parking Area	Bethlehem, NJ	20	16	-4	-20.00%	10	160%
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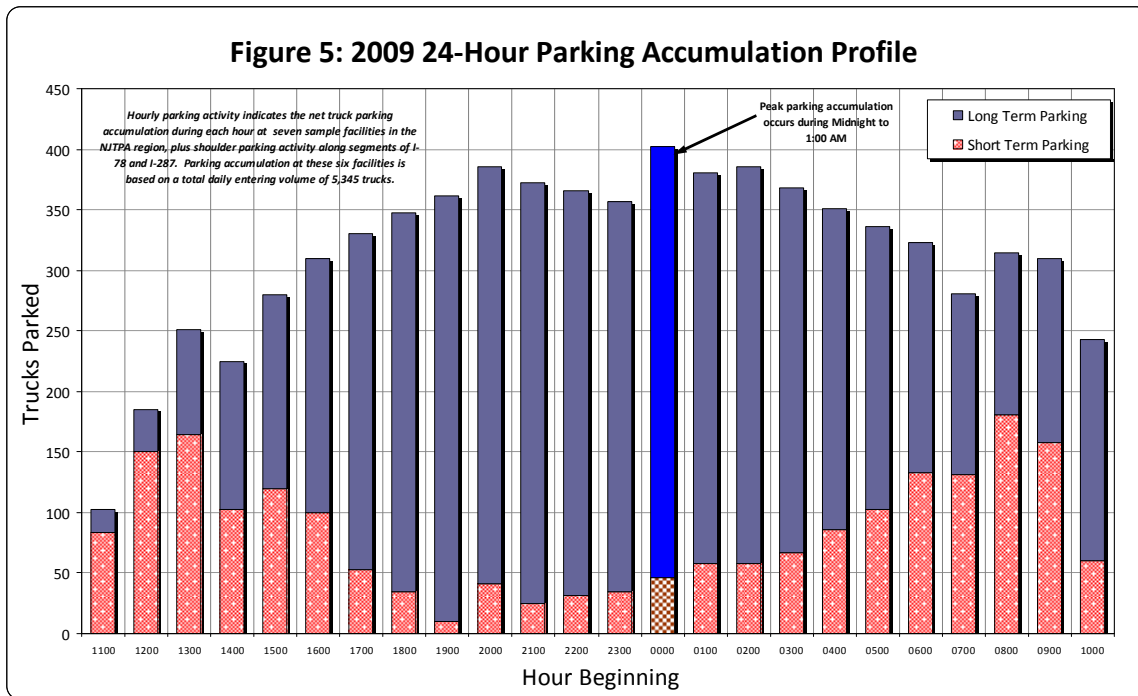
The data indicates a slight increase in overall utilization within those facilities surveyed. Parking at smaller facilities has declined while larger facilities such as those on the NJ Turnpike had more parking demand. It is important to note that the differences are based on a small sample size and there may be slight variations of truck parking activity even within the peak of overnight (midnight to 4 AM) truck parking activity. The key point is that the regional parking demand remains unchanged despite volatile changes to the

economy and fuel prices as well. This underscores the serious capacity shortfall across the region even as truck VMT has diminished.

Truck parking profiles from 2006 to 2009 indicate that the arrival/departure patterns for trucks parking over the course of a typical day have seen little change. Figure 4 shows truck parking volumes throughout the course of a typical day for 2009. Those trucks parked for less than three hours constitute the majority of trucking activity at sample facilities.



The activity at facilities varies by location, but there are unique differences between the operating characteristics of short- and long-haul trucks and the impacts they have on the use of regional parking facilities. Short term parking (< 3 hrs) constitutes the majority of facility usage. Long-term (> 3 hrs.) parking is related to mandatory rest periods under Federal hours-of-service regulations. This constitutes most of the parking capacity, as vehicles are parked for extended periods of time and have little turnover during the course of a day.



Truck Parking Demand

Truck volumes on regional toll facilities increased by approximately 25% during the previous decade. These volume increases began to level off in 2005 on these facilities. The leveling off of truck volumes has not had a significant impact on peak overnight truck parking demand. It has remained generally constant for the region, with a decline in outlying areas offset by an apparent increase along the I-95 corridor.

The peaking factor (i.e., the percentage of daily parking trucks that arrive in the facility during the peak overnight hour) for short-term parking is slightly lower – 0.96 percent in 2009 vs. 0.98 percent in 2006. For long-term parking, the peaking factor is slightly higher in 2009 than in 2006 – 39.5 percent vs. 37.7 percent, respectively.

The net result of the revised peaking factors and the current leveling off in truck volumes is that the overall recalculated theoretical parking demand based on the FHWA model⁴ should be about 9 percent lower now than it was in 2006. Actual counts at truck parking facilities outside the NJTPA region confirm a theoretical decrease. However, data collected at facilities within the NJTPA region shows an increase in truck parking demand. Any reduction in truck parking demand as a result of leveling off in overall freight activity will likely affect demand outside the region which constitutes the region’s ‘spillover’ effect during periods of high demand. This spillover includes drivers who

⁴ Study of Adequacy of Commercial Truck Parking Facilities (FHWA, 2002)

prefer to park in the region but can't due to the lack of truck parking capacity. Reduced activity makes it possible for these drivers to now park in New York metro area facilities.

From an analytical standpoint in terms of calculated truck parking demand using the FHWA methodology, the corridor-based results of the initial study remain unchanged.⁵ The FHWA-based model developed for the first phase of this study indicates a total deficit in calculated truck parking capacity of nearly 1,300 spaces, with the heaviest unmet demand occurring along the I-78 corridor east of I-287, the length of the I-95 corridor in the NJTPA region south of I-78, and the I-287/NJ-17 corridor north of I-80. The previous recommendations for the expansion of existing parking/rest facilities and the addition of new capacity in the previous report were based on the location of existing and potential new sites relative to these corridors of highest unmet demand, and those recommendations remain unchanged.

This recent trend and the associated change in demand does not change the overall findings that demand for truck parking remains high and requires either an increase in truck parking availability or dramatic steps to reduce demand. The 2006 estimated demand for 1,300 additional truck parking spaces is minimally affected by these short term truck trends and is not significant enough to alter long term planning for truck parking facilities.

Warehouse/Distribution Center Role in Truck Parking Decisions

The locations of warehouse and distribution centers impact driver decisions as to where and when they meet their mandatory rest requirements. Warehouse/distribution center operations are governed by activities and restrictions associated with load/unload hours, zoning restrictions, delivery schedules, and labor availability.



Estimated Impact of Warehouse/Distribution Hours of Operation

Data collected in the summer of 2006 shows trucks parked for hours that are longer than a short stop⁶, but shorter than necessary to meet federal truck driver rest requirements – 3 to 10 hours in duration. These drivers are parked in the early morning hours and begin their trip as warehouses begin to open. Presumably these trucks are staging for early pick-up and/or delivery.

