New York Metropolitan Transportation Council

Multi-State Truck Stop Inventory & Assessment Study

Tri-State Regional Summary of Truck Stop & Rest Area Activities

Final Report - January 2009

NYMTC
NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

Acknowledgements

Project Manager: Howie Mann
Director of Planning: Gerry Bogacz
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"Multi-State Truck Stop Inventory and Assessment Study" New York Metropolitan Transportation Council (NYMTC)

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About NYMTC:
The New York Metropolitan Transportation Council (NYMTC) is a council of governments that is a collaborative forum for regional transportation planning. The NYMTC region includes New York City, Long Island and the lower Hudson Valley.

The New York Metropolitan Transportation Council (NYMTC) region encompasses an area of 2,440 square miles and a population of about 12 million, which in 2007 was approximately 64 percent of New York State's population.

Voting Members:
- Counties of Nassau, Putnam, Rockland, Suffolk and Westchester
- Metropolitan Transportation Authority (MTA)
- New York City Department of City Planning (NYCDCP)
- New York City Department of Transportation (NYCDOT)
- New York State Department of Transportation (NYSDOT)

Advisory Members:
- Federal Highway Administration (FHWA)
- Federal Transit Administration (FTA)
- New Jersey Transit (NJT)
- New York State Department of Environmental Conservation (NYSDEC)
- North Jersey Transportation Planning Authority (NJTPA)
- Port Authority of New York & New Jersey (PANY&NJ)
- United States Environmental Protection Agency (USEPA)

Freight transportation is at the forefront of issues that confront NYMTC as a region and as a metropolitan planning organization. Trucks move most of the freight in this region and their drivers must adhere to federal regulations governing how long they drive. This project was undertaken to address, on a tri-state scale, the adequacy of truck rest stop facilities in the tri-state region.

NYMTC, working closely with neighboring agencies, and with relevant stakeholders, has taken stock of the available facilities and has performed an analysis looking at how much parking is available to truckers and the effect on truckers of where the facilities are located. The NYMTC Regional Freight Plan project of 2004 identified the adequacy of truck rest stops as an important issue because it is related to safety, economic vitality and freight efficiency. While taking into consideration concerns raised about the impacts of truck traffic on communities, this work will be used in future planning to delve more deeply into improving the transportation system for everyone.

Joel P. Ettinger
Executive Director, NYMTC

Multi-State Truck Stop Study

A Regional Summary of Truck Stop & Rest Area Activities

final report

prepared by

New York Metropolitan Transportation Council (NYMTC)

January 15, 2009

www.nymtc.org

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1.0 A Regional Problem Requires Regional Solutions

Shippers in the New York metropolitan area compete for space in a densely developed environment, with high passenger and freight demands on the transportation network. Far from being confined within the regional transportation network, freight needs exist alongside demands for roadways, parking, and real estate. A long history of development along the area's highways leaves few undeveloped parcels between the industrial, commercial, and residential uses.

Roadside facilities for truck freight are important nodes in the shipping network because of the great physical and mental demands faced by drivers of long-haul trucks. In addition to the importance of timely delivery of goods, the increasingly congested roadways increase the safety concerns for all drivers. To ensure safety on highways, the United States Department of Transportation regulates the number of hours a driver may work per day. Further constraining truckers' working hours are the business hours at Ports, warehouses and other businesses located in the region, which often occur during the normal business day (8 a.m. to 5 p.m.). Finally, drivers avoid entering the region during morning and afternoon rush hours, hoping to minimize costs.

Rest stops offer short term (less than four hours) and long term parking, along with general and truck-related amenities including filling stations, showers, and electrification and HVAC ports to reduce idling needs. Even informal parking lots can offer drivers personal safety and distance from high noise levels. Many of the rest stops are shared with passenger vehicles with short-term parking needs.

The constraints on land and working hours, however, strain the region's rest stops. One survey showed that four out of five rest stops were full at any given time (NJTPA). Heightened security against terrorist activity also lead to the closing of some informal rest stops. These constraints force drivers to stop on road shoulders, creating formidable hazards to other drivers and leaving truck drivers exposed and without amenities. Roadside parking also invades nearby neighborhoods, where idling engines can create nuisances for local residents.

While truck parking is insufficient now, there will be an even greater shortage in the future. With estimated increases of up to two-and-a-half times the current roadway freight movement by 2030, and over one million additional residents, the New York metropolitan region can anticipate an increase in the number of crashes involving commercial vehicles, a reduction in the region's economic competitiveness, and a loss in quality of life.

NYMTC's Regional Truck Parking Initiative lays out a plan for the expansion of truck stops in five key ways.

- One is to increase the number of parking spaces available in newly acquired land near the region's main shipping routes. A survey of drivers indicated that nearly all would travel up to five miles for long-term parking amenities. Still, many parking facilities have available land adjoining the property.
- Second, facility design may yield additional parking areas crucial during peak hours of long-term parking. Spaces may be found at existing truck rest stops by assessing need for competing uses. Parking areas may also be available at shipping origin and destination points such as industrial parks, warehouses, and distribution centers.
- Third, non-freight related parking facilities may be appropriate to include in the region's truck parking plan. Examples include parking areas for office parks, park-and-rides, and shopping malls.
- Fourth, efficient access to truck parking can be enhanced by incorporation of information technology services (ITS). ITS can include various Internet-based resources, global positioning systems (GPS) or other communications tools such as radio, television or phones. These tools can provide drivers with real-time information on available parking spaces at the region's truck rest stops.
- Finally, policy issues at all levels are examined to identify opportunities to increase parking options for trucks. Policies on land use, labor and noise all affect the freight transportation industry, as does public experience of trucks on regional and local roads. This plan will address the ways to incorporate the needs attributed to these policies while expanding opportunities to accommodate growth in freight uses.

1.1 ORIGINS OF THE TRI-STATE REGIONAL TRUCK PARKING INITIATIVE

With the recent promulgation of new FMCSA Hours-of-Service (HOS) Regulations for truck drivers, an expected increase of up to two-and-a-half times current roadway freight movements within the region, as well as rising parking and highway safety concerns; the adequacy and location of truck rest stops has come under increased scrutiny by regional planning agencies within New York, New Jersey and Connecticut. In response to these factors, the New York Metropolitan Transportation Council (NYMTC) and its neighboring metropolitan planning organizations (MPO's) and state agencies charged themselves with the task of evaluating the current condition of truck parking within the region and develop strategies to meet future demands.

In addition to regional concerns, the Federal Highway Administration (FHWA) has also recognized the importance of investigating the adequacy of commercial

truck parking facilities serving the National Highway System (NHS), and has been committed to providing guidance and coordination to state and regional transportation officials. In this role, FHWA was an instrumental supporter in the advancement of this study and an active participant in coordinating the efforts of the three agencies assessing the region's truck parking.

As part of this coordinated approach, NYMTC, in association with the North Jersey Transportation Planning Authority (NJTPA) and Connecticut Department of Transportation (ConnDOT), performed this study to provide the tri-state region with a comprehensive evaluation of existing truck stop services (formal and informal) and a determination of the need to provide either enhanced services of existing stops or the identification of potential regional improvements and action items.

1.2 ORGANIZATION OF THE REPORT

This document summarizes the truck parking studies conducted in the Tri-State region in recent years, summarizes the sentiments of stakeholders in the region, presents the recommendations of the NYMTC Truck Stop Study, and discusses additional truck parking studies that will conclude in the future and are relevant to NYMTC's efforts.

The section titled One Problem, Three Studies, Complementary Conclusions summarizes three truck stop studies that have been conducted in the Tri-State region in recent years. An examination of the objectives and methodology, conclusions and recommendations of studies conducted by the Connecticut Department of Transportation, the North Jersey Transportation Planning Authority, and the New York Metropolitan Transportation Council is provided.

Next, this document reviews findings that were generated in a roundtable discussion among stakeholders throughout the Tri-State region, hosted by NYMTC. The recommendations that were supplied by the stakeholders are then listed, grouped into five subject areas: locations for expansion or new facilities, outreach and education, opportunities to increase efficient use of current capacity, innovative technologies, and recommended policy positions to advocate or look out for when the next Federal transportation bill is drafted after the current bill expires in 2009.

The third section of this report identifies action items, in which NYMTC's members are encouraged to engage in order to advance the cause of improving truck parking conditions and highway safety. Finally, a brief discussion of planning efforts that are currently or soon-to-be underway in the region and in nearby regions is presented. These efforts may contribute additional voices or resources to NYMTC's effort, or may supply further cause to implement the recommendations included in this study.

2.0 One Problem, Three Studies, Complementary Conclusions

This section summarizes the respective studies performed by NJTPA, ConnDOT, and NYMTC. While each study was tailored to the needs of the respective MPO or state, each study confirmed that there is a severe shortage of truck parking in the region and insufficiently meets current and anticipated future demands.

2.1 CONNECTICUT STATEWIDE REST AREA AND SERVICE PLAZA STUDY

Connecticut Department of Transportation
2800 Berlin Turnpike,
Newington, CT 06131-7546
Project Website: http://www.ctrestareas.org/index.html

Objectives

The Connecticut DOT undertook the Statewide Rest Area and Service Plaza Study, which commenced in 2005 and was completed in 2008, as an effort to develop a statewide vision and concept layouts for traveler facilities throughout the state. The impetus for the study was the results of a 2001 truck parking study, which recognized a severe shortage of truck parking in Connecticut, leading to safety and operational issues of concern. In response to an FHWA mandate that states develop programs to address truck parking issues in light of changes to truck operator hours of service regulations, Connecticut DOT undertook this study with the objective of evaluating and identifying issues throughout the state's overall program of roadside traveler facilities.

Approach

The study involved an extensive data collection effort, accounting for traffic count data, parking counts and observations, and using the FHWA to project future truck parking demand at each existing truck parking facility in the state. The project team administered user surveys to determine who is using the travel facilities and how they are perceived by the users. Meetings and interviews were held with regional and municipal representatives in areas where existing facilities are located and again later in areas where expansions or new facilities were proposed. Focus groups were held with trucking industry representatives, tourism and economic development interests, and the general public to determine issues, needs, and preferences. Public meetings, a project website, and newsletter were developed to build up interest and contributing comments.

The study took shape with the development of a vision statement,

"To become a leader in the provision of services to travelers at our highway service plazas and rest areas by improving quality and image, enhancing tourist offerings, increasing safety, ensuring adequate coverage and capacity on all corridors, and providing improved and additional services and amenities which will benefit the state's economy and minimize community and environmental impacts."

The guiding principles developed to accompany this statement included the acknowledgment of truck parking as "the aspect that needs to take precedence" for the sake of improving safety.

The study identified issues and needs, examined the best practices of neighboring states and benchmarks set across the country, and recommended strategies for meeting the goals of the study.

Conclusions

The 2001 Truck Stop Study found that there was a statewide nightly deficit of 1,200 truck parking spaces. By the time the 2007 study was underway, the estimated deficit grew to 1,330 truck parking spaces every night. The 2008 study concluded that by 2025, the shortfall is estimated to reach 1,750 truck parking spaces per night.

The study found that existing rest and service facilities are outdated and undersized. There are long stretches or "gaps" between rest and service facilities along many of the state's major travel corridors. The gaps also extend into neighboring states, due to absent coordination between states when planning the locations of rest facilities. Safety is a major concern, with regard to potential criminal activity and danger resulting from "chaotic" truck parking and substandard circulation patterns. Many trucks were observed parking along highway and ramp shoulders and between fuel pumps at service plazas, for example.

Recommendations

The 2008 study developed a number of recommendations for expanding and improving rest areas and service plazas for trucks and the traveling public. The study's general recommendations include:

- Expand and upgrade existing facilities;
- Improve "welcome center" element;
- Build over-the-highway service plaza facilities;
- Develop several truck-only facilities;
- Add new rest area locations;
- Use environmentally responsible design; and
- Improve amenities.

Recommendations specific to truck rest and service facilities include:

- Develop dedicated truck parking facilities at several new sites throughout the state, roughly matching locations with the greatest shortfall of truck parking.
- Adopt the Federal oasis signage program, which allows the placement of signs on interstate highways advising of private truck and auto facilities which meet certain criteria.
- Develop facilities with truck parking amenities consistent with fleet needs in the future. WiFi Internet access, power access, and other technologies should be considered.
- Separate truck parking from auto and tourism functions.
- Assist in the development of privately owned truck parking facilities through various access and development rights programs.
- Examine the impacts of the gross receipts tax on fuel and its impact on financial performance of private truck plazas.
- Optimize the number of truck parking spaces provided at existing service plazas and rest areas.
- Advocate for change in Federal regulation which limits the ability to provide facilities for long haul truckers within interstate rights-of-way.
- Encourage neighboring states to collaborate on a regional solution to the truck parking issue. Spacing of facilities is not uniform and in some cases appropriate to serve regional needs.

Implementation

ConnDOT recently posted A Request for Proposal (RFP) on the Department of Administrative Services (DAS) website to obtain a new operator of the 23 service plaza facilities. The new operator will also be expected to perform significant physical improvements to the facilities. Proposals for the operation of Connecticut's service plazas were due December 22, 2008.

2.2 NORTH JERSEY TRUCK REST STOP STUDY

North Jersey Transportation Planning Authority
One Newark Center, 17th floor
Newark, NJ 07102
Project Website: http://www.njrest.org/

Objectives

The NJTPA study was completed in March 2008. The study commenced in response to the Federal Motor Carrier Safety Administration (FMCSA) hours of service regulations for commercial vehicle operators in 2005. The mandatory rest

period required by regulations, grouped with the general growth of truck traffic, as well as increased truck parking and staging activity related to the region's ports, rail terminals, and warehousing/distribution centers, resulted in a growing truck parking problem in Northern New Jersey. Truck parking facilities were observed exceeding capacity. Trucks were observed parked on highway and ramp shoulders and off-highway locations on public streets. Truck driver fatigue, hazards presented by trucks parked in shoulders, and the safety risk presented when the trucks contain flammable or hazardous materials have presented a cause for concern that resulted in this study.

The objectives of the NJTPA study were, simply put, to:

1. Document and quantify the problem;
2. Develop a series of proposed solutions, including specific recommendations for additional parking at four locations, including potential new facilities and/or expansion of existing facilities; and
3. Incorporate recommendations for reducing environmental impacts related to truck parking, including considerations for alternative fuels and idle reduction technologies.

Approach

The NJTPA study applied a modified version of the nationally accepted methodology, outlined in a report by the Federal Highway Administration (FHWA), titled, Study of Adequacy of Commercial Truck Parking Demand (FHWA-RD-01-158, March 2002).

The modified methodology used to estimate truck parking demand was based on a number of factors, including:

- Truck volumes;
- Average travel speeds;
- Short-haul/long-haul trip relationship;
- Average short-term parking (fraction of hour);
- Long-haul driving interval (based on hours of service);
- Estimated loading/unloading time; and
- Seasonal/daily peaking factors.

The focus of the study was on wayside parking areas, designated rest areas, toll road service plazas, other truck facilities such as weigh stations, and off-highway travel centers. Data collection effort at these facilities focused on the collection of:

- 24-hour profiles of truck parking activity at eight sample facilities on various corridors in the region;

- Documentation of peak overnight parking activity at all facilities in the NJTPA region and in neighboring jurisdictions (Rockland County, NY and eastern Pennsylvania); and
- Documentation of parking activity along limited-access highway shoulders during peak overnight hours and along public streets in port terminal and warehouse areas during late evening and pre-dawn periods.

Conclusions

The study found that approximately 80 percent of the trucks that park in various facilities during the course of a 24-hour day are parked for less than one full hour. Only 9 percent of trucks are parked for more than four hours on average. However, during the overnight hours (8:00 p.m. until 4:00 a.m.), 15 percent of trucks parked for more than 4 hours. Drivers who park for the short-term constitute a majority of the truck traffic; however long-term parked trucks utilize most of the parking capacity.

Of the 34 facilities located in the region, 82 percent were observed over capacity. Currently, about 1,400 truck parking spaces exist at various types of facilities in the NJTPA region. There is currently a demand for approximately 1,300 additional truck parking spaces.

Nearly 200 trucks were observed parked along highway shoulders during a weekday overnight period. An additional 90 trucks were observed parked along public streets in key port/rail terminal and warehousing/distribution areas. About 75 percent of parked trucks observed during the data collection process were idling. A 10 percent increase in truck parking demand could result in a doubling of illegal truck parking activity on highway shoulders.

Recommendations

The study recommendations were as follows:

Policy/institutional recommendations:

- Consider truck parking to be a requirement of regional logistics, and therefore a necessary land use;
- Advance favorable Federal legislation that promotes innovation and public-private partnerships;
- Pursue alternative fuels, energy, and environmental opportunities; and
- Advance complementary land use approaches.

Planning and finance recommendations:

- Provide incentives for private sector development of truck parking;
- Incorporate truck parking as a future design parameter for facility improvement planning and design; and

- Integrate truck parking as an element of port and intermodal facility development and growth planning.

Partnering recommendations:

- Promote public-private partnerships; and
- Collaborate on a broader scale with neighboring DOTs, MPO regions, and local planning officials.

New/Expanded Sites for Additional Parking Capacity:

Truck parking should be supplied or expanded at two specific sites in Northern New Jersey, including the New Jersey Turnpikes' Vince Lombardi Service area and a parcel adjacent to the Molly Pitcher Service area. Additionally, NJTPA recommended the I-78/I-95 Port Area and areas along the New York State Thruway should be considered for further investigation and analysis in regards to truck parking.

Implementation

The study also recommended an implementation strategy, advising that NJTPA coordinate with lead agencies and support ongoing development of truck parking facilities.

2.3 NYMTC Multi-State Truck Stop Inventory and Assessment

New York Metropolitan Transportation Council
199 Water Street, 22nd Floor
New York, NY 10038
Project Website:
http://www.nymtc.org/project/freight_planning/freight_truckstops.html

Objectives

The primary purpose of the NYMTC Multi-State Truck Stop Inventory and Assessment was to provide the tri-state region with a comprehensive evaluation of existing truck stop services (formal and informal) and a determination of the need to provide either enhanced services of existing stops or the identification of potential regional improvements. Secondary objectives included:

- Establish the existing condition, use, and need for truck stop facilities located within and surrounding the NYMTC region that support freight movement activities;
- Developing a comprehensive understanding of the utilization and availability of services at truck stops located within and surrounding the NYMTC region that support freight movement activities; and

- Determine the future need of truck stop facilities, as well as the demand along truck corridors located within and surrounding the NYMTC region.

Approach

The NYMTC Multi-State Truck Stop Inventory and Assessment included an extensive data collection effort, which commenced with an inventory of public and privately owned truck parking facilities throughout the NYMTC region and in neighboring jurisdictions. The amenities available at each facility and the number of truck, automobile and bus parking spaces were recorded. Parking utilization data was collected for each type of parking facility and was monitored during morning, midday, evening, and overnight periods. Known "informal" truck parking locations such as highway and ramp shoulders and parking lots were also monitored. A truck driver cordon survey was conducted on the outskirts of the tri-state region to get feedback from drivers about their trip origins and destinations, their perceptions and use of rest facilities in the region, and the times of day and locations they prefer to rest. The truck parking demand observed during the data collection effort, in combination with truck traffic forecasts were used to determine future truck parking demand on each major highway corridor in the tri-state region.

Conclusions

The study found that the Tri-State region's truck parking supply is insufficient to meet the demands that currently exist during peak overnight hours. Of 1,655 truck parking spaces monitored during this study, utilization exceeded 120 percent, on average, during peak overnight hours. A utilization rate near or over 100 percent means that there are more trucks parking in the region's truck parking facilities than there are designated spaces to accommodate them. Some facilities exceeded the 120 percent average, while some facilities did not exceed their capacity at all.

Generally, current excess capacity exists at off-highway private truck stops, while nearly all of the on-highway public rest areas are at or above capacity during overnight hours. Parking facilities nearest the urban core of the region are generally the most overcrowded, and are full or nearly full during most periods of the day. Overcrowded truck parking facilities result in drivers choosing unsafe alternatives such as parking in unsafe areas or configurations within parking facilities or along the highway shoulders and ramps. Many of the on-highway facilities contain parking spaces for automobiles and buses which are not fully utilized. There is the potential to make use of some of the excess automobile parking capacity to alleviate truck parking demands overnight, or to convert some automobile or bus spaces to truck parking permanently.

While truck parking supply is insufficient currently, there stands to be an even greater problem in the future. Coupled with estimated increases of sixty to seventy percent of the current level of roadway freight movement expected by 2030, the tri-state region can anticipate an increase in the number of incidents

and crashes involving commercial vehicles, a reduction in the region's economic competitiveness, and a loss in quality of life.[1] Table 1 demonstrates the anticipated growth in peak demand by 2030, and the anticipated utilization rates, assuming no new truck parking capacity is developed.

Table 2.1 Existing and 2030 No Build Truck Parking Capacity and Utilization by Freight Corridor

	2007			2030 No Build		
Regional Freight Corridor	**Truck Parking Capacity**	**Peak Utilization (%)**	**Peak Demand**	**Truck Parking Capacity**	**Peak Utilization (%)**	**Peak Demand**
I-87/NYS Thruway	225	159	384	225	331	801
I-95 (CT)	208	203*	147*	208	419*	282*
I-78	267	124	342	267	232	638
NJ Turnpike	432	116	517	432	214	955
I-80	273	98	277	273	184	517
I-84/I-684	315	88	285	315	184	598
I-495/LIE	36	154	57	36	323	120
Regional Total	**1,756**	**118**	**2,009**	**1,756**	**236**	**3,911**

One of the first steps to resolving the challenge of meeting demand for truck stop/rest facilities is acknowledging that a problem exists. Through the efforts of this study and studies conducted by NJTPA and ConnDOT, the issues of truck stops and the lack of capacity currently available are creating discussion between critical stakeholders across jurisdictional boundaries. As sponsor agencies of truck parking studies in their own jurisdictions, NJTPA and ConnDOT will be important partners. Together with NYMTC, these agencies have recognized the extent to which the problem exists regionally, and will begin to advance potential solutions that address issues on highway corridors that span multiple states.

[1] Cross Harbor Freight Movement Project, 2004. http://www.crossharborstudy.com/index.htm

* Peak utilization and demand values along the I-95 corridor in Connecticut are based upon observations made at rest stop facilities conducted within the NYMTC Multi-State Truck Stop Inventory and Assessment. Capacity values are inclusive of study observations and subsequent data provided by ConnDOT.

Recommendations

The NYMTC study recommends that agencies in the Tri-State region work to expand truck parking capacity, particularly near areas of truck drivers' desired routes and destinations. The study recommends the use of real-time information systems to guide drivers to available parking. It is also recommended that planning agencies in the region act as advocates for truck parking, communicating the nature of the problem at hand and the aims of improvement plans to local governments, the public, and other agencies that will be involved in the developing and promoting solutions that address the movement of freight.

3.0 Recommendations from Stakeholder Roundtable

On September 10, 2008, NYMTC hosted stakeholders from planning agencies in New York, New Jersey and Connecticut, as well as industry representatives from throughout the region for a roundtable discussion on the truck parking issue. The attendees identified issues in their jurisdictions and throughout the metropolitan region, recommended strategies that NYMTC could advance in order to address the issues, and discussed ways that local, state, regional, and Federal government agencies can cooperate to provide adequate parking, manage demand, and improve safety and welfare.

- Recommendations that apply to entire region – collaborative approach, between public and private sectors, to examining and rectifying the region's truck parking issues; and
- Coordination with neighboring MPOs, state DOTs and other agencies – I-95 Corridor Coalition, PennDOT, DVRPC.

All three of the studies recommended coordination with authorities in neighboring jurisdictions. Issues and potential solutions are likely to be impacted by actions taken in areas outside one's own jurisdiction, particularly for long-haul driver issues.

- Eye toward reauthorization of the Federal transportation bill, scheduled for 2009;
- Traveler information technology applications; and
- Promote opportunities for public-private partnerships (PPP) for funding of additional capacity, operational improvements, education about freight benefits.

The recommendations were grouped into five subject areas. Each subject area consists of an action that NYMTC should engage in to advance the cause, followed by bullets of specific strategies or concepts that could be employed.

1. Locations for expansion or new facilities

- Expand truck parking in areas that have demonstrated need in previous studies, such as the NJTPA Rest Stop Study and the ConnDOT Statewide Rest Area and Service Plaza Study;
- Seek opportunities to develop truck parking and staging at warehouse and distribution centers;

- Incorporate truck parking requirements in large, multi-facility warehouse districts;
- Seek opportunities to use land under existing highways or over highways, or possibly using highway "air rights" to develop truck parking elsewhere;
- Seek opportunities for shared parking, such as parking for truck use on weekdays and other users on weekends or some other workable arrangement;
- Seek opportunities to develop parking in brownfield properties (40+ acres);
- Develop quiet facilities with electrification and HVAC ports;
- Issue parking permits or a fee for long and short term parking; and
- Coordinate with neighboring regions to ensure that parking supply gaps do not exist near regional boundaries.

2. Outreach and education

- Coordinate with partner agencies to establish a unified agenda and a way to move forward.
- Inform community groups on the role of trucks in distribution
- Prepare zoning code guidance for municipalities. Examples to allow for operations and typical needs. Distribute as part of outreach for consideration.
- Offer an opportunity for community leaders to visit a first class state of the art truck stop.
- Teach drivers how to be good neighbors to the communities in which they are parking and visiting.
- Create an educational pamphlet for municipalities with little to no professional staff.
- Educate communities that truck stops usually mean more jobs than the average warehouse.
- Show that freight is not a dirty, noisy industry. Use outreach methods such as leased access television, a documentary, or a call-in television or radio show.
- Show the benefits of moving freight to the off peak by lifting local ordinances that restrict business activity during certain times of the day or night.
- Education plans need to meet with local legislation to change "no truck" efforts to "no idle" efforts.

3. Opportunities to increase efficient use of current capacity

- Create opportunities for the state and private companies to develop a partnership and develop truck stops on state-owned land.
- Advocate for the allowance of night time deliveries to reduce peak parking demand.
- Allow use of commuter parking lots for trucks during late night and weekend periods.
- Develop truck parking in underutilized commuter parking lots, using a physical barrier to separate automobiles from trucks.
- Arrange parking facilities so that short-term and long-term (overnight) trucks are separated, allowing short-term trucks an opportunity to enter and exit the facility quickly. This will likely persuade short-term drivers who currently park in highway shoulders for the sake of avoiding entrance and exit delays at formal parking facilities, to use formal parking facilities instead.
- Sell permits for long and short term parking to fund facilities.

4. Innovative technologies

- Disallow truck idling and require the use of Truck Stop Electrification (TSE) technologies;
- Provide real-time information to drivers on locations, off-highway, or miles ahead where parking is available, using variable message signs and satellite radio;
- Coordinate with information sources such as satellite radio or traffic websites;
- Advocate for the development of real-time truck parking information in GPS navigation systems;
- Enhanced design standards for truck stops;
- Encourage carriers to improve tracking of loads and coordinate with traffic monitoring centers to optimize dispatching;
- ITS based solutions will require large parking facilities in order to generate the proper economies of scale; and
- Advanced reservation systems that enable drivers to schedule rest periods and reserve space at truck stop facilities.

5. Federal transportation bill

- Advocate for incentive programs to induce public-private partnerships for developing truck stops;
- Consider developing parking in interstate highway medians;
- Provide tax incentives for development of additional capacity;

- Make truck stops a part of the FHWA's hours of service issue and request Federal funding to build parking facilities;
- Address problems with municipal land use control and regional truck parking needs;
- Encourage corridor planning across jurisdictions to identify appropriate locations for sites, such as efforts undertaken by the I-95 Corridor Coalition and other Corridors of the Future; and
- Coordinate all MPO's throughout the country to advocate on behalf of this issue and other issues during reauthorization.

