PLAN 2035

Appendix C

NJTPA Strategy Evaluation Study Report: Identifying Accessibility, Mobility, and Congestion Needs and Strategies for Northern New Jersey

NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

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The report was developed as part of the North Jersey Strategy Evaluation conducted by NJTPA staff. The overall effort identified and evaluated specific transportation strategies for the northern New Jersey region. These strategies address accessibility and mobility needs for the entire region, and are linked to the goals, needs and priorities defined in the regional transportation plan adopted by the NJTPA. The process forms the backbone of the identification, development, and implementation of projects to enhance accessibility and mobility and to manage congestion in the region.

This document is an appendix to Plan 2035, the Regional Transportation Plan for Northern New Jersey. The full document is available at www.NJTPA.org. Plan 2035 was prepared and published by the North Jersey Transportation Planning Authority, Inc. with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.

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NJTPA Strategy Evaluation Study Report
Identifying Accessibility, Mobility and Congestion Needs and Strategies for Northern New Jersey

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1. Introduction

The NJTPA is responsible for planning the future of transportation in its region. This is a complex task, given the region's diverse landscapes and communities, its extensive transportation system and the heavy demands placed on the system by a growing population and economy. A key mechanism the NJTPA uses to make sense of its diverse region is its "Strategy Evaluation" process.

The Strategy Evaluation is conducted periodically to assess how well the region's transportation system meets residents' needs. The effort also generates recommendations for specific strategies and programs to benefit particular places. These are incorporated into updates of the NJTPA long-range Regional Transportation Plan (RTP).

The Strategy Evaluation process takes a "place-based" approach, finding solutions that are appropriate for prevailing land uses and activities in particular places, ranging from urban cores to exurban and rural areas.

The process first identifies transportation needs of places throughout the region on the basis of their specific characteristics, including the quality of transportation systems. Performance measures are used to gauge accessibility (how readily people and goods can reach desired destinations), mobility, congestion, reliability on roads, as well as the use of public transit and other travel modes. A comparison of performance measures to set targets across places provides an indication of place-based needs.

Effective transportation strategies are subsequently sought to address the needs. This search for effective strategies requires an emphasis on their land use, economic, environmental, and social impacts. The NJTPA works closely with other agencies, interest groups and the general public to ensure that the identified needs and proposed strategies address real regional priorities.

This report provides background on the Congestion Management Process, required of MPOs like the NJTPA by federal law, and describes the two primary phases of the most recent Strategy Evaluation study: assessment of regional performance needs completed in 2007 and identification of transportation strategies completed in 2008. A section discusses Strategy Refinement, a follow-up study to Strategy Evaluation concluding in 2009 which generates specific project concepts for the RTP, PDWP, and various other agency planning. At the end of this document, a complete set of regional strategy area maps is provided with accompanying detail on the related Strategy Evaluation data analysis.

2. The NJTPA Congestion Management Process

As required of metropolitan planning organizations by federal transportation law, the NJTPA bases planning decisions on the performance of the transportation system. A Congestion Management Process (CMP) is an integral part of the NJTPA planning process, addressing federal requirements[1] by providing information and strategies to decision-makers regarding accessibility, mobility and congestion as they relate to the movement of persons and goods in northern New Jersey.

The CMP involves numerous steps and integrates with NJTPA planning activities at many stages. At its heart, however, is a straightforward consideration of how well the transportation system serves its essential function—providing accessibility to the region's travelers. This is about questions such as: How reliable is the transportation system? Can people readily access jobs and other destinations? Do they have access to transit? How bad are highway delays? Is freight movement efficient? How safe and convenient is travel by bicycle and on foot? And for each of such questions, what improvement strategies are most appropriate and where in the region should they be implemented?

The performance-based analysis within the NJTPA CMP is called Strategy Evaluation, originally developed and approved in 2002 and updated for the 2009 Regional Transportation Plan (RTP) cycle. Strategy Evaluation is a data-driven study, but is guided by adopted NJTPA policy—especially the Regional Capital Investment Strategy[2]—and through substantial review by NJTPA member and partner agencies.

Strategy Evaluation findings are oriented around context, selecting solutions that are appropriate for prevailing land uses and activities in particular places. The study carefully considers the many types of land use and environmental conditions ("place types") present in the northern New Jersey municipalities. Special considerations regarding environmentally sensitive areas and low-income and minority communities are taken into account. A wide variety of data is applied, performance measures are quantified, objectives and performance targets are set, regional needs are identified[3], and strategies throughout the region are investigated[4].

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[1] See Final rule on Metropolitan Transportation Planning and Programming, 23 CFR 450.320, and on Management and Monitoring Systems, 23 CFR 500.109, published February 14, 2007.
[2] *NJTPA Regional Capital Investment Strategy*, adopted March 14, 2005 and within the NJTPA Regional Transportation Plan, *Access and Mobility*, September 2005.
[3] *NJTPA Strategy Evaluation Regional Transportation Needs*, October 2007 Strategy Evaluation Strategy Areas, NJTPA Regional Tranasportation September 2009.
[4] *NJTPA Strategy Evaluation Strategy Areas*, NJTPA Regional Tranasportation Plan August 2009 (*forthcoming*).

Strategy Evaluation generates specific improvements for inclusion in the RTP and for further development into projects and programs to be advanced by transportation operating agencies. Beyond Strategy Evaluation, actual candidate projects and programs drawn from and consistent with its findings emerge from a myriad of studies and other sources in the planning process. An important mechanism for beginning to develop project concepts directly from Strategy Evaluation strategies is an NJTPA-led process called Strategy Refinement[5]. Concepts identified through Strategy Refinement and other NJTPA and partner studies identified in the NJTPA Unified Planning Work Program (UPWP) (including the Project Development Work Program or PDWP) must be developed consistent with CMP requirements and may then emerge as candidate projects for federal funding through the NJTPA Transportation Improvement Program.

The resulting assessments about where transportation strategies will work best were mapped in a Geographic Information System (GIS) with multiple data layers. It is important to note that the strategy locations do not represent all needed improvements in the region. While the Strategy Evaluation analysis is an essential tool for identifying transportation needs, project needs are also identified through the management systems, as well as additional corridor and subregional studies and other analysis by the NJTPA and member agencies. Strategy Evaluation findings are also used by the NJTPA to assess and screen proposals for transportation improvement projects. Strategy Evaluation findings will be regularly updated as new needs are identified or strategies are reassessed in the planning process. Importantly, proposed projects that would significantly expand roadway space or add new roads will continue to require special attention in the NJTPA Congestion Management Process before federal funds may be applied. The CMP looks at road expansions as a last resort and as appropriate, that they be coupled with complementary operational and travel demand management strategies.

[5] See Section 6, *Strategy Refinement Generation of New Study/Project Concepts*

3. Regional Transportation Needs

The Strategy Evaluation's place-based needs analysis is described in detail in *NJTPA Strategy Evaluation Regional Transportation Needs*, October 2007, including several regional maps showing needs identified throughout northern New Jersey. A brief summary of this portion of the analysis follows:

Place Types and Needs

Transportation performance and needs vary greatly depending on the landscape—ranging in northern New Jersey from the urban core to exurban and rural areas. The region contains large environmentally sensitive areas close to developed areas, adding to its complexity. The variety of "place types" — considering land use, population density, employment, the nature of economic activities, street patterns, and so on—help point the way to how future land use and transportation features should be supported or discouraged.

These desired objectives, in turn, allow for setting standards of performance according to context. For instance, levels of congestion that indicate a "need" can be set lower in rural or suburban areas than in urban areas (where a greater level of congestion may be expected). Where performance standards are not met, needs for improving accessibility and mobility are identified and improvements are sought.

Places with Special Considerations

Assessing needs takes into account that some places in the region have features warranting special consideration. Of particular concern are environmentally sensitive areas and places with high concentration of low-income and minority populations.

To fulfill its goals for preserving the environment and the region's natural resources, the NJTPA seeks to minimize impacts on wetlands, floodplains, coastal areas, lakes, streams, rivers, dunes, beaches, parks, forests, natural habitats and other environmentally sensitive areas.The NJTPA also pays particular attention to the transportation needs of low income and minority populations to ensure an equitable and inclusive planning process. In both cases, these special considerations are mandated by federal and state policy and regulations.

Performance Measures

Needs represent transportation problems, such as unacceptable levels of traffic congestion, and opportunities, such as a densely populated area that could support greater use of public transit. That is, needs are defined both negatively, in terms of problems to be addressed, and positively, in terms of opportunities for improvement.

Four types of needs were identified in Strategy Evaluation:

Roadway Accessibility and Delay: Given the extensive automobile and truck travel in the region, the study looks at several aspects of performance associated with roadway travel: routine delay, hotspot congestion, and likelihood of unexpected or incident delay. These are highly interrelated and paint a picture of where overflowing roadways hinder or constrain accessibility. Unexpected and hotspot congestion are considered more onerous than routine delay.

Needs are identified in many parts of the region based on these roadway delay measures. Particularly noteworthy are those in the very dense origins and destination of Hudson, Essex and Bergen Counties, denser parts of Union, Middlesex and Monmouth Counties, and burgeoning areas in and around the New Jersey Highlands. Given the wide diversity of these locations and markets, approaches to addressing these needs will vary markedly from place to place.

Roadway hotspot delay is experienced by over two fifths of the places of the region. It is most commonly experienced by residents and businesses in Urban Centers, followed by Metropolitan Places with Shopping Centers and Urban Areas. This is quite understandable because traffic is heavily congested on urban roads whereas shopping centers put extreme pressure on local roadways and highway access points. Although highly prevalent in the above place types, this type of delay is experienced in all place types.

Unexpected roadway delay affects proportionally larger number of Urban Centers, Urban Areas, and Metropolitan places with Industry compared to other place types. This likely relates to the high density of travelers within such places leading to crowded road conditions and a large number of crashes. Unexpected delay is also high in Rural Towns, where people converge from vast rural areas in the surroundings.

While routine delay is widespread, fewer places were identified with routine delay needs because of a higher standard placed on this measure. Nonetheless, Urban Centers are highly affected by this type of delay because of perennial congestion within and around these places. Residents of Rural Towns and Rural Areas are also highly affected by this type of delay, but that is primarily because they accrue significant delay over their generally long trips.

Use of Public Transit and Shared Ride: The success of the region's bus and rail transit system and shared-ride travel (such as carpools) in general is highly desirable. Given the air quality benefit of reducing auto use, the energy efficiency of transit, the sustainable economic benefits of encouraging smart growth, and the preservation of natural resources based on management of land use, the NJTPA has embraced public transit as a major regional priority. The success of transit and shared ride modes depend on the availability of fast, frequent, and

direct service to major regional destinations. To assess needs related to this type of travel, the Strategy Evaluation examines the extent of public transit use.

While it is desirable for transit and shared ride use to increase everywhere, the highest needs are mostly identified in the entire eastern part of the region (practically from Beachwood in Ocean County to Alpine in Bergen County) and many smaller pockets further to the west.The heavily urbanized areas show a greater need for improvement because their land use and population characteristics are more favorable for public transit. Yet for all place types, there are at least a few places where increasing the use of transit and shared ride may be a significant priority. If population densities would increase in places where they are currently low, more opportunities for enhancement of transit use would arise.

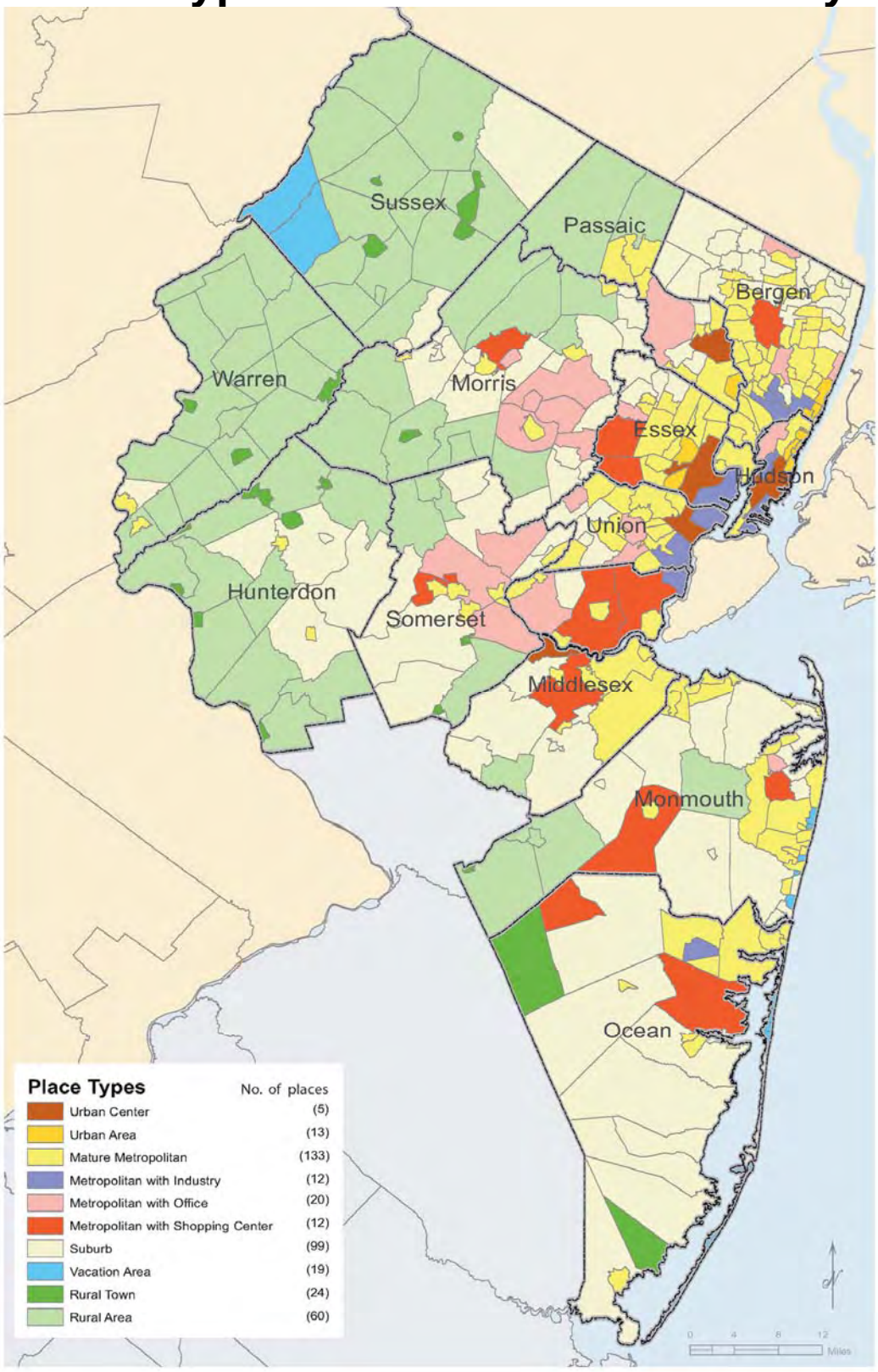
Walking and Biking: For their health and environmental benefits as well as their contribution toward efficient mobility and land use, the NJTPA is also committed to promoting walking and biking. The agency seeks to make these two travel modes convenient, safe, efficient, and attractive for shorter trips.

Increased walking and biking is a need for all places in the region.These needs are identified as relatively high in Urban Centers, Urban Areas, Mature Metropolitan Areas, Metropolitan Places with Industry and Rural Towns because they provide greater opportunities for enhancement than other place types. However, as the prevalence of walking and biking may depend on unique local features, improvements may be quite viable in other place types as well. For example, places identified as Metropolitan with Shopping Center or Metropolitan with Office may benefit from enhanced sidewalks or bicycle paths connecting shopping malls and office complexes with surrounding residential areas.

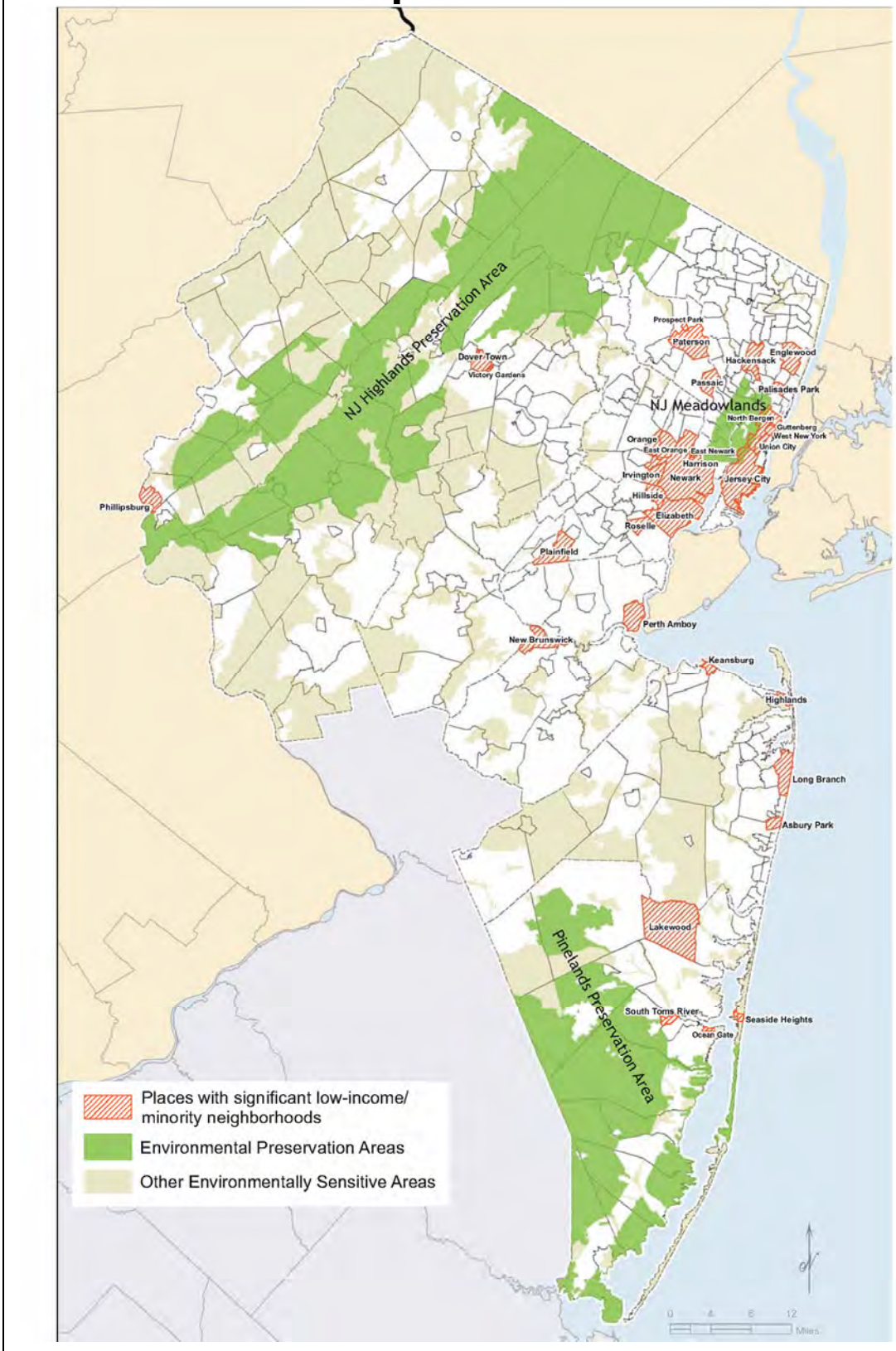
Access to Nearby Centers:
Improving how the region manages growth is a fundamental part of supporting accessibility for its residents. The NJTPA wants transportation investment to encourage sustainable, intelligent land use by focusing development in regional centers and other designated areas. At the same time it urges caution when considering new or expanded transportation infrastructure in lower density and environmentally sensitive areas.