⁵ *North Jersey Truck Rest Stop Study: An Assessment of Potential Locations for Truck Rest Areas in Northern New Jersey and the Port District* (2007)

⁶ As defined by the Federal Motor Carrier Safety Administration (FMCSA)

There were approximately 200 trucks that fit this profile within designated facilities. This number represents about 11 percent of all trucks parked during early morning hours. In addition, trucks are parked within terminal areas, all of which are assumed to be staged for the same purpose. It is estimated that about 15 percent of all trucks observed parked during peak periods are staging for access to warehouse/distribution facilities.

To gauge the potential for warehouse/distribution centers to change their operation to accommodate trucks, a survey was conducted. The survey addressed the factors that influence their hours of operation and their potential impact on truck parking.

Warehouse/Distribution Center Survey

A survey of several warehouse/distribution center operators was conducted to gain an understanding of their current operations, restrictions on operating hours, and options to extend operating hours to reduce the need for drivers to park for extended hours. The survey was aimed at identifying options to reduce the demand for additional truck parking facilities as an alternative to increasing the supply of parking. The surveyed facility operators were located in the Raritan Center, the Meadowlands, and NJ Turnpike Exit 8A.

Survey Results

Load/Unload Hours

Each warehouse/distribution center had one shift that received and dispatched truckloads. The hours were primarily between 7 AM and 5 PM. None of those surveyed accepted or dispatched trucks after 5 PM without special exception.



Zoning Restrictions

Respondents noted that zoning restrictions were not a significant factor in their daily operations. One business cited that noise and light restrictions had an impact on the design of the facility, and idling restrictions were a concern that may prohibit truck parking on site for extended periods. This respondent does not currently allow truck parking on-site after delivery hours. A representative for another business indicated that drivers accessing their facility were previously permitted to park in their loading dock area if they arrived in the overnight or early morning hours before the warehouse was open, but company management had recently decided to install gates and close the loading area to trucks during off-hours because they were starting to attract “vagrant” (uninvited) trucks during the overnight period.

Extended Hours of Operation

Most operators would be willing to establish “24/7” operations if their respective markets would bare it. The majority of participants noted that extended hours of operation were unlikely. They noted that until the Summer of 2008 they were processing record volumes, but still saw no financial need to remain open beyond 5 PM, which could also

be a result of few of their customers shipping to (or receiving shipments from) the surveyed locations.

The warehouse and distribution surveys were conducted with facility managers. These individuals are responsible for daily operations and their views may not necessarily reflect the future strategic direction of the companies. Long range decisions regarding how changes to their operating structures should be viewed within this context. It is, however, apparent that truck parking is not a high priority with this group.

There are no provisions allowing drivers to park within the facility property before or after receiving hours. There are few zoning restrictions that would preclude them from doing so except in specific areas. Space, idling restrictions, safety/security, and driver access to services may explain why they do not allow truck parking. If these could be addressed, it may be possible to allow parking on-site. 24/7 operations may provide a positive benefit in smoothing the current peaking factors at regional truck parking facilities but it is unlikely that these practices would eliminate the need for a comprehensive regional truck parking strategy. Further study of regional warehouse and distribution center operations would provide a better understanding of the opportunities and constraints related to extended operating hours, and how these facilities relate to truck parking decisions in the larger context of the regional logistics chain.

State Regulations and Local Land Use Restrictions

The New Jersey Department of Environmental Protection (NJDEP) has implemented regulations to curb noise, light, and air pollution for industrial, commercial, public service, and community service facilities which include truck parking locations and truck oriented businesses. NJDEP idling restrictions will go into effect May 2010 and will be assessed to determine the regulation's overall air quality impact.

NJ Pollution Standards	
Noise	50 decibels during nighttime (10:00 p.m. to 7:00 a.m.) and 65 decibels during daytime.
Lighting	In 1997, the New Jersey Light Pollution Study Commission issued recommendations for reducing unwanted light on the basis of safety, privacy, efficiency, and preservation of the night sky.
Air	NJDEP restrictions (to be implemented in May 2010) prohibit idling more than three minutes for both diesel and gasoline vehicles

Zoning ordinances can affect truck activity in communities in varying ways. The zoning ordinances reviewed limit the roadways on which trucks can travel. Most, however, do not restrict trucks from parking at warehouse or distribution centers. Other considerations such as idle restrictions and driver access to bathrooms, etc. still must be considered by the facility operator in deciding whether to allow trucks to park for extended periods of time while on facility property.

Steps should be taken to engage the private sector operators of these facilities, drivers, and municipal officials to explore the viability of permitting truck parking on site to help ease the need for drivers to park on local streets, ramps and shoulders, and ease the burden on regional parking facilities already operating over capacity.

Municipal ordinances were reviewed within those areas with the heaviest need for truck parking facilities. These include the areas of Port Newark/Elizabeth, NJ Turnpike Exit 8A, Raritan Center, and the Meadowlands. The purpose of this effort was to: (1) help identify locations where trucks park on public streets outside terminals and warehouses due to zoning ordinances that prevent these facilities from keeping their gates open at night; (2) identify truck parking requirements for warehouses and other industrial uses under local zoning ordinances; and (3) identify opportunities for industrial occupants to accommodate parked trucks or the processing of goods during off-peak hours. The municipal ordinances reviewed include:

Meadowlands	Carlstadt
	East Rutherford
	Lyndhurst
	Moonachie
	Rutherford
Port Newark/Elizabeth	South Hackensack
	Elizabeth
	Kearny
Raritan Center / Middlesex County	Newark
	Edison
	Metuchen
	Piscataway
	South Plainfield
NJ Turnpike Interchange 8A	Woodbridge
	Cranbury Twp.
	Monroe Twp.
	South Brunswick

Ordinances were reviewed to determine the governing factors of six (6) different criteria including:

1. Truck parking requirements
2. Permitted hours of operation
3. Maximum floor area ratio
4. Maximum impervious coverage
5. Open space requirements, and
6. Maximum building coverage.



The following tables summarize the zoning restrictions and provisions for each of these criteria within the specific freight areas.