4.0 Moving Forward:

4.1 ACTION ITEMS FOR THE TRI-STATE REGION

1. Locations for expansion or new facilities
Action: Work with planners and industry representatives to find suitable opportunities to expand parking capacity.

2. Outreach and education
Action: Collaborate with neighboring MPOs to create an outreach and education program to inform community governments and residents of the value of freight transportation, the need for safe truck parking, and potential benefits of parking facilities to their quality of life.

3. Opportunities to increase efficient use of current capacity
Action: Work with governments and truck stop industry to seek opportunities to devote a greater portion of underutilized parking that are currently designated for other uses to truck parking, and adopt alternative parking arrangements to better manage truck parking supply and demand.

4. Innovative technologies
Action: Advocate for the advancement of information technologies to inform drivers of parking availability when and where they need it, explore technology systems to allow truck drivers to reserve parking in advance, and use technologies to efficiently use the parking capacity at parking facilities, and encourage the use of these technologies at existing and planned facilities in the region.

5. Federal transportation bill
Action: Advocate for provisions in the next Federal transportation bill to resolve truck parking issues through capacity expansion, the use of advanced technologies, and strategic coordination between planning agencies and jurisdictions.

6. Safety
Action: Consider safety to be paramount in the advocacy for expanding and improving truck parking capacity, in the design of new truck parking facilities, in education and outreach.

7. Public Private Partnerships
Action: Identify and pursue opportunities to partner with private finance, development, and/or truck services partners in order to share the burden of capital and operating costs associated with existing and future truck parking facilities in the region.

4.2 PLANNING EFFORTS CURRENTLY UNDERWAY IN AND AROUND THE REGION

I-95 Corridor Coalition

The I-95 Corridor Coalition received a grant in excess of $5 million from the U.S. Department of Transportation in 2008 to develop and implement innovative solutions to truck parking problems in the corridor region. The I-95 Corridor Coalition was one of two organizations selected to receive such a grant. The Coalition submitted a proposal for the grant which included innovative intelligent transportation systems technologies, which provide truckers with information on truck parking availability in real-time. In addition, the Coalition is working with DOTs and MPOs in its member states to help them plan and coordinate their efforts to expand truck parking capacity and develop a regional vision for expanding and managing truck parking capacity.

Delaware Valley Regional Planning Commission

The Delaware Valley Regional Planning Commission (DVRPC), the metropolitan planning organization (MPO) for the Philadelphia region of Pennsylvania and New Jersey, is currently undertaking a truck parking study in its region. The study has recently begun, and its findings will be of interest to planners in neighboring MPO regions, including the NYMTC region.

Pennsylvania Department of Transportation

The Pennsylvania Department of Transportation (PennDOT) has recently released a request for proposals (RFP) for a statewide study of opportunities for truck parking capacity expansion. This study will have a focus on identifying and exploiting opportunities to establish public-private partnerships and other mechanisms to finance land acquisition and truck parking capacity expansion.

New York State Department of Transportation

The New York State Department of Transportation (NYSDOT) is currently undertaking a study whose objectives are to assess the routing of trucks, service sheds, and facility needs as specified by truck drivers intercepted in rest areas. The survey questionnaire is based on the Canadian National Roadway Survey (NRS), a truck intercept survey. The survey was done in two waves of 15 sites each. Samples were taken at 10 sites each from the NYS Thruway Travel Plazas, State rest areas, and private truck stops. The study area covers upstate NY, north of the Westchester/Bronx County boundary. Data collection is expected to be complete at the end of the 4th Quarter of 2008 with the analysis complete by the spring of 2009.

Technical Memoranda

Technical Memorandum 1:
Task 1 – Summary of Public Involvement Activities

This memo presents a summary of the outreach efforts that has been performed for the NYMTC's Multi-State Truck Rest Stop Inventory and Assessment Study. These efforts include the formation of a Technical Advisory Committee (TAC) and a Stakeholder Group, as well as presentations were made to Program, Finance and Administration Committee (PFAC's) Freight Sub-committee at their regularly scheduled quarterly meetings . A Regional Roundtable was also conducted.

1. Public Involvement Activities

The following is a list of groups and agencies that were solicited to participate in the Stakeholder Group and TAC.

- Elected Officials
- City, State and Federal Agencies & Departments
- NYMTC Region Governments
- Tri-State Area Agencies & Departments
- Metropolitan Planning Organizations
- Transportation and Trucking Coalitions and Associations
- Labor Organizations
- United States and Canadian Trucking Companies
- Industrial Development Corporations & Business Organizations:
    - New York Container Terminal (Howland Hook, S.I.)
    - American Stevedoring Inc (Red Hook, Brooklyn)

At each of the meetings conducted, the purpose, goals and objectives, and scope of work of the study were reviewed. The ongoing coordination between NYMTC, NJTPA and ConnDOT were described. The purpose of the existing facilities inventory and truck origin-destination survey was discussed, as well as major findings that emerged from the analysis completed to date. A brief summary of the public outreach efforts was provided, followed by the next steps in the study process.

Following is a list of meetings that were held to date:

Truck Rest Stop Study Technical Advisory Committee Meetings:

- October 31, 2006
- November 30, 2006

Stakeholder Group Meeting

- June 18, 2007

Freight Transportation Working Group Meetings

- June 4, 2007
- February 28, 2008
- June 4, 2008
- July 31, 2008

Regional Roundtable

On September 10, 2008, NYMTC hosted stakeholders from planning agencies in New York, New Jersey and Connecticut, as well as industry representatives from throughout the region for a roundtable discussion on the truck parking issue. Various agencies, organizations, and companies, both public and private, involved with truck parking were invited.

The purpose of the event was to present the project's background and purpose, and establish a collective understanding and agreement upon the problems and issues regarding truck parking for the region. Attendees were asked to participate in group exercises that identified issues within their jurisdictions and throughout the metropolitan region, recommended strategies that NYMTC could advance in order to address the issues, and discussed ways that local, state, regional and federal government agencies can cooperate to provide adequate parking, manage demand, and improve safety and welfare.

The following outlines the feedback information provided by roundtable participants.

1. Locations for Expansion or New Facilities:

- Expand truck parking in areas that have demonstrated need in previous studies.

- Seek opportunities to develop truck parking and staging at warehouse and distribution centers.

- Incorporate truck parking requirements in large, multi-facility warehouse districts.

- Seek opportunities to use land under existing highways or over highways, or possibly using highway "air rights" to develop truck parking elsewhere.

- Seek opportunities for shared parking, such as parking for truck use on weekdays and other users on weekends or some other workable arrangement.

- Seek opportunities to develop parking in Brownfield properties (40+ Acres)

- Develop quiet facilities with electrification and HVAC ports.

- Issue parking permits or a fee for long and short term parking.

- Coordinate with neighboring regions to ensure that parking supply gaps do not exist near regional boundaries.

2. Outreach and Education

- Coordinate with partner agencies to establish a unified agenda and a way to move forward.

- Inform community groups on the role of trucks in distribution

- Prepare zoning code guidance for municipalities. Examples to allow for operations and typical needs. Distribute as part of outreach for consideration.

- Offer an opportunity for community leaders to visit a first class state of the art truck stop.

- Teach drivers how to be good neighbors to the communities in which they are parking and visiting.

- Create an educational pamphlet for municipalities with little to no professional staff.

- Educate communities that truck stops usually mean more jobs than the average warehouse.

- Show that freight is not a dirty, noisy industry. Use outreach methods such as leased access television, a documentary, or a call-in television or radio show.

- Show the benefits of moving freight to the off peak by lifting local ordinances that restrict business activity during certain times of the day or night.

- Education plans need to meet with local legislation to change "no truck" efforts to "no idle" efforts.

3. Opportunities to Increase Efficient Use of Current Capacity

- Create opportunities for the state and private companies to develop a partnership and develop truck stops on state-owned land.
- Advocate for the allowance of night time deliveries to reduce peak parking demand.
- Allow use of commuter parking lots for trucks during late night and weekend periods.
- Develop truck parking in underutilized commuter parking lots, using a physical barrier to separate automobiles from trucks.
- Arrange parking facilities so that short-term and long-term (overnight) trucks are separated, allowing short-term trucks an opportunity to enter and exit the facility quickly. This will likely persuade short-term drivers who currently park in highway shoulders for the sake of avoiding entrance and exit delays at formal parking facilities, to use formal parking facilities instead.
- Sell permits for long and short term parking to fund facilities.

4. Innovative Technologies

- Disallow truck idling and require the use of Truck Stop Electrification (TSE) technologies.
- Provide real-time information to drivers on locations, off-highway or miles ahead where parking is available, using variable message signs and satellite radio.
- Coordinate with information sources such as satellite radio or traffic websites.
- Advocate for the development of real-time truck parking information in GPS navigation systems.
- Enhanced design standards for truck stops.
- Encourage carriers to improve tracking of loads and coordinate with traffic monitoring centers to optimize dispatching.
- ITS based solutions will require large parking facilities in order to generate the proper economies of scale.
- Advanced reservation systems that enable drivers to schedule rest periods and reserve space at truck stop facilities.

5. Federal Transportation Bill

- Advocate for incentive programs to induce public-private partnerships for developing truck stops.

- Consider developing parking in interstate highway medians.

- Provide tax incentives for development of additional capacity.

- Make truck stops a part of the FHWA's hours of service issue and request federal funding to build parking facilities.

- Address problems with municipal land use control and regional truck parking needs.

- Encourage corridor planning across jurisdictions to identify appropriate locations for sites, such as efforts undertaken by the I-95 Corridor Coalition and other Corridors of the Future.

- Coordinate all MPO's throughout the country to advocate on behalf of this issue and other issues during reauthorization.

Technical Memorandum 2:
Task 2 – Truck Stop Facility Inventory

The purpose of this memorandum is to document the data collection methodology and findings from the inventory of official and informal truck stop facilities within the tri-state region. Primary objectives of this task include offering researchers an understanding of the existing condition and level of amenities available to commercial drivers, as well as establish the current use of official and informal facilities during a typical day of operation. Within the context of the project, information cataloged during Task 2, in conjunction with other datasets collected in other tasks, will be applied to future modeling and GIS applications. Outputs from applications performed in future tasks will then be used by NYMTC and other decision-makers to establish the current and future no-action conditions, identify potential gaps and opportunities, and develop policies and recommendations to manage and resolve anticipated conditions.

1. Data Collection Methodology

Data collection and inventory of truck stop facilities throughout the region occurred through two separate efforts. The first effort was designed to understand the current state and activity of official truck stop/rest facilities. This effort was conducted through site visits, where surveyors logged facility information such as amenities, parking capacity, and utilization. The second effort focused on identifying and observing truck activities at informal truck stop facilities. This effort was conducted through a "windshield" survey, and provided the study team with a qualitative understanding of informal truck stop activity at identified problem areas.

1a. Official Truck Stop Facilities: The NYMTC regional inventory of official truck stop facilities is comprised of 36 official truck stop facilities located throughout the tri-state region. For the purposes of this study an official truck stop facility is one that is The inventory is comprised of locational information, amenity information, "marked" capacity data for automobile, bus, and truck, as well as weekday AM, midday, PM, and overnight parking counts and utilization rates. Inventory data were collected from January through October 2007, and has been normalized through seasonal factoring. Additionally, each observed facility was photographed, and plan-view sketches (identifying buildings, roadways, signage, etc.) were created for a number of key facilities. Figure 1 and 2 provide sample data collection forms used in the conduct of this task.

Figure 1: Sample Official Truck Stop Facility Data Collection Form – Amenity Information

AMERICAN TRAFFIC INFORMATION, INC.

Truck Stop Inventories

Facility Number :	**# 22**
Facility Name :	**NJ Turnpike Alexander Hamilton Service Area**
State Code :	# 34
County :	**Hudson**
Municipality :	**Secaucus**
Facility Type :	**# 3**
Regional Corridor :	**I-95/US-1&9**
Roadway Type :	**# 1**
Route Number :	**95**
Direction Code :	**#3**
Milepost :	**111.6**
Node Designation :	**34199531116**
Access Type :	**#1**
Longitude	**N 40* 46' 10. 47**
Latitude	**W 74* 03' 55. 30**

Rest Rooms	Info Center	Gasoline	Diesel	Public Showers		Public Phone
				Men	Women	
Yes	Yes	Sunoco	Sunoco	N/A	N/A	Yes

Alternative Fuels Available	Convenience Store	Fast Food Restaurant	Sit-Down Restaurant	On-Site Hotel/Motel	Converence Room	Nearby Hotel/Motel
N/A	A-Plus	Roy Rogers	N/A	N/A	N/A	N/A

Certified Scales	Hard-Wire Internet	Wi-Fi Hotspot	Truck Wash	ATM	Western Union	Money Orders
N/A	Yes	N/A	N/A	Yes	N/A	N/A

NATSO Check-Link	Other Retailer (A)	Other Retailer (B)	Other Retailer (C)	Games Room	Vending Machines	On-Site Laundry
N/A	Carvel	N/A	N/A	N/A	Yes	N/A

Parking Spaces (marked) Auto	Parking Spaces (marked) Truck	Estimated Total Auto Capacity	Estimated Total Truck Capacity	Other Retailer (D)	Truck Tire Sales	On-Site Truck Repairs
141	26	141	28	N/A	N/A	N/A

Figure 2: Sample Official Truck Stop Facility Data Collection Form – Utilization Information

AMERICAN TRAFFIC INFORMATION, INC.

Parking Utilization

Location: NJ Turnpike Alexander Hamilton Service Area

Parking Capacity					
Parking Spaces (marked) Auto	Parking Spaces (marked) Truck	Parking Spaces (marked) Bus	Estimated Total Auto Capacity	Estimated Total Truck Capacity	Estimated Total Bus Capacity
141	26	0*	141	28	3

				Utilization Percentages		
				Parked/ Estimated	Parked/ Estimated	Parked/ Estimated
Thursday 4/17/2007	Parking Counts			47	Trucks	Buses
	Auto	Truck	Bus			
AM	20	12	0	14.2%	42.9%	0.0%
Noon	51	24	2	36.2%	85.7%	66.7%
PM	42	29	2	29.8%	103.6%	66.7%
Midnight	11	51	2	7.8%	182.1%	66.7%

Including Trucks that are parked on and before the ramp to service Area also some Trucks are parked In the "no parking zone"

*** Bus Unloading Zone**

Facilities were selected for examination based upon:

- Inclusion within NJTPA's *North Jersey Truck Rest Stop Study* and/or ConnDOT's *Statewide Rest Area and Service Plaza Study*;
- Placement and proximity to approach corridors with significant truck movements and/or flows neighboring the NYMTC region;
- Placement and proximity to corridors with significant truck movements and/or flows located within the NYMTC region; and
- Identification by NYMTC and consultant staff.

Table 1 presents the locations that where inventoried during this effort.

Table 1: Inventoried Official Truck Rest Stop Facilities

Facility ID[1]	***On I-80/I-78***
2	Bethlehem (I-78 WB) Parking Area
2	Bethlehem (I-78 EB) Parking Area
6	Johnny's Truck Stop
7	Pilot Travel Center #280
8	Travel Centers of America #48 SR-173 – Bloomsbury
12	I-80 WB, Mile Marker 32 – Roxbury Truck Parking Area
13	Travel Center of America #6
14	I-80 WB, Mile Marker 21 Parking Area (Trucks Permitted)
15	I-80 WB, Mile Marker 15 – Hardwick Parking Area
17	I-80 EB, Mile Marker 17 – Knowlton Rest Area and Welcome
34	I-287 NB, Mile Marker 32 – Harding Township Rest Area
36	I-80 WB, Mile Marker 21 Parking Area (No Trucks Permitted)
37	I-80 WB, Mile Marker 6 – Knowlton Rest Area
	On the New Jersey Turnpike
19	Tullo Truck Stop
21	NJ Turnpike Vince Lombardi Service Area
22	NJ Turnpike Alexander Hamilton Service Area
23	NJ Turnpike Grover Cleveland Service Area
25	NJ Turnpike Thomas Edison Service Area
	On I-87 / I-84
-	Paks Fast Services 198 State Highway – Mahwah
27	International Motor Plaza – Mahwah
29	Mahwah Travel Center (Travel Express)
31	NY Thruway Sloatsburg Service Area
30/32	NY Thruway Ramapo Service Area
40	East Fishkill (I-84 EB) Rest Area
43	I-84 WB, Mile Marker 43 – Wallkill Township Rest Area
44/45	I-84 EB, Mile Marker 3 – Wallkill Township Rest Area
47	Pilot Travel Center #394
48	Travel Center of America – Maybrook (I-84)
49	NY Thruway Ardsley Service Area
61	NY Thruway Plattekill Service Area
62	NY Thruway Modena Service Area
63	NY Thruway Ulster Service Center
	On I-95 (CT)
51	Mile Marker 12 – Darien (I-95 NB) Service Area
67	Secondi Brothers Travel Plaza
	On I-495 (LIE)
64	LIE (EB) Rest Area – Commack
65	LIE (WB) Rest Area – Commack

[1] Facility identification numbering mirrors the nomenclature established and utilized by NJTPA.

1b. Informal Truck Stop Facilities: Informal truck stop facilities are identified as any location (roadway ramps and shoulders, parking lots, vacant properties, etc.) that trucks have been observed or are known to congregate at with reasonable frequency. Generally, these locations are illegal and/or unsafe for truck parking and are frequented due to their proximity and easy accessibility to freight corridors.

NYMTC provided the study team a set of Google maps with informal truck stop location identified. These locations were determined based on input from:

- Freight Transportation Working Group;
- Stakeholder meeting on June 18, 2007;
- NYMTC Voting and Advisory Members; and
- public comments.

The study team then contacted those individuals who provided informal truck stop locations to determine the times of maximum truck usage. Additional key notes that generated from the Freight Transportation Working Group (FTWG), stakeholders, and consultants regarding illegal truck parking are as follows:

- Some trucks leave trailers on the roadside and return for them at another time;
- Many truckers are parked close to phone booths;
- Police in Rockland County do monitor the trucks frequently so in this location truckers are constantly stopping but not staying for a long duration;
- As a result of the lack of parking, truckers are parking illegally at existing public rest areas and along highway ramps and shoulders; and
- Overnight truck parking demand currently exceeds the number of truck parking spaces.

Location and time information was then verified with NYMTC staff and FTWG members prior to data collection. Table 2 lists the informal truck stops and suggested survey times.

Informal stop locations were surveyed through a drive-by count of trucks and, where possible noted the trucking companies using informal stops. The survey was conducted on Thursday, November 1, 2007 between the hours of 8 PM and 3 AM.

Two teams were sent out with two people in each car, one person to do the "drive by," and the other person to observe the number of trucks illegally parked, and if possible, the trucking company name. The two teams were divided into a Northern Route team (for New York, Bronx, Rockland, Orange, and Putnam Counties) and a Southern/Eastern Route team (for Queens, Nassau, Suffolk, Richmond, and Kings Counties).

Table 2: Identified Informal Truck Stop Locations

ID Number	Location	County	Peak Period
1	Winchester Boulevard, btw. Hillside Avenue and Union Turnpike	Queens	Mon – Fri 8 PM - 5 AM
2	Beach Channel Drive	Queens	Weekends 24 / 7
3	Clearview Expressway (NB), btw. Grand Central Parkway and Throgs Neck Bridge	Queens	Mon – Fri 8 PM – 5 AM
4	Clearview Expressway (SB), btw. Throgs Neck Bridge and Grand Central Parkway	Queens	Mon – Fri 8 PM – 5 AM
5	LIE service road (EB), btw. Main Street and Francis Lewis Boulevard	Queens	Mon – Sun 24 / 7
6	College Point Boulevard, btw. LIE and Sanford Avenue	Queens	Mon – Thu 4 – 8 PM
7	Parking Field at Goethals Bridge	Richmond	Mon – Sun 24 / 7
8	Route 440 / West Shore Expressway (NB), near the overpass at the merge with Richmond Parkway	Richmond	Mon – Sun 24 / 7
9	Exit 4 off ramp on Route 440 / West Shore Expressway (NB)	Richmond	Mon – Sun 24 / 7
10	Hunts Point Avenue, near Oak Point Avenue and East Bay Avenue	Bronx	Mon – Fri 8 PM – 5 AM and weekends
11	Red Hook – Southwest of Peninsula	Kings	Mon – Fri 8 PM – 5 AM and weekends
12	St. Nicholas Place at 155th Street	New York	Mon – Fri 8 PM – 5 AM
13	Route 303 at Mountainview Road in town of Orangetown	Rockland	Mon – Fri 1 PM
14	NYS Thruway north of Exit 10	Rockland	Mon – Fri 10 AM
15	NYS Thruway Exit 15 – toll station	Rockland	Mon – Fri After 9 PM
16	LIE shoulder before and after the Commack rest stop, btw. Exits 51 and 52	Suffolk	Mon – Fri 9 PM – 5 AM
17	Park-and-ride lot Exit 49	Suffolk	Mon – Fri after 9 PM
18	Park-and-ride at Exit 63	Suffolk	Mon – Fri after 9 PM
19	Truck inspection area near Exit 65 on the LIE	Suffolk	Mon – Fri 9 PM – 5 AM
20	Shoulder of NY 347	Suffolk	Mon – Fri 9 PM – 5 AM
21	Shoulder of NY 25	Suffolk	Mon – Fri 9 PM – 5 AM
22	I-84 at Ludingtonville Road -exit 17	Putnam	Mon – Fri 8 PM
23	East Fishkill Rest area just west on I-84 (Dutchess County)	Putnam	Mon – Fri 8 PM
24	Exit 18, I-84 (WB) at Route 311	Putnam	Mon – Fri 8 PM
25	Exit 18, I-84 (EB) at Route 311	Putnam	Mon – Fri 8 PM

2. Existing Conditions of Facilities

2a. Official Truck Stops

Amenities

The NYMTC region and its neighbors maintain a wide array of locations formally classified as rest or truck stop facilities. In terms of amenities, truck stop facilities can be classified into three types throughout the region:

- Type I provides minimal to no amenities (restroom facilities and/or pay phone, if anything)
- Type II maintain basic services (restrooms, fueling services, a convenience store and/or fast food, ATMs, pay phones)
- Type III are well equipped, with a variety of basic services and additional amenities (showers, sit-down restaurant, on-site / nearby motel operations, certified scales, advanced banking services, internet access, truck washes)

Approximately 75 percent of inventoried facilities would be classified as either Type I or II facilities, of which most offer users at least restroom facilities. Those facilities that would be classified as Type III provided a wide variety of facilities and services, and were targeted at the motor truck operator and/or recreational vehicle (RV) traveler markets. Table 3 presents the distribution of facility amenities for truck stop/rest facility contained within the Task 2 inventory. Information for individual facilities can be found within the Appendix materials.

Table 3: Facility Amenity Distribution for All Inventoried Locations

Amenity	Yes	No
Restrooms	75%	25%
Information Center	72%	28%
Fuel (Gasoline/Diesel)	61%	39%
Showers	72%	28%
Public Phone	78%	22%
Vending Machine	69%	31%
Convenience Store	55%	45%
Fast Food	55%	45%
Sit Down Restaurant	14%	86%
On-Site Hotel	14%	86%
Certified Scales	25%	75%
Hardwired Internet Connection	25%	75%
Wireless Internet Connection	14%	86%
Truck Wash	6%	94%
ATM	56%	44%
Western Union	17%	83%
Money Orders	14%	86%
NATSO	22%	78%

Facility Capacity and Utilization

Capacity information was collected for "marked" automobile, bus, and truck spaces located on facility grounds. "Marked" spaces were identified as those with painted lines or signage identifying the spaces as official spaces. In locations where paint was faded or missing, surveyors estimated parking capacity by comparing field conditions (at the time of the inventory) and current usage with aerial photographic imagery, as well as parking estimates based upon square footage and industry-wide parking standards. Surveyors also recorded observed locations where trucks and vehicles were parked illegally at the time of the inventory. Illegal spaces (such as on entrance and exit ramps, or non-parking areas) were not included in the sites official capacity. This information was recorded for future planning/analyst purposes, and is offered for review in facility diagrams.

Parking utilization was collected for automobile, bus, and truck activity at each of the inventoried survey locations, during four pre-selected time periods:

- AM (6–9 AM)
- Midday (11 AM – 2 PM)
- PM (4–7 PM)
- Overnight (11 PM – 2 AM)

Observation time periods were chosen to coincide with typical truck activity associated with truck stops and in order to maintain consistency among regional truck stop studies. Since data collection took place over various months, seasonal factors were applied to normalize observed utilization rates for seasonal inconsistency and/or variations. Seasonal factors used in this effort were developed by NYSDOT and NJDOT. The following table presents the observed utilization rates for the region as a whole.

Table 4: Observed Regional Utilization Rates

Observation Period	Auto	Truck	Bus
AM	22%	64%	8%
Midday	33%	64%	11%
PM	29%	80%	10%
Overnight	17%	138%	12%

As listed in Table 4 above, truck utilization is highest in the overnight period, often exceeding the available capacity. It should be noted, from our sample, the regional utilization of rest stop facilities by trucks is opposite to the time periods in which automobiles and buses are using the same facility. Additionally, a similar pattern is observed at the site specific level (see Table 5, which presents the factored utilization rates by time period for each facility).