The need for better access to nearby centers is predominantly felt by Suburbs, Rural Towns, and Rural Areas. The obvious reason is that people living in these areas must make substantially longer trips by automobile than those from denser areas. While the residents of these types of places will likely continue to make long trips because they are located far from major attractions in places like New York City, Newark, and Jersey City, having good access to nearby centers might allow them to satisfy many of their travel purposes while reducing their overall trip length and vehicle miles.

Place Types in Northern New Jersey



Places with Special Considerations



4. Strategy Identification

Following the Strategy Evaluation identification of transportation needs, the study delineated areas throughout the region where particular types of transportation improvements might be appropriate. The types of improvements (referred to as "strategies") were grouped into four categories: Ridesharing and Transit Support; Public Transit Enhancement; Roadway Improvements; and Freight Movement. Within each of those groups, more specific strategies were identified, such as highway operational improvements, local buses, rail freight projects, and park and ride lots.

The study generated a comprehensive series of maps showing many of the transportation improvement strategies that should be employed in the next 25 years, such as new bus and rail initiatives, roadway restructuring, intermodal freight infrastructure, and intelligent technology for keeping travelers informed. These Strategy Evaluation maps help illustrate how these strategies fit into the northern New Jersey landscape and transportation infrastructure.

As noted earlier, the strategy locations depicted on the following maps do not represent all needed improvements in the region. Also, where appropriate, the Strategy Evaluation findings will regularly be updated as new needs are identified or strategies are reassessed.

Access and Mobility Strategies and Strategy Areas

Aiming to improve transportation performance and address identified needs, Strategy Evaluation delineates areas where certain types of transportation improvements would be appropriate, such as new bus and rail initiatives, roadway restructuring, intermodal freight infrastructure, and intelligent technology for keeping travelers informed. This plan includes these improvement "strategies" to paint a comprehensive picture of where and how accessibility and mobility should be addressed over the next 25 years.

Detailed strategies—highway operational improvements, local buses, rail freight projects, park and ride lots and many others—were analyzed to arrive at the maps shown. The accompanying chart describes the range of those detailed strategies, which were formulated for specific locations based on substantial in-depth data analysis and collaboration with NJTPA member and partner agencies.

Strategies	Detailed Strategies	Brief Description
Ride sharing and Public Transit Support	**rail/ferry park-&-rides**	- expand parking for commuter rail or light rail riders
	bus & carpool park-&-rides	- expand or add parking for use by bus riders or ride-sharers
	shuttle service	- enhance or add circulator / shuttle bus or van services
	vanpool/carpool programs	- new or expanded employer-based and other programs that encourage ridesharing
	pedestrian & bicycle improvements	- add or improve sidewalks or bike lanes; traffic calming
Enhance Public Transit	**rail service**	- improvements to commuter or light rail, including lines, stations, service frequency or intermodal connections
	local bus service	- enhancements such as increased frequency or extended routes, connections and infrastructure for local bus, express bus, or Bus Rapid Transit
	express bus & BRT	- new or improved high level bus
	transit ITS	- new or enhanced real-time passenger information, fare systems
Improve Roadway Travel	**operational improvement**	- limited improvements such as: provide turning / acceleration / deceleration lanes, realign intersecting streets, time signals
	ITS & incident management	- technological improvements such as variable signs, ramp metering, dynamic pricing and incident detection/response systems and procedures
	interchange improvement	- improve the design of / upgrade highway interchanges
	access management	- improve the location, spacing, design/operation of driveways, median openings, and street connections; plan land use
	road expansion	- new lanes on existing roadways or new roadways or interchanges
Improve Freight Movement	**truck corridors**	- improve road design to accommodate/separate truck traffic
	rail freight corridors	- improve or expand rail freight facilities
	core intermodal / freight facilities	- improve or add intermodal freight facility
	port facilities	- improve rail yards, land-side access and intermodal port facilities

The *Strategy Areas Maps and Data Analysis* section at the end of this report provides detailed maps of all Strategy Areas identified and analyzed in Strategy Evaluation, illustrating how the four summary categories of strategies were broken down into more detailed strategies. Where possible for the public transit and roadway enhancement strategies, general market areas are sketched for particular strategy locations. The data and criteria applied for each are shown, with findings illustrated graphically and presented in tabular form.

5. Strategy Refinement

Strategy Evaluation was followed up with a Strategy Refinement study, which drew from regional need and strategy identifications to generate 30 specific project concepts throughout the NJTPA region. This study was supported by a consultant team led by PB Americas, Inc.

While concepts emerge through many avenues in the NJTPA process, those developed in the performance-based Strategy Refinement are important candidates for further planning, project development and implementation. As such, some will become candidates for the NJTPA Project Development Work Program. Further detailed study and project implementation will be the responsibility of the NJTPA and the region's implementing agencies, including NJDOT, NJ Transit, and Transportation Management Associations.

Identification of Strategy Refinement Areas

Potential Refinement Areas and associated strategies extracted from Strategy Evaluation findings were screened in accordance with NJTPA planning principles. Two groups of screening factors were applied. The first included the individual features of each Refinement Area:

- Compatibility with Smart Growth principles, including compact development, preservation of natural resources and economic diversity.
- Advancing sustainability by addressing energy and environmental issues
- Serving people in areas with identified needs, which were listed during Strategy Evaluation.
- Impacts and benefits to minority and low-income communities.
- Compatibility with NJTPA's Regional Capital Investment Strategy (RCIS) principles, including:
    - Expanding transit and ridesharing;
    - Enhancing roadways through improving operations rather than increasing capacity;
    - Using technology where applicable to improve roadway operations;
    - Managing incidents and supporting walking and bicycling; and
    - Enhancing goods movement to promote economic growth.

Refinement Areas were also evaluated for their suitability in a regional context and for potential feasibility of implementing associated strategies. Factors considered in this level of evaluation include:

- Level of local and institutional support;
- Cost;
- Magnitude of benefits;
- Difficulty of implementation;
- Synergies between two or more Refinement Areas in the same vicinity; and
- Impact on multiple subregions..

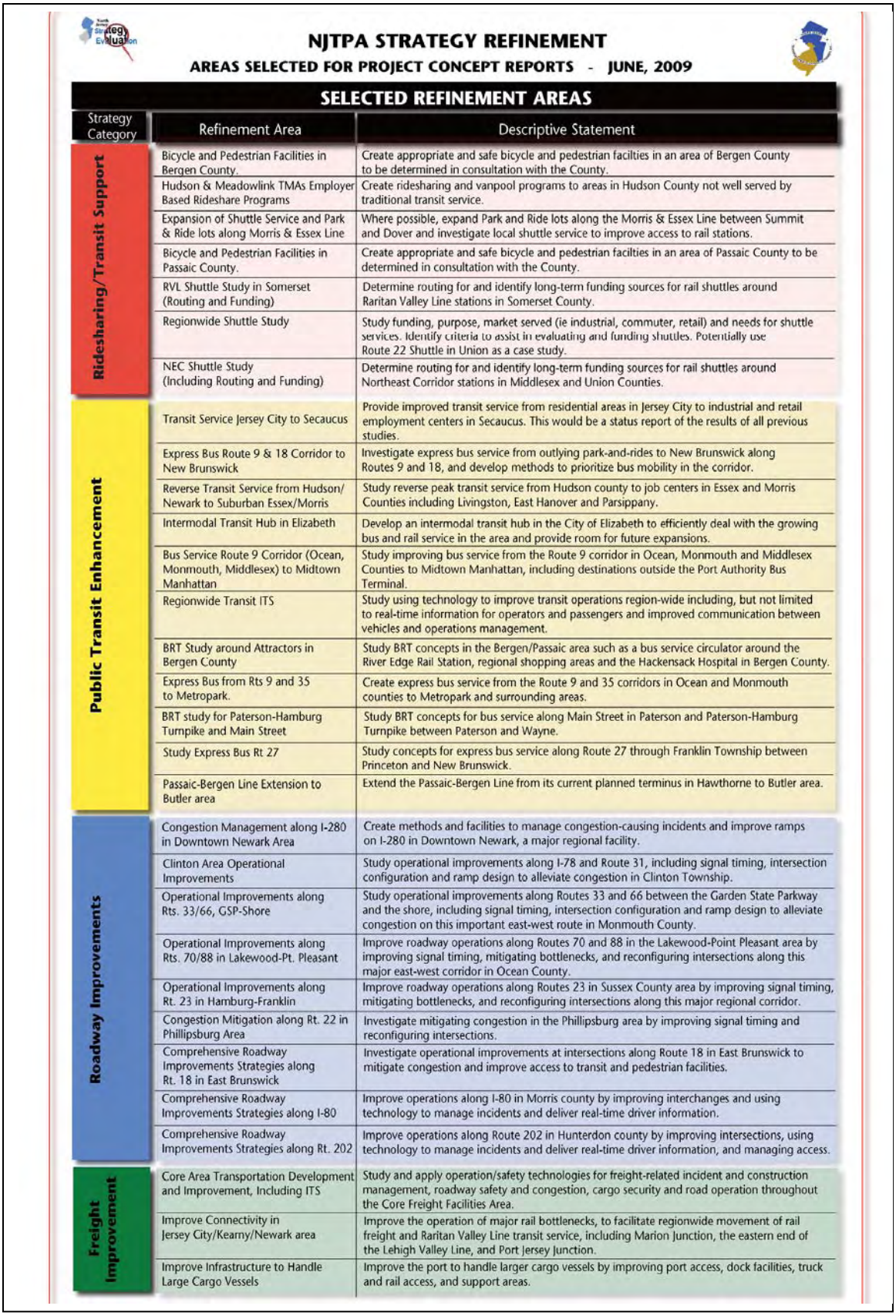
With this foundation, a series of in-depth meetings and a December 2008 regional workshop finalized a package of 30 Recommended Refinement Areas and associated strategies. The 30 identified Refinement Areas are mapped and listed on subsequent pages.

These form the basis for the development of brief Project Concept Reports for each area. Each concept report is to specify potential transportation improvements in particular locations along with anticipated performance benefits, basic consideration of environmental issues in the area, cost estimates and recommendations for implementation.

During the course of the Strategy Refinement study, a number of regional and subregional projects already underway were noted as related priorities, but requiring no further refinement analysis. While certainly not an all-encompassing list, these are indicated below:

Table: Regional/Subregional Projects with Priority noted during Strategy Refinement (No further analysis conducted for this study)

STRATEGY CATEGORY	STRATEGY AREA	REFINEMENT AREAS
Public Transit Enhancement	Jersey City & Secaucus	Bayfront Light Rail Extension
Public Transit Enhancement	Jersey City & Secaucus	Additional HBLR/PATH Stations
Public Transit Enhancement	Jersey City & Secaucus	Implementation of Jersey City Local Bus Study
Roadway Improvements	Jersey City-Hudson County	Improve ITS and incident management on Route 440 - 1&9 in Jersey City
Roadway Improvements	Rts. 3, 4, 17, I-80, Eastern Passaic-Southern Bergen Area	Evaluate Rt 17 for improvement study
Public Transit Enhancement	Central Bergen: Stations and Employers	Northern Branch study
Public Transit Enhancement	Rt 9 Corridor: NYC to Freehold	Study transit needs from south to Freehold and points North (MOM Study)
Public Transit Enhancement	NW NJ Bus Study/Lackawanna Cut-Off	Lackawanna Cut-Off
Roadway Improvements	Rt. 21, I-280, Downtown Newark Area	Improve Incident Management and interchange issues on Rt 21 "missing Link", Downtown Newark
Public Transit Enhancement	West Trenton Line	West Trenton Express Bus and Rail Extension
Public Transit Enhancement	Central Bergen: Stations and Employers	Study improved service along the Bergen Line by increasing capacity and refining operations
Freight Improvement	Lehigh Rail Line to PA state line	Improve the Lehigh Line on the western end through additional passing sidings
Public Transit Enhancement	Morris, Essex & Hudson: Employers Exchange Newark Bus Study	Enhanced Bus Service:Springfield Ave & Bloomfield Ave to Newark Airport incl. Local Bus Study
Public Transit Enhancement	Union: RVL, NEC Line & Employers	Continue advancing the Cross-County Rail Line between Cranford and Elizabeth.