Meadowlands						
(A)	(B)	(C)	(D)	(E)	(F)	(G)
Municipality	Truck Parking Requirements	Hours of Operation	Max Floor Ratio	Max Impervious Coverage	Open Space Requirements	Max Building Coverage
Carlstadt						
Industrial/Commercial	Parking prohibited on streets between 11pm and 6am	Prohibited between midnight and 5am	No Provisions	No Provisions	No Provisions	No Provisions
East Rutherford						
Light Industrial (I)	1 for every 400 Sq Ft. of floor area	No Provisions	35%	60%	No Provisions	No Provisions
Lyndhurst						
Commercial/Manufacturing	Must provide adequate loading and unloading area so as not to conduct operations from street.	No Provisions	No Provisions	50%	No Provisions	No Provisions
Moonachie						
Manufacturing (M)	Loading dock required for facility with 0-5,000 sq ft. and an additional dock required at 40,000 sq ft.	No Provisions	No Provisions	No Provisions	No Provisions	No Provisions
Rutherford						
Industrial/Commercial	No parking on streets for more than one hour	No Provisions	No Provisions	No Provisions	No Provisions	No Provisions
South Hackensack						
Warehouse/Wholesale/ Industrial	One space for every 780 sq ft. Storage of trailers or shipping containers prohibited. Allotment for incidental overnight storage.	No Provisions	No Provisions	No Provisions	No Provisions	50%





Port Newark/Elizabeth						
(A)	(B)	(C)	(D)	(E)	(F)	(G)
Municipality	Truck Parking Requirements	Hours of Operation	Max Floor Ratio	Max Impervious Coverage	Open Space Requirements	Max Building Coverage
Newark						
All land uses	No truck parking over 4 tons on city streets at any time. No parking of any commercial vehicle between 11pm and 5am.	No Provisions	N/A	N/A	N/A	N/A
First Industrial District (L1)	See Above	No Provisions	None	55%	No Provisions	No Provisions
Second Industrial District (L2)	See Above	No Provisions	None	None	No Provisions	No Provisions
Third Industrial District (L3)	See Above		None	None	No Provisions	No Provisions
Elizabeth						
Industrial/Warehousing/ Wholesale/Distribution	1 for each 1,400 sq ft of site area. Parking management plan required	No Provisions	No Provisions	No Provisions	No Provisions	No Provisions
Kearny						
All land uses	Joint parking facilities are permitted.	No Provisions	N/A	N/A	N/A	N/A
Limited Industrial	1 space for each 500 Sq Ft floor area and 2 for each 4 employees working the maximum shift. Storage of trucks, trailers, containers is permitted.	No Provisions	None	90%	No Provisions	No Provisions
Manufacturing	1 space for each 500 Sq Ft floor area and 2 for each 4 employees working the maximum shift. Storage of trucks, trailers, containers is permitted.	No Provisions	None	90%	No Provisions	No Provisions
South Kearny Industrial	1 space for each 500 Sq Ft floor area and 2 for each 4 employees working the maximum shift. Storage of trucks, trailers, containers is permitted.	No Provisions	2.5	90%	No Provisions	No Provisions





Raritan Center						
(A)	(B)	(C)	(D)	(E)	(F)	(G)
Municipality	Truck Parking Requirements	Hours of Operation	Max Floor Ratio	Max Impervious Coverage	Open Space Requirements	Max Building Coverage
Metuchen Borough						
Light Industrial	1 per 800 sf	No Restrictions	0.25	70%	30%	50%
Manufacturing	1 per 500 sf	No Restrictions	0.25	70%	30%	50%
Edison Township						
Industrial/Wholesale	0 per 0 to 7,500 sf 1 per 7,500 to 40,000 sf 2 per 40,000 to 100,000 sf 3 per 100,000 to 160,000 sf 1 for every 90,000 > 160,000 sf	Approval of Township Police between midnight and 6 am	0.5	85%	No provisions	Pavement and building included in column D
Piscataway Township						
Industrial/Commercial	No provisions	No Restrictions	No provisions	No provisions	No provisions	45%
South Plainfield Township						
Industrial/Manufacturing (M3)	No provisions Restriction: No commercial vehicle weighing more than 8,000lbs. Shall be permitted to be parked overnight in the Borough	No Restrictions	No provisions	No provisions	No provisions	50%
Woodbridge Township						
Light Industrial	No provisions	No Restrictions	1.5	No provisions	No provisions	45%



NJ Turnpike Exit 8A						
(A)	(B)	(C)	(D)	(E)	(F)	(G)
Municipality	Truck Parking Requirements	Hours of Operation	Max Floor Ratio	Max Impervious Coverage	Open Space Requirements	Max Building Coverage
Cranbury Township						
Truck Stop (Definition only)	No Provisions	No Restrictions	No Provisions	No Provisions	No Provisions	No Provisions
Light Industrial-Warehouses	Restricted in residential zones	No Restrictions	0.35	50%	No Provisions	No Provisions
Light Industrial-Other	Restricted in residential zones	No Restrictions	0.3	50%	No Provisions	No Provisions
Light Industrial-Planned Industrial Park	Restricted in residential zones	No Restrictions	0.35	50%	No Provisions	No Provisions
Monroe Township						
Truck Stop (Definition only)	No Provisions	No Restrictions	No Provisions	No Provisions	No Provisions	No Provisions
Highway Development	Restricted in residential zones	No Restrictions	0.4	60%	No Provisions	No Provisions
Light Industrial	Restricted in residential zones	No Restrictions	0.45	60%	No Provisions	No Provisions
South Brunswick						
Warehouse shipping and receiving	1 per 5,000 sq. ft. GFA	Closed 11pm to 5am unless there are 2 employees on site and security	N/A	N/A	N/A	N/A
Light Industrial (LI-1/2)	See above	See above	2,500 Sq Ft. or less	75%	No Provisions	No Provisions
Light Industrial (LI-3)	See above	See above	No Provisions	No Provisions	No Provisions	No Provisions
Light Industrial (LI-4)	See above	See above	No Provisions	60%	No Provisions	No Provisions
General Industrial (I-2)	See above	See above	No Provisions	80%	No Provisions	No Provisions
General Industrial (I-3)	See above	See above	No Provisions	55%	No Provisions	No Provisions

Impact on Truck Parking

The municipal zoning information shows that many of the municipalities within the industrial areas have few or no regulations associated with the provision of truck parking. Regulations accommodating trucks could reduce the overall demand within these industrial areas and remove them from adjacent streets. In addition, there are few restrictions on the hours of operation within some of the areas. This could point toward opportunities for expanded operations for pick-up and delivery during off-peak hours.

Zoning ordinances can play a large part in regulating truck activity within a given area. Though the zoning ordinances reviewed limit the roadways on which trucks can travel, most do not restrict trucks from parking on-site of a warehouse or distribution center. Other considerations such as idle restrictions and driver's access to necessities will still need to be considered by the facility operator when making decisions about allowing trucks to park for extended periods of time while on facility grounds.

Steps should be taken to engage the private sector operators of these facilities, drivers, and municipal officials to explore the viability of permitting truck parking on site to help

ease the need for drivers to park on local streets, ramps and shoulders, and ease the burden on regional parking facilities already operating over capacity.

Truck Parking Facility Location Considerations

Truck parking is provided at public and private facilities. Public facilities tend to have limited amenities, while private truck stops typically have varied services for truck drivers. Private truck stops do not require public funds, but do need cooperation from the public sector for zoning and roadway improvements, etc.