Table 5
Official Truck Stop/Rest Facility Seasonally Factored Utilization Rates

Truck Stop Location	Facility ID Number	State	Date	Seasonal Factor	AM			Mid-Day			PM			Overnight		
					Auto	Truck	Bus	Auto	Truck	Bus	Auto	Truck	Bus	Auto	Truck	Bus
Bethlehem (I-78 EB) Parking Area	2	NJ	9/20/07	0.97	9%	79%	-	6%	44%	-	3%	53%	-	6%	150%	-
Bethlehem (I-78 WB) Parking Area	2	NJ	9/20/07	0.97	10%	58%	-	16%	49%	-	10%	39%	-	16%	126%	-
Johnny's Truck Stop	6	NJ	9/18/07	0.97	21%	114%	-	47%	125%	-	37%	109%	-	10%	147%	-
Pilot Travel Center #280	7	NJ	9/27/07	0.97	49%	88%	0%	66%	92%	0%	76%	111%	0%	69%	152%	0%
Travel Centers of America #48 SR-173 – Bloomsbury	8	NJ	9/26/07	0.97	32%	68%	-	54%	73%	-	39%	62%	-	45%	96%	-
Mile Marker 32 – Roxbury (I-80 WB) Truck Parking Area	12	NJ	9/26/07	0.97	0%	81%	0%	5%	57%	0%	0%	73%	0%	0%	121%	0%
Travel Center of America #6	13	NJ	9/27/07	0.97	66%	56%	12%	55%	40%	24%	73%	58%	24%	37%	77%	12%
Mile Marker 21 (I-80 WB) Parking Area (Trucks Permitted)	14	NJ	9/26/07	0.97	0%	49%	0%	0%	32%	0%	0%	73%	0%	0%	121%	0%
Mile Marker 15 – Hardwick (I-80 WB) Parking Area	15	NJ	10/2/07	1	5%	-	-	18%	-	-	18%	-	-	0%	-	-
Mile Marker 17 – Knowlton (I-80 EB) Rest Area and Welcome	17	NJ	2/20/07	0 97	24%	49%	0%	42%	73%	8%	26%	81%	0%	5%	244%	0%
Mile Marker 32 – Harding Township (I-287 NB) Rest Area	34	NJ	9/19/07	0.97	5%	110%	32%	10%	53%	0%	11%	101%	32%	6%	176%	0%
Mile Marker 21 (I-80 WB) Parking Area (No Trucks Permitted)	36	NJ	9/26/07	0.97	2%	-	-	7%	-	-	2%	-	-	2%	-	-
Mile Marker 6 – Knowlton (I-80 WB) Rest Area	37	NJ	10/3/07	1	2%	-	-	10%	-	-	3%	-	-	0%	-	-
Tullo Truck Stop	19	NJ	9/26/07	0.97	54%	56%	32%	62%	56%	0%	50%	82%	0%	28%	121%	32%
NJ Turnpike Vince Lombardi Service Area	21	NJ	4/10/07	0.97	51%	71%	22%	47%	62%	11%	59%	70%	32%	40%	99%	43%
NJ Turnpike Alexander Hamilton Service Area	22	NJ	4/17/07	0.97	14%	42%	0%	35%	83%	65%	29%	100%	65%	8%	177%	65%
NJ Turnpike Grover Cleveland Service Area	23	NJ	4/17/07	0.97	26%	81%	73%	55%	51%	24%	62%	57%	49%	31%	104%	49%
NJ Turnpike Thomas Edison Service Area	25	NJ	9/20/07	0.97	21%	120%	39%	48%	101%	39%	55%	122%	19%	30%	177%	58%
Paks Fast Services 198 State Highway – Mahwah	-	NJ	9/27/07	0.97	0%	65%	0%	0%	16%	0%	0%	32%	0%	0%	62%	0%
International Motor Plaza – Mahwah	27	NJ	9/26/07	0.97	63%	100%	0%	87%	49%	0%	73%	73%	24%	29%	103%	24%
Mahwah Travel Center (Travel Express)	29	NJ	9/26/07	0.97	43%	108%	19%	63%	76%	0%	67%	90%	19%	54%	107%	0%
NY Thruway Sloatsburg Service Area	31	NY	1/30/07	0.93	5%	76%	6%	9%	147%	8%	13%	127%	6%	2%	200%	0%
NY Thruway Ramapo Service Area	30/32	NY	1/23/07	0.93	16%	88%	5%	27%	109%	9%	18%	131%	9%	9%	246%	0%
East Fishkill (I-84 EB) Rest Area	40	NY	2/20/07	0.97	24%	49%	0%	42%	73%	8%	26%	81%	0%	5%	259%	0%
Mile Marker 43 – Wallkill Township (I-84 WB) Rest Area	43	NY	2/22/07	0.97	19%	65%	8%	28%	73%	0%	25%	81%	0%	19%	186%	8%
Mile Marker 3 – Wallkill Township (I-84 EB) Rest Area	44/45	NY	2/21/07	0.97	14%	50%	0%	9%	58%	0%	16%	75%	0%	12%	129%	0%
Pilot Travel Center #394	47	NY	2/7/07	0.97	20%	50%	0%	36%	57%	49%	24%	65%	0%	13%	85%	24%
Travel Center of America – Maybrook (I-84)	48	NY	2/13/07	0.97	28%	44%	0%	60%	60%	1%	23%	47%	0%	28%	66%	1%
NY Thruway Ardsley Service Area	49	NY	1/18/07	0.93	11%	33%	5%	29%	56%	14%	24%	74%	9%	6%	79%	0%
NY Thruway Plattekill Service Area	61	NY	1/25/07	0.93	11%	42%	4%	20%	97%	4%	14%	144%	11%	7%	169%	7%
NY Thruway Modena Service Area	62	NY	1/25/07	0.93	14%	43%	10%	19%	54%	3%	12%	171%	3%	5%	259%	7%
NY Thruway Ulster Service Center	63	NY	2/21/07	0.97	11%	70%	0%	22%	54%	5%	11%	92%	0%	6%	214%	5%
Mile Marker 12 – Darien (I-95 NB) Service Area	51	CT	4/25/07	1.05	42%	130%	21%	79%	173%	63%	62%	235%	42%	26%	251%	42%
Secondi Brothers Travel Plaza	67	CT	8/21/07	1.12	39%	118%	0%	39%	92%	37%	44%	101%	0%	24%	155%	37%
LIE (EB) Rest Area – Comack	64	NY	2/1/07	0.97	14%	29%	0%	28%	0%	0%	25%	34%	4%	11%	165%	0%
LIE (WB) Rest Area – Comack	65	NY	2/1/07	0.97	13%	36%	5%	19%	0%	10%	13%	42%	5%	26%	139%	0%
Sample Averages					**22%**	**64%**	**8%**	**33%**	**62%**	**11%**	**29%**	**80%**	**10%**	**17%**	**136%**	**12%**

2b. Informal Truck Stops

Table 6 outlines conditions observed during the drive-by data collection surveying effort.

Table 6: Informal Truck Stop Facility Observed Conditions

ID Number	Location	County	Peak Period	Observation Time	Trucks Observed	Notes
1	Winchester Boulevard, btw. Hillside Avenue and Union Turnpike	Queens	Mon - Fri 8 PM – 5 AM	11:15 PM	None Observed	--
2	Beach Channel Drive	Queens	Weekends 24 / 7	8:30 PM	None Observed	--
3	Clearview Expressway (NB), btw. Grand Central Parkway and Throgs Neck Bridge	Queens	Mon - Fri 8 PM – 5 AM	10:45 PM	2	Musket Transport
4	Clearview Expressway (SB), btw. Throgs Neck Bridge and Grand Central Parkway	Queens	Mon – Fri 8 PM – 5 AM	11:30 PM	1	--
5	LIE service road (EB), btw. Main Street and Francis Lewis Boulevard	Queens	Mon – Sat 24 / 7	10:15 PM	None Observed	--
6	College Point Boulevard, btw. LIE and Sanford Avenue	Queens	Mon – Thu 4 PM – 8 PM	10 PM	9	Municipal Waste, P. Judge & Sons
7	Parking Field at Goethals Bridge	Richmond	Mon – Sat 24 / 7	2:45 AM	2	Northeast Transport
8	Route 440/West Shore Expressway (NB), near the overpass at the merge with Richmond Parkway	Richmond	Mon – Sat 24 / 7	2:10 AM	2	--
9	Exit 4 off ramp on Route 440 / West Shore Expressway (NB)	Richmond	Mon – Sat 24 / 7	2:25 AM	2	--
10	Hunts Point Avenue near Oak Point and East Bay Avenues	Bronx	Mon – Sun 8 PM – 5 AM	1:20 AM	3	Hernandez Produce
11	Red Hook – SW of Peninsula	Kings	Mon – Sun 8 PM – 5 AM	9:30 PM	None Observed	--
12	St. Nicholas Place at 155th Street	New York	Mon – Fri 8 PM – 5 AM	1:30 AM	9	PHS group, Moving trucks, grease trucks, independent trucks
13	Route 303 at Mountainview Road in town of Orangetown	Rockland	Mon – Fri 1 PM	8:30 PM	3	Swift Transport, M&S Carriers
14	NYS Thruway north of Exit 10	Rockland	Mon – Fri 10 AM	9:15 PM	1	--
15	NYS Thruway Exit 15- Toll Station	Rockland	Mon – Fri After 9 PM	10:20 PM	2	--
16	LIE shoulder before and after the Commack rest stop, btw. Exits 51and 52	Suffolk	Mon – Fri 9 PM – 5 AM	12:45 AM	None Observed	25 trucks parked in rest area

17	Park-and-ride lot Exit 49	Suffolk	Mon – Fri After 9 PM	11:45 PM	8	1 freight truck, 7 independent trucks observed
18	Park -and-ride lot at Exit 63	Suffolk	Mon – Fri After 9 PM	12:15 AM	8	1 freight truck, 7 independent trucks observed
19	Truck inspection area, near Exit 65 on the LIE	Suffolk	Mon – Fri 9 PM – 5 AM	12:30 AM	None Observed	Exit 65 closed for construction
20	Shoulder of NY 347	Suffolk	Mon – Fri 9 PM – 5 AM	1:15 AM	None Observed	--
21	Shoulder of NY 25	Suffolk	Mon – Fri 9 PM – 5 AM	1:35 AM	None Observed	--
22	I-84 at Ludingtonville Road at Exit 17	Putnam	Mon – Fri 8 PM	11:50 PM	1	truck was observed (being towed)
23	East Fishkill Rest area, just west of I-84 in Dutchess County	Putnam	Mon – Fri 8 PM	11:20 PM	21	Falcon, MXI
24	Exit 18, I-84 (WB) at Route 311	Putnam	Mon – Fri 8 PM	12:05 AM	4 WB	--
25	Exit 18, I-84 (EB) at Route 311	Putnam	Mon – Fri 8 PM	12:08 AM	4 EB	Conway, D.F.I, BJ Transport

Technical Memorandum 3:
Task 3 – Driver Interview Cordon Survey

The purpose of this memorandum is to document the data collection methodology, results, and findings from the truck origin/destination (O/D) cordon surveying effort. The truck O/D survey was conducted for three primary purposes:

1. To develop a current truck origin/destination trip table (by zip code) for use as an input and local validation tool within the demand forecast modeling effort;

2. To better understand the perceptions and current use of truck stop/rest area network by regional truck drivers;

3. To establish the temporal and locational needs for rest facilities throughout the tri-state region (based upon commercial driver needs).

Findings from the surveying effort, in conjunction with information on truck stop facility utilization, will be used throughout the remaining tasks to establish the current condition of truck stops in the tri-state region, estimate future conditions if regional infrastructure remains the same, and determine where gaps in the regional network exist.

1. Cordon Survey Collection Methodology

The truck origin-destination survey utilized a cordon survey methodology in its application. A cordon survey is designed to collect information along the perimeter of or at pre-defined locations within a specific region or study area; in an effort to discuss and make inferences about activities occurring within the given area. This is achieved by selecting critical entry or exit locations for a given area, and monitoring the activity that crosses the cordon. Monitoring can occur in various forms, however for this effort the project team required trucks to exit the flow of traffic and stop along the roadways shoulder.

1a. Survey Stations and Site Selection: Cordon points or "survey stations" were selected primarily due to their positioning along major freight cordons within the tri-state region, as identified by the NYMTC Regional Freight Plan, NJTPA's North Jersey Truck Rest Stop Study, and ConnDOT's Statewide Rest Area and Service Plaza Study, and their relationship in capturing a diverse and representative sample of trucks. Table 1 outlines the date and location of each surveying effort, as well as the name and directional traffic flow of the roadways were surveys where conducted.

Table 1: Origin-Destination Cordon Survey Locations

Survey Station	County, State	Roadway	Direction	Date Performed
Clearview Expressway	Queens, NY	I-295	NB – SB	1/19/07
Fishkill – East Fishkill	Dutchess, NY	I-84	EB – WB	2/20, 22/07
Middletown	Orange, NY	I-84	EB – WB	2/21/07
Plattekill – Modena	Ulster, NY	I-87	NB – SB	1/25/07
Ramapo – Sloatsburg	Rockland, NY	I-87	NB – SB	5/3/07
Vince Lombardi Service Area	Bergen, NJ	NJ Turnpike (I-95)	NB – SB	9/10/07
Joyce Kilmer Service Area	Middlesex, NJ	NJ Turnpike (I-95)	NB – SB	8/14 & 8/27/07
Molly Pitcher Service Area	Middlesex, NJ	NJ Turnpike (I-95)	NB – SB	8/14 & 8/27/07

1b. Station Design: Survey stations captured truck traffic flows in either a singular or bi-directional flows during established surveying periods. With assistance from local, state, or jurisdictional police, survey staff separated trucks out of the primary flow of traffic and directed them into a queue for surveying. Vehicles were identified as "trucks" according to the Federal Highway Administration's vehicle classification scheme. After stopping, surveyors approached the trucks and performed a thirty second to one minute interview. Upon completion, trucks were re-entered into the flow of traffic.

1c. Survey Design: The origin-destination surveying instrument was designed to gather four primary pieces of information: trip origin, trip destination, rest stop facility activity during current trip, and general vehicle information. Origin and destination information was collected by asking drivers where they started their trip, including the type of facility and address. Destination information was collected in an identical manner. Rest stop usage information was collected by asking drivers whether or not they have used a stop location. If drivers responded positively, surveyors asked drivers to identify what type of location they stopped at and the approximate location or name of the facility. To understand driver locational preference for future facilities, surveyors requested drivers to mark an "X" on a map of either the tri-state or NYMTC metropolitan region. In addition to questions target at drivers, surveyors also collected vehicle classification information (such as number of axles, 53 feet in length, etc.) and general commodity data through visual observation. Figure 1 demonstrates the surveying tool used in this effort.

Figure 1

NYMTC TRUCK STOP SURVEY QUESTIONAIRE

Vehicle Classification – only trucks with trailers should be surveyed.

Number of axles on Cab _____ Number of axles on Trailer _____

Is the truck 53 feet in length? YES _____ or NO _____ (please check)

Operator Information – Company Name, Address, and Telephone Number

Name of Operating Company _____
Address or State and City _____
Commodity being transported _____

- INTERVIEW QUESTIONS -

1. Where did you start your current trip today?

Port ___ Warehouse ____ Distribution Center ____ Truck Stop/Service Plaza ____

Manufacturer _____ Retail Center ____ Other_____

2. What is the name/address or approximate location in Question of the Trip Start?

_____
_____
_____

3. Where will your trip end today?

Port ___ Warehouse ____ Distribution Center ____ Truck Stop/Service Plaza ____

Manufacturer _____ Retail Center _____ Other _____

4. What is the name/address or approximate location of the Trip End?

_____
_____
_____

5. Have you taken or will you take a rest period during this delivery?

Yes _____ No _____

6. If Yes, what type of stop was it and at what time did you or are you anticipating on stopping?

Truck Stop _____ Rest Area _____ Parking Area _____ Other_____

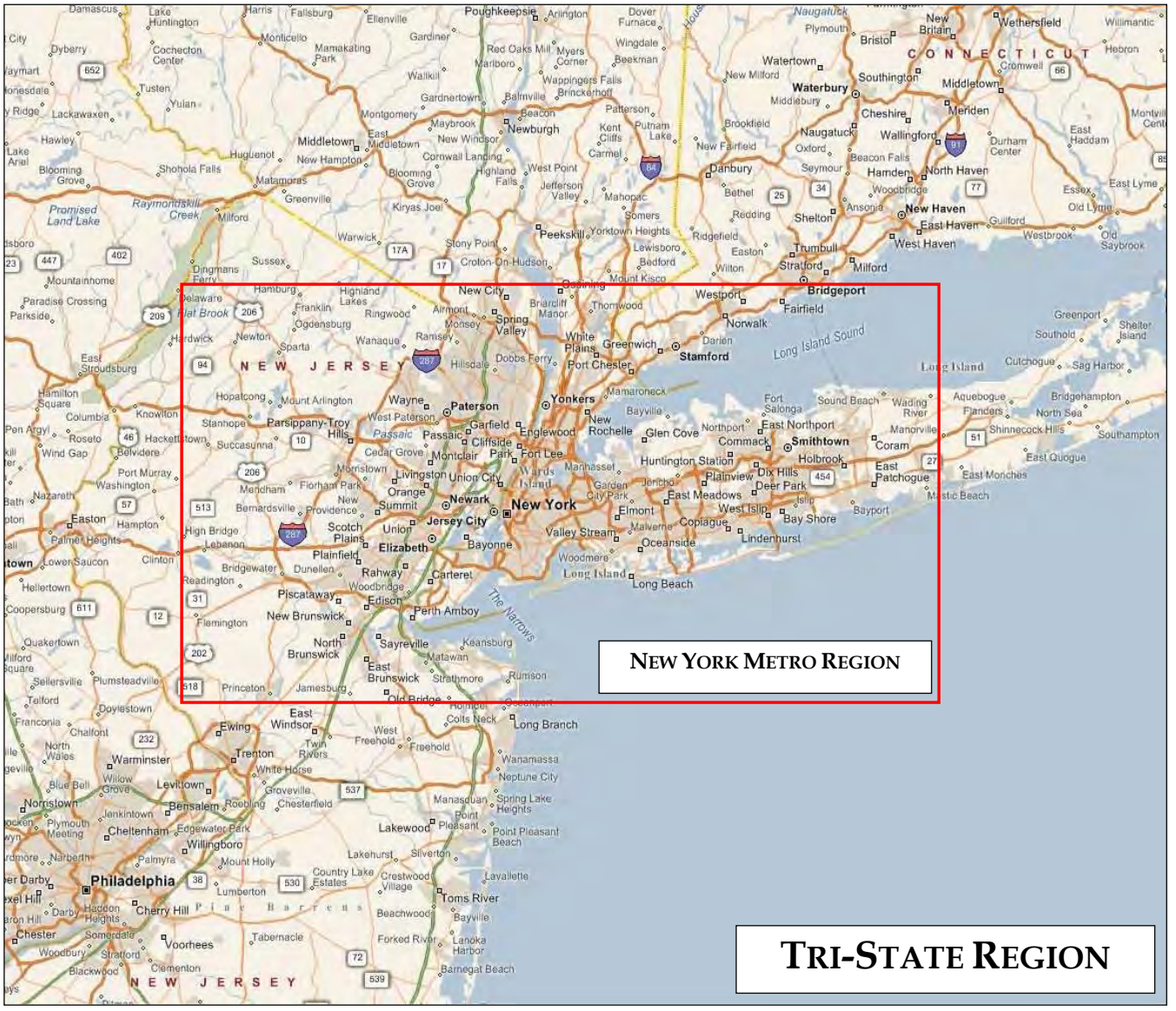
TIME _____ : _____ AM or PM (please fill in time and circle AM or PM)

7. What is the name/address or approximate location of the stop you identified previously?

_____
_____
_____

PLEASE TURN OVER TO COMPLETE SURVEY

8. Please mark with an "X" on either of the maps below, locations within the tri-state and New York Metro Regions where you think a rest stop(s) should be located:



2. Survey Results

Researchers successfully surveyed a total of 272 drivers over the course of the origin-destination surveying effort. Of that number, 210 surveys contained useable information for both origins and destinations at the city address level. Table 2 reports the distribution of survey responses by location.

Table 2: Distribution of Completed Surveys by Survey Station

Survey Station	Completed Surveys	Distribution Percentage
Clearview Expressway	77	28.3%
Fishkill – East Fishkill	30	11.0%
Middletown	14	5.1%
Plattekill – Modena	30	11.0%
Ramapo – Sloatsburg	57	21.0%
Vince Lombardi Service Area	24	8.8%
Joyce Kilmer Service Area	19	7.0%
Molly Pitcher Service Area	21	7.7%
Regional Sample Total	**272**	**100%**

For the purposes of reporting the findings of this sample, all information is being summarized to the regional sample level in order to focus on the primary purpose of this study – developing a tri-state understanding of truck stop and/or rest area usage and trends. As a summarized dataset, all findings and inferences of statistical significance (with the exception of origin and destination information) are being reported with a confidence interval of +/- 5.93% at a 95% confidence level. Origin-destination data maintains a confidence interval of +/- 6.76 at a 95% confidence level. The following will report the results for all observations and for each question asked by researchers.

2b. Vehicle Classification: The information discussed below was collected by researchers through visual observation of trucks. Mostly, this information was collected prior to engaging the drivers for the interview.

2c. Vehicle Type: Researchers observed almost all of the trucks surveyed had three axle cabs and two axle trailers. Additionally, of those surveyed 78 percent were trucks 53 feet in length. Table 3 presents the cross-tabular distribution of types of vehicle surveyed by number of axles on cab and number of axles on trailer.

Table 3: Cross-tabular Distribution of Surveyed Trucks by Axels on Cab and Axels on Trailer

# axles on cab	# of axles on trailer							Total
	0	1	2	3	4	6	8	
1	1	3	7	0	0	0	0	**11**
2	5	4	21	1	0	0	0	**31**
3	1	2	211	0	1	1	0	**216**
5	0	0	3	0	0	0	0	**3**
6	0	0	0	0	1	0	0	**1**
10	0	0	0	0	0	0	2	**2**
Total	**7**	**9**	**242**	**1**	**2**	**1**	**2**	**264**

2c. Operator/Commodity Information: Operator information varied significantly in regards to the city in which the truck operated out of, however at the state level more trends could be observed. Of those whose operator information was legible or identified, a little more than 35 percent displayed information from the states of New York or New Jersey. The third and fourth largest populations displayed operations within Canada and Pennsylvania, with 33 and 18 observed cases, respectively. States which maintained a slightly significant number of responses included Massachusetts, Maryland, Illinois, and Ohio. However, their occurrence was much lower than the top four observed states or region, with between eight and six observed trucks.

Observed commodities varied significantly as well. However, the largest classifiable commodity that was observed was food products with almost 30 percent. Second to food products, empty containers or trucks represented the second largest "classification" of trucks collected during this survey. Other noticeable commodities include lumber, paper, building supplies, automobiles and/or parts, as well as trash, debris, and/or municipal waste.

2d. Interview Questions:

Question 1: Where did you start your trip today?

Type of Location	Response Frequency	Percentage
Port	28	10.4%
Warehouse	80	29.7%
Distribution Center	51	19.0%
Truck Stop / Service Plaza	24	8.9%
Manufacturer	30	11.2%
Retail Center	8	3.0%
Other	48	17.8%

Question 2: What is the name/address or approximate location of this trips starting point?

Reponses for address information of where drivers began their current trip varied significantly at the individual city level. However, some locations provided a larger number of responses to warrant their listing as the most popular origin city responses. They include Elizabeth, NJ; Newark, NJ; Bronx, NY; Trenton, NJ; Farmingdale, NY; Holtsville, NY; and Burlington, NJ.

At the state level, of those surveyed most trips began in New York, New Jersey, Pennsylvania, and Massachusetts, respectively. Table 4 presents the distribution of origin responses for those surveyed.

Table 4: Origin Responses by State for Current Trip

State/Providence	Response Frequency	Percentage
California	2	0.8%
Connecticut	7	2.9%
Delaware	7	2.9%
Florida	1	0.4%
Georgia	1	0.4%
Idaho	1	0.4%
Kansas	1	0.4%
Massachusetts	9	3.8%
Maryland	6	2.5%
Michigan	1	0.4%
Minnesota	1	0.4%
New Brunswick	3	1.3%
North Carolina	1	0.4%
Nebraska	1	0.4%
New Hampshire	1	0.4%
New Jersey	82	34.3%
New York	83	34.7%
Ohio	5	2.1%
Oklahoma	1	0.4%
Ontario	2	0.8%
Pennsylvania	11	4.6%
Quebec	6	2.5%
Texas	2	0.8%
Vermont	4	1.7%
Sample Total	**239**	**100%**

Question 3: Where will your trip end today?

Type of Location	Response Frequency	Percentage
Port	57	21.4%
Warehouse	25	9.4%
Distribution Center	80	30.1%
Truck Stop / Service Plaza	10	3.8%
Manufacturer	12	4.5%
Retail Center	33	12.4%
Other	49	18.4%

Question 4: What is the name/address or approximate location of this trips end?

Not surprisingly, destination response reported similar variations for the cities in which their current trip will end. However, some locations provided a larger number of responses to warrant their listing as the most popular destination city responses. They include Plattsburgh, NY; Bronx, NY; Buffalo, NY; Newburgh, NY; Newark, NJ; and Brooklyn, NY.

At the state level, of those surveyed most trips are scheduled to terminate in New York, New Jersey, Pennsylvania, respectively. Table 5 presents the distribution of destination responses for those surveyed.

Table 5: Destination Responses by State for Current Trip

State / Providence	Response Frequency	Percentage
California	1	0.4%
Canada	5	2.1%
Connecticut	4	1.7%
Delaware	1	0.4%
Florida	3	1.3%
Georgia	3	1.3%
Iowa	1	0.4%
Illinois	3	1.3%
Indiana	1	0.4%
Kansas	1	0.4%
Kentucky	1	0.4%
Massachusetts	9	3.8%
Maryland	2	0.8%
Maine	2	0.8%
Michigan	1	0.4%
Minnesota	2	0.8%
North Carolina	2	0.8%
New Jersey	46	19.5%
New York	77	32.6%
Ohio	7	3.0%
Ontario	6	2.5%
Pennsylvania	27	11.4%
Quebec	15	6.4%
South Carolina	1	0.4%
Tennessee	2	0.8%
Texas	3	1.3%
Utah	1	0.4%
Virginia	4	1.7%
Vermont	1	0.4%
West Virginia	4	1.7%
Sample Total	**236**	**100%**

Questions 5 and 6: Have you taken or will you take a rest period during this delivery? If yes, what type of stop was it and at what time did you or are you anticipating on stopping?

A little over 75 percent of respondents reported that have already or are planning on stopping for a rest during this trip. Of those stops (previously occurring or planned), most drivers utilized or would utilize a location identified or labeled as a rest area. Table 6 presents the distribution stops by location type.

Table 6: Distribution of Taken or Scheduled Rest Breaks by Stop Location Type

Type of Location	Response Frequency	Percentage
Truck Stop	36	18.1%
Rest Area	122	61.3%
Parking Area	22	11.1%
Other	19	9.5%

Figure 2 and Table 7 illustrate the temporal distribution of taken or anticipated rest stops throughout a service day. Responses are reported on a 24-hour clock convention of time keeping in which the day runs from midnight to midnight and is divided into 24 hours, numbered from 0:00 to 23:00; with"0:00" representing the midnight hour and "12:00" representing the noon hour.

Figure 2: Distribution of Taken or Anticipated Rest Stops throughout a Service Day

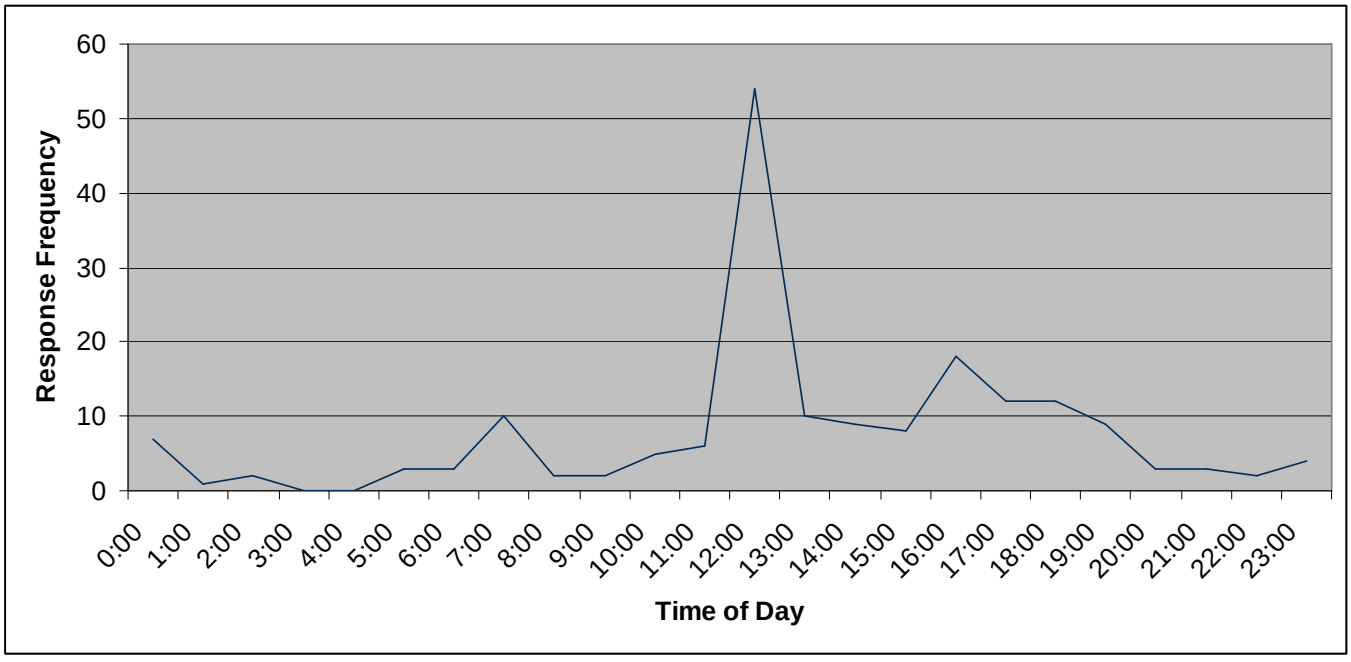


Table 7: Survey Responses for Taken or Anticipated Rest Stops throughout a Service Day

Time Period (hour of day)	Response Frequency	Percentage
0:00	7	3.8%
1:00	1	0.5%
2:00	2	1.1%
3:00	0	0.0%
4:00	0	0.0%
5:00	3	1.6%
6:00	3	1.6%
7:00	10	5.4%
8:00	2	1.1%
9:00	2	1.1%
10:00	5	2.7%
11:00	6	3.2%
12:00	54	29.2%
13:00	10	5.4%
14:00	9	4.9%
15:00	8	4.3%
16:00	18	9.7%
17:00	12	6.5%
18:00	12	6.5%
19:00	9	4.9%
20:00	3	1.6%
21:00	3	1.6%
22:00	2	1.1%
23:00	4	2.2%

When asked what hour time period drivers have or planned on stopping for a rest, the largest number of respondents stated “12:00 PM” or the noon hour, with almost 30 percent of the days responses. Even though a number of stop may in fact have or are planning to occur between 12:00 PM and 12:59 PM, this observation may be skewed due to measurement error, or error that occurs when surveys do not survey what they intended to measure.