NJTPA STRATEGY REFINEMENT

AREAS SELECTED FOR PROJECT CONCEPT REPORTS - JUNE, 2009

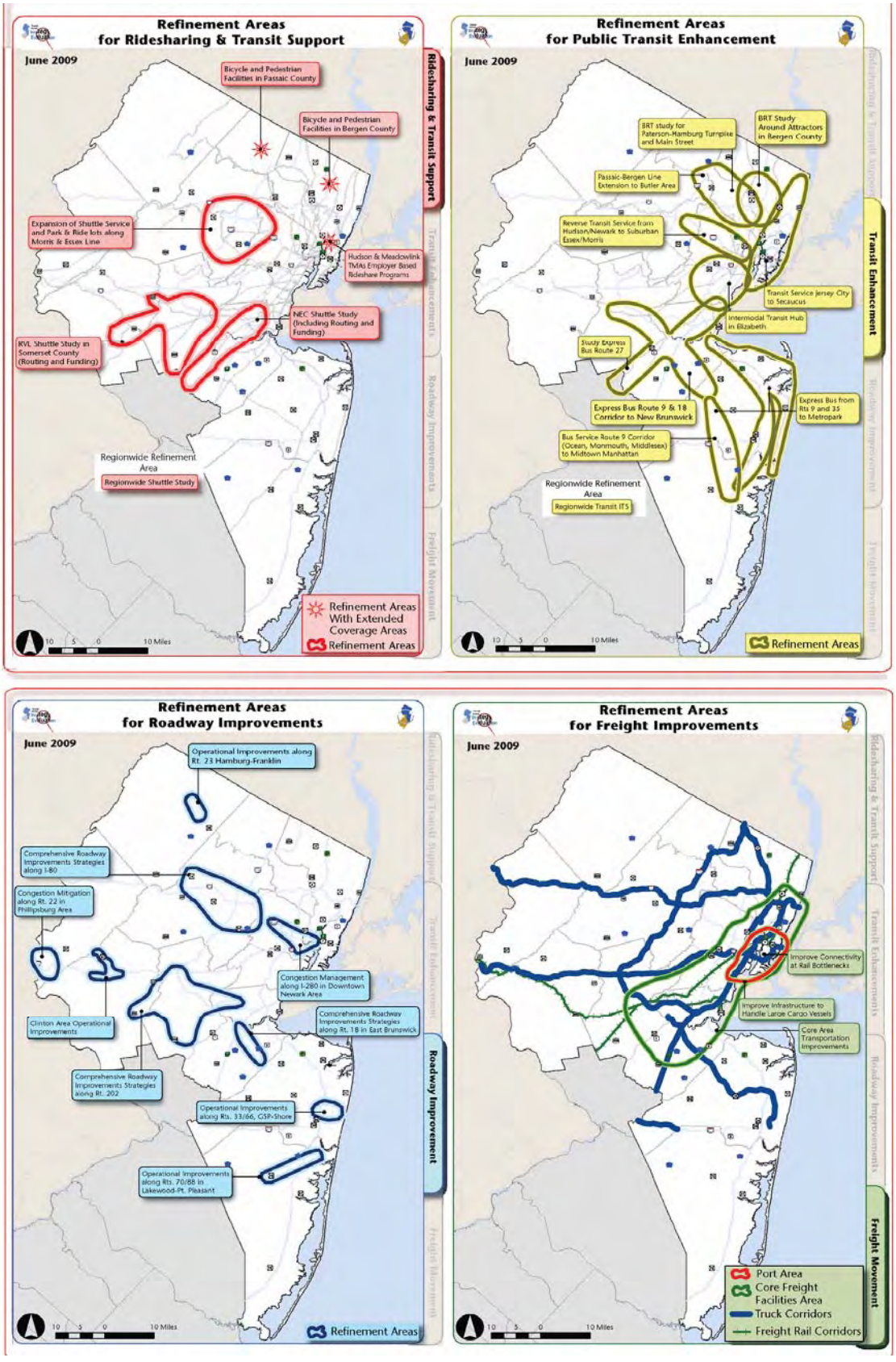
SELECTED REFINEMENT AREAS

Strategy Category	Refinement Area	Descriptive Statement
Ridesharing/Transit Support	Bicycle and Pedestrian Facilities in Bergen County.	Create appropriate and safe bicycle and pedestrian facilties in an area of Bergen County to be determined in consultation with the County.
	Hudson & Meadowlink TMAs Employer Based Rideshare Programs	Create ridesharing and vanpool programs to areas in Hudson County not well served by traditional transit service.
	Expansion of Shuttle Service and Park & Ride lots along Morris & Essex Line	Where possible, expand Park and Ride lots along the Morris & Essex Line between Summit and Dover and investigate local shuttle service to improve access to rail stations.
	Bicycle and Pedestrian Facilities in Passaic County.	Create appropriate and safe bicycle and pedestrian facilties in an area of Passaic County to be determined in consultation with the County.
	RVL Shuttle Study in Somerset (Routing and Funding)	Determine routing for and identify long-term funding sources for rail shuttles around Raritan Valley Line stations in Somerset County.
	Regionwide Shuttle Study	Study funding, purpose, market served (ie industrial, commuter, retail) and needs for shuttle services. Identify criteria to assist in evaluating and funding shuttles. Potentially use Route 22 Shuttle in Union as a case study.
	NEC Shuttle Study (Including Routing and Funding)	Determine routing for and identify long-term funding sources for rail shuttles around Northeast Corridor stations in Middlesex and Union Counties.
Public Transit Enhancement	Transit Service Jersey City to Secaucus	Provide improved transit service from residential areas in Jersey City to industrial and retail employment centers in Secaucus. This would be a status report of the results of all previous studies.
	Express Bus Route 9 & 18 Corridor to New Brunswick	Investigate express bus service from outlying park-and-rides to New Brunswick along Routes 9 and 18, and develop methods to prioritize bus mobility in the corridor.
	Reverse Transit Service from Hudson/ Newark to Suburban Essex/Morris	Study reverse peak transit service from Hudson county to job centers in Essex and Morris Counties including Livingston, East Hanover and Parsippany.
	Intermodal Transit Hub in Elizabeth	Develop an intermodal transit hub in the City of Elizabeth to efficiently deal with the growing bus and rail service in the area and provide room for future expansions.
	Bus Service Route 9 Corridor (Ocean, Monmouth, Middlesex) to Midtown Manhattan	Study improving bus service from the Route 9 corridor in Ocean, Monmouth and Middlesex Counties to Midtown Manhattan, including destinations outside the Port Authority Bus Terminal.
	Regionwide Transit ITS	Study using technology to improve transit operations region-wide including, but not limited to real-time information for operators and passengers and improved communication between vehicles and operations management.
	BRT Study around Attractors in Bergen County	Study BRT concepts in the Bergen/Passaic area such as a bus service circulator around the River Edge Rail Station, regional shopping areas and the Hackensack Hospital in Bergen County.
	Express Bus from Rts 9 and 35 to Metropark.	Create express bus service from the Route 9 and 35 corridors in Ocean and Monmouth counties to Metropark and surrounding areas.
	BRT study for Paterson-Hamburg Turnpike and Main Street	Study BRT concepts for bus service along Main Street in Paterson and Paterson-Hamburg Turnpike between Paterson and Wayne.
	Study Express Bus Rt 27	Study concepts for express bus service along Route 27 through Franklin Township between Princeton and New Brunswick.
	Passaic-Bergen Line Extension to Butler area	Extend the Passaic-Bergen Line from its current planned terminus in Hawthorne to Butler area.
Roadway Improvements	Congestion Management along I-280 in Downtown Newark Area	Create methods and facilities to manage congestion-causing incidents and improve ramps on I-280 in Downtown Newark, a major regional facility.
	Clinton Area Operational Improvements	Study operational improvements along I-78 and Route 31, including signal timing, intersection configuration and ramp design to alleviate congestion in Clinton Township.
	Operational Improvements along Rts. 33/66, GSP-Shore	Study operational improvements along Routes 33 and 66 between the Garden State Parkway and the shore, including signal timing, intersection configuration and ramp design to alleviate congestion on this important east-west route in Monmouth County.
	Operational Improvements along Rts. 70/88 in Lakewood-Pt. Pleasant	Improve roadway operations along Routes 70 and 88 in the Lakewood-Point Pleasant area by improving signal timing, mitigating bottlenecks, and reconfiguring intersections along this major east-west corridor in Ocean County.
	Operational Improvements along Rt. 23 in Hamburg-Franklin	Improve roadway operations along Routes 23 in Sussex County area by improving signal timing, mitigating bottlenecks, and reconfiguring intersections along this major regional corridor.
	Congestion Mitigation along Rt. 22 in Phillipsburg Area	Investigate mitigating congestion in the Phillipsburg area by improving signal timing and reconfiguring intersections.
	Comprehensive Roadway Improvements Strategies along Rt. 18 in East Brunswick	Investigate operational improvements at intersections along Route 18 in East Brunswick to mitigate congestion and improve access to transit and pedestrian facilities.
	Comprehensive Roadway Improvements Strategies along I-80	Improve operations along I-80 in Morris county by improving interchanges and using technology to manage incidents and deliver real-time driver information.
	Comprehensive Roadway Improvements Strategies along Rt. 202	Improve operations along Route 202 in Hunterdon county by improving intersections, using technology to manage incidents and deliver real-time driver information, and managing access.
Freight Improvement	Core Area Transportation Development and Improvement, Including ITS	Study and apply operation/safety technologies for freight-related incident and construction management, roadway safety and congestion, cargo security and road operation throughout the Core Freight Facilities Area.
	Improve Connectivity in Jersey City/Kearny/Newark area	Improve the operation of major rail bottlenecks, to facilitate regionwide movement of rail freight and Raritan Valley Line transit service, including Marion Junction, the eastern end of the Lehigh Valley Line, and Port Jersey Junction.
	Improve Infrastructure to Handle Large Cargo Vessels	Improve the port to handle larger cargo vessels by improving port access, dock facilities, truck and rail access, and support areas.

Appendix C: NJTPA Strategy Evaluation Study Report

NJTPA Strategy Refinement Areas

June 2009



6. Participation

Both Strategy Evaluation and Strategy Refinement relied on substantial interagency participation during their analytical phases, posted materials online, and incorporated findings during Plan 2035 development including material for public review during the visioning outreach and prior to finalizing the plan. Application of the results of these studies is also subject to input in follow-up planning and project development and in further regional analysis as part of the normal NJTPA planning cycle.

Overall, the NJTPA Board of Trustees and its Planning and Economic Development Committee guided the studies via direction in the Unified Planning Work Program Tasks and in discussions during study updates at their regular meetings. A number of workshops were held during the course of the two studies, with participation by NJTPA member and partner agencies and regional stakeholders, particularly as represented through the standing NJTPA Regional Transportation Advisory Committee (RTAC). These workshops covered all phases of the studies: defining place types, setting planning and transportation objectives, choosing performance measures, setting targets, identifying needs, categorizing appropriate strategies, identifying strategy locations, and selecting strategy areas for refinement.

In the Strategy Refinement work, fine-tuning and prioritizing strategy refinement areas involved extensive one-on-one coordination with subregions and implementing agencies.

Given the complexity of the systems-level analysis required for these studies, the collaborative approach taken was essential. Participation exemplified the general NJTPA approach as a regional planning forum and fostered the achievement of the study results in reflecting NJTPA priorities.

7. Conclusion

Strategy Evaluation and its follow-up Strategy Refinement are central performance-based planning studies conducted by the NJTPA to assess regional needs and recommend specific strategies and programs in particular areas. The most recent iterations of these studies, completed in 2008-2009, were based in the policy priorities of the NJTPA Regional Capital Investment Strategy and involved extensive cooperative interagency planning. Their findings have provided an important foundation for Plan 2035, the 2009 update of the NJTPA long-range transportation plan. The studies also support the NJTPA in meeting federal requirements to maintain a Congestion Management Process.

The analyses described in this report began with the systematic identification of transportation needs throughout northern New Jersey based on a careful understanding of the region's diverse types of places. A multi-modal set of performance measures were applied and place type-specific planning objectives and performance standards were taken into account.

A collaborative, data-driven investigation of transportation strategies followed, identifying those that could best address needs and be most appropriate for specific locations. Strategies were grouped into four general categories: Ridesharing and Transit Support; Public Transit Enhancement; Roadway Improvements; and Freight Movement. Within each category, a rough consideration of travel markets was made and data pertinent to more detailed strategies (e.g., highway operational improvements, local buses, rail freight projects, and park and ride lots) was overlayed to recommend further detail on the types of improvements worthy of further exploration. Maps of the general strategies are incorporated in Plan 2035 as strategic locations for each of the four categories. The detailed strategy maps, with references to the data and criteria that were applied for each, are included in this report.

Strategy Refinement drew from Strategy Evaluation findings to identify 30 project concepts which can be further developed by NJTPA and the region's implementing agencies. Brief Project Concept Reports for each area are to specify potential transportation improvements in particular locations along with anticipated benefits, basic consideration of environmental issues in the area, cost estimates and recommendations for implementation.

Beyond Strategy Refinement, the NJTPA examines all related projects proposed for the RTP, UPWP/PDWP and TIP for consistency with Strategy Evaluation findings and the overall northern New Jersey CMP. While the Strategy Evaluation analysis is an essential tool for identifying transportation needs, project needs are also identified through the management systems, as well as additional corridor and subregional studies and other analysis by the NJTPA and member agencies. Importantly, proposed projects that would significantly expand roadway space or add new roads will continue to require special attention

in the NJTPA Congestion Management Process before federal funds may be applied. The CMP looks at road expansions as a last resort and as appropriate, that they be coupled with complementary operational and travel demand management strategies.

As an integral part of the NJTPA's participatory, performance-driven approach to planning, Strategy Evaluation and Refinement support important decision-making in northern New Jersey. Underpinned by an established Regional Capital Investment Strategy, the studies bring together available data, a focus on land use and transportation context, and a wide range of planning partners that consider the most feasible and beneficial strategies to pursue in the region. While addressing the fundamental purpose of transportation—the effective movement of persons and goods—the studies embrace the myriad interconnected factors that they must in order to give the NJTPA region its best chance at achieving broad environmental, economic and quality of life goals.

Next Steps

The application of Strategy Evaluation and Refinement results is embraced in Plan 2035, the NJTPA's long range transportation plan to be adopted in 2009. Strategy locations, refinement areas and project concepts emerging from these studies form an important basis for further study in particular areas or for specific projects to be developed. Study findings are also applied in examining projects originating from other sources. Strategy Evaluation will be regularly updated as new needs are identified or strategies are reassessed in the planning process.

Once appropriate and viable project candidates are well-defined, the NJTPA also utilizes Strategy Evaluation and Refinement-related performance criteria to help prioritize them as they compete for implementation funding. This process will also be further informed by updated study results.

Upon completion of transportation projects, regional decision-makers look to understand actual performance results. A newly initiated NJTPA Project Performance Results study draws from Strategy Evaluation and Refinement (and contributes to the Congestion Management Process) to identify performance measures of interest and help planners investigate actual project accomplishments, fine-tune improvements, and correct for unintended consequences in the future. Future iterations of these systematic analyses—and future NJTPA planning products—will benefit from such information.

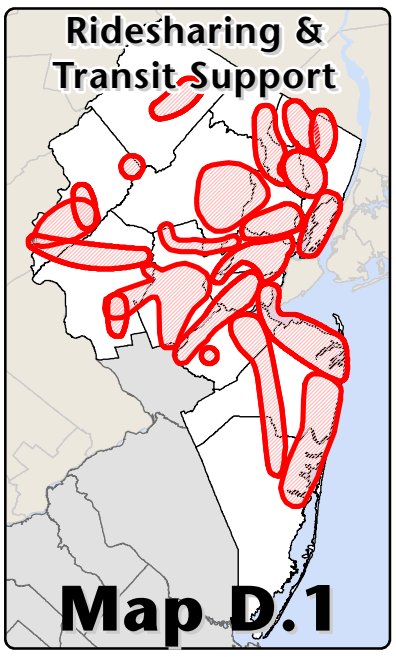
Strategy Area Maps and Data Analysis

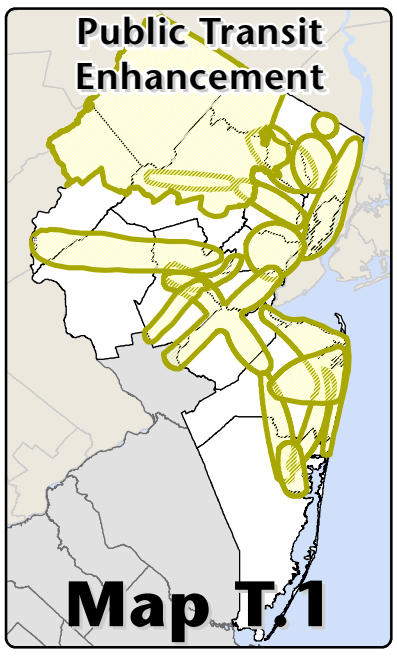
The following pages provide maps of all Strategy Areas identified and analyzed in Strategy Evaluation. A "How to Navigate These Maps" page overviews the subsequent pages, illustrating how the four summary categories of strategies were broken down into more detailed strategies for the analysis. Where possible for the public transit and roadway enhancement strategies, general market areas are sketched for particular strategy locations. The data and criteria applied for each are shown, with findings illustrated graphically and presented in tabular form.

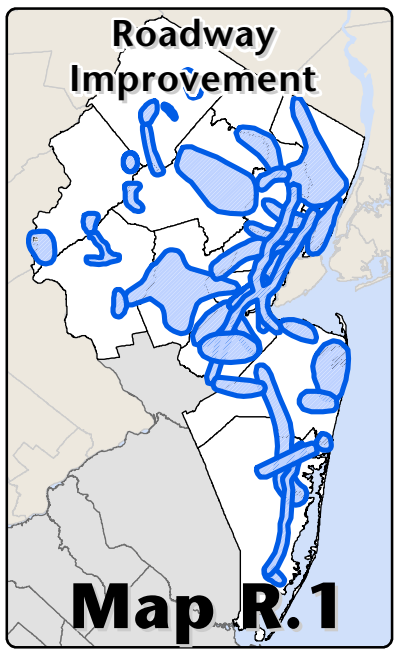
HOW TO NAVIGATE THESE MAPS

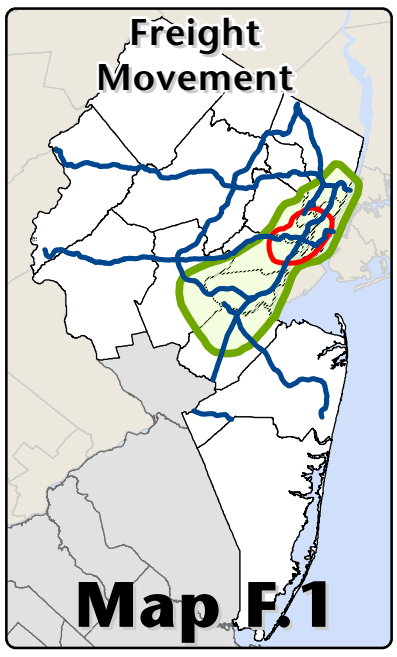
1. There are four *Summary Maps* showing generalized *Strategy Areas*:

- Summary Maps -



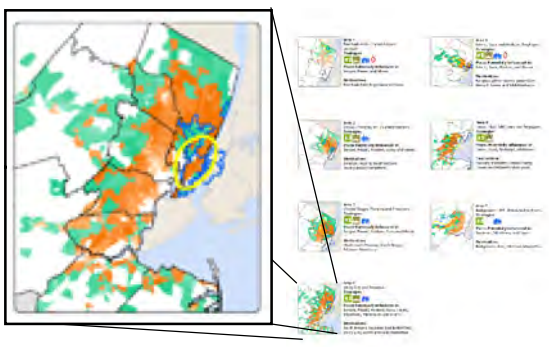


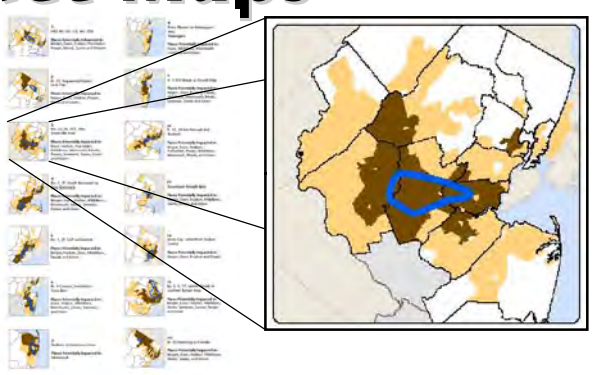




2. *Travel Markets* for each *Strategy Area* show potentially affected places:

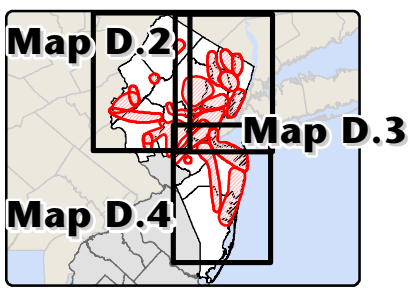
- Travel Market Maps -

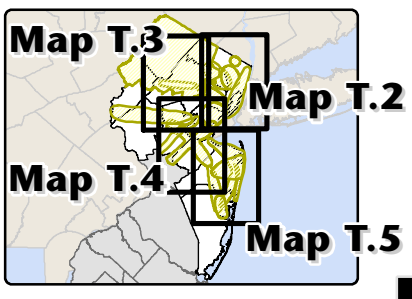


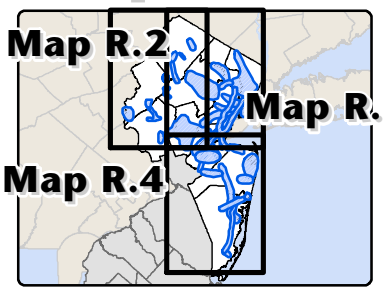


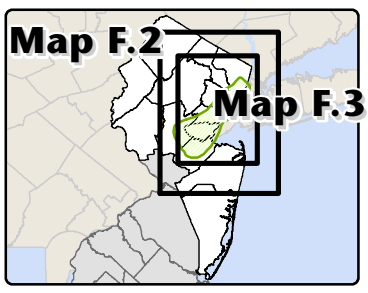
3. Various *Close-up Maps* of *Strategy Areas* illustrate how more detailed *Strategy Sites* underly the Strategy Areas:

- Close-up Maps -









4. *Detail Strategy Maps* show sites with data that was applied:

- Detail Strategy Maps -

Map D.5
Rail
Park & Ride

Map D.6
Bus/Carpool
Park & Ride

Map D.7
Shuttle
Service

Map D.8
Bike
Ped

Map T.6
Rail
Service

Map T.7
Local Bus
Service

Map T.8
BRT & Express
Bus Service

Map R.5
Operational
Improvements

Map R.6
Interchange
Improvements

Map R.7
ITS & Incident
Management

Map R.8
Access
Management

Map F.4
Truck
Corridors

Map F.5
Freight
Rail

Map F.6
Core
Facilities

Map F.7
Port
Facilities

Potential Areas for Ridesharing & Transit Support

Identified areas are candidates for Ridesharing & Transit Support strategies indicated. These are detailed further on subsequent maps. Other strategies may also apply as shown elsewhere in this document.

June, 2009

Map D.1

5: P ARKING

2: P P ARKING S

TransOptions

4: P P ARKING S

1: P P ARKING S

6: P ARKING

8: P P ARKING S

Meadowlink

7: P ARKING

3: P S

12: P

21: S

Ridewise

9: P P ARKING S

13: P ARKING

Hudson TMA

10: S

HART

15: P P ARKING S

11: P P ARKING S

KMM

14: P ARKING

17: P P ARKING S

16: P S

20: P ARKING

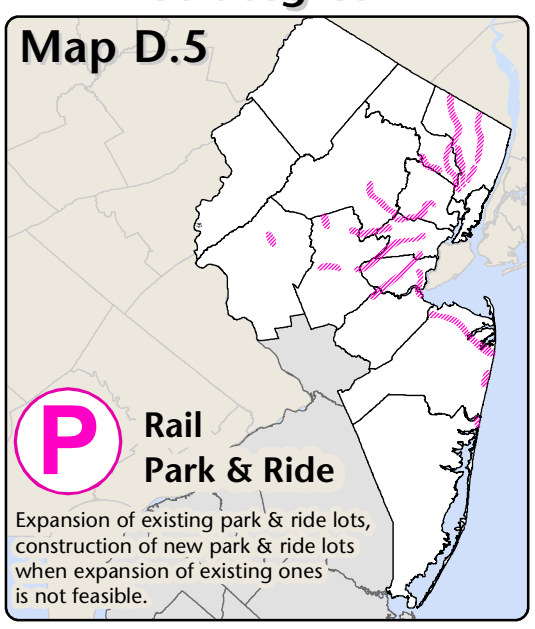
Greater Mercer

18: P ARKING S

19: P P ARKING S

Detailed Strategies

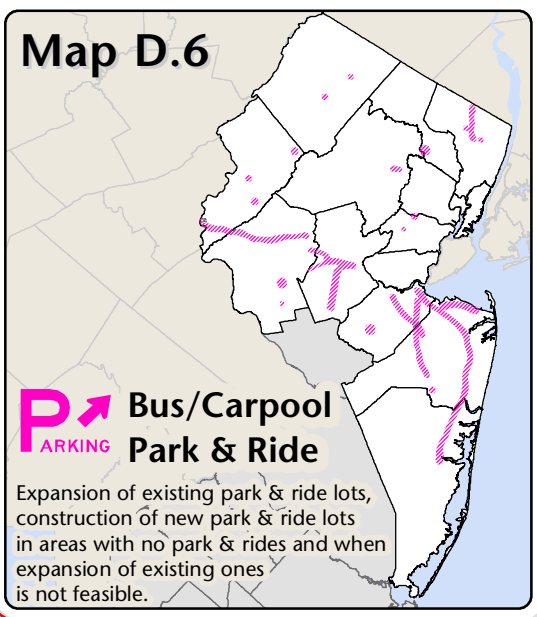
Map D.5



P Rail Park & Ride

Expansion of existing park & ride lots, construction of new park & ride lots when expansion of existing ones is not feasible.