Public organizations find it difficult to develop truck parking facilities to accommodate the growing number of trucks. The need for private operators to help satisfy this demand is essential. This codependence makes coordination and cooperation necessary. The following section outlines the requirements of both the private and public sectors and identifies those opportunities for coordination.

Private Sector Perspective

Private truck stops are for-profit enterprises that provide fuel, parking, and often food and other services to truck drivers. These facilities have requirements for commercial viability based on the sale of goods and services. There are many factors that are considered by private truck stop developers when looking for new locations. The following is a summary of the requirements of private truck stop developers. The elements of a private commercial truck stop are:

Private Sector Commercial Perspectives		
Factor	Description	Implications
Land Acquisition Costs	The cost of land in urbanized areas is much higher than rural areas. Because of the required land for truck parking, the cost of real estate is a significant factor when determining new truck stop locations.	The cost of land is most likely prohibitive in those areas where a truck stop is most in need. Lower cost options such as building on brownfields or further from activity centers will require public assistance or incentives and/or would be a less than ideal location and may not be economically viable.
Heavy traffic volumes and long distance drivers	Most truck stop business models are oriented toward the long haul truck driver who has specific rest requirements under the federal hours of service regulations. Location of a facility along a highway with heavy (long distance) truck volumes provides the customer base required.	Access to a steady and reliable client base is critical for a viable truck oriented business.

Private Sector Commercial Perspectives

Factor	Description	Implications
Highway exposure	Like many businesses, location is critical to a truck stop's success.	Visibility to the highway whether it be signing on the highway or can be seen from the highway is imperative.
Highway access	Most truck parking locations are off-highway where drivers must leave limited access highways.	These locations must have good off-highway access where drivers can maneuver and have quick access to the regional highway network.
Additional revenue streams	Private operators look for opportunities to increase revenue. Additional services can be provided if parcel size allows.	Services such as tractor and/or trailer storage and terminal support provide additional uses and revenues for a facility but potentially reduce parking capacity for traditional users. Requiring drivers to pay for parking is an option employed by some operators. Facilities that benefit from publicly funded parking improvements are typically prohibited from this practice.
Competition from Public Facilities	Public rest areas and service plazas have the advantage of being within the highway right-of-way with direct access to the highway network.	Truck stops must provide different, better, or less expensive services in order to compete with the locational advantage of public facilities.

Outside of the profit and commercial elements considered by private operators, policy considerations must also be taken into account for the establishment of new truck parking facilities. It is necessary for truck stops to exist within the current federal, state, and local regulatory framework, and some of these may prove to be prohibitive from a developer's point of view. This is one reason why there has not been strong private initiatives to meet the overwhelming parking demand within the Northern New Jersey and Metro New York region. These policy considerations are summarized in the table which follows.

Private Sector Policy Perspectives

Factor	Description	Implications
Rest Area Commercialization	<p>The Federal government restricts the commercial sales of goods and services within a highway right of way. NJ Turnpike facilities have been 'grandfathered' because they were established before the January 1, 1960 cutoff date.</p> <p>The goal was to provide a competitive economic environment for retail businesses to be developed at interchanges of the interstate highway system.</p>	<p>Lifting restrictions could provide incentives for private operators to locate along the highway right of way where visibility and access are a premium.</p> <p>Rest areas and truck stops along the highway would have a significant advantage over those services off-highway.</p> <p>The public and private sectors need to collaborate on a workable and fair approach to public rest area privatization. It is possible to get beyond the 'knee jerk' responses by both sides that this is the 'third rail' of highways.</p>
Tolling and Privatization of U.S. Interstate Highways	<p>In recent years there have been efforts to toll or privatize part of the interstate system in several jurisdictions.</p>	<p>Tolls may act as a barrier to off-highway truck stops as a result of the 'toll penalty' to exit and then re-enter the system.</p> <p>This should be less of an issue with automated tolling.</p>
Complementary local land uses	<p>Truck stops must be designed for high volumes of trucking activity in order to be commercially viable. These designs include access management and stronger pavement (among other infrastructure upgrades). This type of infrastructure is available in areas that are currently truck oriented. In addition, these truck oriented businesses provide an operator access to an existing client base.</p>	<p>Locating within compatible areas is ideal; however provisions must be made to allow such use. Because of the retail nature of the business and truck orientation, truck stops are often unique uses for which municipalities find it difficult to categorize.</p>
Public Concerns	<p>Air quality, noise, and light pollution as well as increased traffic are consistent concerns among neighboring communities.</p>	<p>Addressing such issues is required when establishing new truck parking facilities in an urbanized area such as Northern New Jersey.</p>

Private Sector Policy Perspectives

Factor	Description	Implications
Permitting Process	Truck stops encompass several different activities (fueling, food service, truck maintenance, etc.) for which obtaining the appropriate approvals is required.	Process could be extensive.

Public Sector Perspective

Public sector requirements are different than those of the private sector. Public investment requires that there be a benefit to the public at large, usually one that substantially exceeds the public cost. The provision of truck parking can be seen as one of these benefits in that federal hours of service regulations for drivers require a driver to stop and rest. The regulations have been established to prevent driver fatigue, increasing safety on regional roadways. The table below describes the elements involved with public sector decisions regarding truck parking facilities.

Public Sector Perspectives

Factor	Description	Implications
Employment	Municipal governments continue to seek increases in employment for their residents. New truck parking facilities employ an average of 75 to 95 individuals.	Truck stop employment could add needed jobs. However, there are other uses that could also generate jobs while generating less truck traffic.
Tax Revenue	Gross median retail sales for a typical truck stop total \$6.6 million annually ⁷ most of which is subject to some form of state taxation (fuel tax, sales tax, etc.). In addition, employee payroll and property taxes are also public revenue streams generated by these facilities.	Truck stops will generate tax revenue the amount of which will vary depending on the municipality and the mix of goods and services available on site.
Land use/zoning restrictions	Truck stops must be designed for high volumes of trucks including access management and fortified pavement (among other compatible infrastructure). This type of infrastructure is available in areas that are currently truck oriented.	Locating within compatible areas is ideal; however provisions must be made to allow such use. Because of the retail nature of the business and truck orientation, truck stops are often unique uses for which municipalities find it difficult to categorize.