For this survey, measurement error could be attributed to miscommunication by interviewers and/or misunderstanding by drivers of the meaning of 12:00 PM as noon rather than midnight. A more probable explanation may be drivers provided false responses. Drivers may have done this if they did not remember the specific time they stopped and/or they just wanted to finish the survey, and simply stated the easily

recounted 12:00 PM, noon, or lunch time period. As a result, some of the 54 12:00 PM response may have or will actually occur during the midnight hour of 00:00 AM – 00:59 AM or during other periods throughout the day.

With the exception of the noon time period, drivers are reporting the greatest percentage of rest activity will begin in the late afternoon and early evening; 30 percent between the hours of 4:00 PM and 7:59 PM. If then applied to national and regional length of stay estimates of six to eight hours on average, it could be concluded that a significant number of drivers are resting throughout the evening and earlier overnight periods and waking in the early morning to prepare for their day's activities.

Question 7: What is the name/address or approximate location of the stop you identified previously?

Reponses provided too much variation by locations to establish any patterns or identify any locations for specific acknowledgement. Even so, Table 8 reports on the distribution of stop locations by state, which provides an understanding in the locational dispersion of rest activity within the tri-state region.

Table 8: Locational Distribution of Actual or Anticipated Stop Locations by State

Type of Location	Response Frequency	Percentage
Connecticut	1	1.2%
New Jersey	45	54.9%
New York	28	34.1%
Pennsylvania	1	1.2%
Quebec	2	2.4%
Virginia	2	2.4%
Vermont	2	2.4%
West Virginia	1	1.2%

Technical Memorandum 4:
Task 4 – Demand Forecasting

The purpose of this memorandum is to document the methodology used to develop demand forecasts for truck parking at the truck stops in the tri-state region. The insight gathered during this Task will be applied to blank, blank, blank…..

1. Procedure

Truck parking demand for existing conditions was identified through site surveys. In order to develop a forecast of truck demand at these truck stops, it is necessary to develop a forecast of truck volumes on the roads served by these truck stops.

Truck stops are located in areas that extend beyond the focus of the NYMTC Best Practices Model (BPM), which contains local roadway links and is designed for analysis of trips within the NYMTC region. Because a large number of trucks which utilize truck stops in the region are completing trips of 200 miles or longer, a model network with a broader geographic reach is more appropriate.

The project utilized Global Insight TRANSEARCH freight commodity database for the State of New York. The database includes freight shipments to, from, within, and through New York State with a base year of 2004 and a forecast year of 2030. The database identifies both the annual tons and number of trucks traveling between origin and destination pairs by commodity. The origins and destination zones in this database are U.S. counties, Mexican states, and Canadian metropolitan areas and remainders of provinces. This database can be readily converted into a trip table that can be assigned to the highway network using traditional travel demand software. The annual truck trips in TRANSEARCH can be converted to daily truck trips using an appropriate annualization factor. For this study, an annualization factor of 306 days per year is used (five average weekdays plus travel on weekends equal to one average weekday for 52 weeks less six major Federal holidays).

The FHWA's Freight Analysis Framework 2 (FAF2) project has developed a highway network that can be used with the TransCAD travel demand software. That network matches the detail of the National Highway Planning Network, in that it includes interstate highways, the National Highway System, and major arterials and minor arterials for the entire United States. For Canada and Mexico, shapefiles of highways were obtained from the North American Transportation Atlas Database available from U.S. DOT's Bureau of Transportation Statistics. The Canadian and Mexican shapefiles can be readily converted into TransCAD format and appended to the FAF2 network. The FAF2 network was developed to identify major corridor flows and can be used to identify the highway approaches to the study area and thus the North American truck trips that will impact the highways in the study that are served by the truck stops.

2. Technical Issues

There are some challenges and technical issues in using these resources in this study. The issues and the proposed approaches to address the issues are as follows.

Issue 1: NYSDOT's 2004 Global Insight TRANSEARCH database is only a source of information on truck trips moving to, from, within, or through areas of New York State. Trips passing to, from within or through points in New Jersey or Connecticut which do not pass through New York State are not included in the 2004 Global Insight TRANSEARCH database. A hypothetical truck trip between Boston and Los Angeles that passes through New York State would be included in the TRANSEARCH database, while a hypothetical truck trip between Chicago and Newark which does not pass through New York State, would not be included in the TRANSEARCH database. The fact that the trips that enter tri-state region without entering New York State are missing is a problem for a study with a tri-state study area.

Proposed Approach: The growth rates for truck trips to and from the study area counties in New York State should be similar to the growth rates for study area counties in New Jersey and Connecticut, because the metropolitan counties in all three states are part of the same metropolitan area. Therefore, an assignment of 2004 and 2035 truck trips will be used to develop growth rates for the major roads serving the truck stops. These growth rates can then be applied to existing truck stop parking demand to estimate future truck stop parking demand.

Issue 2: The FAF2 highway network provides estimates of 2002 and 2035 congested highway travel times. The 2035 congested highway travel times assume that absolutely no improvements in highway capacity are made between 2002 and 2035. FAF2 assigns the traffic volumes predicted for 2035 to the network that existed in 2002. As a result, many links may exhibit a higher degree of congestion than what may exist if improvements have or will be made prior to 2035, and trips may be diverted to other routes to avoid the congestion. The use of 2035 congested highway times to assign the 2030 truck trips provides more realistic estimates of truck volumes by route. However, a comparison between 2002 and 2030 truck volumes by route in this case could not distinguish between changes in volume that occur due to growth and changes that are a result of rerouting. This is an issue because changes in trip volumes observed on a given link between 2002 and 2035 may be the result of rerouting from other paths, not because of growth near that link.

Proposed Approach: It is not realistic to assume that no highway capacity improvements will be made between 2004 and 2035. Improvements could be made by capital improvements and operational (e.g., ITS) or demand management (e.g., time shifting within a day) techniques. The 2002 FAF2 congested travel times will be used to route both the 2004 and 2035 TRANSEARCH daily truck trip table. By using 2002 congested travel times as a constant, the rerouting problem described above will be mitigated and the difference between the 2002 and 2035 volumes and between routes will be due only to growth impacts, as desired, not rerouting.

Issue 3: The FAF2 highway network was developed to produce realistic truck flows by major highway corridors between metropolitan areas. Within individual metropolitan areas, however, the assignment of trucks to the FAF2 network does not use realistic routes. For example, the assignment of trucks to minimum paths on the FAF2 network results in the assignment of trucks to the Taconic and Merritt parkways on which they are prohibited from using, instead of to I-87 and I-95, where they are permitted, and thus, should be assigned. In another example, the FAF2 network assigns long distance trucks to U.S. 1 through New Jersey rather than the adjacent New Jersey Turnpike, and trucks crossing the Hudson River are assigned to the Holland Tunnel instead of the George Washington Bridge.

Proposed Approach: The efforts to correct the impedances and routing restrictions in the FAF2 network to produce validated truck volumes within the study area would be a significant undertaking. Since the proposed demand method relies on growth rates instead of assigned volumes to establish future truck stop demand, the growth rates for truck stops will be identified by the FAF2 assignment to highways in the general area served by a truck stop, rather than the growth in volume on the specific FAF2 road link directly serving the truck stop. For example, if long-distance truck trips are assigned to Route 1 through New Jersey instead of to the New Jersey Turnpike, the growth rate projected for Route 1 could reasonably be applied to predict growth in demand at truck stops on the New Jersey Turnpike.

Issue 4: The FAF2 network methodology suggests the use of Stochastic User Equilibrium (SUE) assignment using the congested travel times as a means of spreading assigned volumes to all feasible paths. SUE is a method in which trips between two points are assigned to several appropriate paths based upon drivers' perceptions of delay and desirability, rather than determining one shortest path between two points and assigning all trips to that one path. However, factors which determine the assignment have not yet been developed for this network. In order to develop detailed highway flows, the FAF2 truck trips tables, in which only 114 zones cover the entire U.S., needs to be disaggregated to a more detailed zones structure (e.g., U.S. counties) prior to assignment. FHWA has concerns about the disaggregation process that was developed and has contracted with Cambridge Systematics to develop an alternative disaggregation approach. The SUE factors will not be available until after the new disaggregation method is finalized

Proposed Solution: The use of an All-or Nothing assignment method (AON) rather than SUE is proposed. An AON assignment approach will assign all truck trips between two points to one path. The path selected will be the path with the shortest travel time. This approach does not take driver behaviors into account to divide trips among several possible paths. The truck trip growth rate that is observed in each corridor area, beyond the selected paths alone, however, will indicate the increase in demand for all truck stops in each corridor area. Therefore the growth rate projected for the one selected path, can be applied to other paths in the general vicinity of the selected path.

Issue 5: Not all truck trips will need the services of a truck stop. An investigation of the median distance traveled between an origins and destinations of trucks surveyed at the truck stops suggested that the median distance traveled was typically greater than 200 miles.

Proposed Solution: It is proposed to screen the trip tables to include only those trips greater than 200 miles in length and then assign these trips to the FAF2 network. The growth rate of this assignment of 2004 and 2035 truck trips greater than 200 miles is proposed to represent the growth in truck demand.

3. Observations

The assignment of daily 2004 and 2030 trucks to the FAF2 highway network using an AON assignment with 2002 congested travel times is shown in Figure 1. The truck volumes shown are only those freight truck trips that begin, end, or pass through New York State.

Figure 2 shows the assignment of NYSDOT's Global Insight TRANSERCH Daily Truck Loads for 2004 and 2030. As discussed previously, the FAF2 assignment methods, while producing reasonable assignments for long distance corridors as shown in Figures 1 and 2, does not produce reasonable detailed assignments on highway in dense metropolitan areas. As discussed previously, the truck volumes crossing the Hudson River are assigned to the Holland Tunnel and Bear Mountain Bridge/U.S. 6 rather than the George Washington Bridge/I-95 and the Tappan Zee Bridge/I-87. Traffic from the west is assigned exclusively to I-80 rather than being more reasonably split between I-78 and I-80. Traffic to New England is assigned to the Merritt Parkway rather than I-95. Traffic to upstate New York and Quebec is assigned to the Taconic Parkway rather than the New York Thriway/I-87. Traffic though New Jersey is assigned to U.S. 1 rather than the New Jersey Turnpike/I-95. For these reasons rather than using the growth rate of the assigned truck volumes closest to each truck stop facility, the facilities have been grouped by geographic proximity/general corridor as shown in Table 1 below.

The ratio of the 2030 daily assignment of trucks traveling more than 200 miles to the 2004 daily assignment of trucks traveling more than 200 miles on the segment within that corridor with the highest volume in 2030 is shown in Figure 5 and Table 2. While the growth rates by corridor do show some variation, the rates are fairly close to one another. For purposes of forecasting truck stop demand, it is recommended that demand in 2030 be established as two times the existing demand, a growth of 100 percent, which is consistent with an annualized growth rate of 2.7 percent. The forecasts and growth rates from NYSDOT's Global Insight TRANSEARCH database are shown in Tables 3 and 4.

Table 1: Truck Stops by Corridor

Name	Facility ID
I-80/I-78 Truck Stops	
Bethlehem (I-78 WB) Parking Area	2
Bethlehem (I-78 EB) Parking Area	2
Johnny's Truck Stop	6
Pilot Travel Center #280	7
Travel Centers of America #48 SR-173 – Bloomsbury	8
I-80 WB at Mile Marker 32 – Roxbury Truck Parking Area	12
Travel Center of America #6	13
I-80 WB at Mile Marker 21 Parking Area (Trucks Permitted)	14
I-80 WB at Mile Marker 15 – Hardwick Parking Area	15
I-80 EB at Mile Marker 17 – Knowlton Rest Area and Welcome	17
I-287 NB at Mile Marker 32 – Harding Township Rest Area	34
I-80 WB at Mile Marker 21 Parking Area (No Trucks Permitted)	36
I-80 WB at Mile Marker 6 – Knowlton Rest Area	37
New Jersey Turnpike Truck Stops	
Tullo Truck Stop	19
NJ Turnpike Vince Lombardi Service Area	21
NJ Turnpike Alexander Hamilton Service Area	22
NJ Turnpike Grover Cleveland Service Area	23
NJ Turnpike Thomas Edison Service Area	25
I-87 /I-84 Truck Stops	
Paks Fast Services 198 State Hwy 17 – South Ma.	0
International Motor Plaza – Mahwah	27
Mahwah Travel Center (Travel Express)	29
NY Thruway Sloatsburg Service Area	31
NY Thruway Ramapo Service Area	32
East Fishkill (I-84 EB) Rest Area	40
I 84 WB at Mile Marker 43 Rest Area	43
I-84 EB at Mile Marker 3 Rest Area	46
Pilot Travel Center #394	47
Travel Center of America – Maybrook (I-84)	48
NY Thruway Ardsley Service Area	49
NY Thruway Plattekill Service Area	61
NY Thruway Modena Service Area	62
NY Thruway Ulster Service Center	63
I-95 CT Truck Stops	
Mile Marker 12 – Darien (I-95 NB) Service Area	51
Secondi Brothers Travel Plaza	66
LIE Truck Stops	
LIE (EB) Rest Area – Huntington	64
LIE (WB) Rest Area – Huntington	65

Table 2: Corridor Subregional Growth
NYSDOT's Global Insight TRANSEARCH Assignment of Trucks >200 miles

Corridor / Subregion	Ratio	AGR
I-80/I-78 Truck Stops	1.864	2.4%
New Jersey Turnpike Truck Stops	1.845	2.4%
I-87 /I-84 Truck Stops	2.092	2.9%
I-95 CT Truck Stops	1.785	2.3%
LIE Truck Stops	2.100	2.9%

Table 3: NYSDOT's Global Insight TRANSEARCH Truck Tons and Loads: 2004 and 2035

Travel Direction	2004			2035		
	Tons (millions)	Truck Loads (millions)	Tons / Truck	Tons (millions)	Truck Loads (millions)	Tons / Truck
Inbound	947.9	57.9	16.4	1,662.2	103.9	15.99
Intrastate	320.6	20.5	15.7	635.2	40.9	15.54
International	67.4	4.3	15.8	144.7	10.3	14.07
Outbound	119.6	7.5	16.0	231.3	15.1	15.32
Annual Total	1,455.5	90.1	16.2	2,673.4	170.2	15.71

Table 4: NYSDOT's Global Insight TRANSEARCH Truck Tons and Loads: Growth Rates

Travel Direction	Percent Change, 2004 to 2035			
	Growth Tons	Growth Trucks	AGR Tons	AGR Trucks
Inbound	175	180	2.18	2.28
Intrastate	198	199	2.67	2.69
International	215	240	2.98	3.43
Outbound	193	201	2.57	2.72
Annual Total	184	189	2.37	2.47

Figure 1: NYSDOT' s Global Insight TRANSEARCH Daily Trucks Assigned to the FAF2 Network, 2004 and 2030

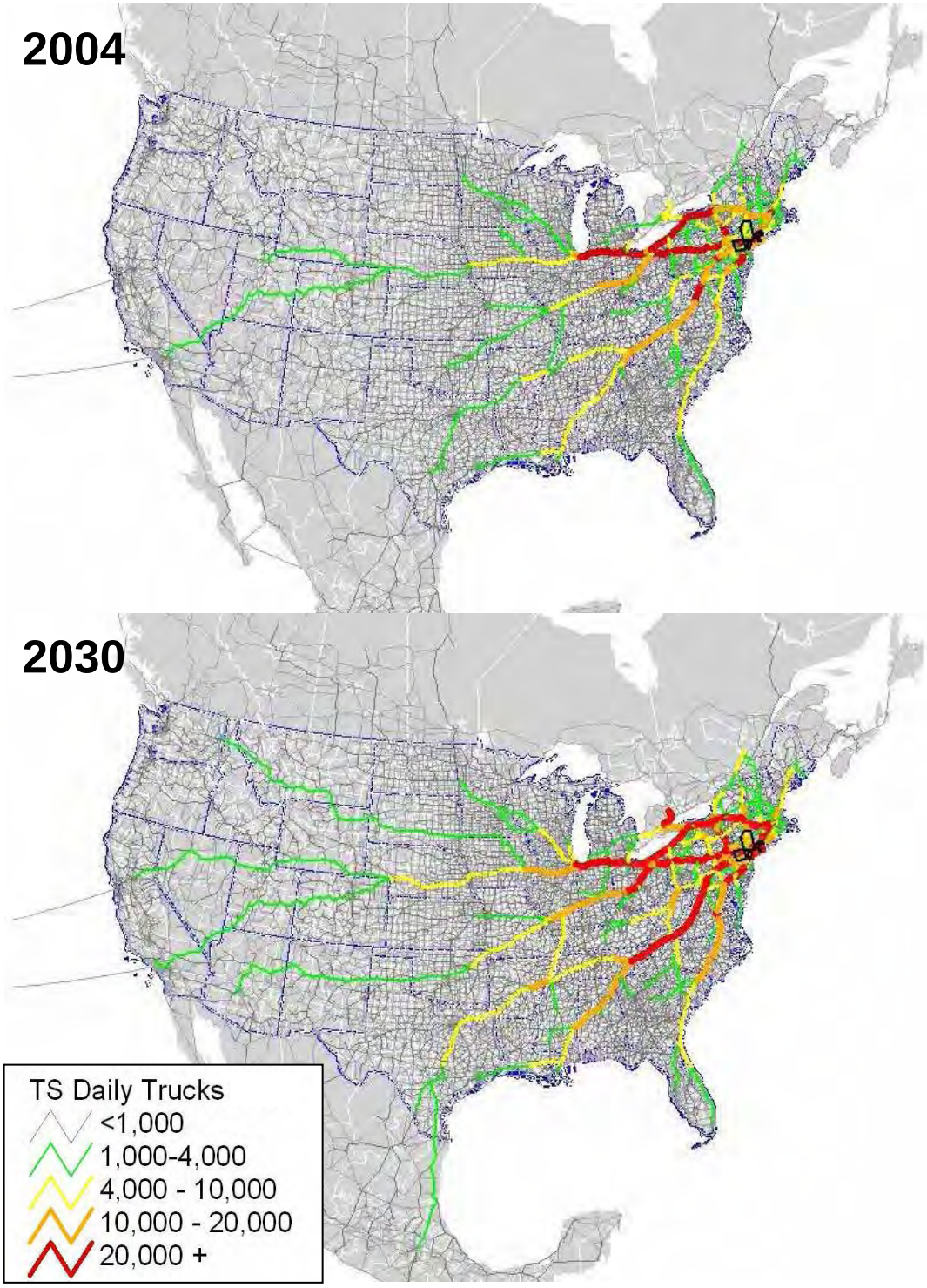


Figure 2: NYSDOT's Global Insight TRANSEARCH Daily Trucks Assigned to the FAF2 Network Detailed New York Urbanized Area View, 2004 and 2030.

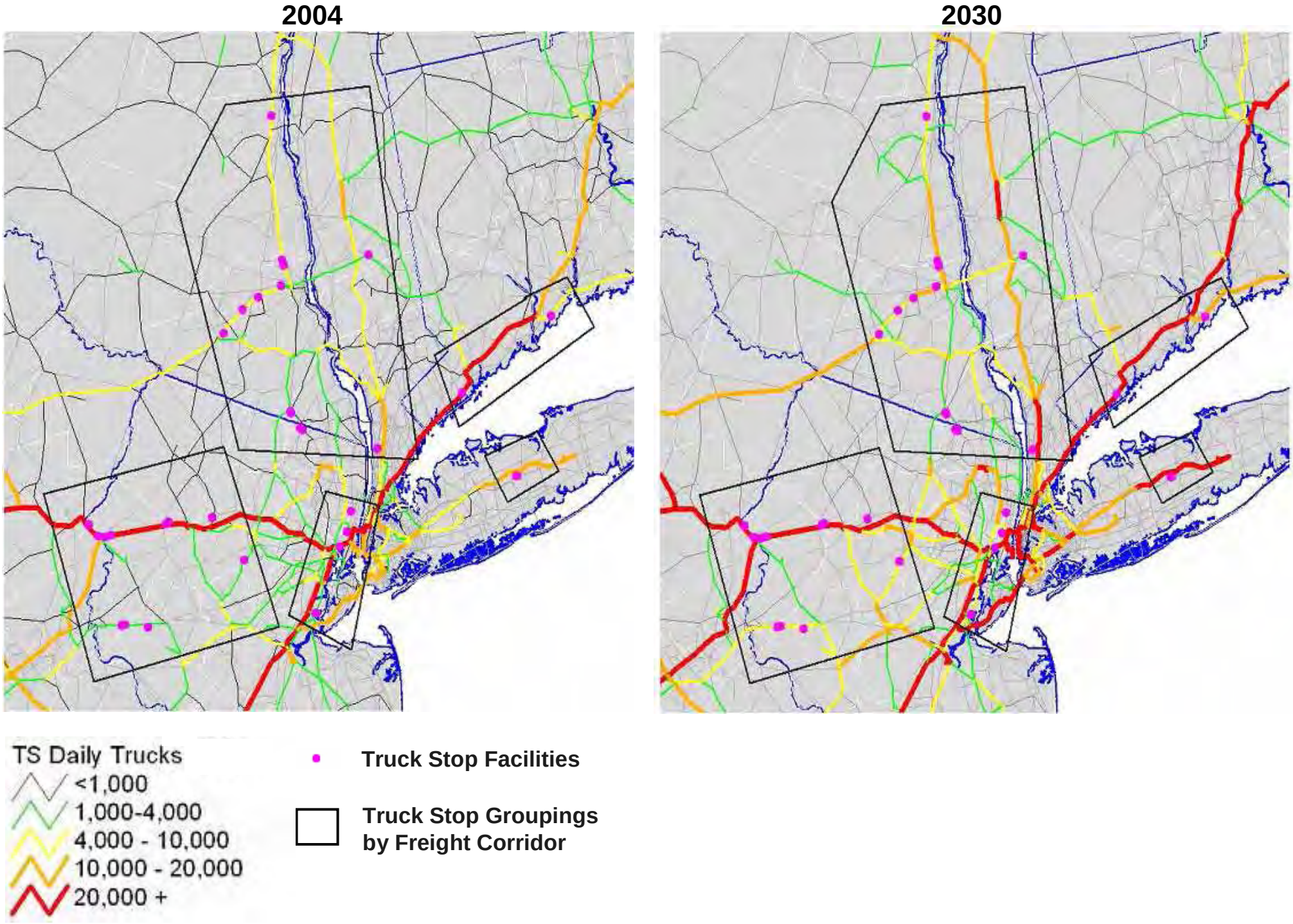
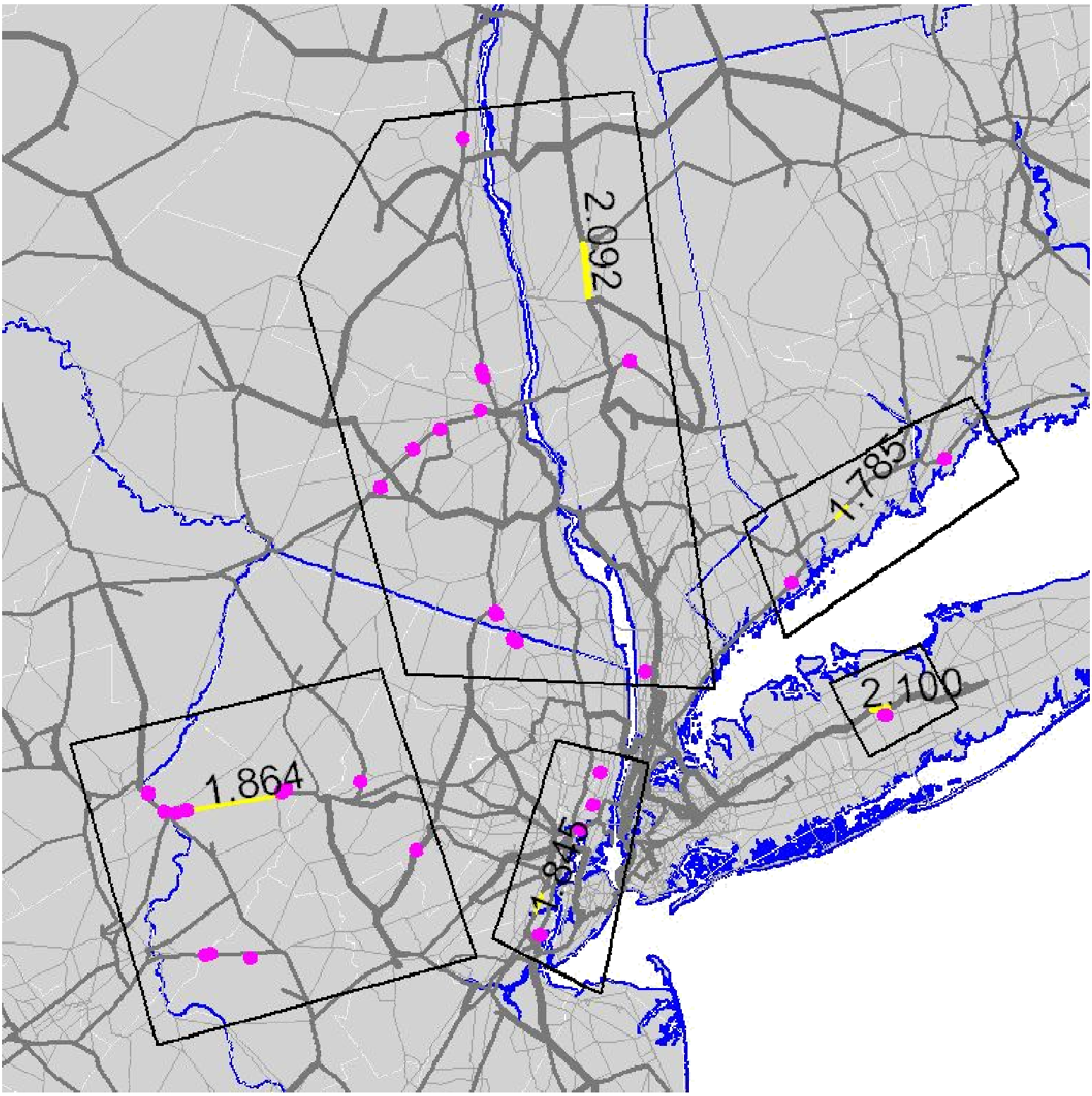


Figure 3: 2004 to 2030 Growth in Daily Trucks Near Truck Stops



Truck Stop Facilities

Truck Stop Groupings by Freight Corridor

X.XXX **Growth Rate Attributed to Each Corridor**

Technical Memorandum 5:

Task 5a - Mapping Program and Geodatabase Development

The purpose of this technical memorandum is to discuss the work steps that were completed to develop the Geographic Information System (GIS). The GIS has served as an indispensable analysis tool for this study. The memorandum will describe the sources of geographic data that were included, the process for developing the GIS geodatabase, and the mapping program which transformed the geodata into displays that communicate relevant characteristics of the truck stop and transportation networks and assist in the analysis of existing conditions. It should be noted, GIS analysis and the related mapping program will continue developing as the project proceeds to its conclusion. An updated version of the GIS database and mapping program (including previously submitted and new geodata sets, shapefiles, metadata, and maps) will be submitted at the conclusion of the project as a component of the final deliverable package.