Map D.6

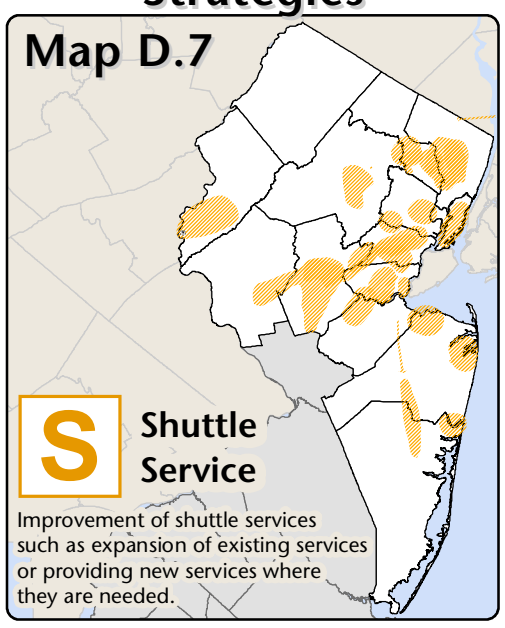


P ARKING Bus/Carpool Park & Ride

Expansion of existing park & ride lots, construction of new park & ride lots in areas with no park & rides and when expansion of existing ones is not feasible.

Detailed Strategies

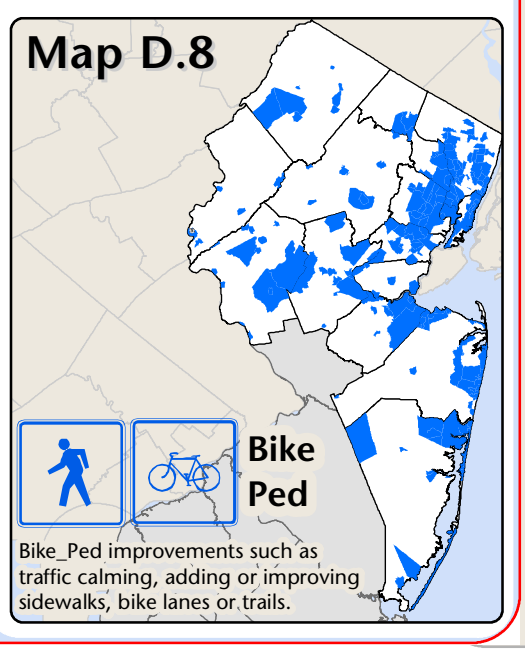
Map D.7



S Shuttle Service

Improvement of shuttle services such as expansion of existing services or providing new services where they are needed.

Map D.8



Bike Ped

Bike_Ped improvements such as traffic calming, adding or improving sidewalks, bike lanes or trails.

Bike-Ped Strategy locations not shown on Map. D. 1, But Bike-Ped needs occur throughout the region (see Map. D.8)

Note: Employer-Based Rideshare & Other TMA Programs

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Ridesharing and Transit Support

Strategy Definitions and Examples

1. **Rail Park-and-Ride Lots:** Expand parking for commuter rail or light rail riders.
   Examples:
   - NJ Transit park-and-ride lots at train or light rail stations
   - Municipal park-and-ride lots within walking distance of train or light rail stations
   - Shared-use park-and-ride lots (e.g, church or shopping center parking lots) within walking distance of train or light rail stations

2. **Bus and Carpool Park-and-Ride Lots:** Parking lots serving carpools or drivers transferring to commuter buses.
   Examples:
   - NJ Transit or NJDOT bus park-and-ride lots.
   - NJ Transit or NJDOT carpool park-and-ride lots
   - Municipal or shared-use park-and ride lots

3. **Shuttle Service:** Enhance or add circulator, shuttle bus or van services.
   Examples:
   - Jitney buses to train stations
   - Shuttle services from rail stations and bus stops to employers
   - Employer-based van pools
   - Shuttle services to major facilities such as shopping centers, hospitals or colleges

4. **Vanpool/Carpool and other TMA services:**
   - Employer-based van pools or car pools
   - Employee trip reduction programs such as flex-time or telecommuting
   - Commuter-organized car pools or van pools

5. **Pedestrian & Bicycle Improvements:** Add or improve sidewalks or bike lanes; traffic calming.
   Examples:
   - Downtown sidewalk widening, beautification, sitting areas, bump-outs among parked cars.
   - Bike racks and storage facilities at rail stations
   - Improved bike/ped signage and roadway striping in congested areas
   - Bike and pedestrian trails separate from roadways

Strategy Areas and Applicable Strategies: This table references the Strategy Areas shown on map R.1 on the following page. It lists the ID numbers shown on the map, names of the Strategy Areas, and the strategies that could be applied in each Strategy Area.

ID	NAME	Applicable Strategies
1	Pascack Valley Line/GSP: Montvale to Oradell	P, Park, S
2	Bergen County Line/Rt. 17: Mahwah to Ridgewood	P, Park, S
3	Bergen County, Main & Pascack Valley/GSP & I-80	P, S
4	Totawa/Wayne/Ringwood	P, Park, S
5	Rt. 206: Rt. 23 to Rt. 57	Park
6	Hackettstown-Netcong	Park
7	Rt. 31: Rt. 46 to Rt. 57	Park
8	Boonton & Morristown Lines/I-80, I-280 & I-287	P, Park, S
9	Morristown Line/I-280, I-78 & GSP	P, Park, S
10	Jersey City – Fort Lee	S
11	Raritan Valley & NEC Lines/GSP & NJTPK	P, Park, S
12	Gladstone Line: Murray Hill to Gladstone Station	P
13	RVL/Rt. 22: Phillipsburg to Readington	Park
14	Rt. 31: Rt. 202 to Rt. 179	Park
15	RVL/Rt. 22, I-78, I-287, Rts 206, 202, 27, 28, 514, 518	P, Park, S
16	NEC Line/I-287 & NJTPK	P, S
17	NJCL/GSP & Rt. 36 & Rt. 35	P, Park, S
18	Rt. 18 & Rt. 9: East Brunswick to Freehold	Park, S
19	Toms River – Asbury Park	P, Park, S
20	Route 130 – Exit 8A Park & Ride***	Park
21	Phillipsburg-Belvidere-Washington***	S

*** = Sub regional Input

TMAs span the entire region, as generally noted on Map D.1. Separate Strategy Areas are not shown for TMA-related strategies.

Bike-ped needs have been identified across the entire region, and are not indicated separately on Map D.1. Map D.8 is a reference map showing bike-ped data and need areas.

Ridesharing & Transit Support

Generalized Strategy Areas - Close-up 1 of 3

June, 2009

Map D.2

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

5 New Park & Ride Lots:Explore potential along Rt. 206 at the intersections of Rt. 15 and Rt. 23.

6 New Park & Ride Lots: Explore potential along I-80 in the Hackettstown-Netcong area.

7 New Park & Ride Lots: Explore potential along Rt. 31 at the intersections of Rt. 46 and Rt. 57.

8 Shuttle & Expansion of P&R Lots: Study shuttle service around Morris and Booton Lines stations and retail areas in Morristown and Fairfield area.

21 Shuttle: Study shuttle potential from Phillipsburg -Belvdere-Washington

12 Study the expansion of P&R Lots on Gladstone Branch of M&E.

13 New Park & Ride Lots:Explore potential of P&R along Rt. 31 at the intersections of Rt. 46 and Rt. 57.

14 New Park & Ride Lots: Explore potential along Rt. 12 at the intersections of Rt. 202 and along Rt. 202 .

15 Shuttle & Expansion of P&R Lots: Study shuttle service around RVL stations and retail areas in Somerville area.

Sussex

Passaic

Berg

Warren

Morris

Essex

Hunterdon

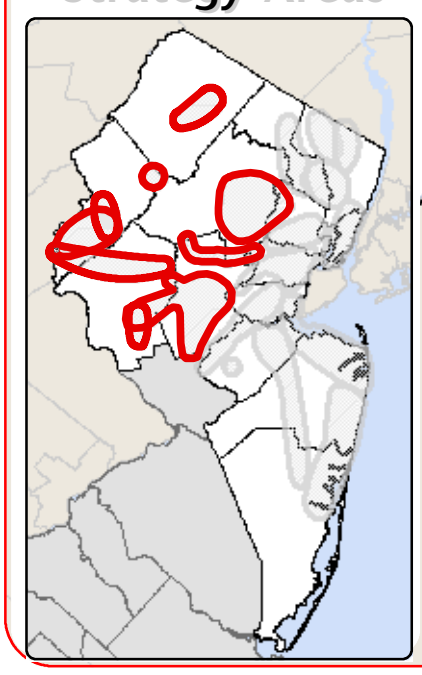
Somerset

Union

Middlesex

206 15 287 23 80 46 10 24 57 22 31 78 82 12 202 27 1 9 130

Strategy Areas



N

10 5 0 10 Miles

Strategies

- Strategy Areas
- Park & Ride
- Shuttle Service

Transit Infrastructure

- Rail Stations
- NJTransit Rail Lines

Ridesharing & Transit Support

Generalized Strategy Areas - Close-up 2 of 3

June, 2009

Map D.3

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

2 Shuttle & Expansion of P&R Lots: Study shuttle service around Bergen Main Line stations and retail areas in Mahwah area.

1 Shuttle & Expansion of P&R Lots: Study shuttle service around Pascack Valley Line stations and retail areas in Montvale area.

4 Shuttle & Expansion of P&R Lots: Study shuttle service around Booton Line stations and retail areas in Totowa-Wayne area.

3 Shuttle & Expansion of P&R Lots: Study shuttle service around Bergen Main & Pascack Valley Lines stations and retail areas in Paterson area.

8 New Park & Ride Lots: Explore potential along I-80 Passaic County.

12 Study the expansion of P&R Lots on Gladstone Branch of M&E.

11 Shuttle & Expansion of P&R Lots: Study shuttle service around RVL & NEC stations and retail areas in Elizabeth-Hillside area.

10 Shuttle: Study shuttle service around retail areas in Hudson County.

9 Shuttle & Expansion of P&R Lots: Study shuttle service around retail areas in Newark-Irvington area.

15 Shuttle & Expansion of P&R Lots: Study shuttle service around RVL stations and retail areas in Somerville area.

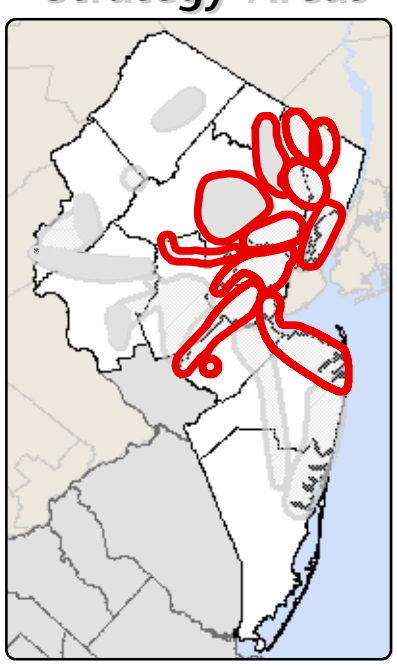
17 Shuttle & Expansion of P&R Lots: Study shuttle service around NJCL stations and retail areas in Woodbridge-Matawan-Red Bank area.

16 Shuttle & Expansion of P&R Lots: Study shuttle service & Bus P & R around routes 1 & 27 and NEC stations and retail areas in New Brunswick area.

20 Expansion of P&R Lots: Study the expansion of P&R Lots on Exit 8A NJ Turnpike

Sussex
Warren
Morris
Essex
Bergen
Hudson
Union
Hunterdon
Somerset
Middlesex
Monmouth
Ocean

Strategy Areas



Strategies

- Strategy Areas
- Park & Ride
- Shuttle Service

Transit Infrastructure

- Rail Stations
- NJTransit Rail Lines

N

10 5 0 10 Miles

Ridesharing & Transit Support

General Strategy Areas - Close-up 3 of 3

June, 2009

Map D.4

Somerset

Middlesex

Monmouth

Ocean

17
Shuttle & Expansion of P&R Lots: Study shuttle service around NJCL stations and retail areas in Woodbridge-Matawan-Red Bank area.

16
Shuttle & Expansion of P&R Lots: Study shuttle service around NEC stations and retail areas in New Brunswick area.

18
Shuttle & Expansion of P&R Lots: Study shuttle service around Rt 9 and retail areas in East Brunswick-Freehold area.

19
Shuttle & Expansion of P&R Lots: Study shuttle service around NJCL stations and retail areas in Red Bank-Asbury Park-Toms River area.

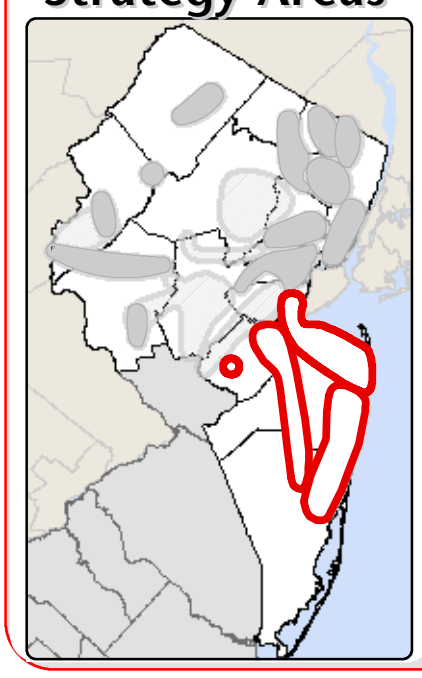
440 27 1 9 36 130 35 79 71 18 33 34 138 195 70 37 72

Parkway

N

10 5 0 10 Miles

Strategy Areas



Strategies
- Strategy Areas
- Park & Ride
- Shuttle Service

Transit Infrastructure
- Rail Stations
- NJTransit Rail Lines

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Rail Park-&-Ride
Potential Strategy Sites

June, 2009

Map D.5

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

ID	Site Locations
1	Pascack Valley Line:Montvale - Emerson
2	Pascack Valley Line: Essex Hackensack - Wood-Ridge
3	Main Bergen Line: Radburn - Rutherford
4	Main Bergen Line: Mahwah - Kingsland
5	Boonton Line: Mountain View-Wayne - Great Notch
6	Morris Essex: Morris Plains - East Orange
7	Morris Essex: Lyons - Murray Hill
8	Morris Essex: Gladstone - Peapack
9	Raritan Valley Line: Bound Brook to Roselle Park
10	Raritan Valley Line: Somerville - North Branch
11	Raritan Valley Line: High Bridge - Annandale
12	North East Corridor Line: Jersey Ave - Rahway
13	North Jersey Coast Line: South Amboy - Woodbridge
14	North Jersey Coast Line: Matawan - Long Branch
15	North Jersey Coast Line:Allenhurst - Bradley Beach
16	North Jersey Coast Line: Point Pleasant - Bay Head

Criteria for Identifying Potential Sites:

Locations:

- Existing park and ride lots close to full occupancy
- Based on NJ TRANSIT plans and studies

P&R Capacity

- Less than 100 spaces
- 100 - 500 spaces
- Over 500 spaces

P&R Usage

- 75% to Capacity
- 50% to 75%
- 50% or Less
- Potential Site

Route Subtype

- Interstate/Toll Road
- US/State Route
- State Route
- Toll Road
- NJTPA_RailStations
- NJ TRANSIT Rail Lines

10 5 0 10 Miles

Bus and Carpool Park-&-Ride
Potential Strategy Sites

June, 2009

Map D.6

PARKING

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

ID	Site Locations
1	Oradel
2	GSP: Montvale to Paramus
3	Rt 17: Ridgewood and Ho-Ho-Kus
4	Rt. 202: Wayne
5	Rt. 23 and Rt. 94: Hamburg
6	Rt. 15 and Rt. 94: Lafayette
7	I-80: Allamuchy Twp
8	Rt. 46 and Rt. 31: White Twp
9	Rt. 57 and Rt. 31: Washington Twp
10	Rt. 46: Parsippany-Troy Mills
11	Rt. 22: Mountainside
12	I-78 and Rt. 124: Millburn and Sprinfield
13	I-78: from Readington to Phillipsburg
14	Rt. 200 by Rt. 31: flemington
15	Rt. 202 by Rt. 179: East Amwell
16	Rt. 18: East Brunswick to Marlboro
17	Rt. 9: Old Bridge to Freehold
18	GSP: South Amboy to South Toms River
19	Rt. 36: Hazlet to Middletown
20	I-195 & Rt. 9: Howell***
21	Exit 8A NJTPK***
22	Rts 206, 202 & 22: Somerset County***

***Subregional Input

Criteria for Identifying Potential Sites:

Locations:

- Existing park and ride lots close to full occupancy
- Upstream of congestion points on major highways
- Near intersecting regional roadways
- Where facilities serve places with high need

P&R Capacity

- Less than 100 spaces
- 100 - 500 spaces
- Over 500 spaces

P&R Usage

- 75% to Capacity
- 50% to 75%
- 50% or Less
- Potential Site

Route Subtype

- Interstate/Toll Road
- US/State Route
- State Route
- Toll Road

- NJTPA_RailStations
- NJ TRANSIT Rail Lines

10 5 0 10 Miles

Shuttle Service
Potential Strategy Sites

June, 2009

Map D.7

S

ID	Site Locations
1	Paramus: Rte. 17, GSP & Pascack Valley Line
2	Paterson: Main Line
3	Passaic: Bergen County & Main Line
4	Wayne: Rte. 23 & Boonton Line
5	Newark: I-280, GSP, Morrisown & Subway Lines
6	Jersey City: NJTPK, Rte. 1 & Light Rail
7	Millburn: Morristown Line
8	Morristown/Denville: Morris & Essex Lines
9	Elizabeth: GSP, Rte. 9, Raritan Valley & NEC Lines
10	Plainfield: Rte. 22 & Raritan Valley Line
11	Edison/Metropark: NEC Line
12	Rahway: Raritan Valley Line & Rte 1 & 9
13	Perth Amboy: Rte. 440 & North Jersey Coast Line
14	New Brunswick: NEC Line, Rtes. 1 7 27
15	Somerville/Manville/Flemington: Raritan Valley Line***
16	Hazlet: GSP, Rtes. 35 & 36, North Jersey Coast Line
17	Red Bank/Long Branch: Rte. 35 & NJC Line
18	Point Pleasant: North Jersey Coast Line & Rte. 34
19	Bus from North Freehold
20	Transit Needs from South
21	Transit Study or BRT from NY
22	Phillipsburg-Belvdere-Washington Shuttle Service***

***Subregional Input

Criteria for Identifying Potential Sites:

Highway segments with:

- Concentration of retail stores and businesses (e.g., mall, strip mall)
- Recurring congestion (high V/C ratio)
- Current transit shuttle service plans and studies

Areas with:

- Access to rail stations
- Higher housing density

Existing Shuttle Service (Preliminary)
- Public Service
- Private Service
- All Day Service
- Peak Commuter Hour Service