⁷ National Association of Truck Stop Operators (NATSO)

Public Sector Perspectives

Factor	Description	Implications
Public Concerns	Air quality, noise, and light pollution are consistent concerns among neighboring communities of a truck parking facility. An increase in truck traffic is also a concern.	Addressing such public concerns is required when establishing new truck parking facilities. Adjustments in design and location may be necessary.
Safety	Safety is paramount. Providing parking locations for drivers to meet mandatory rest requirements must be considered by the public sector. Security of the facility must be borne by the operator.	Safety and security requires cooperation among public and private interests.
Land Acquisition Costs	The cost of land in urbanized areas is typically more expensive than rural areas. Because of the required land for truck parking, the cost of real estate is a significant factor when determining new truck stop locations.	Public funding for purchasing or remediating an underutilized and/or brownfield site may be required in areas with high real estate prices.
Traffic Volumes	Maintaining manageable truck traffic flow as a result of a new facility is important to maintain air quality and congestion thresholds.	Truck reliant businesses should be located in areas that currently have truck traffic. This is especially true for parking facilities because of the number of trucks and potential client base.
Fulfilling mobility needs	Public sector transportation agencies must focus on the mobility of both people and goods.	Parking facilities are a critical link in the logistics chain serving the drivers' need to rest and for short term storage of freight during that period.
Competition from Public Facilities	Public rest areas and service plazas have the advantage of being within the highway right-of-way with direct access to the highway network.	Truck stops must provide different, better, or less expensive services in order to compete with the locational advantage or public facilities.

Public/Private Sector Coordination Opportunities

There are many public and private sector elements that align and should be the basis for discussion, partnerships, and ultimately joint strategies and action. The coordination opportunities are described in more detail in the action plan and include the following.

Land Acquisition

Site remediation: The public sector can help in the acquisition of land in northern New Jersey for truck parking because of the nature and location of available parcels. Many parcels are underutilized and/or brownfields in need of remediation. Public sector cleanup grants would assist with this cleanup. This would provide the truck stop and highway-oriented retail industry the ability to develop facilities on land that is currently less than desirable for other users. Moreover, remediation for truck parking may be minimal in comparison to other uses.

Location of Potential Parcels: Both the public and private sectors have a stake in the location of parking facilities. Efforts should be coordinated to ensure that the needs of each are met. This can be done through better land use planning and the involvement of the trucking interests.

Assistance with/Streamlining of the Permitting Process: As the public sector realizes the public need and benefit associated with providing truck parking, the cumbersome permitting process should be streamlined and expedited to accelerate site development.

Tolling and Privatization of Interstate Highways

Recent interests nationally regarding options to privatize and/or toll sections of the interstate highway system. Private sector representatives and local officials should be involved in these discussions to address possible benefits or adverse impacts related to this issue. It is likely that discussions will continue as state departments of transportation wrestle with funding shortfalls for much needed highway maintenance and expansion.

Truck Parking Considerations as Part of Highway Improvement Projects

Considering truck parking as part of highway improvement projects will assist in mainstreaming truck parking provision within increases in capacity for trucks and the ultimate increase in demand along a highway corridor. Performing an assessment of how, where, and when to provide this parking capacity within the programming process would compliment the move toward highway project streamlining and comprehensive freight planning.

Complimentary Local Land Uses

Location of Potential Parcels: Just as with land acquisition, both the public and private sectors have a stake in the location of parking facilities, and special consideration should be given to parcels within areas with compatible uses. This strategy provides the private sector operator with the identification of sites in areas that provide access to potential clientele, and the public sector with a use in areas that are truck oriented and have adequate infrastructure. Truck parking facilities and attendant services can serve as an anchor for other compatible uses in these areas.

Access Improvements: As shown in the truck parking activity data collected as part of this study, truck parking facilities generate a large number of trucks that peak in the early evening and early morning. Access improvement coordination between public sector traffic engineers and private developers will ensure adequate and safe movement of trucks during these peak timeframes.

Promotion of Pooled Truck Parking: Private and public entities should work together to explore the benefits of pooled truck parking where warehouse/distribution development may reduce its parking and staging requirements on site by contributing to a centralized truck parking site. The involvement of several warehouse operators in this arrangement would provide the economy of scale necessary for a private truck stop operator to establish a viable facility. These facilities would be the center of an industrial area just as a main street shopping area is for a community: a place where drivers purchase items for their daily needs.

Safety

Education on the dangers of fatigued drivers and the dangers of trucks parked on highway shoulders and ramps is the responsibility of both the public and private sectors. Coordination on educational materials and outreach efforts should be made collectively.

Options for Reduced Truck Parking Demand

Capacity additions are not the only way to address regional truck parking issues. A reduction in demand can also play a role in addressing truck parking capacity issues. Though more difficult to achieve, demand reduction should be a part of any discussion addressing truck parking deficiencies. Potential strategies for reducing demand include the following.

ITS improvements to utilize existing capacity

Drivers sometimes find it difficult to know if a facility is full. This is an inefficiency that can lead to underutilization of existing capacity. There are several pilot projects being evaluated that tie the truck parking capacity in with the real time utilization of the facilities. This utilization is communicated to drivers through variable message signs or via highway advisory radio transmission. These types of initiatives can serve to help utilize existing capacity. The I-95 Corridor Coalition has recently coordinated an effort to acquire federal funding for a multistate, ITS truck parking initiative.



Better coordination between warehouse/distribution centers, ports, and shippers and receivers

Many trucks stage to fit within a pick-up or delivery window at one of several types of facilities. Often that driver must then make another trip a short distance and fit within another window the same day. Coordination between the driver, dispatcher, pick-up and drop off locations will reduce the need for staging, missed window times, and lost productivity.

Increased hours of operation at warehouse/distribution centers

Some gates at the Port of NY/NJ have had extended operating hours but this practice has since been scaled back. One limiting factor in this arrangement is that drivers could pick up or drop off containers during these off-peak hours but there are few warehouse/distribution facilities open to complement this practice. Increased hours of operations at these facilities would allow freight to continue moving, thus allowing drivers to rest without necessarily holding cargo in the meantime. This would require less space at truck stops and provide a more efficient goods movement system.

Increased weight limits

An increase in the weight that a truck can carry would decrease the number of trucks necessary to carry the same amount of freight. Fewer trucks would require fewer truck stop spaces thus reducing demand. There are some proponents of this practice within the trucking community not from a truck parking point of view, but as a way to combat driver shortages. Valid concerns over the impact on highways and the associated cost make this difficult.



Incentives for off-peak hour movements (congestion pricing)

Congestion pricing has been used throughout the country to manage the movement of vehicles throughout urbanized areas. This concept could be used to manage truck movements, encouraging their movements at times when truck parking capacity is at its most constrained: during nighttime hours. However, since the trucking industry can not control the schedules of deliveries to their customers, congestion pricing may not solve the parking problem. In fact, congestion pricing may in fact increase the parking shortage as drivers head out earlier in the morning to beat the “peak” rates only to park and wait for their customer to open.

Mode shift

Mode shift has limited potential to reduce truck parking demand. Goods move on different modes due to factors such as commodity type, time sensitivity of the cargo, and travel distances. With the freight rail system at or near capacity in the region, efforts to shift modes for the purpose of reducing the demand for truck parking could outweigh the benefits.