1. Data Sources

The development of the GIS began with the accumulation of available geographic datasets from a variety of sources. Some of the sources of pre-existing data include road network data and county boundaries in the three study area states. Other data sources were collected during the course of this study and include:

- Truck stop facilities, a point feature class which represents the location and type of formal truck stop facilities (including public rest areas and privately owned truck stops), and includes data such as truck and automobile parking capacity, the utilization observed during the project's data collection phase, and available amenities.
- Informal truck stops: a point feature class representing the location of known informal truck stops and parking areas, an estimate of utilization.
- Origin/destination survey locations, a point feature class representing the locations where the truck driver origin/destination surveys were conducted.
- Origin points, a point feature class representing the locations specified as trip origins during the origin/destination survey.
- Destination points, a point feature class representing the locations specified as trip destinations during the origin/destination survey.

2. Geodatabase Development

Each feature class identified above was incorporated into a single geodatabase. The geodatabase acts as a single warehouse of related geographic data in ArcGIS, which establishes a consistent data management framework for all the data contained within. All of the data contained within the geodatabase created for this study exist within the same projection which ensures that each feature class can be displayed to be spatially accurate relative to the other feature classes in an ArcGIS map environment. The geodatabase and its contents are, until the conclusion of the project, a work in progress.

Additional data that may become available or relevant as the project progresses may be added to supplement the geodatabase.

3. Mapping Program

A mapping program was undertaken, in which the feature classes of the geodatabase were displayed together in thematic maps. These maps act as important analysis tools, and illustrate the story which the data tell. A number of mapping exercises were undertaken in order to observe and communicate existing conditions and future opportunities regarding truck parking issues in the tri-state region.

Data collected during the parking facility inventory allowed the CS team to produce thematic maps which display truck parking capacity and utilization maps. The maps illustrate the number of truck parking spaces which exist at each rest area and truck stop in the region, and the percent of those spaces which were utilized (occupied) by trucks during four times of day (morning, midday, evening, and overnight). These capacity and utilization maps allowed the CS team to see where truck parking facilities are operating above capacity, where there are capacity constraints among multiple facilities on specific corridors, and where any excess capacity exists that could potentially absorb parking demand from elsewhere.

A similar utilization mapping exercise was undertaken to account for "informal" truck stops. Informal truck stops are locations where truck drivers are known to park which are not within designated truck stops or rest areas. Such locations include highway and ramp shoulders, weigh stations, and empty parking lots near highway exits. The number of trucks observed using such facilities has been collected in order to illustrate additional demand for truck parking that exists but was not observed at formal truck stops and parking facilities.

Maps were also produced to plot the trip origin and destination points associated with each survey location, as well as a circumferential median distance of travel by respondents from origins. The median travel distance is valuable because it establishes what the average trip length to each of the survey stations is, and provides an understanding of the distribution of trip type – long versus short trips. The median was chosen as the summary statistic for this dataset because it provides more accurate and/or "typical" representation of average trip distances due to outliers in the sample. In summary, this exercise linked the locations between which trucks are traveling at the time they were surveyed with locations in the tri-state region.

4. Addendum

The maps created using the approach described in this memorandum are included as addenda. The following is a list of the maps provided:

Figure 1: Truck Parking Capacity and Utilization in the Tri-state Region: AM Period

Figure 2: Truck Parking Capacity and Utilization in the Tri-State Region: Midday Period

Figure 3: Truck Parking Capacity and Utilization in the Tri-State Region: PM Period

Figure 4: Truck Parking Capacity and Utilization in the Tri-State Region: Overnight Period

Figure 5: Known Informal Truck Parking Locations in the Tri-State Region

Figure 6: Origins, Destinations, and Median Distance Traveled: Clearview Survey Location, NY

Figure 7: Origins, Destinations, and Median Distance Traveled: East Fishkill Survey Location, NY

Figure 8: Origins, Destinations, and Median Distance Traveled: Joyce Kilmer Survey Location, NJ

Figure 9: Origins, Destinations, and Median Distance Traveled: Middletown Survey Location, NY

Figure 10: Origins, Destinations, and Median Distance Traveled: Molly Pitcher Survey Location, NJ

Figure 11: Origins, Destinations, and Median Distance Traveled: Plattekill Survey Location, NY

Figure 12: Origins, Destinations, and Median Distance Traveled: Ramapo Survey Location, NY

Figure 13: Origins, Destinations, and Median Distance Traveled: Sloatsburg Survey Location, NY

Figure 14: Origins, Destinations, and Median Distance Traveled: Vince Lombardi Survey Location, NJ

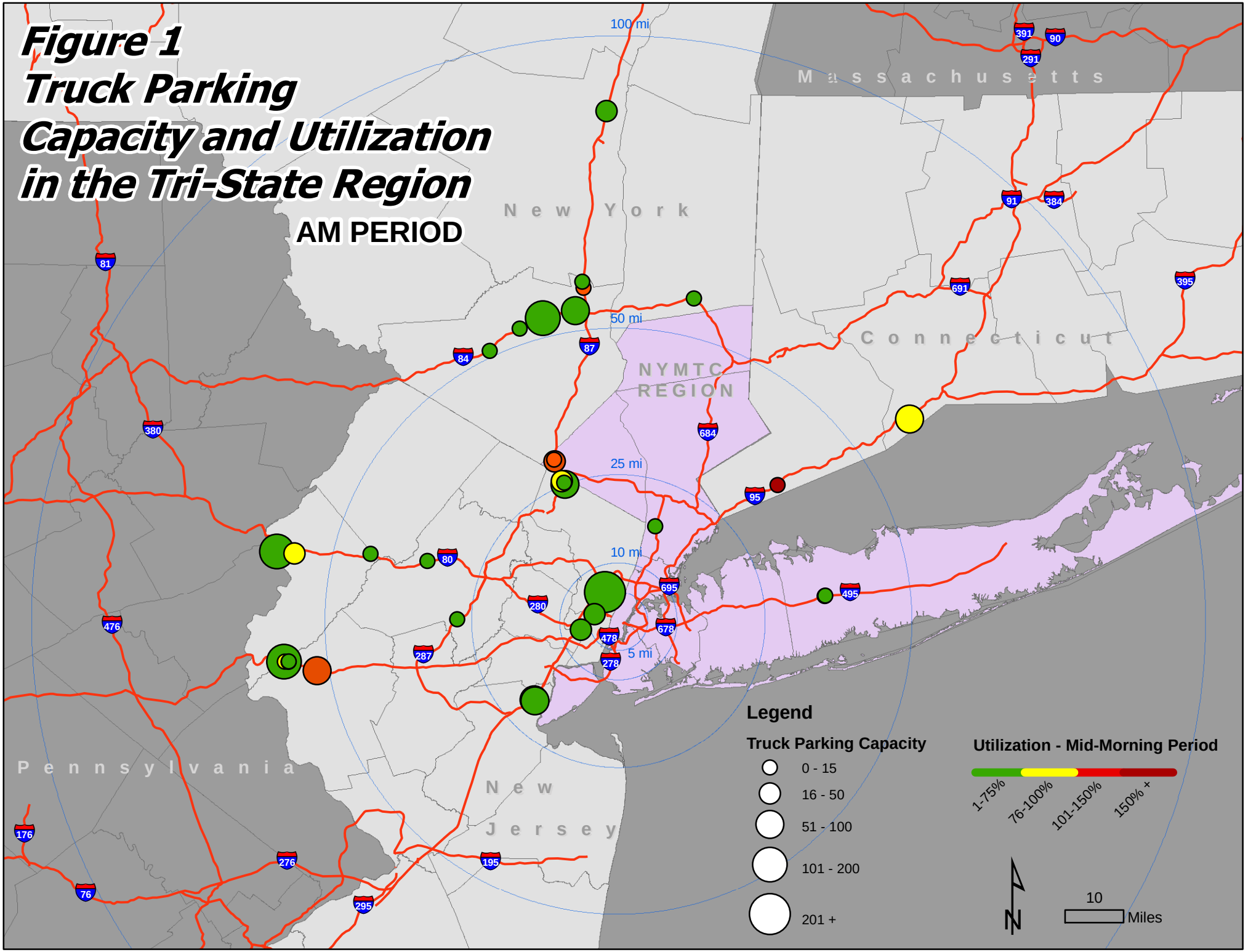
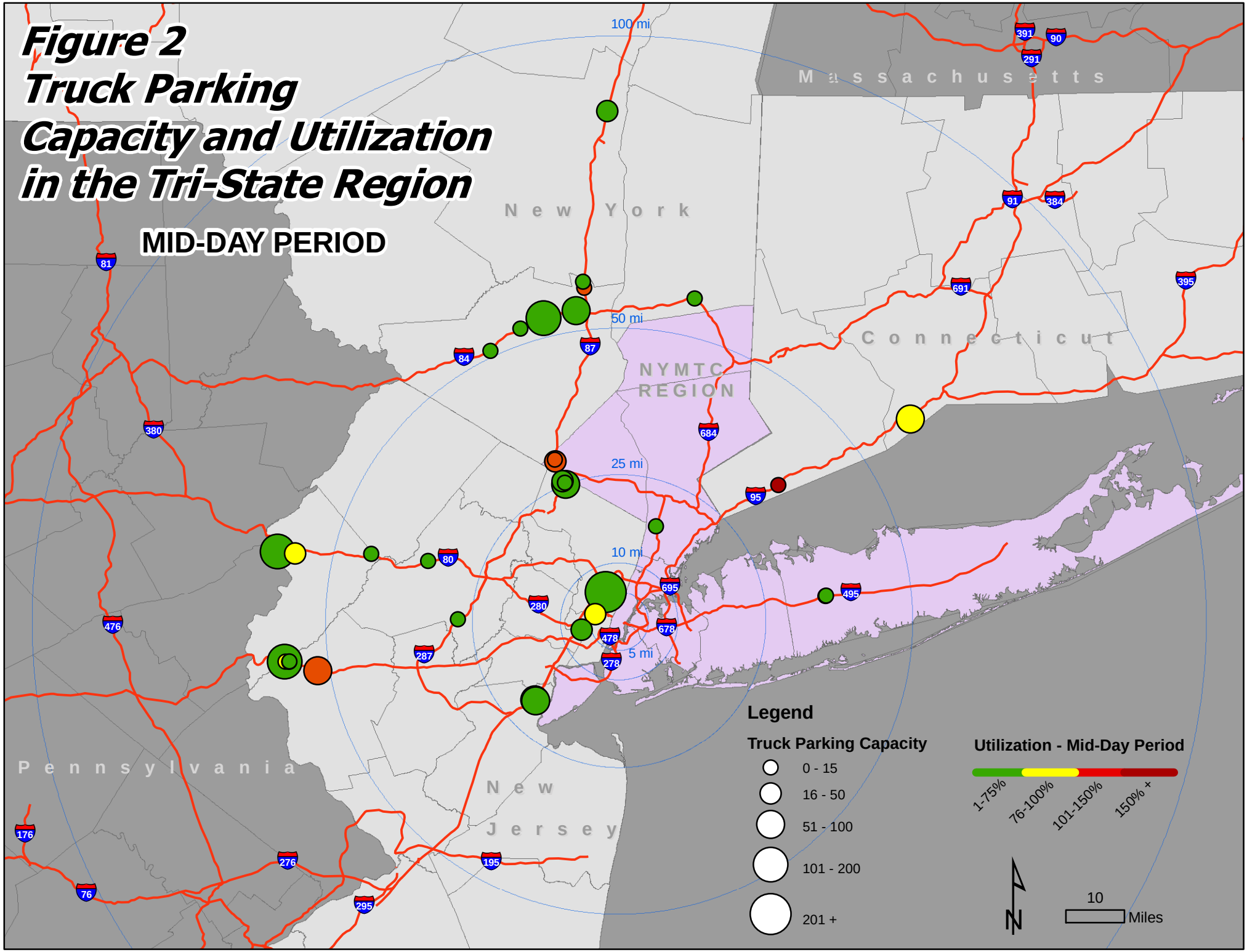


Figure 1
Truck Parking
Capacity and Utilization
in the Tri-State Region
AM PERIOD
100 mi
50 mi
25 mi
10 mi
5 mi
New York
Massachusetts
Connecticut
Pennsylvania
New Jersey
NYMTC
REGION
Legend
Truck Parking Capacity
0 - 15
16 - 50
51 - 100
101 - 200
201 +
Utilization - Mid-Morning Period
1-75%
76-100%
101-150%
150% +
N
10
Miles

Figure 2
Truck Parking Capacity and Utilization in the Tri-State Region

MID-DAY PERIOD



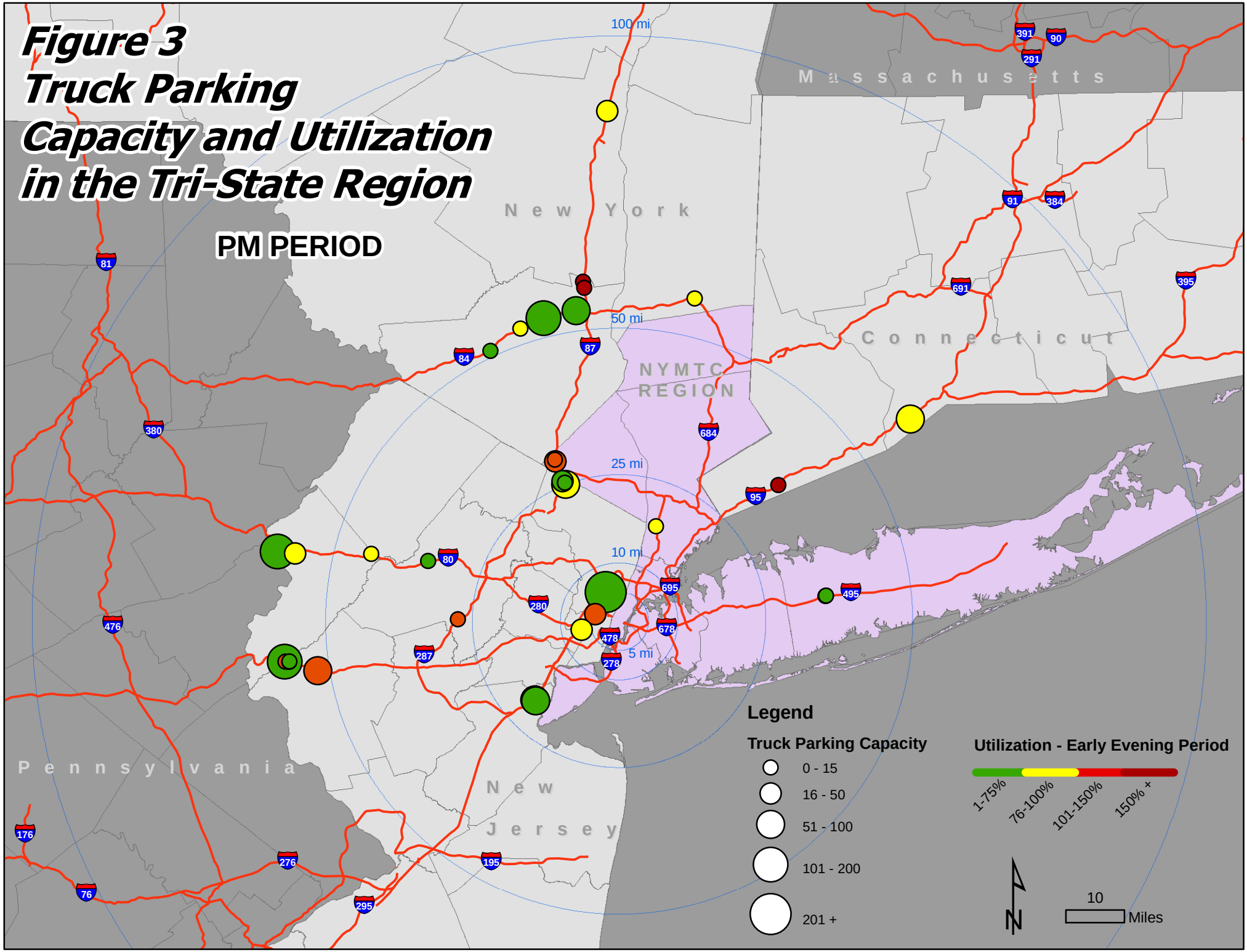
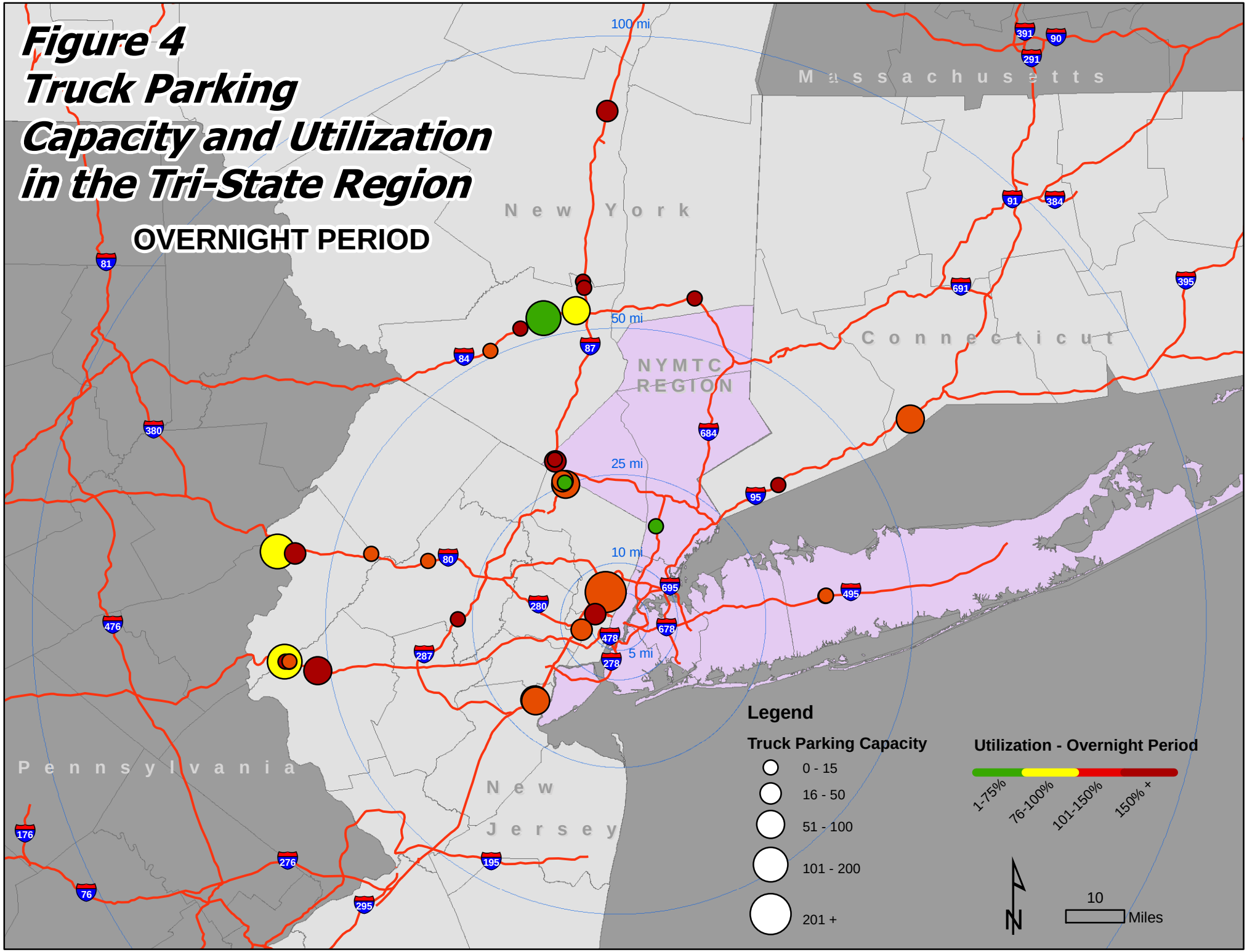


Figure 3
Truck Parking
Capacity and Utilization
in the Tri-State Region
PM PERIOD
100 mi
50 mi
25 mi
10 mi
5 mi
New York
Massachusetts
Connecticut
Pennsylvania
New Jersey
NYMTC
REGION
Legend
Truck Parking Capacity
0 - 15
16 - 50
51 - 100
101 - 200
201 +
Utilization - Early Evening Period
1-75%
76-100%
101-150%
150% +
N
10
Miles

Figure 4
Truck Parking Capacity and Utilization in the Tri-State Region

OVERNIGHT PERIOD



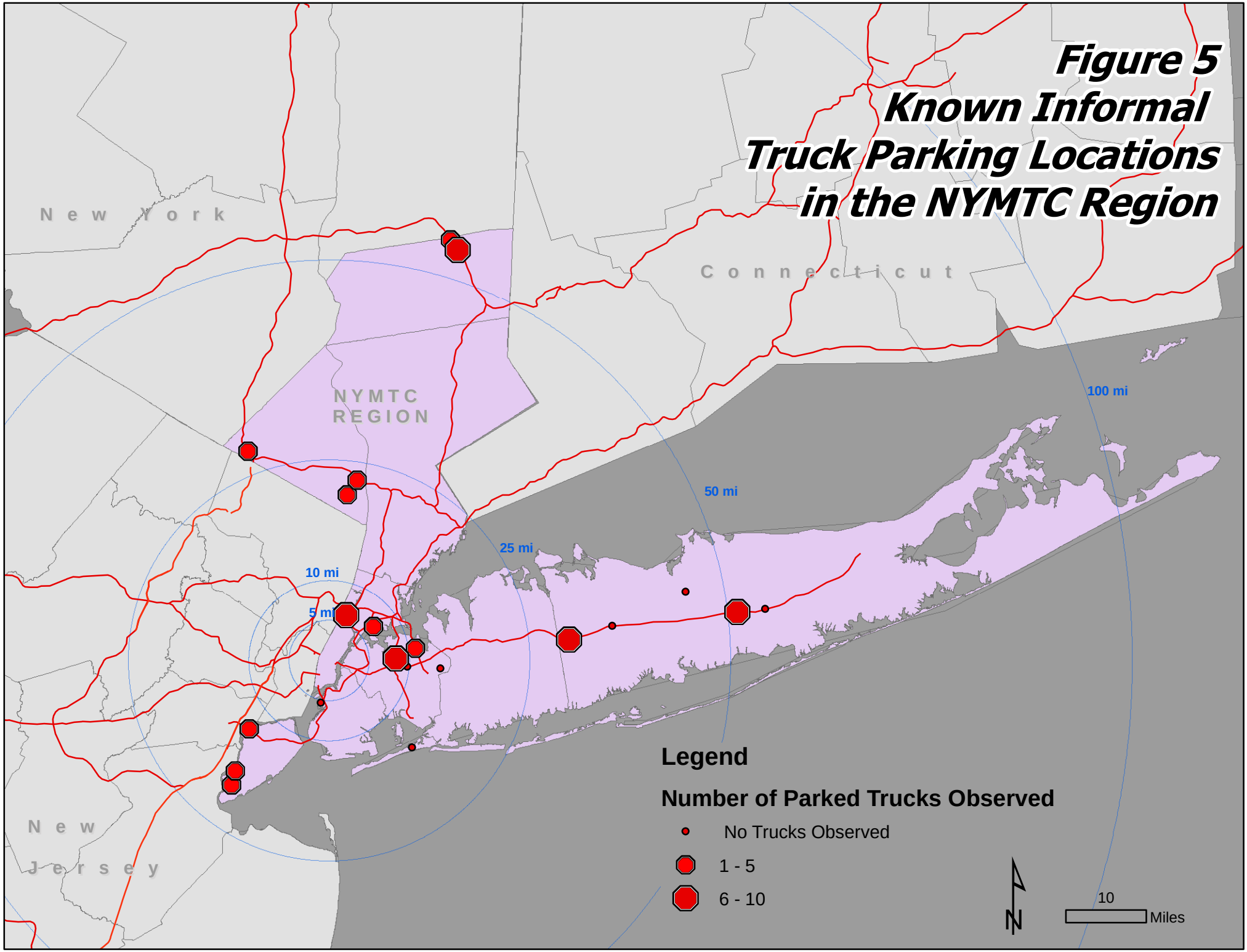


Figure 5
Known Informal
Truck Parking Locations
in the NYMTC Region
New York
Connecticut
NYMTC
REGION
100 mi
50 mi
25 mi
10 mi
5 mi
New
Jersey
Legend
Number of Parked Trucks Observed
No Trucks Observed
1 - 5
6 - 10
N
10
Miles