Employment
- 1 Dot = 250 Retail Employees
- 1 Dot = 250 Manuf. Employees
- Rail Stations
- Rail Lines

Route Subtype
- Interstate/Toll Road
- US/State Route

Housing Units per Square Mile
- 0 - 700
- 701 - 1,500
- 1,501 - 2,500
- 2,501 - 5,000
- 5,001 - 25,300

Potential Service Sites

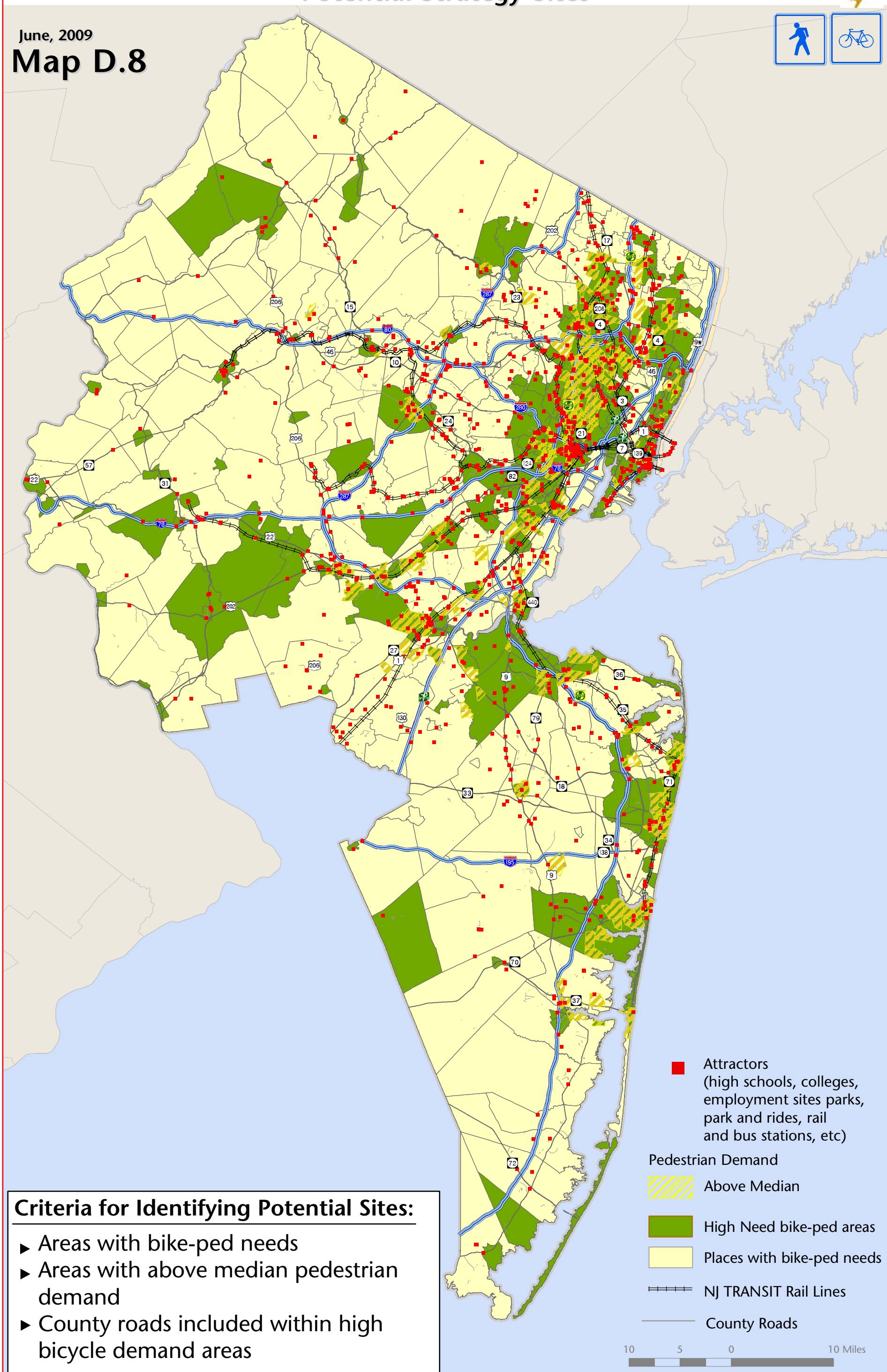
10 5 0 10 Miles

Bicycle and Pedestrian Facilities

Potential Strategy Sites

June, 2009

Map D.8



Criteria for Identifying Potential Sites:

- Areas with bike-ped needs
- Areas with above median pedestrian demand
- County roads included within high bicycle demand areas

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Potential Areas for Transit Enhancements

Identified areas are candidates for the improvement strategies indicated. These are detailed further on subsequent maps. Other strategies may also apply as shown elsewhere in this document.

June, 2009

Map T.1

14: b a ”

1: b a ”

2: b a ”

3: b a ”

5: b a ”

8: a

4: b a ”

15: b a ”

7: b ”

6: b a

16: b

9: b a ”

10: b a ”

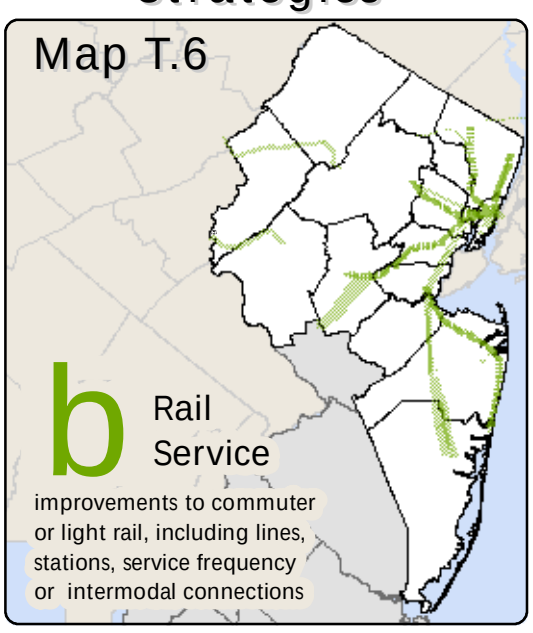
13: a

11: b a ”

12: b a ”

Detailed Strategies

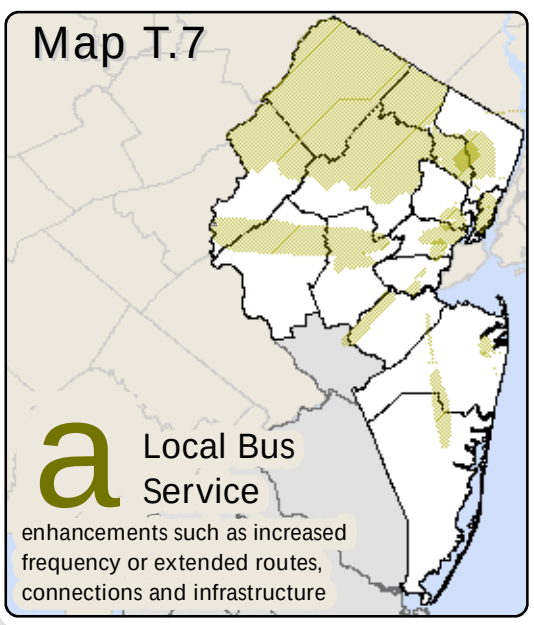
Map T.6



b Rail Service

improvements to commuter or light rail, including lines, stations, service frequency or intermodal connections

Map T.7

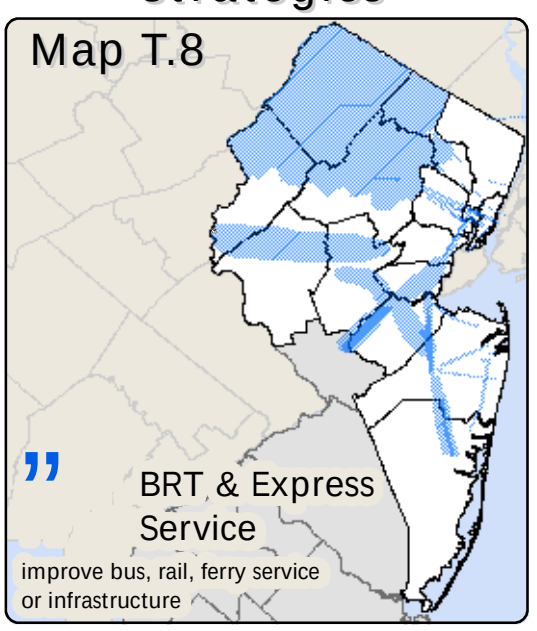


a Local Bus Service

enhancements such as increased frequency or extended routes, connections and infrastructure

Detailed Strategies

Map T.8



” BRT & Express Service

improve bus, rail, ferry service or infrastructure

Rideshare & Transit Support

Transit Enhancement

Roadway Improvements

Freight Movement

Potential Areas for Transit Enhancements

Strategy Definitions and Examples

1. **Rail Service:** Improvements to commuter or light rail.
   Examples:
   - New rail lines or stations
   - Increased service frequency
   - Intermodal connections
   - Electrification

2. **Local Bus Service:** Improvements to bus service.
   Examples:
   - New bus services
   - Increased service frequency
   - Improved connections
   - Improved infrastructure

3. **Express Bus & BRT:** High level bus service.
   Examples:
   - New BRT
   - Increased frequency
   - Queue jumps or shoulder use

4. **Transit ITS:** Region-wide Intelligent Transportation Systems.
   Examples:
   - Real-time information on schedules
   - Real-time information on connections

Strategy Areas, Affected Counties, and Applicable Strategies: This table references the Strategy Areas shown on map T.1 on the following page. It lists the ID numbers shown on the map, names of the Strategy Areas and the strategies that could be applied in each Strategy Area.

ID	NAME	Applicable Strategies
1	Montvale Area: Transit Stations & GSP	1, Local Bus, Express Bus
2	Southeast Passaic: Stations, Rt.23 & Employers	1, Local Bus, Express Bus
3	Central Bergen: Stations and Employers	1, Local Bus, Express Bus
4	Jersey City & Secaucus	1, Local Bus, Express Bus
5	Morris, Essex & Hudson: Employers Exchange	1, Local Bus, Express Bus
6	Union: RVL, NEC Line & Employers	1, Local Bus
7	Bridgewater: RVL Station to Employers	1, Express Bus
8	Mount Olive to Parsippany: Commuter Exchange	Local Bus
9	New Brunswick/Rt. 1 BRT Study	1, Local Bus, Express Bus
10	Shore Points: GSP, NJCL Rail Line & Stations	1, Local Bus, Express Bus
11	Rt. 9 Corridor: NYC to Freehold	1, Local Bus, Express Bus
12	Lakewood/Toms River: Major Attractors	1, Local Bus, Express Bus
13	Major Shore Points to Freehold	Local Bus
14	NW NJ Bus Study/Lackawanna Cut-Off	1, Local Bus, Express Bus
15	I-78 Corridor Study/RVL Extension	1, Local Bus, Express Bus
16	West Trenton Line	1

Potential Areas for Transit Enhancements

Map on facing page identifies areas where indicated types of transportation strategies may be implemented or further studied. Strategies are defined below with text and symbols. Detailed improvements of these strategies can be found on the indicated maps to follow. Denoted under each numbered area are applicable strategies.

Map T.6

Rail Service

limited improvements such as provide turning /acceleration / deceleration lanes, realign intersecting streets, time signals

Map T.7

Bus Service

improve the design of upgrade highway interchanges

Map T.8

Enhanced Service

technological improvements such as variable signs, ramp metering, dynamic pricing and incident detection/response systems and procedures

Map T.9

Van Pool Study

improve the location, spacing, design/operation of driveways, median openings, and street connections; plan land use

Potential Areas and Strategies

1:
Montvale Area - Transit Stations and GSP
Strategies:

2:
Passaic - Stations, Rt. 23 and Employers
Strategies:

3:
Central Bergen: Stations and Employers
Strategies:

4:
Jersey City and Secaucus
Strategies:

5:
Morris, Essex and Hudson - Employers
Strategies:

6:
Union - RVL, NEC Lines and Employers
Strategies:

7:
Bridgewater - RVL Station to Employers
Strategies:

8:
Mount Olive to Parsipanny - Commuters
Strategies:

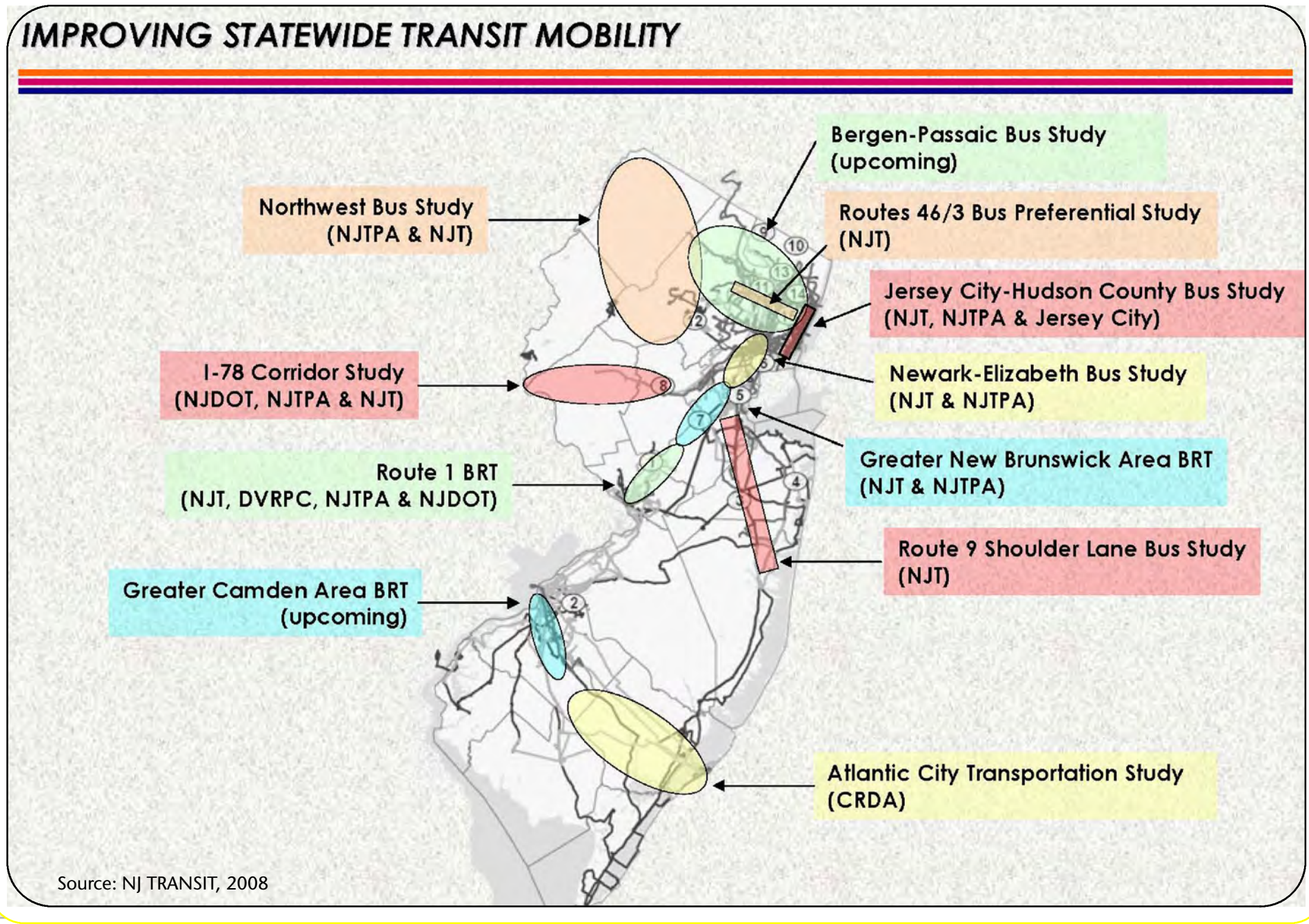
9:
New Brunswick - Rt. 1 BRT Study
Strategies:

10:
Shore Points - GSP, NJCL Rail Line and Stations
Strategies:

11:
Rt. 9 Corridor - NYC to Freehold
Strategies:

12:
Lakewood/Toms River - Attractors
Strategies:

13:
Major Shore Points to Freehold
Strategies:



Source: NJ TRANSIT, 2008

Potential Areas for Transit Enhancements

Travel Markets Potentially Influenced:

Maps below show the strategy areas examined for transit improvements along with areas their potential areas of influence.

Development Densities Conducive for:

= Rail and/or Bus*

= Bus Only*

* = Intensity of color indicates current demand from place to any of the identified destinations.

Strategies and Destinations:

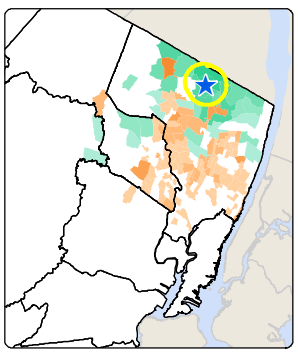
= Strategy Areas ★ = Destinations

Detailed Maps of Strategies:

Map T.6 **Rail Service**
improvements to commuter or light rail, including lines, stations, service frequency or intermodal connections

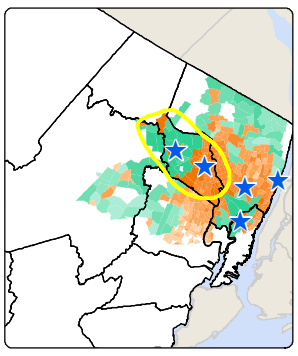
Map T.7 **Local Bus Service**
enhancements such as increased frequency or extended routes, connections and infrastructure

Map T.8 **Express Service**
improve bus, rail, ferry service or infrastructure



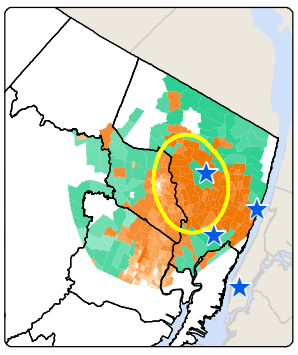
Area 1:
Montvale Area - Transit Stations and GSP
Strategies:
Places Potentially Influenced in:
Bergen, Passaic and Morris

Destinations:
Montvale-Park Ridge-Woodcliff Lake



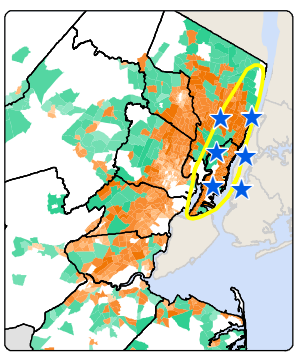
Area 2:
Passaic - Stations, Rt. 23 and Employers
Strategies:
Places Potentially Influenced in:
Bergen, Passaic, Hudson, Essex, and Morris

Destinations:
Paterson; Wayne; South Bergen; Secaucus-East Rutherford



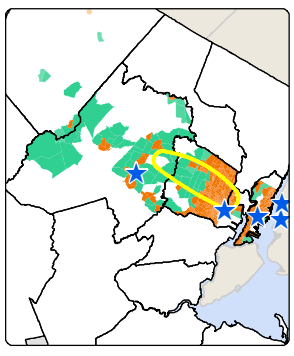
Area 3:
Central Bergen: Stations and Employers
Strategies:
Places Potentially Influenced in:
Bergen, Passaic, Hudson, Essex and Morris

Destinations:
Hackensack-Paramus; South Bergen; Midtown Manhattan



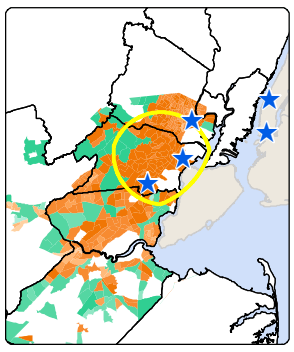
Area 4:
Jersey City and Secaucus
Strategies:
Places Potentially Influenced in:
Bergen, Passaic, Hudson, Essex, Union, Middlesex, Monmouth and Morris

Destinations:
South Bergen; Secaucus-East Rutherford; Jersey City; Lower and Mid-Manhattan



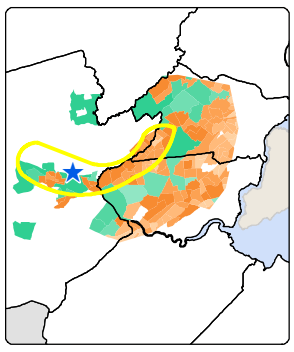
Area 5:
Morris, Essex and Hudson - Employers
Strategies:
Places Potentially Influenced in:
Morris, Essex, Hudson, and Sussex

Destinations:
Parsippany-Morristown; Jersey City; Newark; Lower and Mid-Manhattan



Area 6:
Union - RVL, NEC Lines and Employers
Strategies:
Places Potentially Influenced in:
Union, Essex, Somerset, Middlesex

Destinations:
Newark; Elizabeth; Union County; Lower and Midtown Manhattan



Area 7:
Bridgewater - RVL Station to Employers
Strategies:
Places Potentially Influenced in:
Somerset, Middlesex, and Union

Destinations:
Bridgewater Area; Midtown Manhattan

Potential Areas for Transit Enhancements

Travel Markets Potentially Influenced:

Maps below show the strategy areas examined for transit improvements along with areas their potential areas of influence.