Trucker co-ops

The development of trucker co-ops is the concept of providing long-term rest facilities for drivers instead of for the driver and their trucks. Drivers would meet at a rest facility where one who has reached their hours of service limitations would transfer the truck and load to another driver who would continue the haul. After the first driver has met his rest requirements, they then take a load from another driver who is at the end of their service hours. This concept has several benefits. It would provide a place to rest for drivers but would not require the storage of the truck and trailer. Issues such as driver/employer relationships and owner/operator sharing of equipment would need to be addressed if this concept were to be advanced.

Team drivers

The use of team drivers is not a new practice, but due to driver shortages it is not as prevalent. Team drivers have an inherent advantage in rest/drive time requirements as one driver operates the vehicle while the other rests. This practice is driven primarily by the desire on the part of fleet operators to minimize the “downtime” of their equipment, but as an added benefit it also reduces the need for extended stops to comply with hours-of-service regulations.

Overall reduction in truck parking demand will likely come from changes in the logistics chain that keeps freight moving on a continuous basis. Idle freight attached to trucks does not provide a benefit for the shipper, receiver, or driver. Continuing the movement of freight reduces the need to dedicate large parcels for the storage of freight (trailers/containers on chasses) while in transit, thus reduces the need for large parcels for drivers to rest with their cargo.

Potential Truck Parking Capacity Additions

Throughout the first phase of this study, sites were identified that could be expanded to assist in accommodating regional truck parking demand. In this second study phase several additional sites were also considered. There were difficulties identified with each that could not be resolved within the timeframe of this study. For example, discussions with the City of Elizabeth identified a potential site that is currently leased by the City to the Port Authority of New York and New Jersey. The site is currently vacant. However, it has been configured for a parking lot serving Newark Liberty International Airport. Another potential site was identified by the City of Newark and is discussed in greater detail in the section below.

The overarching issue is of highest and best use. As a site becomes identified for the use of truck parking there are several other competing interests also identified with greater resources or competing interests that preclude truck parking from competing. With this clear competition for sites it is important to understand the economic benefits of a truck parking facility in addition to the important role these facilities play with regard to safety. In addition it is important to realize the role that public agencies must play in assisting drivers to meet their Federally mandated rest requirements.

Example Economic Benefits of Truck Parking Facilities

Throughout the conduct of this study phase it was apparent that the benefits of truck parking from an economic point of view be explored so that the public sector (and municipalities in particular) can weigh the economic benefits against the costs. The overarching issue is of highest and best use. An example has been developed for a sample parcel in Newark to show these benefits. This example is for illustrative purposes and is not a recommendation for development of a particular parcel by the NJTPA.

Sample Facility Attributes

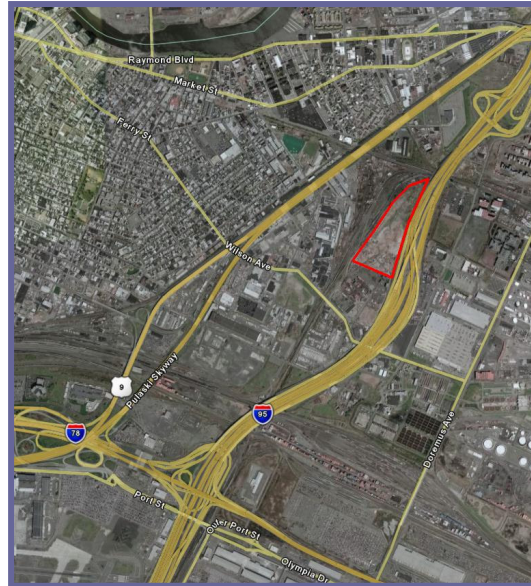
A currently vacant parcel of land in the city of Newark was identified as a potential location for a private truck parking facility. The parcel is 40 acres in size and is located northwest the port district between Rt. 1&9 and the NJ Turnpike.

For the purposes of this example, the parcel will be built as a modern full service private rest stop with a total building size of 30,000 square feet which includes a retail convenience store, full service restaurant, fast food, truck maintenance facility, fuel pumps, and 200 truck parking spaces.

A full service truck stop in Newark would bring jobs and tax revenue to the city and county. A calculation of the employment and tax impacts of a truck facility begins with the projection of its amount of annual sales. This study projects approximately \$13.5 million in sales (in 2008 dollars), based on sales averages for 2002 reported by the National Association of Truck Stop Operators and inflated to 2008 using the Consumer Price Index.

Employment and Earnings

Data on the breakdown of sales among the various business activities at a full service truck stop is not available. For this study, a scenario of a 60/40 split between retail and food service was used. This sales breakdown was applied to employment per sales ratios for retail and for food service available from the Economic Census for Essex County. The resulting projection is 32 jobs in retail and 88



jobs in food service, for a total of 120 jobs. Payroll for job data for Essex County in these categories was applied to these jobs, resulting in a projection of approximately \$2.5 million in total annual payroll at the truck facility.

A local multiplier economic effect is also expected, as the operations at the facility entail the purchases of local inputs and the employees spend much of their wages locally. Direct effects employment and earnings multipliers from the U.S. Bureau of Economic Analysis capture the effects of the local spending and re-spending. The truck facility is estimated to yield 9 multiplier jobs in Newark and \$385,000 in payroll for these indirect jobs.

Taxes

A full service truck parking facility has fiscal benefits to the City through sales, payroll, and property taxes. The items purchased in the City of Newark are subject to a 7 percent sales tax. Based on a rough assumption that 25 percent of the projected \$13.5 million in annual sales is subject to sales tax, this would yield \$945,000 in annual sales tax revenue. A one percent payroll tax would bring the City treasury nearly \$30,000 on the direct and multiplier payroll projected to result from the facility. And finally, constructing the 30,000 square foot building is projected to add \$7.5 million to the total assessed value of property within the City. At the current property tax rate of 2.599%, the facility would add nearly \$200,000 in local property tax revenue.

Example Newark Truck Stop: Potential Economic Impacts

Building Size and Scale

Size	30,000 sf		
	Total	Retail (@40%)	Food Service (@60%)
Sales ⁽¹⁾	\$ 13,500,000	\$ 5,400,000	\$ 8,100,000
Employees ⁽²⁾	120	32	88
Payroll ⁽³⁾	\$ 2,546,035	\$ 866,452	\$ 1,679,583

Direct Economic Benefits

Direct Employment	120
Direct Payroll	\$ 2,546,035
Increased Sales Tax (@7%)	\$ 945,000
Increased Payroll Tax to City (@1%)	\$ 25,460
Increased Property Taxes ⁽⁴⁾	\$ 194,925
Total Tax Revenue Increase	\$ 1,139,925

Indirect Economic Benefits

	To County	To City (@40%)
Multiplier Jobs ⁽⁵⁾	22	9
Multiplier Payroll ⁽⁶⁾	\$ 963,141	\$ 385,256
Multiplier Payroll Tax (@1%)		\$ 3,853

Total Economic Benefits to Newark

	Direct	Indirect	Total
Jobs	120	9	129
Payroll	\$ 2,546,035	\$ 385,256	\$ 2,931,291
Payroll Tax Revenues to City	\$ 25,460	\$ 3,853	\$ 29,313
Sales Tax	\$ 945,000	NA	\$ 945,000
Local Property Taxes	\$ 194,925	NA	\$ 194,925
		Total Job Benefit	129 Jobs
		Total \$ Benefit	\$ 4,100,529

(1) Assumes \$450 annual sales per square foot, based on sales data from National Association of Truck Stop Operators, a survey of sizes of a sampling of truck stops, and indexing of sales data from 2002 to 2008 dollars using the CPI for the NY metro area.