Figure 6
Origins, Destinations and Median Distance Traveled

CLEARVIEW SURVEY LOCATION, NY

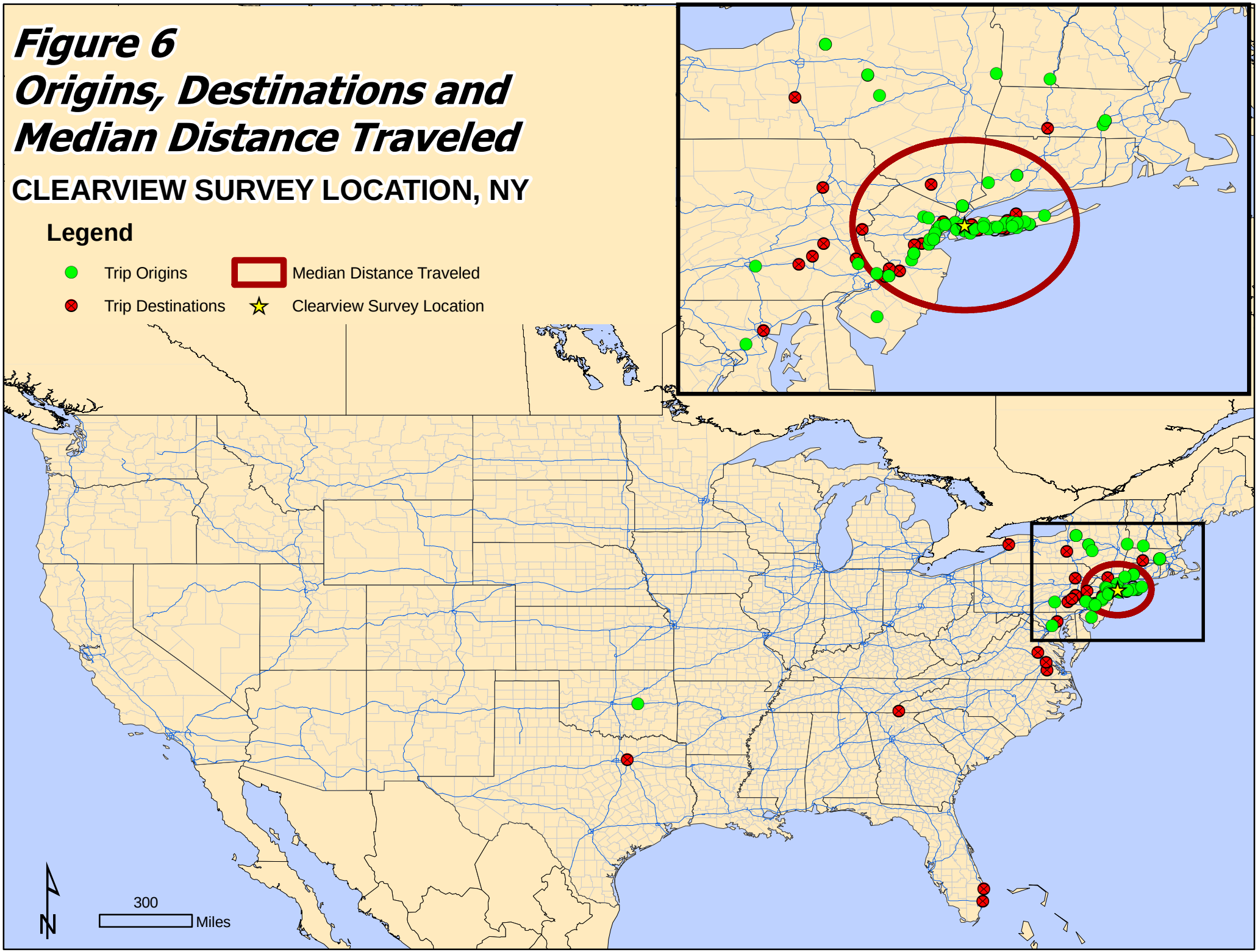


Figure 7
Origins, Destinations and Median Distance Traveled

EAST FISHKILL SURVEY LOCATION, NY

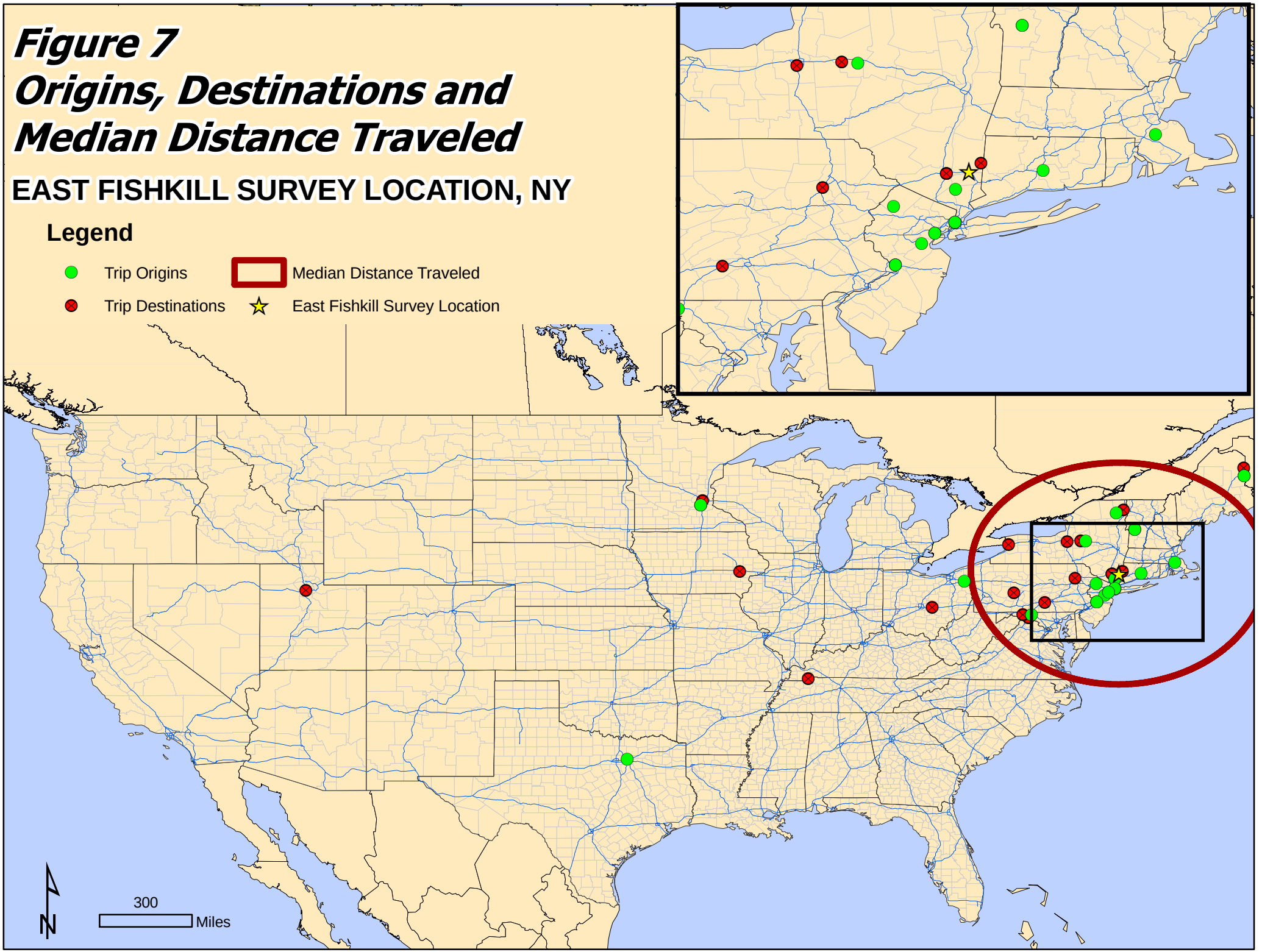


Figure 8
Origins, Destinations and Median Distance Traveled

JOYCE KILMER SURVEY LOCATION, NJ

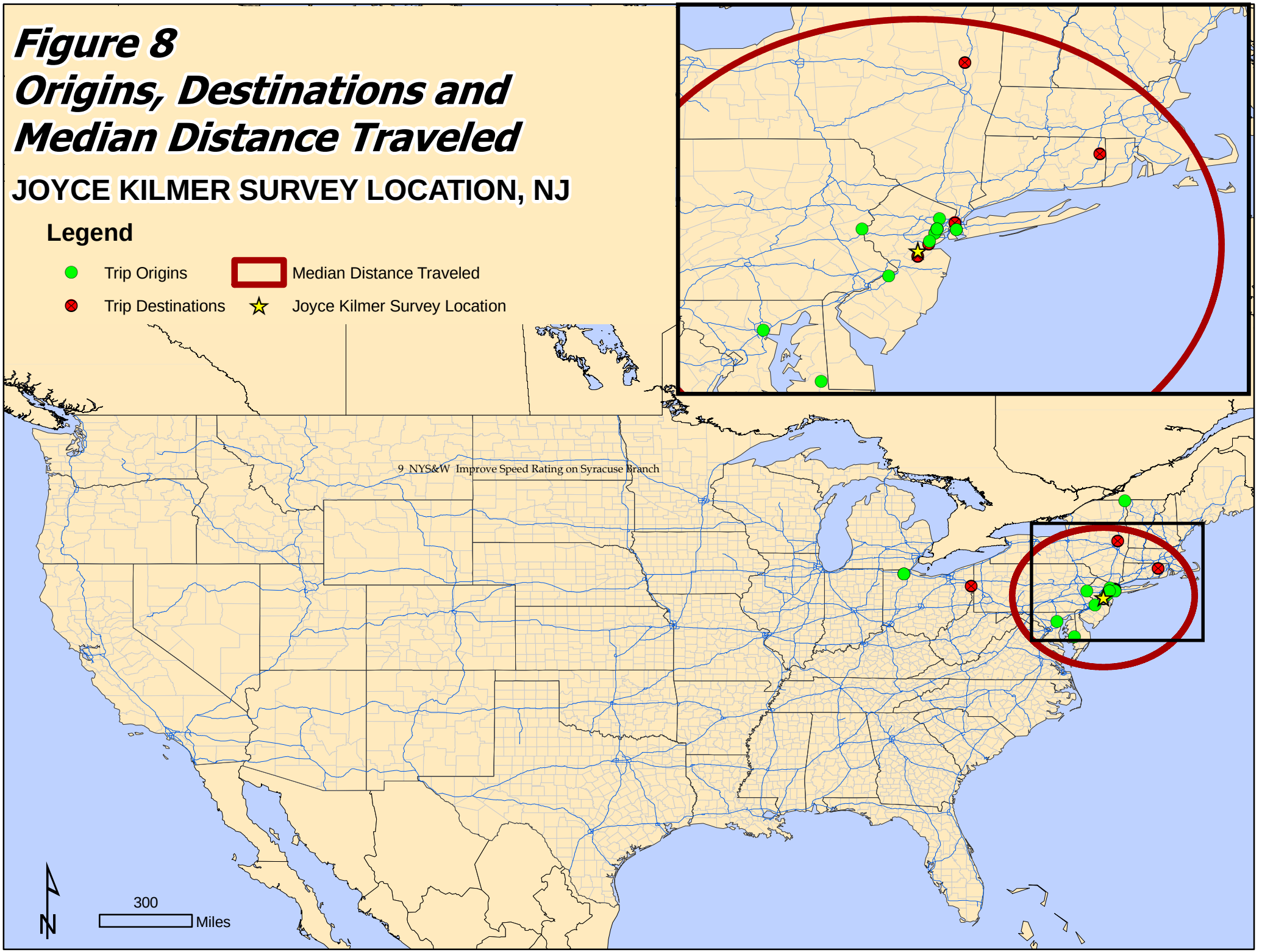


Figure 9
Origins, Destinations and Median Distance Traveled
MIDDLETOWN SURVEY LOCATION, NY

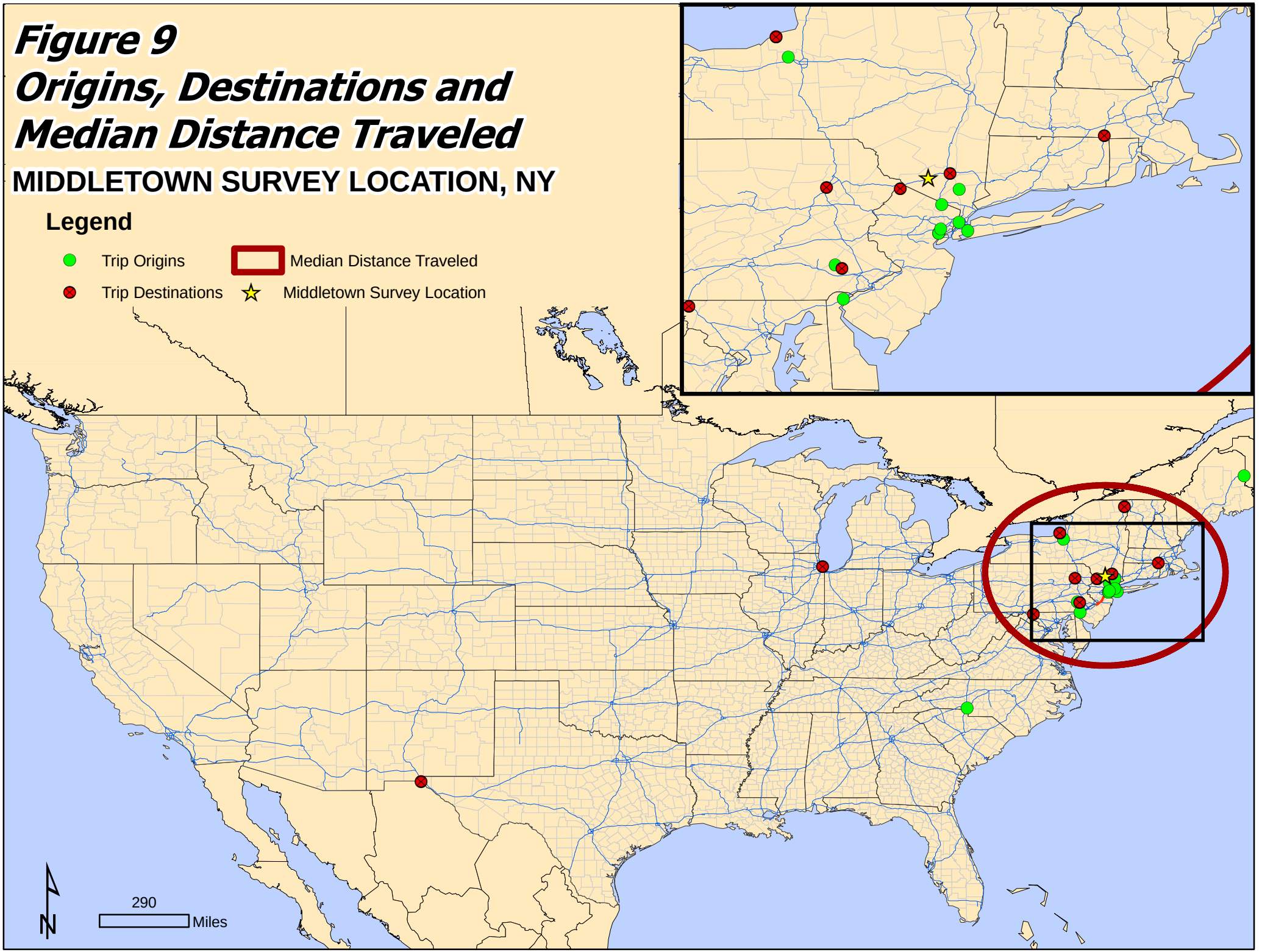
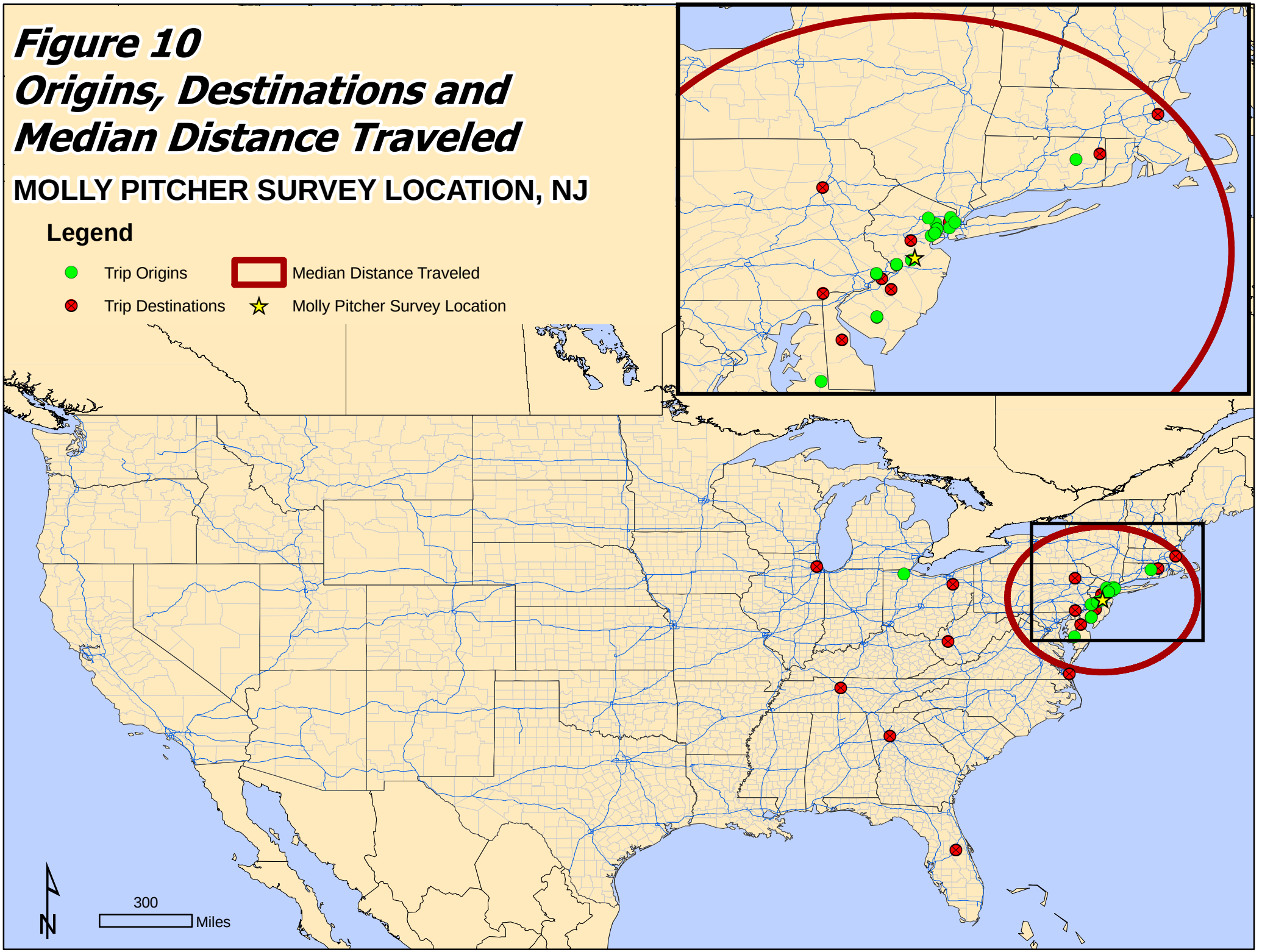


Figure 10
Origins, Destinations and Median Distance Traveled

MOLLY PITCHER SURVEY LOCATION, NJ



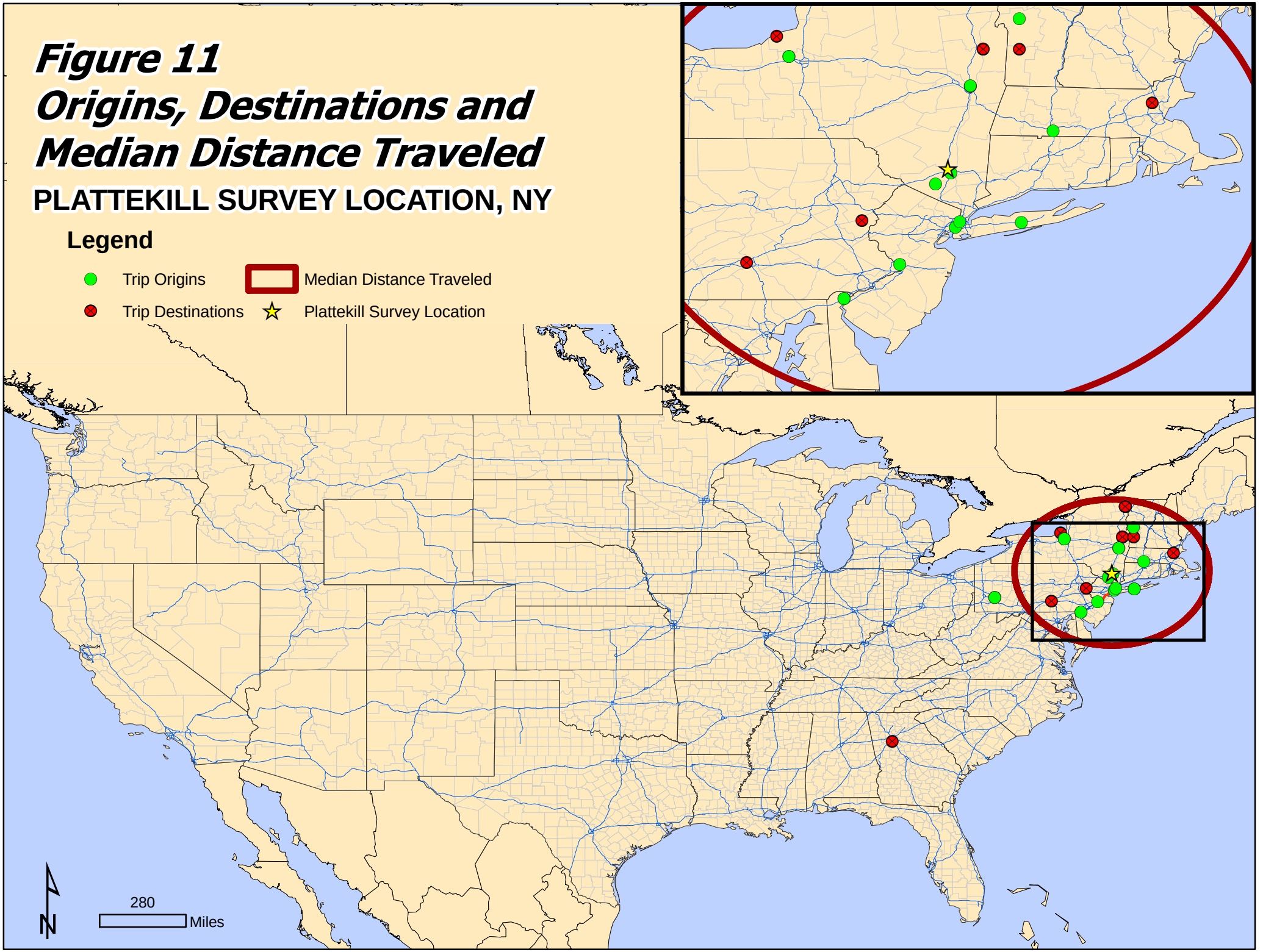


Figure 11
Origins, Destinations and
Median Distance Traveled
PLATTEKILL SURVEY LOCATION, NY
Legend
Trip Origins
Median Distance Traveled
Trip Destinations
Plattekill Survey Location
280
Miles

Figure 12
Origins, Destinations and Median Distance Traveled
RAMAPO SURVEY LOCATION, NY