Development Densities Conducive for:

= Rail and/or Bus*

= Bus Only*

* = Intensity of color indicates current demand from place to any of the identified destinations.

Strategies and Destinations:

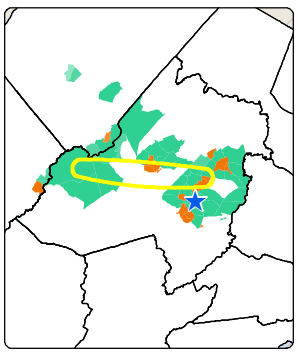
= Strategy Areas ★ = Destinations

Detailed Maps of Strategies:

Map T.6
Rail Service
improvements to commuter or light rail, including lines, stations, service frequency or intermodal connections

Map T.7
Local Bus Service
enhancements such as increased frequency or extended routes, connections and infrastructure

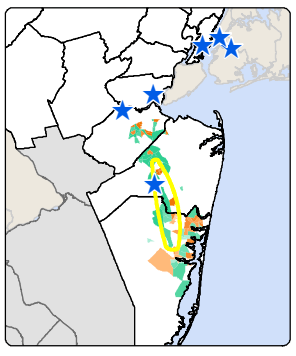
Map T.8
Express Service
improve bus, rail, ferry service or infrastructure



Area 8:
Mount Olive to Parsipanny - Commuters
Strategies:

Places Potentially Influenced in:
Bergen, Passaic, Essex, Hudson Morris and Union

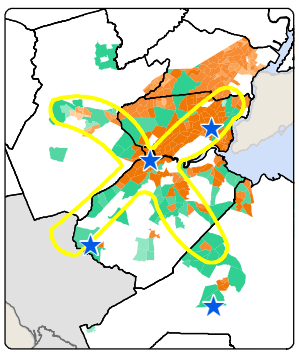
Destinations:
Parsippany-Marristown Area



Area 11:
Rt. 9 Corridor - NYC to Freehold
Strategies:

Places Potentially Influenced in:
Monmouth, Ocean, Middlesex

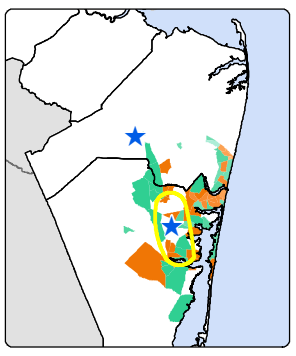
Destinations:
Freehold; New Brunswick; Edison-Woodbridge; Jersey City; and Manhattan



Area 9:
New Brunswick - Rt. 1 BRT Study
Strategies:

Places Potentially Influenced in:
Middlesex, Monmouth, Somerset, and Union

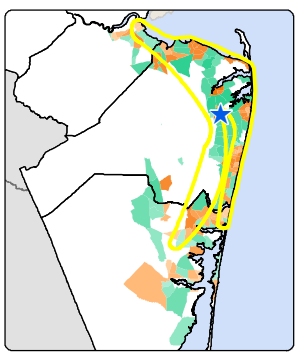
Destinations:
New Brunswick; Edison-Woodbridge; Freehold; Plainsboro; and Manhattan



Area 12:
Lakewood/Toms River - Attractors
Strategies:

Places Potentially Influenced in:
Monmouth and Ocean

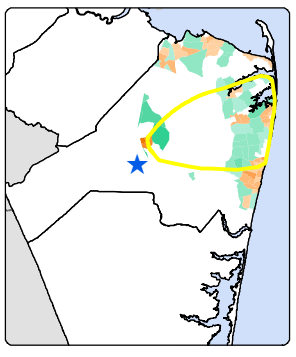
Destinations:
Freehold; Lakewood-Toms River; Lower and Midtown Manhattan



Area 10:
Shore Points - GSP, NJCL Rail Line and Stations
Strategies:

Places Potentially Influenced in:
Monmouth and Ocean

Destinations:
Eatontown-Shrewsbury-Red Bank; Midtown Manhattan



Area 13:
Major Shore Points to Freehold
Strategies:

Places Potentially Influenced in:
Monmouth

Destinations:
Freehold

Areas 14, 15, and 16 are based on studies already in progress by NJ Transit and, therefore, do not include an NJTPA map of potential influence.

Potential Areas for Transit Enhancements

Strategy Areas - Close-up 1 of 4

June, 2009

Map T.2

1

Potential Project
Montvale:
Van Pools from larger employers in area, and Transit Study or BRT

2

Potential Project
Local bus for Paterson and surrounding area and links to rail

Passaic-Bergen Line extension to Butler

BRT Study for Paterson-Hamburg Turnpike and Main Street

3

CurrentProject
HBLR connectors to potential North Branch for better access to Jersey City and Bergen industrial areas

Potential Projects
Bergen County line Corridor:
Study improved service to Midtown

North Branch:
Transit to Lower and Mid-town Manhattan

Teterboro intermodal facility

BRT Study around attractors in Bergen County

4

Potential Projects
Bus Study:
Hudson River Municipalities to Industrial areas

Jersey City:
Expresss Bus from Middlesex, Monmouth and Ocean

Study bus service and shuttle connections along US-3 to Sports Complex

Upper Manhattan:
Study van pools to major employers

5

Potential Projects
Enhanced Service:
From Bloomfield or Springfield to Newark downtown or Airport

I 280 Corridor:
Study service to Newark to connect to PATH for Lower and Midtown Manhattan

Express Bus Study:
Along I-280into Newark and Jersey City

Parsippany: Reverse Commute Study from Essex to Hudson

6

Current Projects
Follow-up on recommendations from local bus study

Follow-up on recommendations from RVL study on shuttles to Elizabeth center

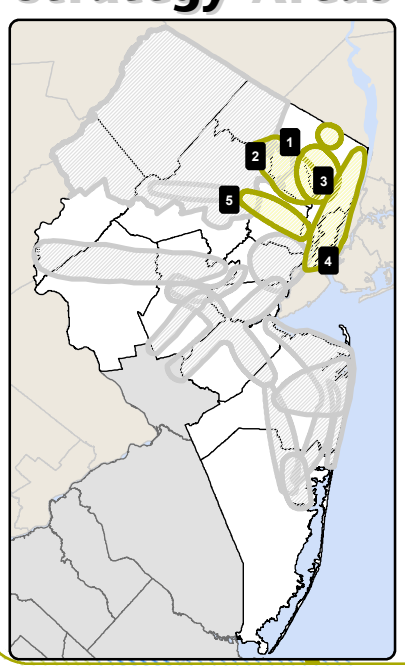
Potential Projects
Newark:
Study local bus from surrounding communities

Local bus study for industrial areas of Union and Carteret

Union Cross-County rail connection between Elizabeth and Cranford

Intermodal Transit Hub in Elizabeth

Strategy Areas



N

6 3 0 6 Miles

Strategy Areas

Strategies

Rail Service
Bus Service
Express Service

Transit Infrastructure

Rail Stations
NJTransit Rail Lines

Interstate/Toll Road
US/State Route

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Potential Areas for Transit Enhancements

Strategy Areas - Close-up 2 of 4

June, 2009

Map T.3

8

Current Project
Bus study from Mount Olive to Parsippany area

Potential Project
Van Pool study at Boonton Station

14

Current Project
Northwest New Jersey Bus Study

Potential Project
Lackawanna Cut-Off Rail Extension

15

Current Project
I-78 Corridor Transit Study

Potential Project
RVL Phillipsburg Rail Extension

7

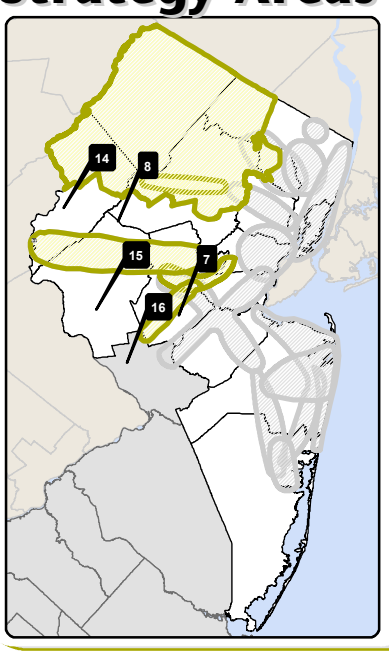
Potential Projects
RVL Corridor:
Study Improved Service to Midtown

Enhanced Service:
Shuttle, local, and regional services to Brigewater

16

Potential Project
West Trenton Rail Extension

Strategy Areas



N

6 3 0 6 Miles

Strategy Areas

Strategies

- Rail Service
- Bus Service
- Express Service

Transit Infrastructure

- Rail Stations
- NJTransit Rail Lines
- Interstate/Toll Road
- US/State Route

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Potential Areas for Transit Enhancements

Strategy Areas - Close-up 3 of 4

June, 2009

Map T.4

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

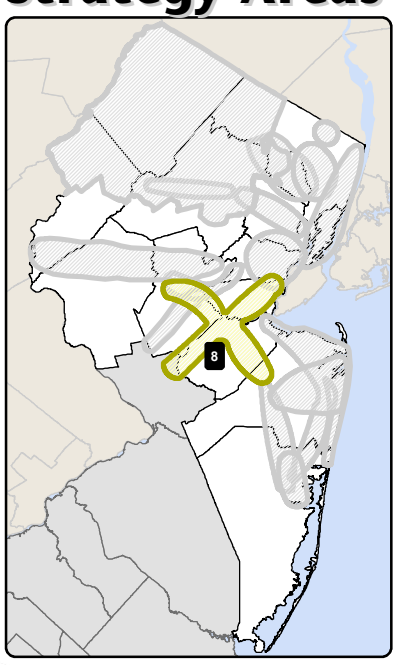
9

Current Project
Follow-up on BRT study recommendations from New Brunswick to Plainsboro

Potential Projects
New Brunswick: Need further study of Express bus from major corridors (Rt 1, 9, 18, 27)

Local bus and shuttles from rail and Edison/ Woodbridge residential areas to Raritan Center

Strategy Areas



N

6 3 0 6 Miles

Strategy Areas

Strategies

- Rail Service
- Bus Service
- Express Service

Transit Infrastructure

- Rail Stations
- NJTransit Rail Lines

Interstate/Toll Road
US/State Route

Potential Areas for Transit Enhancements

Strategy Areas - Close-up 4 of 4

June, 2009

Map T.5

10

Current Project
Study Fort Monmouth's Transit Needs

Potential Projects
Express Bus from 9 and 35 to Metropark

North Jersey Coast Line: Study improved service from southern municipalities to Midtown

Study bus from Lakewood area to Eatontown

13

Potential Project
Bus from shore to Freehold

11

Current Projects
Study transit needs from south to Freehold (MOM study)

Potential Project
Express Bus from 9 and 35 to Metropark

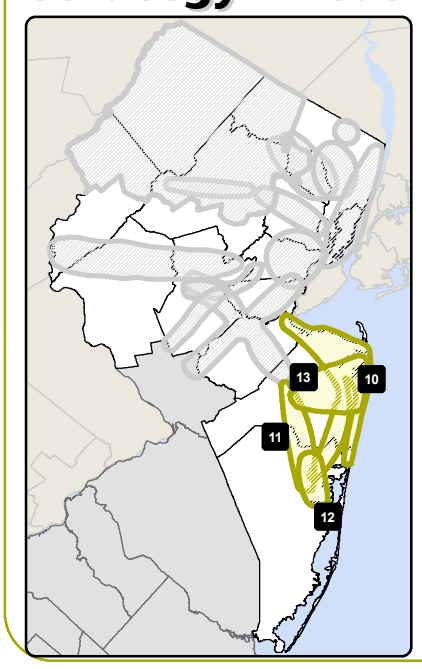
12

Current Project
Route 9 Corridor: Study Express Bus to Lower and Midtown Manhattan

N

6 3 0 6 Miles

Strategy Areas



Strategy Areas

Strategies

- Rail Service
- Bus Service
- Express Service

Transit Infrastructure

- Rail Stations
- NJTransit Rail Lines
- Interstate/Toll Road
- US/State Route

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Rail Service
Potential Strategy Sites

June, 2009

Map T.6

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Potential Rail Site

Current Projects or Studies

Route Subtype

Interstate/Toll Road

US/State Route

State Route

Toll Road

NJTPA_RailStations

NJTransit Rail Lines

10 5 0 10 Miles

N

Local Bus Service
Potential Strategy Sites

June, 2009

Map T.7

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Local Bus

Current Projects or Studies

Route Subtype

Interstate/Toll Road

US/State Route

State Route

Toll Road

NJTPA_RailStations

NJTransit Rail Lines

10 5 0 10 Miles

N

BRT & Express Bus Service

Potential Strategy Sites

June, 2009

Map T.8

Ridesharing & Transit Enhancement

Roadway Improvement

Freight Movement

Express Service

- BRT
- Express Bus
- Multi-Modal

Current Projects or Studies

Route Subtype

- Interstate/Toll Road
- US/State Route
- State Route
- Toll Road
- NJTransit Rail Lines
- NJTPA_RailStations

10 5 0 10 Miles

N

Potential Areas for Roadway Improvements

Identified areas are candidates for the improvement strategies indicated. These are detailed further on subsequent maps. Other strategies may also apply as shown elsewhere in this document.

June, 2009

Map R.1

14: P

15: P Ë n

24: 6

2: P

1: P Ë n 6

26: P Ë n 6

16: P

13: P Ë n

32: P Ë

17: P

18: P

12: P Ë n

11: Ë n

23: Ë n

3: P Ë n 6

10: P Ë n 6

5: P Ë n 6

20: P 6

19: P

21: P Ë n 6

25: 6

9: Ë n

27: 6

4: P Ë n 6

22: P Ë n 6

7: P 6

29: P

35: Widen NJ TPK

31: P

34: P 6

8: P

6: P n 6

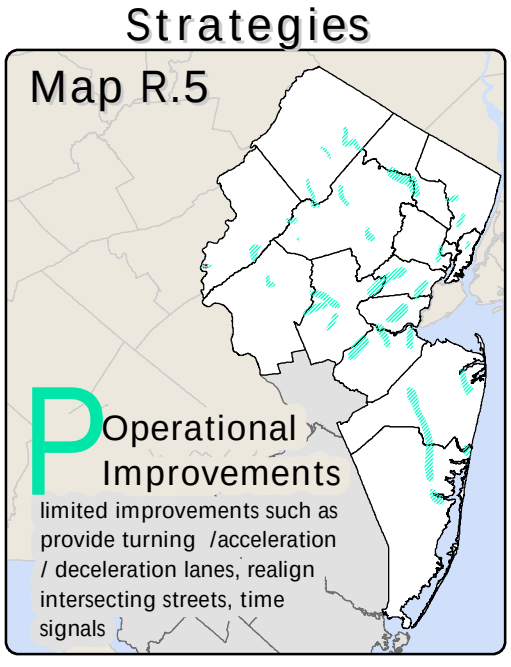
33: P Ë

30: GSP Widening

28: 6

Detailed Strategies

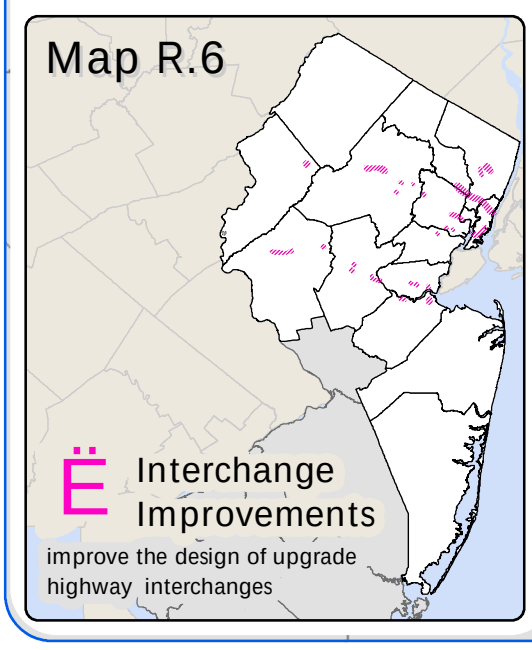
Map R.5



P Operational Improvements

limited improvements such as provide turning /acceleration / deceleration lanes, realign intersecting streets, time signals