(2) Based on sales per employee data from 2002 Economic Census for Essex County, applied to sales data in 2002 dollars.

(3) Based on industry-specific annual payroll per employee data from 2006 County Business Patterns, inflated to 2008 dollars using CPI for NY metro area.

(4) Assumes building assessment at \$250 per square foot, (based on assessment of nearby building) at tax rate of 2.599%.

(5) US Bureau of Economic Analysis Rims II Direct Effects employment multipliers for Essex County for retail trade and food service places applied to respective numbers of employees. 40% of multiplier jobs are assumed to be held in Newark, based on the City's proportion of total county employment and payroll as reported in County Business Patterns' Zip Code Business Statistics for 2006.

(6) Same as above, using RIMS II earnings multipliers applied to direct payroll.

Sample Action Plan

In order to establish a truck parking facility such as this, there are specific and general actions that are required. They would involve various traffic improvements, funding identification, coordination, and others to ensure the successful completion of the project. Below are some of the general steps that would be required for a parcel as described above and would need to be followed for any other similar parcel identified for use as a truck parking facility.

Planning and Land Use

Land use is a municipal function and all land use decisions are made with considerations to adjacent land uses, roadway access, and regional goals. Routinely considering and, if feasible, incorporating truck parking at the time other improvements are being planned, designed, and constructed is a cost effective way of addressing the issue. Roadway design, construction and reconstruction typically add capacity for traffic. Routinely these capacity adding activities should consider whether there are related opportunities for providing truck capacity as well. The agency should consider establishing designated areas that allow truck parking/staging specifically, and consider zoning regulations in industrial areas that permit centralized truck parking and staging areas for multiple industrial development sites.

Access and Circulation Improvements

As motorists require easy access for retail locations, neighborhoods, and work locations, truck drivers require good access to warehouses, port terminals, and parking locations. Access improvements to parking facilities such as additional roadway access, or improved radii can greatly improve the utilization and efficiency of new or expanded parking facilities.

The sample site and those like it are re-uses of industrial parcels that may be in need of access and circulation improvements. Parcels such as these were previously used for manufacturing or similar uses that did not generate heavy truck traffic throughout the day as a truck parking facility would. In addition, the traffic in and out of these facilities tended to be smaller delivery vehicles periodically accessed by larger combination vehicles. As such, improvements to access, turning radii, roadway pavement, widening, and signaling are necessary to accommodate these vehicles.

Property Lease/Acquisition

Properties can be publicly or privately owned. Options for properties include:

1. Privately owned and operated;
2. Publicly owned and privately operated; or
3. Publicly owned and operated.

The ideal scenario for truck parking is a privately owned parcel that is operated as a private truck stop. This provides employment, tax revenue, and a facility that meets the

needs of drivers based on a for-profit business model. In locations such as the City of Newark, this may not be possible due to the cost of real estate and the competition with other users for like sites. Therefore, if truck parking is to be a priority and accommodated for the efficiency of the overall regional freight and logistics system, an alternative approach may be necessary.

As an example, the Newark Housing Authority is the holder of properties that are used (and slated for use) by both residential and non-residential occupants. There is potential for land swaps of some parcels that are better suited for industrial use for those that are better suited for residential development. Similar swaps may be possible depending on the parcels and municipalities involved.

Funding Requirements

Depending on the operational arrangements there are various funding options available for the establishment of truck parking facilities. It is critical to view truck parking within the context of regional goals and resource constraints. The planning for adequate truck parking must be a continuous focus for regional planning agencies. In addition, facility funding must be viewed within the context of these regional priorities and limitations.

The private sector is the preferred developer, operator and maintainer of truck parking facilities if the economics are achievable. Yet the public sector has a vested interest in relation to the safety and capacity issues associated with truck parking. This is a broad policy objective that recognizes truck parking is to some extent a public good with public benefit, but will be best advanced through private enterprise wherever possible.

It is important to identify the full range of existing incentives that could be used including grants, tax incentives, industrial development bonds, etc. In addition to these local and state incentives, there are two federal funding mechanisms that could assist in site development financing which include:

- Interstate Oasis Program—provides funding for facilities that offer products and services to the public, provide 24-hour access to restroom, and have parking for heavy trucks and automobiles.
- The Truck Parking Facilities program—a pilot program that provides funding to address the shortage of long-term parking for commercial vehicles on the National Highway System.

Coordination

Truck parking facilities, as with all land uses, require public-private coordination. Certain operational arrangements may require more than others. The nature of the issue and the balance between public and private interests require partnerships and collaboration if efforts are to be successful.

Municipalities and their private partners should explore opportunities to eliminate the economic barriers of private industry to establish truck parking locations. This can be in the form of land purchase, access improvements, etc.

The accommodation of the needs of trucks and their drivers present prospective economic opportunities. In continuing partnerships with the NJTPA working through its member subregions, municipalities can incorporate truck parking opportunities with regional, subregional and local planning efforts, and promote the provision of truck parking as a necessity for efficient goods movement and resulting economic benefits.

Implementation Steps

The steps required for the implementation of the sample facility would include the following as a preferred scenario for the development of a truck parking facility in the City of Newark. There are advantages to both public and private ownership of a facility. A public facility provides the municipality the ability to prioritize the parcel's use for truck parking. A privately owned facility removes any financial or other obligation on behalf of a public agency. The steps below would be for the public ownership and private operation of a facility, which is the preferred scenario in this region from a funding and implementation viewpoint due to the high cost of real estate.

1. Identify parcel large enough (ideally a minimum of 20 acres) for development as a truck parking facility. The parcel identified in the Newark example is of adequate size for such a use.
2. Pursue Federal funds, under one or both of the two programs described above, to provide truck parking that meets all of the requirements of the Federal program(s) in question. The NJTPA Phase I and Phase II reports meet the requirements for identifying the needs for a facility.
3. Subdivide parcel into two in order to provide one for retail development and one for truck parking. Subdividing the property will provide the municipality with the option to sell or lease the development property and will accommodate the need of potential operators to buy or lease the property based on their business plans which may call for ownership or lease requirement.
4. Issue an RFP for purchase/lease of parcel and operation of a highway-oriented retail site consisting of a 30,000 square foot building as described in the Newark example with on-site auto parking that meets the municipal parking requirements for a retail store (employees and customers). Include maintenance standards (and others as appropriate i.e. idle reduction technology) of the truck parking parcel as a condition for as long as it is used as a truck parking lot.
5. Select winning bidder of RFP.