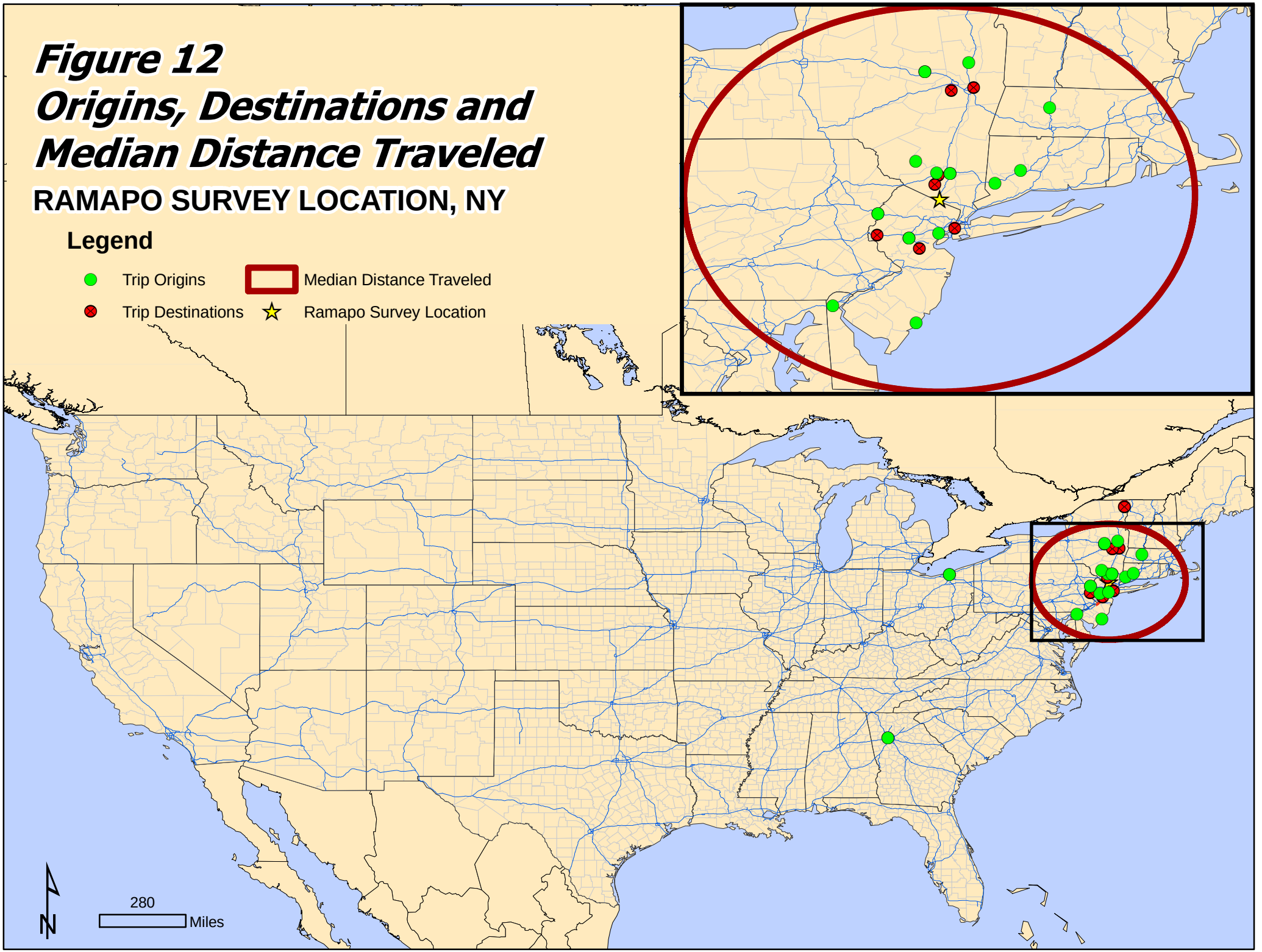


Figure 13
Origins, Destinations and Median Distance Traveled

SLOATSBURG SURVEY LOCATION, NY

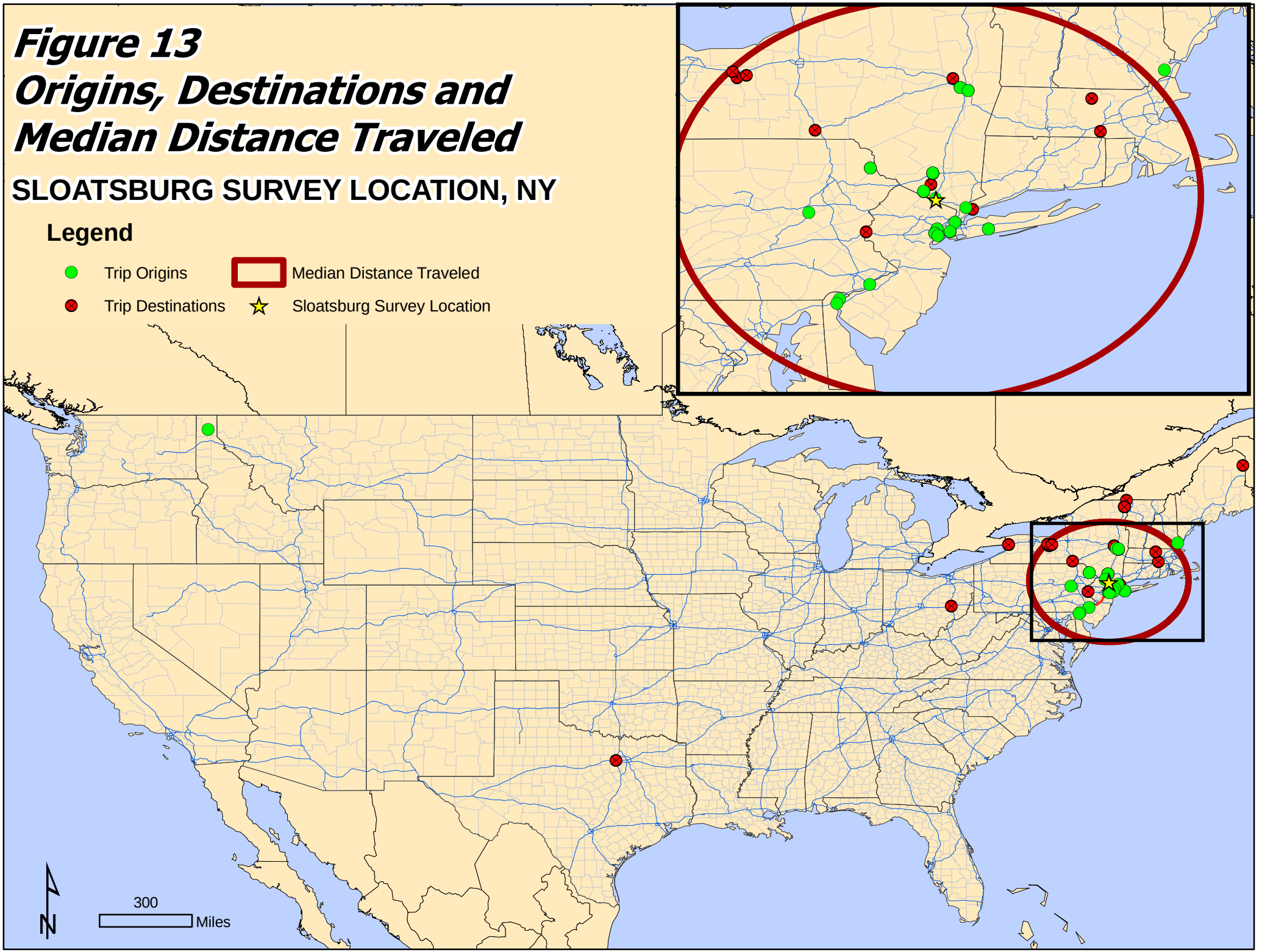
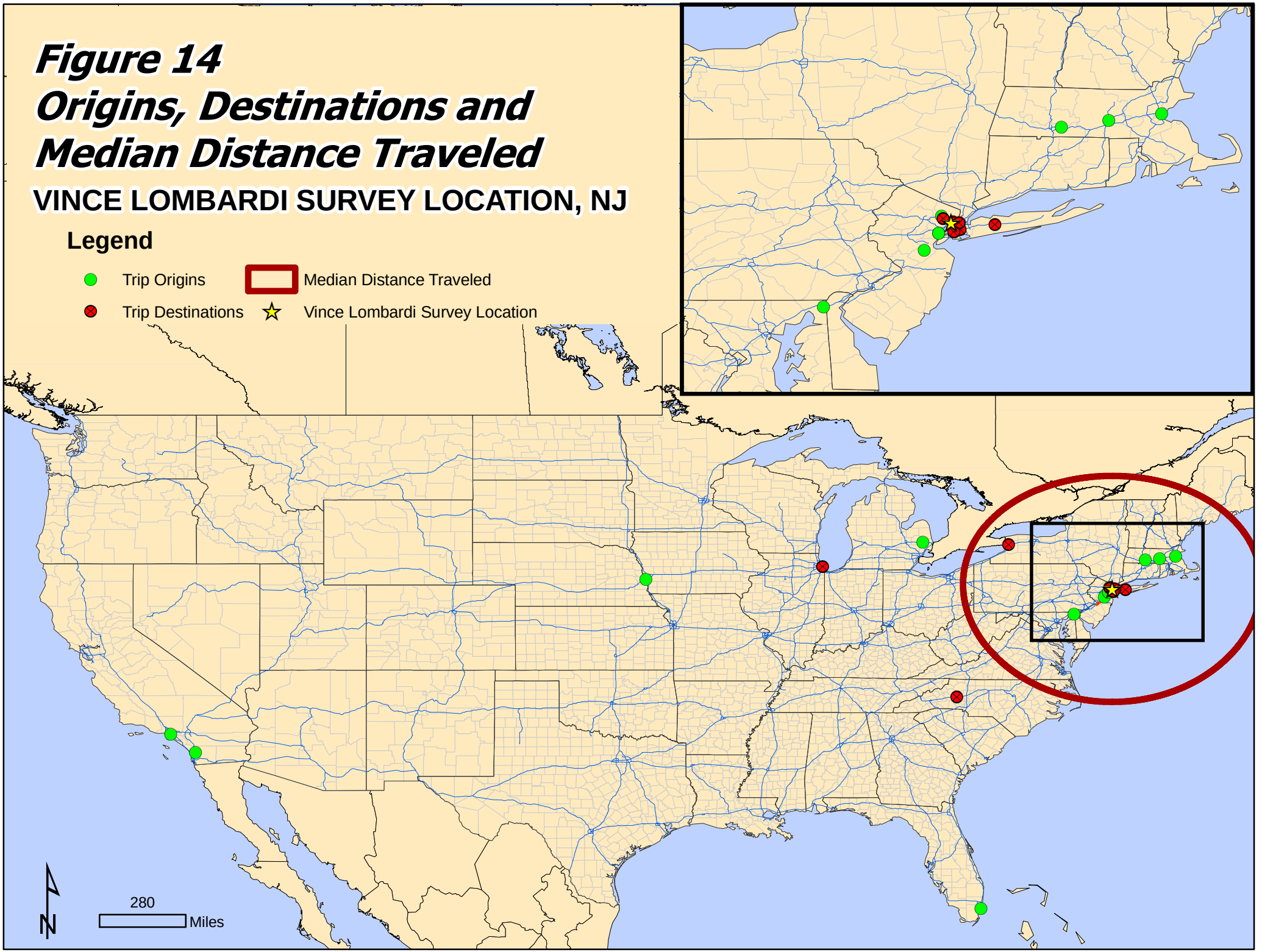


Figure 14
Origins, Destinations and Median Distance Traveled

VINCE LOMBARDI SURVEY LOCATION, NJ



Technical Memorandum 6:

Task 5b - Truck Stop Operations/Capacity Assessment and Summary Findings for the NYMTC Region

The purpose of this technical memorandum is three-fold. First, the memorandum is designed to summarize the current state of truck stop/rest facilities within the NYMTC region; as observed through the project's data collection effort. The discussion focuses on utilization rates at formal facilities, utilization of informal truck stops, as well as the temporal and spatial distribution patterns as it pertains to the region as a whole. Secondly, the memorandum provides a No Build conditions report for the year 2030, based upon estimates developed through demand forecasting. Lastly, it will introduce the importance of approaching the tri-state region's truck stop/rest facilities as an interconnected network, linked together by freight corridors.

1. Existing Conditions

i. Baseline Data

To assess existing truck parking conditions in the NYMTC region and neighboring jurisdictions, the study team collected truck parking capacity and utilization data. The data were collected at truck parking facilities throughout the tri-state region, including public rest areas, service plazas, parking areas, and privately-owned truck stops.

Observations were made during four two-hour periods over the course of the day; morning (7:00 AM to 9:00 AM), mid-day (12:00 PM to 2:00 PM), evening (5:00 PM to 7:00 PM), and overnight (10:00 PM to 12:00 AM). In addition, locations where trucks are known to park in "informal parking areas," such as highway and exit ramp shoulders and empty parking lots, were monitored to assess the degree to which such informal parking areas are used by truck drivers seeking a place to park or rest. Baseline data collected for use in this effort analysis includes:

- Automobile, bus, and truck parking capacity at truck stop/rest facilities;
- Automobile, bus, and truck parking utilization at truck stop/rest facilities throughout a typical service day; and
- Seasonal factors to normalize observed conditions

The capacity and utilization data was supplemented with responses from a truck driver origin/destination survey which was conducted at seven locations around the perimeter of the metropolitan region.

ii. Facility Capacity and Utilization

Overall, the data showed that there is an insufficient supply of truck parking spaces in the tri-state region to meet the current level of demand. Regionwide, formal truck parking facilities are accommodating nearly 1½ times the number of trucks they are designed to accommodate during the peak overnight hours. Many facilities see twice as many trucks parked during overnight hours than they were designed to accommodate or more. This level of utilization results in all marked parking spots being occupied; with additional trucks parking in striped no-parking zones,

entrance and exit ramps and shoulders, as well as other areas where they pose a safety risk to all highway users.

iii. Spatial Distribution

The analysis of truck parking capacity demonstrated that there is a greater supply of truck parking at off-highway private truck stops than at on-highway public rest areas and service plazas. The region's largest truck parking facilities are private truck stops, with the exception of the Vince Lombardi Service Area on the New Jersey Turnpike. The facilities that reach and exceed capacity earlier, during the evening, tend to be on-highway public rest areas and service plazas located close to the core of the metropolitan region. The ease of access to these types of facilities from the highways makes them very desirable parking locations, especially if the driver wishes to spend only a short period of time off the road. The areas nearest the region's core are also desired because of their locations are convenient to drivers' trip origins and destinations. The rest areas and truck stops that have the greatest number of truck parking spaces available during the overnight hours are more than 50 miles away from the core of the metropolitan region. Within 50 miles of Manhattan, nearly every facility hosts more trucks than it has truck parking spaces.

The conditions at individual facilities affect other facilities along the same corridor, as drivers may decide to stop at a different rest area nearer or farther down the road based upon parking availability, convenience, or available amenities. Looking at the existing conditions at facilities located along each major highway corridor approaching the NYMTC Region uncovers corridor systems where parking supply is deficient.

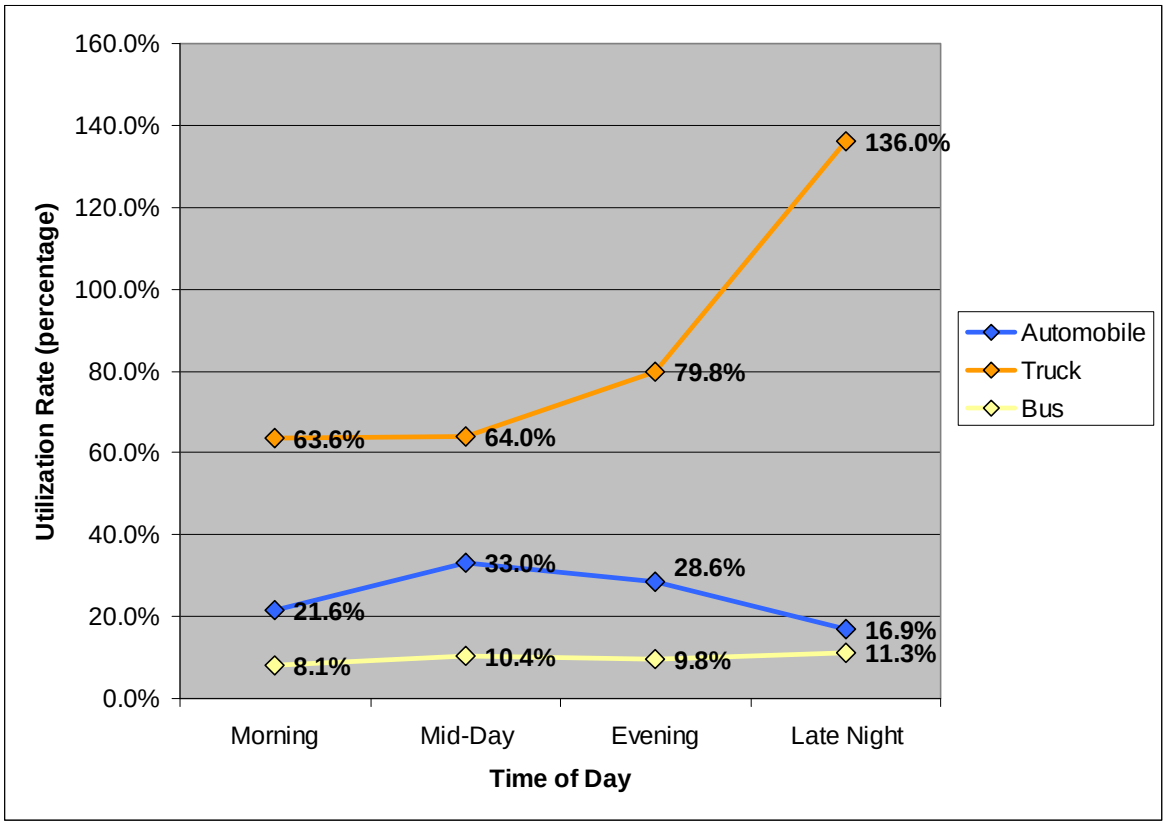
iv. Temporal Distribution

Truck parking utilization is greatest during evening and overnight hours. These are the hours when truck drivers seek a safe place to park their vehicles and rest, either for a quick refreshing nap, a longer period of sleep, or to wait until a time when they are able to make a delivery or pick-up at their destination. (i.e., a driver waiting to access a warehouse facility that does not open until 6 AM).

During the morning and midday hours, nearly all truck parking facilities in the tri-state region were shown to have available truck parking capacity. The average utilization percentage during those hours is between 68 and 70 percent, with 30 to 32 percent of the truck parking spaces available. During early evening hours, many of the facilities begin to reach and exceed capacity, while the vast majority of facilities reach or exceed capacity during the overnight hours.

Figure 1 below illustrates an inverse relationship between the utilization of truck parking spaces and automobile parking spaces at facilities throughout the region. The data shows that when demand for truck parking is greatest, the demand for automobile parking is lowest. This indicates that there may be an opportunity to share parking supply at some facilities, designating a number of parking spaces for automobile use during the daytime and truck use overnight.

Figure 1: Temporal Distribution of Rest Facility Utilization



Figures 2 through 5 depict the spatial distribution in relation to time over the course of a day. An important observation is that dark red dots (representing excessive utilization) appear closest to the center of the region during the evening hours, and generally spread throughout the region by the overnight hours.

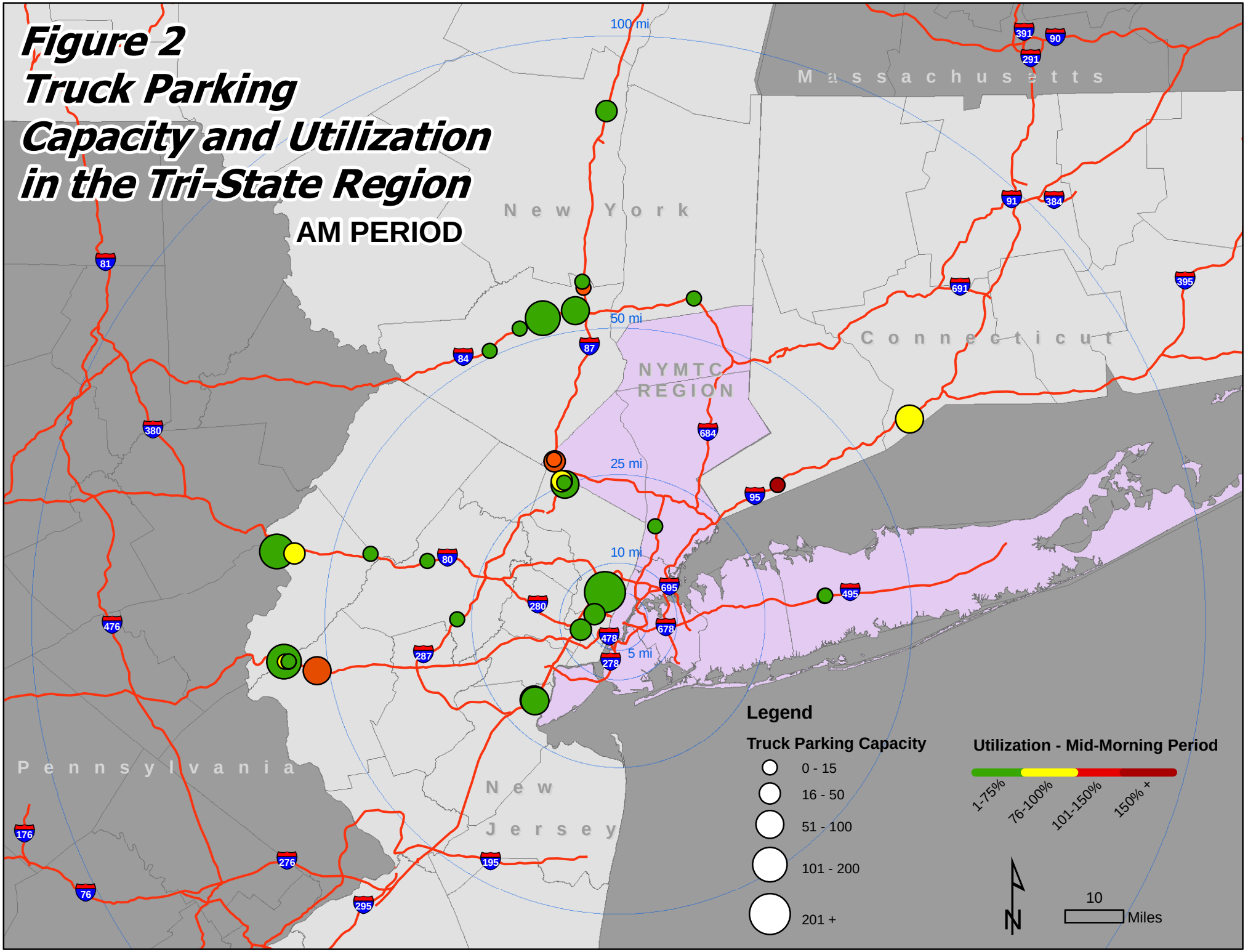


Figure 2
Truck Parking
Capacity and Utilization
in the Tri-State Region
AM PERIOD
100 mi
50 mi
25 mi
10 mi
5 mi
New York
Massachusetts
Connecticut
Pennsylvania
New Jersey
NYMTC
REGION
Legend
Truck Parking Capacity
0 - 15
16 - 50
51 - 100
101 - 200
201 +
Utilization - Mid-Morning Period
1-75%
76-100%
101-150%
150% +
N
10
Miles

Figure 3
Truck Parking Capacity and Utilization in the Tri-State Region

MID-DAY PERIOD

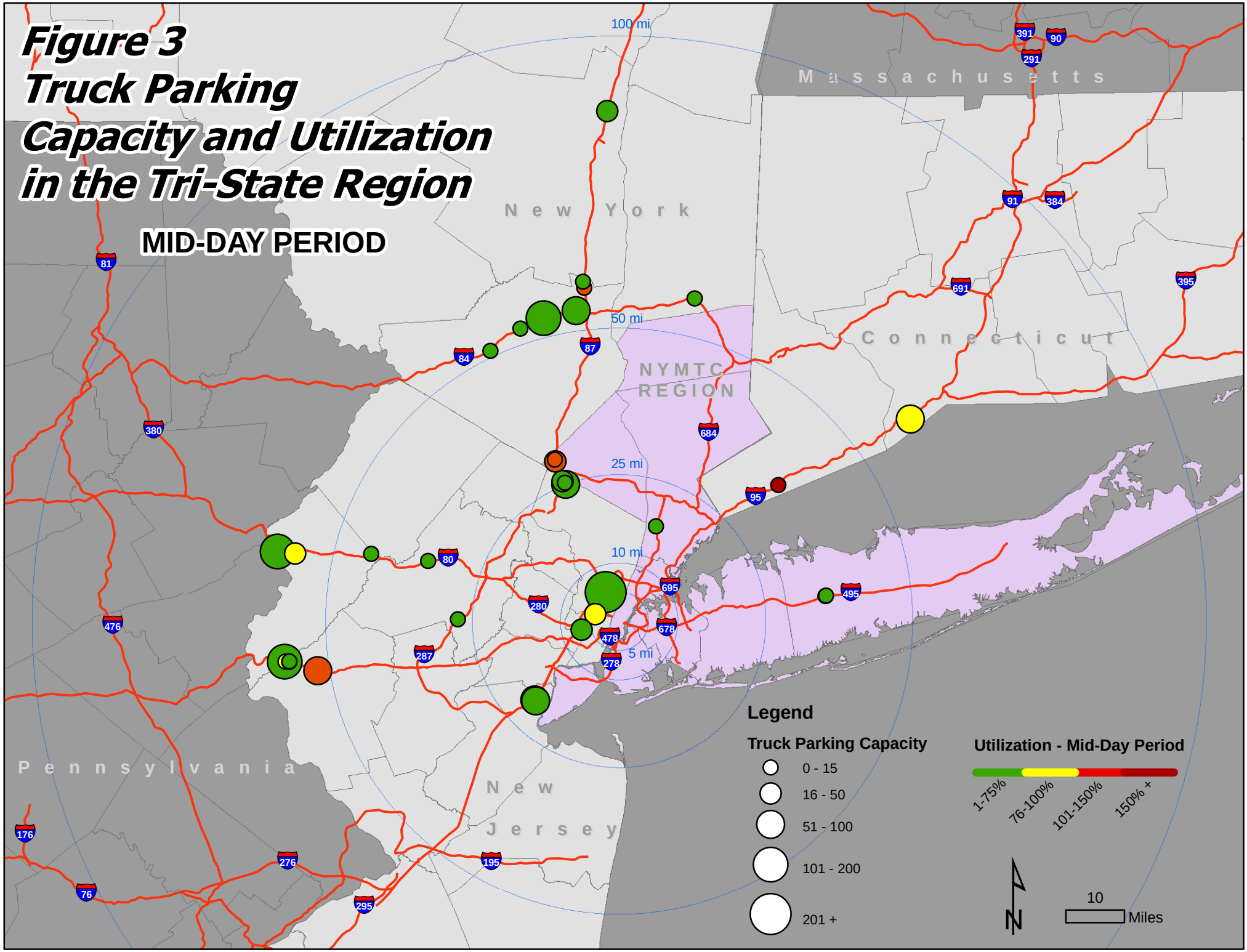


Figure 4
Truck Parking Capacity and Utilization in the Tri-State Region

PM PERIOD

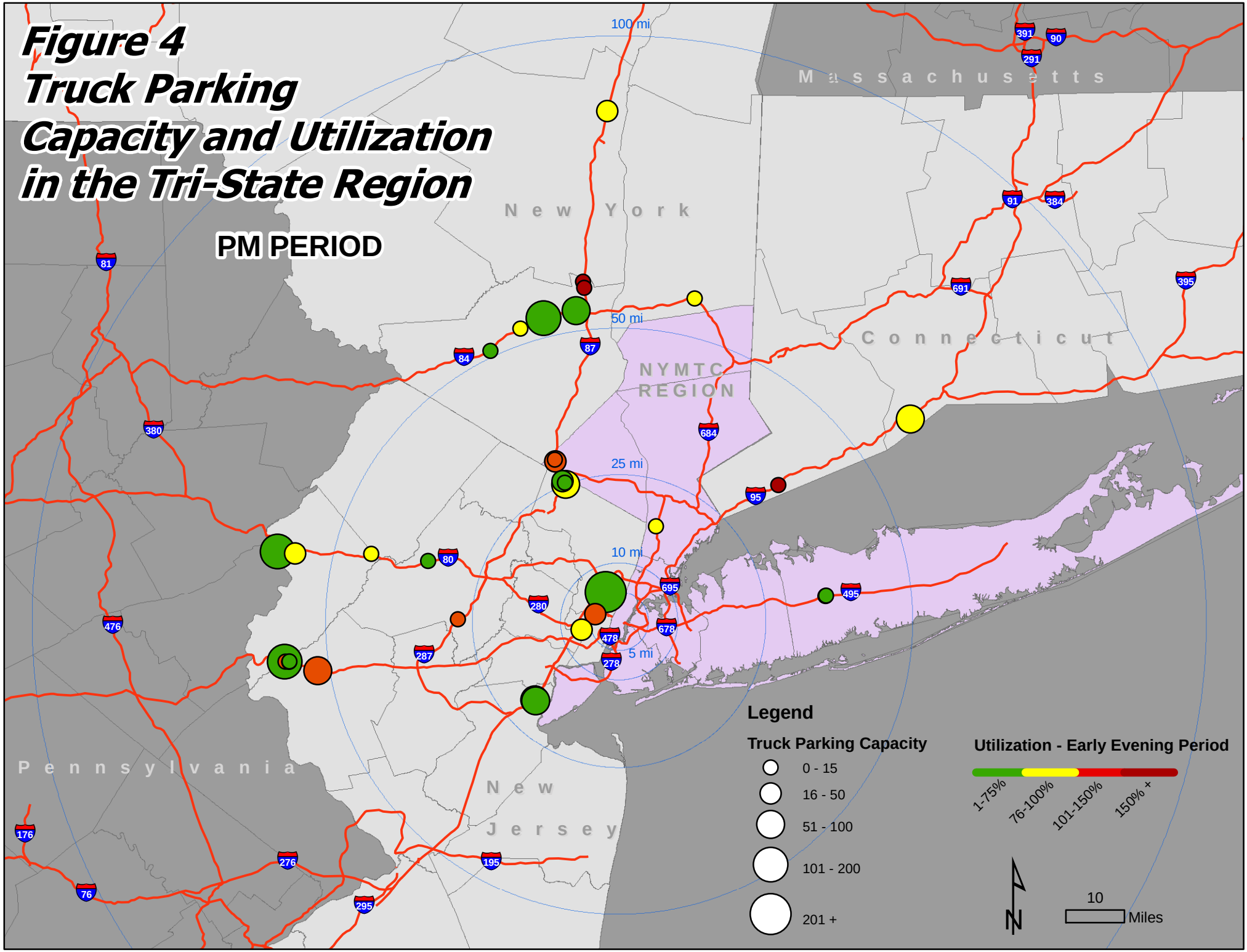
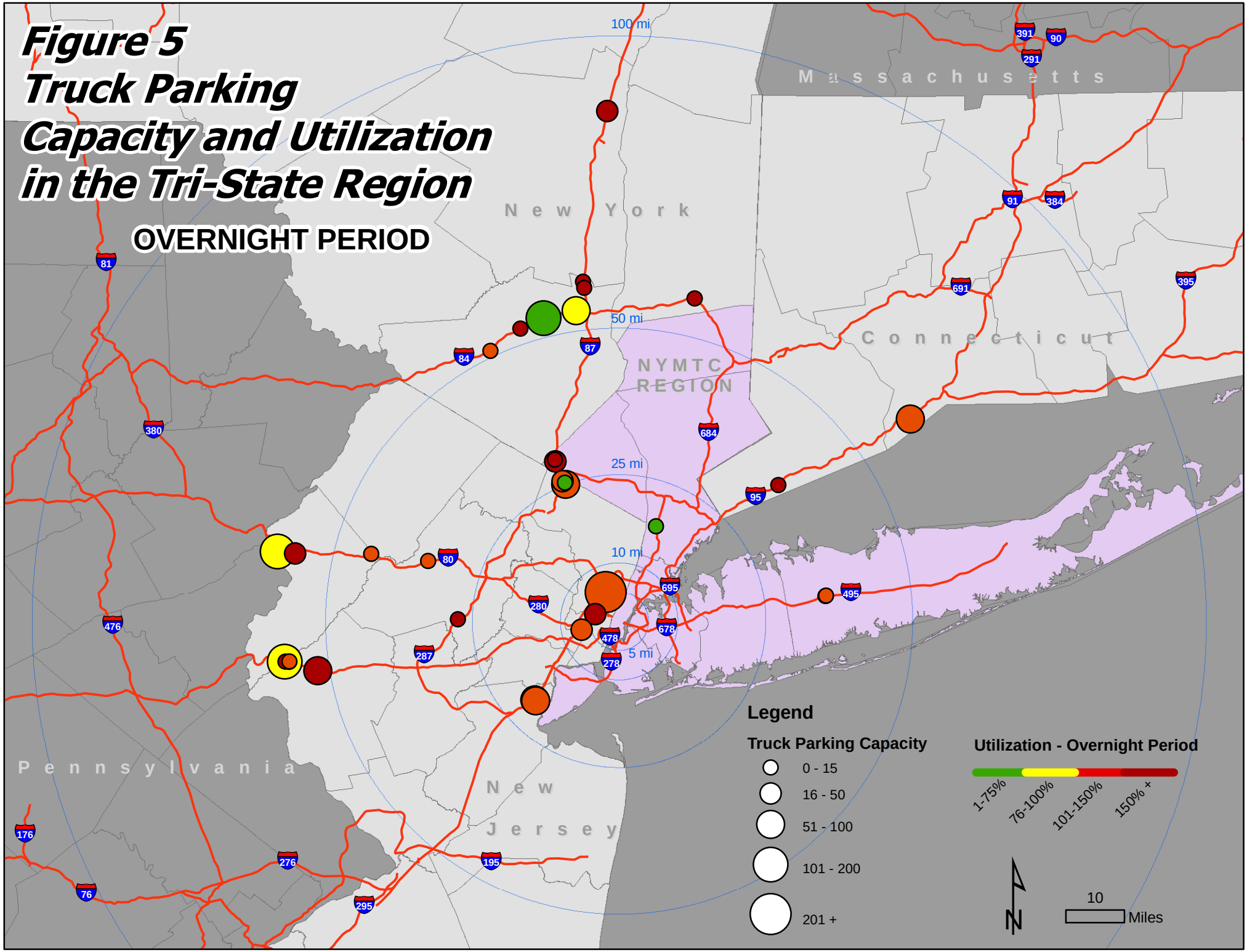


Figure 5
Truck Parking Capacity and Utilization in the Tri-State Region

OVERNIGHT PERIOD



North of Region's Core

I- 84 / 684 Corridor – Along the I-84 corridor within New York State, three public rest area facilities and two private truck stops were observed. During the mid-morning and afternoon hours, all facilities were observed to have more than 25 percent of their truck parking capacity available. By early evening, the public rest areas parking were nearly full, and by the overnight hours all parking at the public rest areas in the corridor were occupied above capacity. Available spaces remained in the off-highway private truck stops. Despite that availability, trucks were been observed parking in ramp shoulders on I-84 at Exits 17 and 18, just south of the East Fishkill Service Area.