Map R.6

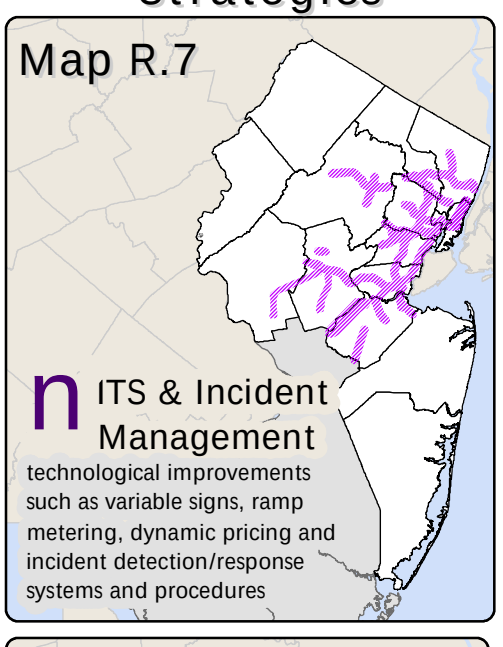


Ë Interchange Improvements

improve the design of upgrade highway interchanges

Detailed Strategies

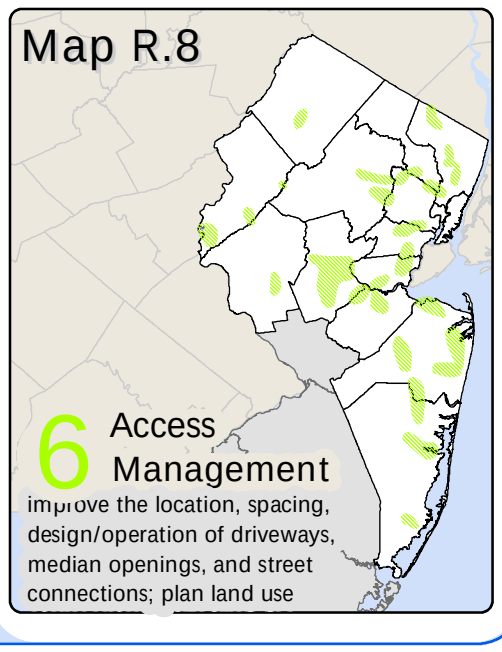
Map R.7



n ITS & Incident Management

technological improvements such as variable signs, ramp metering, dynamic pricing and incident detection/response systems and procedures

Map R.8



6 Access Management

improve the location, spacing, design/operation of driveways, median openings, and street connections; plan land use

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Improve Roadway Travel

Strategy Definitions and Examples

1. **Operational Improvement:** Non-Interstate highway improvements.
   Examples:
   - Turning/acceleration/deceleration lanes
   - Realign intersecting streets
   - Signalization and channelization
   - Signal timing
2. **Interchange Improvement:** Improve design of or upgrade limited access grade-separated interchanges.
   Examples:
   - Ramp reconfiguration
   - Ramp extension
   - Interchange geometry improvements
   - Grade separation of existing intersections
3. **Intelligent Transportation Systems (ITS) and Incident Management:** Technological improvements to improve traffic flow and lessen the impacts of incidents such as vehicle breakdowns or accidents.
   Examples:
   - Variable electronic signs
   - Ramp metering
   - Dynamic pricing
   - Incident detection/response systems and procedures
   - Computerized traffic signal coordination
4. **Access Management:** Improve the location, spacing and design/operation of driveways, median openings and street connections, and plan adjacent land uses.
   Examples:
   - Curb cut controls
   - Service roads
   - Limited use of breakdown lanes
   - Bus stops, pullouts, and priority lanes
5. **Road Expansion** Add through lanes, add significant new capacity, or construct new highways. *Per Federal Congestion Management Process (CMP) rules, road expansion can be used only if all other options have proven insufficient to resolve a congestion problem. Road expansion will be considered as an option during the Strategy Refinement study after other options have been studied.*

Strategy Areas, Affected Counties, and Applicable Strategies: This table references the Strategy Areas shown on map R.1 on the following page. It lists the ID numbers shown on the map, names of the Strategy Areas, counties which would potentially be affected by projects in the Strategy Areas, and the strategies that could be applied in each Strategy Area.

ID	NAME	Affected Counties	Applicable Strategies
1	I-80, Rts. 10, 15, 206, Northern Morris County	Bergen, Essex, Hudson, Hunterdon, Passaic, Morris, Sussex and Warren	
2	Rt. 23, Pequanock/Wayne/Little Falls	Bergen, Essex, Hudson, Passaic, Morris and Sussex	
3	Rts. 22, 28, 202, 206, I-287, Somerville-Piscataway	Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union and Warren	
4	Rts. 1, 27, South Brunswick-New Brunswick	Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Somerset, Passaic and Union	
5	Rts. 1, 27, GSP-Elizabeth	Bergen, Hudson, Essex, Middlesex, Passaic and Union	
6	Rt. 9, Freehold-Toms River	Essex, Hudson, Middlesex, Monmouth, Ocean, Somerset, and Union	
7	Redbank-Eatontown-Asbury Park Area	Monmouth	
8	Point Pleasant-Manasquan Area	Essex, Middlesex, Monmouth, Somerset and Ocean	
9	Rt. 9 Old Bridge-Woodbridge	Bergen, Essex, Hudson, Passaic, Middlesex, Monmouth, Morris, Somerset, Ocean and Union	
10	Rts 22, 24, 28, I-78 into Newark & Elizabeth	Bergen, Essex, Hudson, Hunterdon, Passaic, Middlesex, Monmouth, Morris, and Union	
11	Rt 21, I-280, Downtown Newark Area	Bergen, Essex, Hudson, Middlesex, Morris, Passaic and Union	
12	Jersey City - Northern Hudson County	Bergen, Essex, Hudson and Passaic	
13	Rts 3, 4, 17, I-80, Eastern Passaic-Southern Bergen Area	Bergen, Essex, Hudson, Middlesex, Morris, Somerset, Sussex, Passaic and Union	
14	Rt 23 Franklin	Bergen, Essex, Hudson, Middlesex, Morris, Sussex, and Union	
15	Rt 15, Sparta-Lafayette	Bergen, Essex, Hudson, Morris, Somerset, Sussex, Passaic and Union	
16	Rt 206, Andover-Newton	Essex, Hudson, Hunterdon, Morris, Sussex and Warren	
17	Hackettstown-Long Valley Area	Bergen, Essex, Hudson, Hunterdon, Morris, Sussex and Warren	
18	Rt 31 Washington	Hunterdon, Somerset and Warren	
19	Clinton Area: Rt 31 and I-78***	Essex, Hunterdon, Middlesex, Morris, Somerset and Warren	
20	Phillipsburg Area	Essex, Hunterdon, Middlesex, Morris, and Warren	
21	Rts. 1, 27, New Brunswick-GSP	Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Somerset, Passaic and Union	
22	Rt 18, East Brunswick	Essex, Hudson, Hunterdon, Middlesex, Monmouth, and Ocean	
23	I-78 Rt 24 Essex & Union Counties	Bergen, Essex, Hudson, Hunterdon, Middlesex, Morris, Passaic, Sussex, Union and Warren	
24	Rt 206, Newton	Sussex and Warren	
25	Flemington Area	Essex, Hudson, Hunterdon, Middlesex, Morris, Somerset, and Union	
26	Rt 46 Caldwell-Wayne	Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Sussex, and Union	
27	Rts 35, 36, Keyport-Hazlet	Essex, Middlesex, Monmouth, Somerset and Ocean	
28	Rts 9, 72, Manahawkin	Ocean	
29	Middlesex County: Cross County Connection	Middlesex County	
30	Garden State Parkway, Ocean County	Regionwide	GSP Planned Widening
31	Route 33, Freehold – Exit 8A***	Monmouth, Middlesex	
32	I-80 at Alphano Rd. ***	Warren	
33	Rts. 70 & 88 Lakewood-Point Pleasant***	Ocean and Monmouth Counties	
34	Rts. 33, 66, 18 & GSP, Monmouth County***	Monmouth County	
35	NJ Turnpike & GSP, ITS, Middlesex and Bergen Counties Planned widening below Exit 8A	Regionwide	Widen NJ TPK

Subregional Input ***

Potential Areas for Roadway Improvements

Map on facing page identifies areas where indicated types of transportation strategies may be implemented or further studied. Strategies are defined below with text and symbols. Detailed improvements of these strategies can be found on the indicated maps to follow. Denoted under each numbered area are applicable strategies.

Map R.5
Operational Improvements

limited improvements such as provide turning /acceleration / deceleration lanes, realign intersecting streets, time signals

Map R.6
Interchange Improvements

improve the design of upgrade highway interchanges

Map R.7
ITS & Incident Management

technological improvements such as variable signs, ramp metering, dynamic pricing and incident detection/response systems and procedures

Map R.8
Access Management

improve the location, spacing, design/operation of driveways, median openings, and street connections; plan land use

Potential Areas and Improvements

1:
I-80; Rts.-10, -15, and -206
Strategies:

2:
Rt. 23, Pequanock/Wayne/Little Falls
Strategies:

3:
Rts. 22, 28, 202, 206, Somerville Area
Strategies:

4:
Rts. 1, 27, South to New Brunswick
Strategies:

5:
Rts. 1, 27, GSP to Elizabeth
Strategies:

6:
Rt. 9 Corridor, Freehold to Toms River
Strategies:

7:
Redbank to Eatontown Area
Strategies:

8:
Point Pleasant to Manasquan Area
Strategies:

9:
Rt. 9 Old Bridge to Woodbridge
Strategies:

10:
Rt. 22, 28 into Newark and Elizabeth
Strategies:

11:
Downtown Newark Area
Strategies:

12:
Jersey City to Northern Hudson County
Strategies:

13:
Rts. 3, 4, 17, East Passaic to South Bergen
Strategies:

14:
Rt. 23 Hamburg to Franklin
Strategies:

15:
Rt. 15, Sparta to Lafayette
Strategies:

16:
Rts. 183, 206, Andover to Netcong
Strategies:

17:
Hackettstown-Long Valley Area
Strategies:

18:
Rt. 31 Washington
Strategies:

19:
Clinton Area
Strategies:

20:
Phillipsburg Area
Strategies:

21:
Rts. 1, 27, New Brunswick to GSP
Strategies:

22:
Rt. 18, East Brunswick
Strategies:

23:
I-78, Rt. 24 Essex and Union County
Strategies:

24:
Rt. 206, Newton
Strategies:

25:
Rt. 202, Flemington
Strategies:

26:
Rt. 46, Caldwell-Wayne
Strategies:

27:
Rts. 35, 36 Keyport-Hazlet
Strategies:

28:
Rts. 9, 72, Manahawkins
Strategies:

29:
Middlesex Cross County Connection Strategies:

30:
GSP Planned Widening

Potential Areas for Roadway Improvements

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Operational Improvements
limited improvements such as provide turning/ acceleration / deceleration lanes, realign intersecting streets, time signals

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technological improvements such as variable signs, ramp metering, dynamic pricing and incident detection/response systems and procedures

Map R.8
Access Management
improve the location, spacing, design/operation of driveways, median openings, and street connections; plan land use

Potential Areas and Improvements

31:
Rt. 33, Freehold Exit 8A**
Strategies:

32:
I-80 at Alphano Rd
Strategies:

33:
Routes 70 & 88
Lakewood-Point Pleasant
Strategies:

34:
Routes 33, 66, 18 & GSP
Monmouth Strategies:

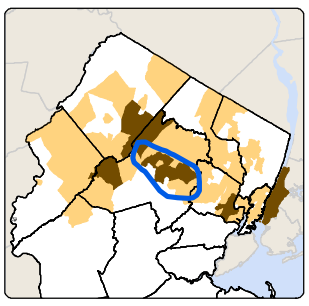
35:
Widen NJ TPK

Places Potentially Affected

Travel Markets Potentially Affected:

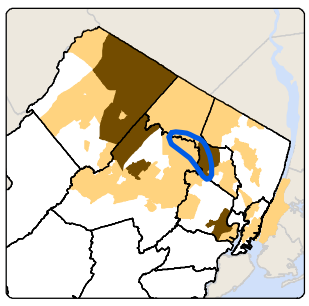
Maps below describe the Travel Markets potentially affected by improvements. Counties potentially affected are also listed below.

= Improvement Areas **= Primarily Affected** **= Secondarily Affected**



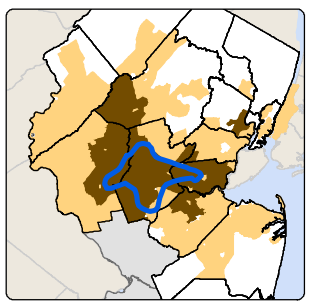
1:
I-80; Rts.-10, -15, and -206

Places Potentially Affected in:
Bergen, Essex, Hudson, Hunterdon, Passaic, Morris, Sussex and Warren



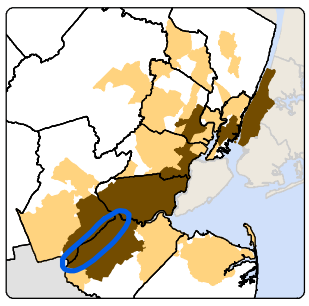
2:
Rt. 23, Pequanock/Wayne/ Little Falls

Places Potentially Affected in:
Bergen, Essex, Hudson, Passaic, Morris and Sussex



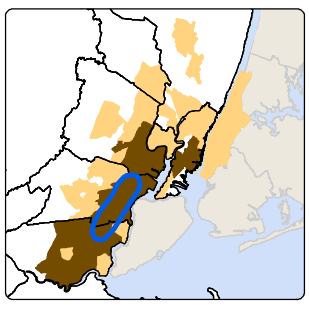
3:
Rts. 22, 28, 202, 206, Somerville Area

Places Potentially Affected in:
Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union and Warren



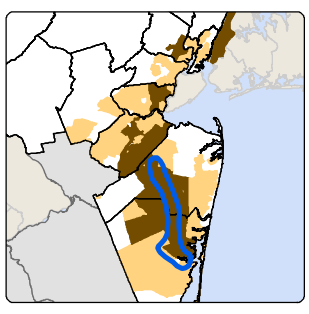
4:
Rts. 1, 27, South Brunswick to New Brunswick

Places Potentially Affected in:
Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Somerset, Passaic and Union



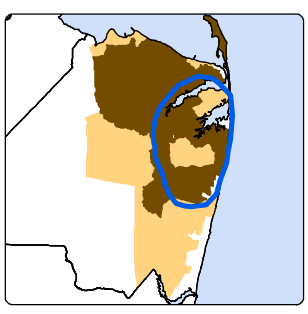
5:
Rts. 1, 27, GSP to Elizabeth

Places Potentially Affected in:
Bergen, Hudson, Essex, Middlesex, Passaic and Union



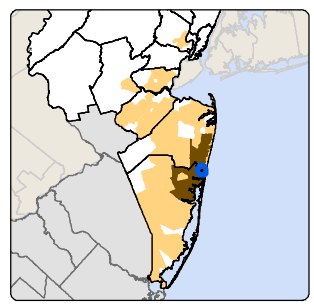
6:
Rt. 9 Corridor, Freehold to Toms River

Places Potentially Affected in:
Essex, Hudson, Middlesex, Monmouth, Ocean, Somerset, and Union



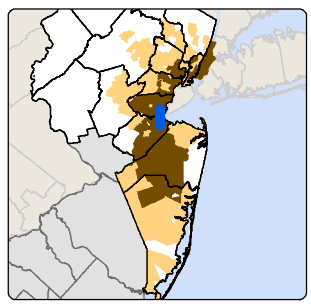
7:
Redbank to Eatontown Area

Places Potentially Affected in:
Monmouth



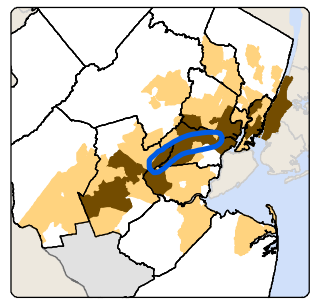
8:
Point Pleasant to Manasquan Area
Strategies:

Places Potentially Affected in:
Essex, Middlesex, Monmouth, Somerset and Ocean



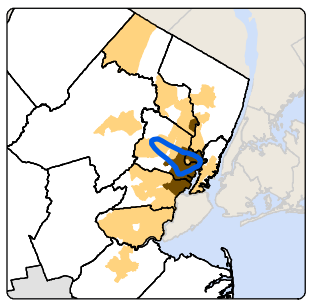
9:
Rt. 9 Old Bridge to Woodbridge

Places Potentially Affected in:
Bergen, Essex, Hudson, Passaic, Middlesex, Monmouth, Morris, Somerset, Ocean and Union



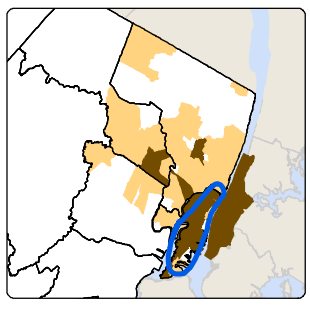
10:
Rt. 22, 28 into Newark and Elizabeth

Places Potentially Affected in:
Bergen, Essex, Hudson, Hunterdon, Passaic, Middlesex, Monmouth, Morris, and Union



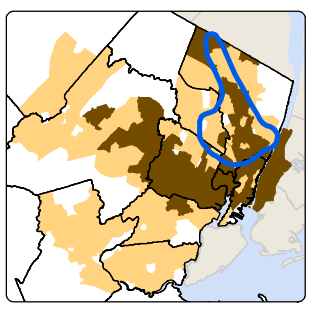
11:
Downtown Newark Area

Places Potentially Affected in:
Bergen, Essex, Hudson, Middlesex, Morris, Passaic and Union



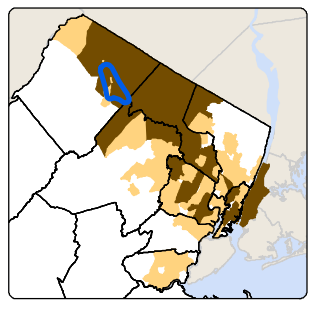
12:
Jersey City to Northern Hudson County

Places Potentially Affected in:
Bergen, Essex, Hudson and Passaic



13:
Rts. 3, 4, 17, Eastern Passaic to Southern Bergen Area

Places Potentially Affected in:
Bergen, Essex, Hudson, Middlesex, Morris, Somerset, Sussex, Passaic and Union



14:
Rt. 23 Hamburg to Franklin

Places Potentially Affected in:
Bergen, Essex, Hudson, Middlesex, Morris, Sussex, and Union

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

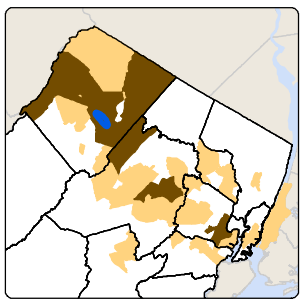
Freight Movement

Places Potentially Affected

Travel Markets Potentially Affected by Roadway Improvements:

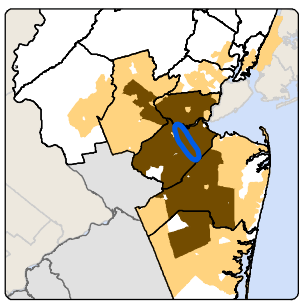
Maps below describe the Travel Markets potentially affected by roadway improvements. Counties potentially affected are also listed below. Areas 29 & 30, NJ Turnpike & GSP, have regionwide affects and are not shown.