There are several different variations on this action plan depending on the parcel ownership, location, size, and funding mechanisms. The action plan should be modified as necessary to reflect these differences. As an example, the availability of parking would provide the City of Newark the opportunity to adopt an industrial zoning ordinance to permit industrial developments within a specified distance of the truck parking facility (for example, a one mile travel distance) to reduce their on-site truck parking

requirement, and thereby increase the floor area ratio (FAR) of the site. An annual payment could be provided by the industrial properties to finance the ongoing maintenance and upkeep of the parking area. This arrangement would provide benefits to the industrial property owners, the parking facility/retail operator, and the City of Newark.

A Regional Action Plan for Addressing Parking Issues

One of the key goals of the present study was to develop an action plan that would provide direction for future actions to address truck parking issues. As discussed below, to develop the action plan, the NJTPA considered not only the research and analysis conducted in the course of this study but a number of other efforts underway by other agencies/organizations relevant to the issue as well as input gained from a wide variety of stakeholders at a "Truck Parking Summit" held in April 2009. The recommended Regional Truck Parking Action Plan is presented at the end of this section of the report.

Complementary Freight Initiatives

There are several on-going efforts to address truck-freight issues that directly or indirectly will address truck parking issues. These initiatives provide resources and directions for future cooperative efforts to address the issues. Among the key initiatives are:

- **NJTPA** currently engages public and private sector partners through its Freight Initiatives Committee (FIC). Trucking issues are regularly addressed at the bi-monthly FIC meetings. The NJTPA will conduct a study of the warehousing and distribution center industry to determine how overnight truck access could reduce the demand at regional truck parking facilities.
- **NJDOT**, as part of an effort looking at extended hours of operation at freight facilities, did a cursory examination of the potential impact that additional truck parking/staging may have on the success of a statewide extended hours operation. NJDOT has also been an active participant in regional efforts to address the truck parking shortage.
- **PANYNJ** has been an active participant in regional efforts to address the truck parking shortage.
- **NYMTC** recently completed a truck parking study that included a regional summary of the issue including NJTPA's Phase I study as well as ConnDOT efforts.
- **DVRPC** is currently conducting a truck parking study for their region.
- **The I-95 Corridor Coalition** has developed a strategy for the implementation of ITS improvements in several states, including New Jersey, to provide truck drivers and dispatchers with real time parking availability information. The Coalition has also:
 - been working with the PANYNJ on a truck parking appointment system,
 - submitted several real-time way finding truck parking availability projects to the FHWA for pilot demonstration, and

- assembled an inventory of funding sources for truck parking and ITS.
- **Morris County Freight Plan** – truck parking is a major issue for the plan. NJTPA and other regional partners will participate on the Plan’s Technical Advisory Committee.

These and other initiatives were considered in developing the Regional Truck Parking Action Plan presented at the end of this section of the report.

NJTPA Regional Truck Parking Summit

On April 22, 2009, NJTPA hosted a “Truck Parking Summit”. Participants included public sector representatives from 16 agencies who provided varied perspectives and experiences regarding truck parking issues. The session yielded a preliminary prioritization of issues and practices to address truck parking throughout the northeast and mid-Atlantic region. These were incorporated into the draft action plan.

Participants acknowledged that effective solutions to the truck parking problem must be addressed in both an intra and inter-regional manner and solutions may range from new federal policies and programs to a greater use of technology, to operations and logistical changes, to providing more parking capacity through a combination of public and private facilities.

Through the discussion, several common themes emerged that lay out the truck parking challenges and provide opportunities for addressing the issue. These include:

- Remove trucks from highway shoulders as the overarching goal...parking alternatives remain *the* issue.
- Public opposition to new or expanded truck parking facilities must be constructively addressed. Educate and engage the public and community leaders as part of the problem solving process.
- Truck idling reduction is an across-the-board initiative by states and municipalities—presenting opportunities to make truck parking more community friendly.
- The roles and responsibilities of the public and private sectors in providing truck parking need to be addressed.
- Current initiatives focus on real time parking information to optimize the current truck parking system/inventory without adding physical truck parking capacity.
- Existing undesignated truck parking sites provide potential increased capacity, but do not represent an ideal solution for expanding truck parking capacity.
- Collaboration and partnership among public sector agencies and with the private sector is essential.
- Current public investment is inadequate to successfully address the problem.

- Addressing truck travel demand could have some benefit relative to parking need; this might be addressed through intermodal elements such as rail or waterborne.
- The public and private benefits of truck parking should be quantified to better inform decision makers and the public—as well as to help shape funding strategies.
- When assessing the potential for specific facilities it is important to identify the particular market each facility will serve.

The group discussed incorporating these and other themes in a draft action plan. It was felt that NJTPA could be a resource for helping to monitor future actions and overall coordination. However it was also recognized that all partners must take the responsibility for actions within their jurisdictions to insure that truck parking issues are addressed in a coordinated and comprehensive manner.

Action Plan

Below is the recommended regional action plan that provides steps that NJTPA and its partners at local, state and regional agencies can take to address truck parking issues region-wide.

Outreach

Action: Educate the public on the need for and benefits of truck parking facilities.

- Define safety implications of the lack of truck parking facilities and the economic benefits of existing, new, and/or expanded truck parking facilities and features related to community compatible operation.

Expanding Capacity

Action: Evaluate potential alternatives for increasing truck parking capacity utilizing existing infrastructure.

- Explore the feasibility of shared parking solutions during off-peak hours at facilities such as shopping centers, park and rides, and other underutilized locations.
- Evaluate opportunities to develop truck parking at warehouses and distribution centers.
- Explore how extending hours at warehouses can impact truck parking demand and its related feasibility.

Action: Evaluate potential for increasing regional truck parking capacity.

- Identify land holdings that could be used for new truck parking facilities or simply to provide additional parking spaces.

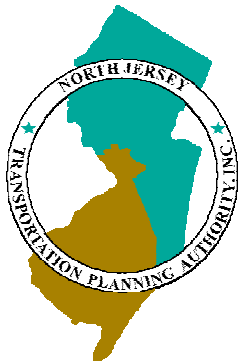
- Consider establishing staging lots within the port area and other underutilized locations during overnight periods for truck parking.

Funding

Action: Pursue policy initiatives at the federal level that promote truck parking development and innovative public private approaches.

Action: Encourage funding priority for projects that indirectly support truck parking and reduce the demand for truck parking by improving the flow of goods.

Action: Develop an inventory of existing funding sources to facilitate development of truck parking facilities.



North Jersey Transportation Planning Authority



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