I- 87 / New York State Thruway Corridor – The New York State Thruway corridor hosts six observed public rest areas and two private truck stops. With the exception of the Ardsley Service Area in Westchester County, all public rest areas parking exceeded capacity during the overnight hours. Three truck stops exist near the Thruway, just off I-287 in Mahwah, NJ and have space available during the daytime and early evening hours, and one was observed to have a small number of vacant spaces overnight. Their location off of the Thruway, and even off of I-287, make them less desirable, or not as well known, to travelers approaching the metropolitan region from the north. The lack of available parking on the Thruway corridor has resulted in drivers parking in areas that are not designated for truck parking, such as shoulders north of Exit 10 and near an industrial area along NY I-303 south of the Thruway in Rockland County.

I-95 Corridor – On I-95 in Connecticut, the rest area in Darien was occupied at a level of 1½ times its capacity during all times of day. An observed private truck stop in Milford was occupied near 100 percent during all periods until the overnight hours, when capacity was exceeded. Trucks have been observed parking along Hunts Point Avenue in the Bronx, likely because it is convenient to the markets and other trip generators, and because drivers have few alternatives on their approach to the Bronx via I-95.

South of Region's Core

New Jersey Turnpike Corridor – Service Areas on the New Jersey Turnpike have an adequate supply of truck parking to meet mid-morning and mid-day demands. By early evening, however, the Alexander Hamilton Service Area exceeds capacity, and during the overnight hours, all service areas north of Exit 10, including the 260-space Vince Lombardi Service Area, exceed capacity. Private truck stops in the South Kearny area, close to the Turnpike and US Route 1/9 also exceed capacity during the overnight hours.

East of Region's Core

I- 495 / Long Island Expressway Corridor – Although there is excess capacity during morning, mid-day, and evening periods, the east and westbound service areas in Huntington on the Long Island Expressway exceed capacity during the overnight hours. A number of informal truck parking areas have been noted in areas on and near I-495 in Suffolk, Nassau, and Queens counties, as well as the approaches to the Bronx-Whitestone and Throgs Neck bridges, where trucks are currently seeking places to park their vehicles overnight.

West of Region's Core

I-80 Corridor – Rest areas along the I-80 corridor have spaces available for trucks during morning, midday, and evening periods. No facility along this corridor was observed to exceed capacity until the overnight period. During the overnight, all rest areas exceed capacity. One truck stop in Columbia, near the Delaware Water Gap in New Jersey, reached 80 percent capacity overnight, with approximately 40 truck parking spaces remaining available. However, there were no available spaces to be found within 50 miles of the region's core.

I-78 and I-287 Corridor – The I-78 Corridor, including I-287 south of I-80, has adequate truck parking supply to meet daytime demand, with the exception of the Clinton truck stop, which exceeds capacity during each period of the day. By evening, only the Bethlehem Parking Area and a truck stop nearby in Bloomsbury have available parking. All facilities exceed capacity except for the Bloomsbury truck stop, which was observed to peak at 99 percent occupancy. Like the I-80 corridor, these few available spaces are located more than 50 miles from the core of the region. There is no available parking closer to the ports or New York City along this approach corridor.

Many of the off-highway truck stops have available capacity, while the on-highway facilities exceed capacity, resulting in overflow parking on highway ramps, shoulders, and other unfavorable or illegal locations. Reasons truck drivers do not make use of the excess capacity could range from the convenience of staying on the highway to being unaware of the existence of facilities located off of the highway. Many drivers do not wish to risk traveling off of the highway to get to a facility if they are unsure whether or not there are spaces available there, demonstrating a value placed on convenience, time savings, and real-time information.

v. Regional Overview

The data collection effort led to several findings regarding the existing condition of truck parking in the region. The region's truck parking supply is insufficient to meet the demands that currently exist during peak overnight hours. This is an observation that has been supported by stakeholders and truck drivers interviewed during this study. Generally, off-highway private truck stops host the existing available capacity, while nearly all of the on-highway public rest areas are at or above capacity during overnight hours. Overcrowded truck parking facilities result in drivers choosing unsafe alternatives such as trucks parked in unsafe areas or configurations within parking facilities (fire lanes, no parking zones, etc.), and in highway and ramp shoulders along the highway upstream and downstream from the overcrowded facilities. Many of the on-highway facilities contain parking spaces for automobiles and buses which are not fully utilized. Additionally, the demand for automobile parking at rest areas is lowest when demand for truck parking is highest. There is the potential to make use of some of the excess automobile parking capacity to alleviate truck parking demands overnight. While truck parking supply is insufficient currently, there stands to be an even greater problem in the future.

2. Future (2030) Conditions, No Build Scenario

A simulation exercise using a model was conducted to develop a forecast for truck parking demand for the year 2030. The model relied on the national TRANSEARCH database, developed by Global Insight, which includes freight commodity flow data from 2004 and forecasts of freight flows for 2030. The database contains truck trip origins and destinations at

the county level, and includes state/province level data for points in Mexico and Canada. The data is separated by commodity groups. The truck trip table in TRANSEARCH was assigned to the FHWA Freight Analysis Framework (FAF2) highway network, which provided an assignment of trips originating, destined to, or traveling through counties in the NYMTC region.

The forecast and assignment exercise resulted in a truck demand growth factor for each major highway corridor in the region. The growth factor also indicates the degree to which demand for truck parking will increase by 2030. An analysis of the projected truck parking demand and implications on each major highway corridor is presented below. These implications assume a No Build scenario in which truck parking capacity is not expanded at existing facilities and no new facilities are constructed prior to 2030. The anticipated growth factor for the corridor has been applied to each facility on the corridor in order to assess how the increase in demand will affect conditions at each facility.

Additionally, so-called "informal truck stop" observations (occasions when trucks have been recorded parked outside designated parking areas), have been included to illustrate a more complete picture of truck parking demand. These informal observations have been appended to the demand demonstrated at formal facilities located nearby. For example, if five trucks were observed parked on a shoulder a few miles away from a service area, those five trucks are assumed to represent additional demand for the nearby formal facility.

North of Region's Core

I-84 / I-684 Corridor – The I-84 / I-684 Corridor is anticipated to see growth in truck demand exceed a factor of two, which means demand will more than double by 2030. The existing supply of truck parking spaces in this corridor is 315 spaces, and currently 285 vehicles have been observed parking in these facilities. Additionally, nine trucks have been observed parking at informal locations in this corridor, which increases the existing demand in this corridor to 286. Applying the growth factor of 2.092 during the period leading to 2030, a demand for nearly 600 truck parking spaces is anticipated in the I-84 / 684 area by 2030. This demand is nearly double the existing truck parking capacity in the corridor. Table 1 below presents the existing and forecast demand for each facility in this corridor.

Table 1: Existing and Forecast Truck Parking Demand, I-84/I-684 Corridor

Facility Name	2008				2030 No Build Growth Factor: 2.092			
	Observed Truck Parking Capacity	Observed Peak Demand	Seasonally Factored Peak Utilization (%)	Observed Informal Parking♦	Truck Parking Capacity	Peak Demand	Seasonally Factored Peak Utilization (%)	Informal Parking
East Fishkill Service Area	15	40	259	9	15	84	543	19
Mile Marker 43	12	23	186	0	12	49	396	0

♦ Informal parking is representative of trucks parked at locations legally and/or illegally that are not part of the formal truck/rest stop facility, but are within its proximity (i.e. trucks parked on the roadway shoulder).

Mile Marker 3	12	16	129	0	12	34	275	0
TA Maybrook	180	122	66	0	180	256	138	0
Pilot #394	96	84	85	0	96	175	177	0
TOTAL	**315**	**285**	**88**	**9**	**315**	**598**	**184**	**19**

I- 87 / New York State Thruway Corridor – The I-87 / New York State Thruway corridor currently demonstrates a demand for truck parking that is greater than the supply. Service areas packed well above capacity and informal truck parking observations made in this corridor south of Exit 15 are evidence of the existing shortage. Growth in truck parking demand by 2030 will result in an even more severe shortfall if no new capacity is developed. By 2030, more than 800 trucks will seek parking in a corridor that has accommodations for little more than 200 trucks during the peak overnight period. Table 2 lists existing and future truck parking demand in this corridor.

Table 2: Existing and Forecast Truck Parking Demand, I- 87/New York State Thruway Corridor

Facility Name	2008				2030 No Build Growth Factor: 2.092			
	Observed Truck Parking Capacity	Observed Peak Demand	Seasonally Factored Peak Utilization (%)	Observed Informal Parking	Truck Parking Capacity	Peak Demand	Seasonally Factored Peak Utilization (%)	Informal Parking
Ardsley Service Area	20	17	79	3	20	35	163	6
Ramapo Service Area	17	45	246	2	17	93	509	4
Sloatsburg Service Area	33	71	200	4	33	149	420	8
Plattekill Service Area	22	40	169	0	22	83	351	0
Modena Service Area	24	67	260	0	24	140	543	0
Ulster Service Area	20	46	214	0	20	97	451	0
Pak's Fast Service – Mahwah	6	4	62	0	6	8	124	0
International Motor Plaza – Mahwah	28	31	103	0	28	64	213	0
Mahwah Travel Center	55	63	107	0	55	132	223	0
TOTAL	**225**	**384**	**159**	**9**	**225**	**801**	**331**	**18**

I-95 Corridor – Along I-95 in Connecticut, there is currently a parking shortage of 40 spaces at the facilities that were monitored during this study. In the future, these facilities will supply less than half of the parking spaces necessary to meet the demand that will exist at these facilities alone. The Darien Service Area, which is already accommodating 2½ times as many trucks as it is designed to accommodate, could see demand soar to more than four times its capacity.

Demand at Secondi Brothers Truck Stop in Milford will likely reach twice the capacity of the facility. Table 3 lists existing and future truck parking demand in this corridor.

Table 3: Existing and Forecast Truck Parking Demand, I-95 Corridor

Facility Name	2008				2030 No Build Growth Factor: 1.785			
	Observed Truck Parking Capacity	Observed Peak Demand	Seasonally Factored Peak Utilization (%)	Observed Informal Parking	Truck Parking Capacity	Peak Demand	Seasonally Factored Peak Utilization (%)	Informal Parking
Darien Service Area	18	43	251	0	18	96	560	0
Secondi Brothers Truck Stop	75	104	155	0	75	186	278	0
Pilot Travel Center – Milford, CT	115	-	-	-	115	-	-	-
TOTAL	**208**	**147***	**203***	**0**	**208**	**282***	**419***	**0**

South of Region's Core

New Jersey Turnpike Corridor North of Interchange 10 – The service areas along the New Jersey Turnpike north of Interchange 10 (Interstate 287) will also supply less than half of the truck parking necessary to meet 2030 demands in a No Build scenario. Nearly 1,000 trucks will seek places to park and rest during the overnight hours in 2030, yet only 432 parking spaces exist in this corridor. The demand for the Vince Lombardi Service Area will be nearly twice the capacity. The Alexander Hamilton and Thomas Edison Service Areas may see nearly three times as many trucks as they are capable of accommodating. Table 4 presents the existing and future truck parking demand in this corridor.

It should be reiterated the corridor known as the New Jersey Turnpike Corridor North of Interchange 10 is defined as the New Jersey Turnpike between the Interchange 10 (mile post 88.1) in Edison and Interchange 18 W (mile post W113.8) in Ridgefield Park. Project resources were devoted to the analysis of truck activity closest to the region's core. As a result the study team focused their data collection efforts and analyses on the section of the New Jersey Turnpike that most effects truck conditions approaching the NYMTC region. Reported truck parking capacity and utilization rates are only inclusive of facilities located north of Interchange 10. Additional truck parking facilities, such as Joyce Kilmer and Molly Pitcher Service Areas, are located south of the projects study area, and warrant consideration when drawing conclusions about the New Jersey Turnpike as a whole.

* Utilization and demand figures do not include Pilot Travel Center. Utilization data was not collected at Pilot Travel Center as part of this study. Capacity for the Pilot Travel Center is included in this table to provide further information regarding truck parking capacity in this corridor. Total utilization percentages are based on collective utilization rates observed at Darien Service Area and Secondi Brothers Truck Stop.

Table 4: Existing and Forecast Truck Parking Demand, New Jersey Turnpike Corridor North of Interchange 10

Facility Name	2008				2030 No Build Growth Factor: 1.845			
	Observed Truck Parking Capacity	Observed Peak Demand	Seasonally Factored Peak Utilization (%)	Observed Informal Parking	Truck Parking Capacity	Peak Demand	Seasonally Factored Peak Utilization (%)	Informal Parking
Vince Lombardi Service Area	260	266	99	9	260	492	184	17
Alexander Hamilton Service Area	28	51	177	0	28	94	326	0
Grover Cleveland Service Area	53	57	104	2	53	105	192	4
Thomas Edison Service Area	51	93	177	2	51	172	327	4
Tullo Truck Stop – South Kearny	40	50	121	0	40	92	223	0
TOTAL	**432**	**517**	**116**	**13**	**432**	**955**	**214**	**25**

East of Region's Core

I- 495 / Long Island Expressway Corridor – Few truck parking spaces are available at service areas on the Long Island Expressway. Like the other corridors throughout the region, the existing capacity is not expected to be sufficient to meet future demand. Many observations of informal truck parking were made along this corridor, demonstrating additional demand that is not currently being met at the service areas on the corridor. By 2030, the existing facilities will supply enough spaces to accommodate only one-third of the corridors demand. Table 5 lists existing and future truck parking demand in this corridor.

Table 5: Existing and Forecast Truck Parking Demand, I-495/Long Island Expressway Corridor

Facility Name	2008				2030 No Build Growth Factor: 2.100			
	Observed Truck Parking Capacity	Observed Peak Demand	Seasonally Factored Peak Utilization (%)	Observed Informal Parking	Truck Parking Capacity	Peak Demand	Seasonally Factored Peak Utilization (%)	Informal Parking
Commack Service Area EB	20	34	165	9	20	72	349	29
Commack Service Area WB	16	23	139	0	16	48	291	29
TOTAL	**36**	**57**	**154**	**9**	**36**	**120**	**323**	**58**

West of Region's Core

I-80 Corridor – Absent any capacity enhancements along the I-80 corridor in New Jersey, the excess capacity that currently exists at a large truck stop will quickly fill, and conditions at other facilities, already overcrowded, will continue to worsen. The 273 truck parking spaces in the corridor will not be sufficient for the demand of 517 trucks during the overnight hours. Table 6 illustrates existing and future truck parking demand in this corridor.

Table 6: Existing and Forecast Truck Parking Demand, I-80 Corridor

Facility Name	2008				2030 No Build Growth Factor: 1.864			
	Observed Truck Parking Capacity	Observed Peak Demand	Seasonally Factored Peak Utilization (%)	Observed Informal Parking	Truck Parking Capacity	Peak Demand	Seasonally Factored Peak Utilization (%)	Informal Parking
Roxbury Truck Parking Area	12	15	121	0	12	29	234	0
Mile Marker 21 Truck Parking Area	12	15	121	0	12	28	226	0
Knowlton Rest Area	29	73	244	0	29	136	455	0
Travel Centers #6	220	174	77	0	220	324	143	0
TOTAL	**273**	**277**	**98**	**0**	**273**	**517**	**184**	**0**

I-78 Corridor – The I-78 corridor, like every corridor in the region, will likely see a deficiency in truck parking capacity develop by 2030. The deficiency will be most acute at the Harding Rest Area, where truck parking demand is expected to exceed supply more than three times. Table 7 lists existing and future truck parking demand in this corridor.

Table 7: Existing and Forecast Truck Parking Demand, I-78 Corridor

Facility Name	2008				2030 No Build Growth Factor: 1.864			
	Observed Truck Parking Capacity	Observed Peak Demand	Seasonally Factored Peak Utilization (%)	Observed Informal Parking	Truck Parking Capacity	Peak Demand	Seasonally Factored Peak Utilization (%)	Informal Parking
Harding Rest Area	22	40	176	0	22	74	326	0
Bethlehem Parking Area EB	11	17	150	0	11	33	291	0
Bethlehem Parking Area WB	10	13	126	0	10	23	223	0
Johnny's Truck Stop	74	112	147	0	74	208	273	0
Pilot #280	21	33	152	0	21	61	282	0
Travel Centers of America #48	129	128	96	0	129	238	179	0
TOTAL	**267**	**342**	**124**	**0**	**267**	**638**	**232**	**0**

For each corridor, the existing truck parking supply is not sufficient to meet the growing demand. By 2030, the demand placed on parking facilities throughout the region will more than double in many cases. The problem will only worsen if no new capacity is provided in areas where parking facilities are already overflowing during peak overnight hours. The difference between truck parking supply and demand in 2030 is the likely number of trucks that will be seen parked on highway shoulders, ramp shoulders, vacant parking lots near highway exits, and

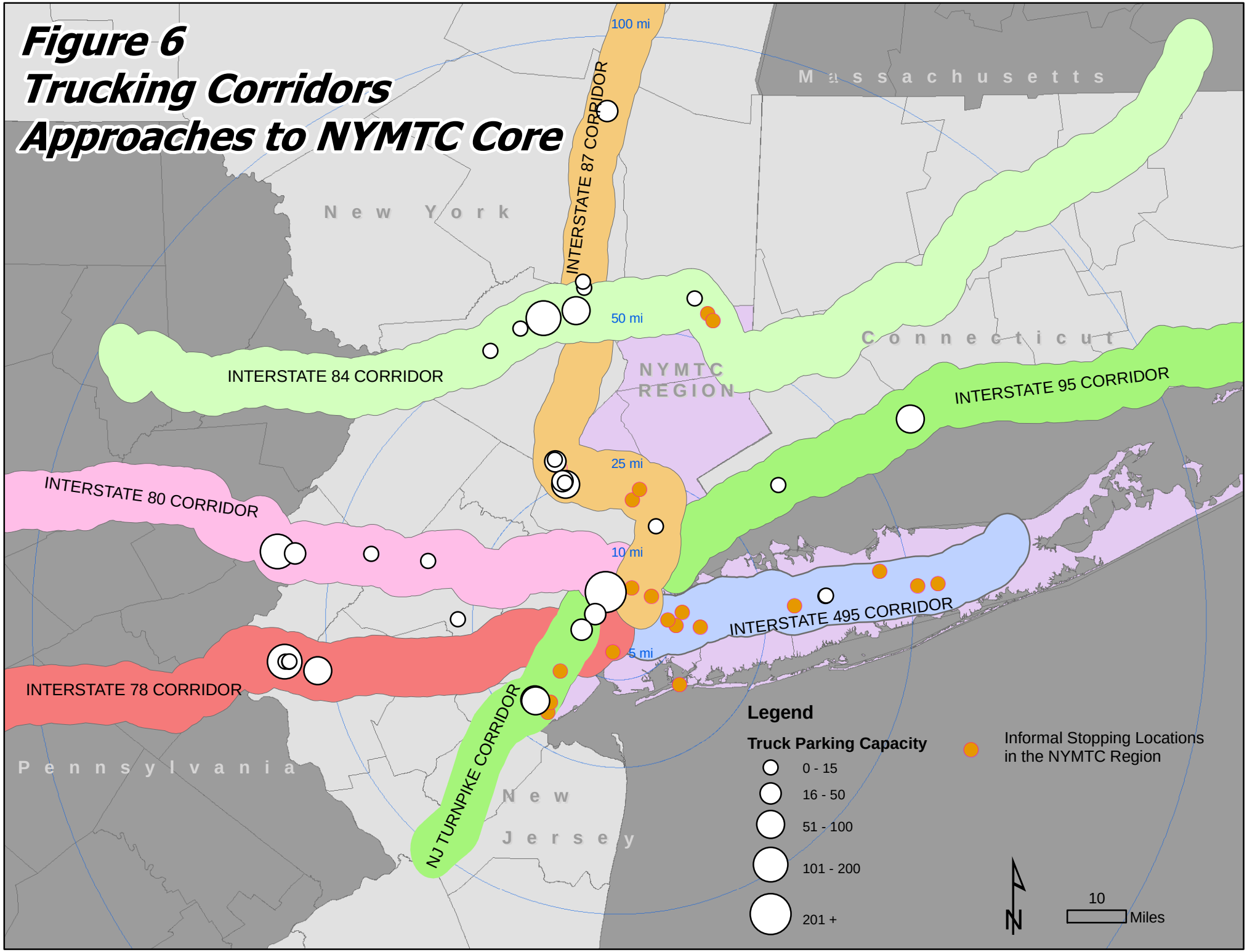
other informal locations.

3. Regional Context

As observed the tri-state region maintains an established network of facilities servicing the commercial truck driver. However, the currently available capacity and spatial distribution throughout the region barely meet the physical and operational needs of today's commercial drivers. Coupled with estimated increases of two to 2½ times the current level of roadway freight movement expected by 2030, the tri-state region can anticipate an increase in the number of incidents involving commercial vehicles, a reduction in the region's economic competitiveness, and a loss in quality of life.

One of the first steps to resolving the challenge of meeting demand for truck stop/rest facilities is acknowledging that a problem exists. Through the efforts of this study and studies conducted by NJTPA and ConnDOT, the issues of truck stops and the lack of capacity currently available are creating discussion between critical stakeholders across jurisdictional boundaries. Officials in New York, New Jersey, and Connecticut are realizing that because the highway network spans jurisdictional boundaries, so too do the truck parking capacity problems and potential solutions. As sponsor agencies of truck parking studies in their own jurisdictions, NJTPA and ConnDOT will be important partners. Together with NYMTC, these agencies have recognized the extent to which the problem exists regionally, and will begin to advance potential solutions that address issues on highway corridors that span multiple states; Figure 6 illustrates the highway corridors that span multiple states.

Figure 6
Trucking Corridors
Approaches to NYMTC Core



3. Planning for Future Facilities

The planning effort involved in selecting sites for development into truck parking facilities, or assisting private developers in locating a site for truck stop development, the role of the new facility within the highway network and system of truck stop facilities throughout the region should be kept in mind. The needs of truck drivers themselves are of critical importance too. The data collection effort undertaken in this study, as well as other truck parking studies throughout the tri-state region shows that the greatest over utilization of truck parking facilities occurs near the core of the region. Thus, opportunities to develop additional truck parking supply should seek to alleviate the truck parking deficiencies in and near the core, all a while maintaining the best use of core real estate.

It is also important that new truck parking facilities and reconfigurations of existing facilities take the basic needs of drivers into account by providing amenities such as food service, showers, lockers, internet access, vehicle service, and in-cab electrification where possible. The site design should make ingress and egress as easy and as safe as possible, with minimal disruption to overall traffic flows. Some trucks have been observed parking at informal locations such as highway shoulders despite the availability of truck parking spaces at a nearby facility. When asked why, drivers cited delays exiting the facilities as a reason they chose not to use truck parking facilities. Configurations that reduce egress delays would likely make truck stop facilities more attractive to drivers.

Regulations issued by the Federal Motor Carrier Safety Administration (FMCSA), specifically hours of service (HOS) regulations governing the working hours of anyone operating a commercial motor vehicle, should also be a major consideration. Since HOS rules are intended to reduce fatigue-related crashes, it makes sense to site future truck stop facilities at locations that provide drivers an opportunity to easily access and safely park their vehicles when approaching driving hour regulations, as listed in Table 8.

Table 8: FMCSA Hours-of-Service (HOS) Regulation for Property Carrying CMV Drivers[1]

Driving Hours	On Duty Hours	Off Duty Hours	Minimum Duty Cycle
11	14	10	21

Real-time information should be a key component, as well. Some of the drivers interviewed at informal locations stated that they parked on exit ramp shoulders because other trucks were parked there and therefore they assumed the nearby truck stops were full, though they were, in fact, not. If given real-time parking availability information, drivers may recognize that parking is available and not fear wasting time in a potentially fruitless search for an empty parking space. Regional industry groups or coalitions may be a potential project partner to assist in the development of real-time truck parking technologies, such as real-time digital video imagining and GPS based traffic reporting systems.

[1] http://www.fmcsa.dot.gov/rules-regulations/topics/hos/hos-2005 htm#tables

Unfortunately for sponsor agencies and truck parking developers, the land nearest the core is costly to acquire and maintain. Also, due to higher development intensities and residential densities, there are more neighbors who may oppose the development of a truck parking facility in their communities. These challenges may make sites farther toward the periphery of the region seem more attractive for development. Even so sponsor agencies, must be prepared to work hard to establish an environment in which truck parking facilities are not found to be objectionable by residents and officials who are the local land use decision-makers.

Many of the health, safety, and quality of life issues residents can be negated with the use of in-cab electrification and other technologies to reduce noise and emissions. Additionally, context-sensitive site design could make a truck parking facility less intrusive, making trucks less visible and audible. Outreach and education programs for local community boards and municipal planners can communicate the need for truck parking in the region, explaining the safety issues associated with informal parking, and the consequences of doing nothing to remedy the situation. These efforts are not likely to result in residents clamoring in favor of truck parking facilities in their neighborhoods, but they may help make an argument that such a facility may have a place within their municipality to provide an important service to the highway system and its users.

i. Regional Truck Parking Deficit

As a region, the tri-state area does not contain enough truck parking capacity to meet the increasing demand for commercial truck activity. With approximately 1,756 formal truck parking spaces and a regional peak hour utilization rate of 118 percent, the need for additional parking, as well as understanding the safety, quality of life, and economic impacts attributed to the regions truck parking deficit is greater than ever. Measures to improve the distribution of demand throughout the region more evenly could provide short term improvements. However, long-term solutions will require the further technical examination and the creation of additional capacity, as observed in Table 9.

Table 9: Existing and 2030 No Build Truck Parking Capacity and Utilization by Freight Corridor

Regional Freight Corridor	2007			2030 No Build		
	Truck Parking Capacity	Peak Demand	Seasonally Factored Peak Utilization (%)	Truck Parking Capacity	Peak Demand	Seasonally Factored Peak Utilization (%)
I-87 / NYS Thruway	225	384	159	225	801	331
I-95 (CT)	208	147	203	208	282	419
I-78	267	342	124	267	638	232
NJ Turnpike (North of Interchange 10)	432	517	116	432	955	214
I-80	273	277	98	273	517	184
I-84 / I-684	315	285	88	315	598	184
I-495 / LIE	36	57	154	36	120	323
Regional Total	**1,756**	**2,009**	**118**	**1,756**	**3,911**	**236**

Figure 7
Truck Parking Capacity and Peak Future Demand in the Tri-State Region