= Improvement Areas **= Primarily Affected** **= Secondarily Affected**



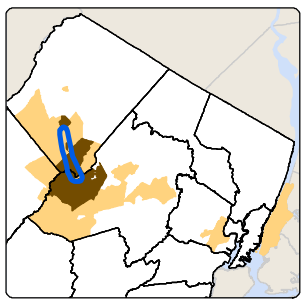
15:
Rt. 15, Sparta to Lafayette

Places Potentially Affected in:
Bergen, Essex, Hudson, Morris, Somerset, Sussex, Passaic and Union



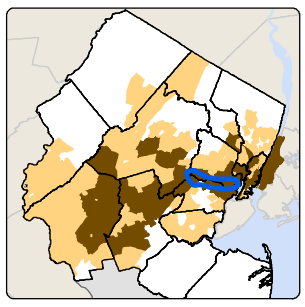
22:
Rt. 18, East Brunswick

Places Potentially Affected in:
Essex, Hudson, Hunterdon, Middlesex, Monmouth, and Ocean



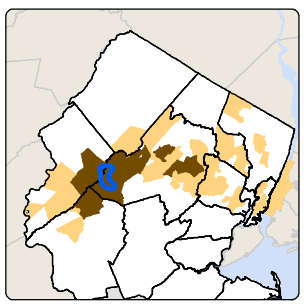
16:
Rts. 183, 206, Andover to Netcong

Places Potentially Affected in:
Essex, Hudson, Hunterdon, Morris, Sussex and Warren



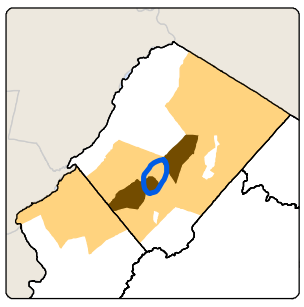
23:
I-78, Rt. 24 Essex and Union County

Places Potentially Affected in:
Bergen, Essex, Hudson, Hunterdon, Middlesex, Morris, Passaic, Sussex, Union and Warren



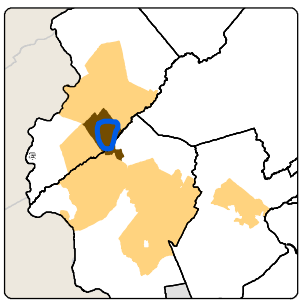
17:
Hackettstown-Long Valley Area

Places Potentially Affected in:
Bergen, Essex, Hudson, Hunterdon, Morris, Sussex and Warren



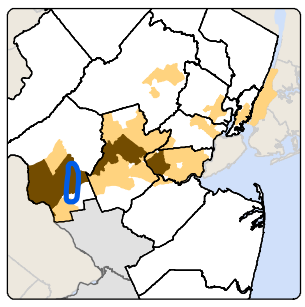
24:
Rt. 206, Newton

Places Potentially Affected in:
Sussex and Warren



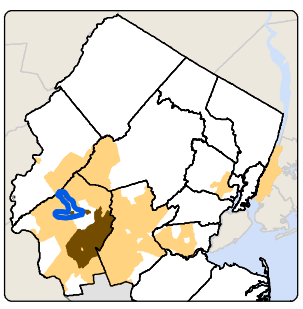
18:
Rt. 31 Washington

Places Potentially Affected in:
Hunterdon, Somerset and Warren



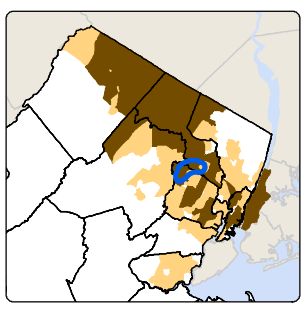
25:
Rt. 202, Flemington

Places Potentially Affected in:
Essex, Hudson, Hunterdon, Middlesex, Morris, Somerset, and Union



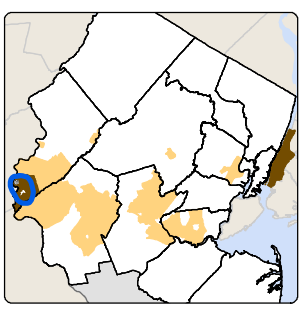
19:
Clinton Area

Places Potentially Affected in:
Essex, Hunterdon, Middlesex, Morris, Somerset and Warren



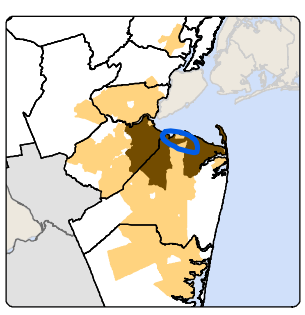
26:
Rt. 46, Caldwell-Wayne

Places Potentially Affected in:
Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Sussex, and Union



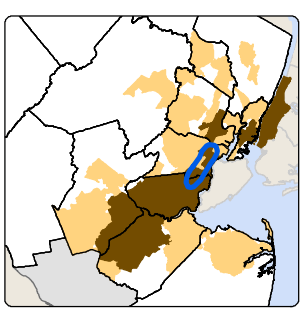
20:
Phillipsburg Area

Places Potentially Affected in:
Essex, Hunterdon, Middlesex, Morris, and Warren



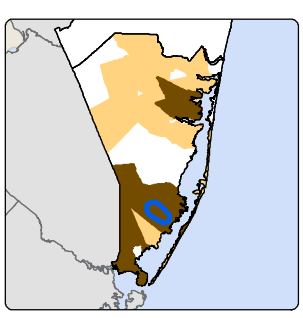
27:
Rts. 35, 36, Keyport-Hazlet

Places Potentially Affected in:
Essex, Middlesex, Monmouth, Somerser and Ocean



21:
Rts. 1, 27, New Brunswick to GSP

Places Potentially Affected in:
Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Somerset, Passaic and Union



28:
Rts. 9, 72, Manahawkins

Places Potentially Affected in:
Ocean

Potential Areas for Roadway Improvements

Generalized Strategy Areas - Close-up 1 of 3

June, 2009

Map R.2

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

14 Along Rt. 23 from Hamburg to Franklin improve highway operations

24 Examine vehicle access control around retail areas

15 Study highway congestion from Sparta to Lafayette along Rt. 15

16 From Andover to Netcong study highway congestion along Rt. 206

17 From Andover to Netcong study highway congestion along Rt. 206

20 Congestion among the intersection of several major highways in Phillipsburg

18 Study highway congestion in Washington along Rt. 31

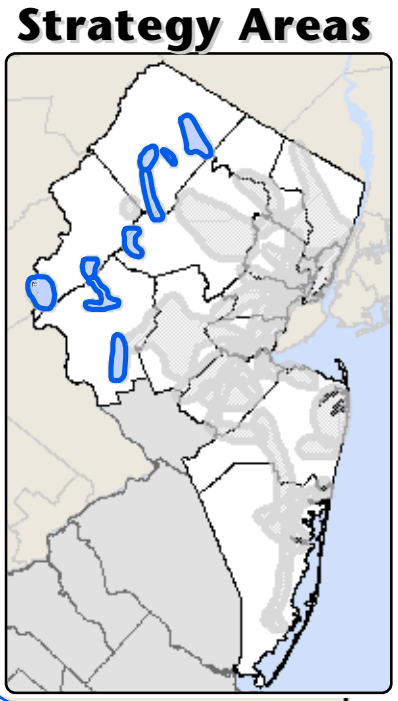
19 Examine operational improvements in Clinton Area

25 Study vehicle access control around Flemington retail areas

206 15 80 46 10 57 22 31 78 202

N

Generalized Strategy Areas



Strategy Areas

Strategies

- Operational Improvements
- Interchange Improvements
- ITS & Incident Management
- Access Management

Roadway Infrastructure

- Interstate/Toll Road
- US/State Route

Potential Areas for Roadway Improvements

Generalized Strategy Areas - Close-up 2 of 3

June, 2009

Map R.3

Strategy Areas

Strategies

- Operational Improvements
- Interchange Improvements
- ITS & Incident Management
- Access Management

Roadway Infrastructure

- Interstate/Toll Road
- US/State Route

13 In Passaic and Bergen evaluate Rts. 3, 4, and 17 for improvement studies

2 Improve opertaional strategies along Rt. 23 in Pequanock, Wayne and Little Falls

1 Throughly investigate roadway improvement employing operational, interchange, ITS, access strategies along I-80.

26 Study vehicle access control around retail in Caldwell-Wayne area and ITS possibilities.

23 Along I-78 and Rt. 24 in Essex and Union incident management and interchange issues

10 Comprehensively investigate roadway improvements using operational, intechange, ITS, and access strategies along Rt. 22.

12 In Jersey City & Bayonne, operational improvements, ITS & incident management

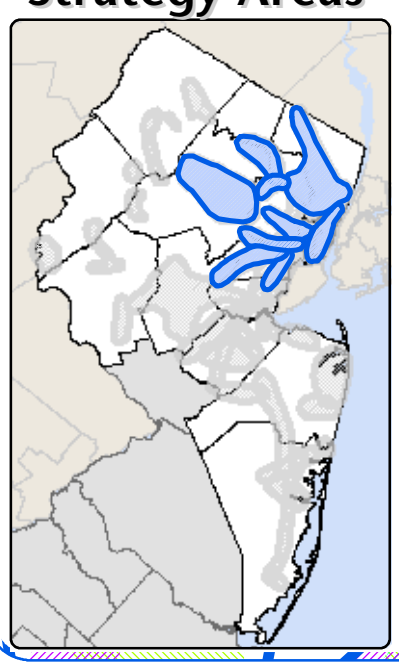
11 In downtown Newark area improve incident management and interchange issues around I-280 and Rt. 21

35 NJ Turnpike & GSP: ITS, Incident Management

5 Improve vehicle access contron along Rts. 1, 27 from New to South Brunswick

21 Comprehensively investigate roadway improvements using operation, interchange, ITS and access strategies along Rts 1, 27 and GSP

Generalized Strategy Areas



Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Potential Areas for Roadway Improvements

Generalized Strategy Areas - Close-up 3 of 3

June, 2009

Map R.4

3
Throughly investigate roadway improvement employing operational, interchange, ITS, access strategies along Rts. 22, 28, 202, 206 and I-287.

4
Along Rts. 1and 27 from New Brunswick to South Brunswick improve highway operations including access to retail areas.

29
Cross County Connection Middlesex County

31
Route 33: Freehold Operational Improvements - Exit 8A

6
Along Rt. 9 from Freehold to Toms River improve highway operations including access to retail areas.

33
Along Rts. 70 & 88 in the Lakewood-Point Pleasant area by improving signal timing

30
NJTA planned GSP widening Ocean County

28
Study vehicle access control around Manahawkins

35
NJ Turnpike and GSP: ITS, Incident Management; NJTA planned widening below Exit 8A

9
Along Rt. 9 from Old Bridge Woodbridge improve incident management and interchange issues

27
Examine vehicle access control around retail in Keyport-Hazlet

22
Comprehensively investigate roadway improvements using operation, interchange, ITS and access strategies along Rt. 18

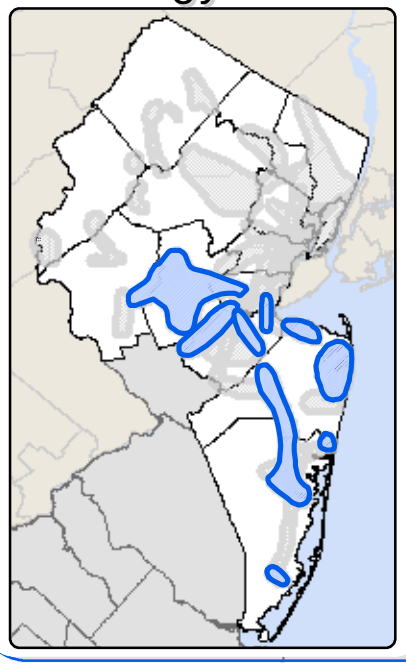
7
Along Rt. 35 from Redbank to Eatontown Area improve highway operations including access to retail areas.

34
Along Rts. 33, 66, 18 & GSP and the Shore, including signal timing, intersection configuration and ramp design in Asbury Park

8
Study highway congestion around Point Pleasant-Manasquan Area

22 27 1 9 130 33 18 195 70 72 36 35 71 34 138 37

Generalized Strategy Areas



N

Strategy Areas

Strategies

Operational Improvements P

Interchange Improvements Ë

ITS & Incident Management n

Access Management 6

Roadway Infrastructure

Interstate/Toll Road

US/State Route

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Highway Operational Improvement

Potential Strategy Sites

June, 2009

Map R.5

ID	Site Locations
1	Rt. 4: Elmwood Park/Fair Lawn
2	Rt. 23: Kinnelon/Pequanaock/Wayne
3	Rt. 15: Wahrton/Rockaway/Jefferson
4	Rt. 21: Newark
5	Rt. 1 & 9: Linden/Rahway
6	Rts. 1 & 27: Edison & Metuchen
7	Rts. 22,28,202&206: Branchburg/Bridgewater/Raritan/Somerville
8	Rt. 202: Bridgewater/Ringoes***
9	Rt. 206: Hillsborough/Montgomery/Somerville
10	Rt. 27: Highland Park
11	Rt. 35: Red Bank to Eatontown
12	Rt. 35: Point Pleasant
13	Rt. 9: Freehold to Lakewood
14	Rt. 9: Berkeley to Toms River
15	Rt. 206: Bryam/Stanhope/Netcong
16	Rt. 15: Lafayette/Sparta
17	Rt. 1: Edison/Metuchen
18	Rt. 46: Mount Olive/Washinton
19	Rt. 31: Washington - Glen Gardener
20	Rt. 22; Phillipsburg
21	I-78: Clinton***
22	CR. 517: Washington
23	Rts. 202, 124 & CR. 510: Morristown
24	Rt. 17: Hasbroouck Heights, Wood-Ridge & Carlstadt
25	Rt. 22: Mountainside, Scotch Plains & Watchung
26	Rts. 1 & 27: North & South Brunswick
27	Rt. 9: Sayreville & Old Bridge
28	Rt. 1: North Bergen/Jersey City
29	Southern Middlesex County East-West Circulation***
30	Rt. 33: Freehold - Exit 8A area***
31	I-80 at Alphano Rd - Safety ramps***
32	Rts. 33/66/18 & GSP: Asbury Park***
33	Rts 70/88 Lakewood - Pt. Pleasant***

***Subregional Input

Criteria for Identifying Potential Sites:

Sequences of congested segments and intersections:

- ▸ along /collector roads (from NJDOT-CMS analysis)
- ▸ that carry heavy volumes from places
- ▸ with high hotspot delay need congested areas in rural place types

Intersections Over Capacity

Potential Strategy Site

Volume/Capacity Ratios* on Road Network (Principal Arterial)

*Color of Line Represents:

Over 1.2 (HOTSPOTS ON NETWORK)

0.9 - 1.2 (indicators of areas not hotspots but still experience delay)

Under 0.9

Person Volume**

**Thickness of Line Represents:

1,000 Person Volume

10,000 Person Volume

25,000 Person Volume

NJDOT Controlled Signal Systems

10 5 0 10 Miles

N

Source: North Jersey Regional Transportation Model and NJDOT, 2007

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Highway Interchange Improvement

Potential Strategy Sites

June, 2009

Map R.6

ID	Site Locations
1	Rt. 4: Paramus to Hackensack
2	Rt. 17 Hackensack to Lodi
3	Rt. 3: Clifton to Secacus
4	I-80: Wharton to Denville
5	I-80 & I-287: Parsipanny
6	I-80 & I-280: Parsipanny
7	I-280: Roseland
8	I-287 & Rt. 10: Hanover
9	I-280: Newark
10	I-78: Newark
11	I-78: Irvington
12	GSP & Rt. 22: Union
13	I-287 & Rt. 202/206: Raritan
14	Rt. 22 & Rt. 202/206: Raritan/Someville Circle
15	Rt. 1 & Rt. 18: New Brunswick
16	NJTPK & Rt. 18: New Brunswick
17	I-287 & Rt. 1: Edison
18	GSP & Rt. 440: Woodbridge
19	GSP & Rt. 9: Sayreville to South Amboy
20	I-287 & Rt. 27: Edison***
21	I-78: Hudson County***
22	I-78 Exits 12-18 Clinton Area***
23	I-78/Rt. 517***
24	I-287: Easton Avenue***
25	I-80 at Alphano Rd.- Safety ramps***

*** Subregional Input

Criteria for Identifying Potential Sites:

Freeway interchanges:

- identified as a hotspot (from NJDOT-CMS analysis)
- heavily used to access places with high need.

Intersections Over Capacity

Potential Strategy Site

Volume/Capacity Ratios* on Road Network (Principal Arterial)

*Color of Line Represents:

Over 1.2 (HOTSPOTS ON NETWORK)

0.9 - 1.2 (indicators of areas not hotspots but still experience delay)

Under 0.9

Person Volume**

**Thickness of Line Represents:

1,000 Person Volume

10,000 Person Volume

25,000 Person Volume

NJDOT Controlled Signal Systems

10 5 0 10 Miles

N

Source: North Jersey Regional Transportation Model and NJDOT, 2007

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

ITS & Incident Management

Potential Strategy Sites

June, 2009

Map R.7

ID	Site Locations
1	Rt. 17 from CR 507 to Rt. 4
2	I-80: from Rt. 23 to I-95/Rt. 1 & 9
3	I-80: from Rt. 15 to I-280
4	I-287: from I-80 to Rt. 24
5	Rt. 3/46: from GSP to NJTPK
6	Rt. 3: from GSP to NJTPK
7	Rt. 1 & CR 501
8	GSP: from Rt. 3 to I-287
9	I-280: from I-80 to NJTPK
10	NJTPK: from I-280 to I-78
11	Rt. 124: from Rt. 24 to I-78
12	I-78: from Rt. 24 to I-78
13	Rt. 22: from CR 655 to GSP
14	NJTPK: from I-78 to GSP
15	I-287/Rt. 22: from Rt. 202/206 to Outerbridge
16	NJTPK: from GSP to Rt. 18
17	GSP: from I-P287 to exit 117
18	Rt. 9 & GSP
19	Rt. 18: from Rt. 1 to CR. 516
20	NJTPK: from Rt. 1 to CR 516
21	Rt. 1 & Rt. 27: Middlesex County***
22	Rt. 202 Somerville- Flemington***
23	Rt. 206; Somerville-Montgomery***
24	I-78 at I-287***

***Subregional Input

Criteria for Identifying Potential Sites:

Roadways:

- that carry a substantial volume to/from places with high unexpected delay need
- with high concentrations of incidents (crashes)

Potential Strategy Site

Crash Rates on Road*
(Annual # of Crashes per Mile)
*Color of Line Represents:
Over 80 Crashes
50-80 Crashes
Under 50 Crashes

Person Volume**
**Thickness of Line Represents:
1,000 Person Volume
10,000 Person Volume
25,000 Person Volume

NJDOT Proposed Emergency Service Patrol

10 5 0 10 Miles

N

Source: North Jersey Regional Transportation Model and NJDOT, 2007

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Access Management
Potential Strategy Sites

June, 2009

Map R.8

ID	Site Locations
1	Rt. 17: Mahwah/Ramsey
2	Rt. 17: Paramus
3	Rts. 206 & 94: Hampton/Newton
4	Rt. 4: Paramus/River Edge
5	Rt. 17: Hackettstown to Little Ferry
6	Rt. 3: Clifton/Rurtherford/Nuttley
7	Rt. 46: West Caldwell/Totowa/Fairfield
8	Rt. 46: Denville/Parsippany/Montville
9	Rt. 10: Hanover/East Hanover/Livingston
10	Rt. 22: Springfield/Union/Hillside
11	Rt. 1: Rahway/Woodbridge/Linden
12	Rts. 22, 206, 27: Branchburg/Bridgewater/Bound Brook***
13	Rts. 31 & 202: Raritan/Flemington
14	Rt. 1: Edison
15	Rt. 1: New Brunswick
16	Rt. 18: East Brunswick/South River
17	Rt. 35: Aberdeen to Middletown
18	Rt. 35: Shrewbury/Eatontown/Red Bank
19	Rt. 9: Manalapan/Freehold
20	Rt. 9: Lakewood/Howell
21	Rt. 37: Toms River
22	Rt. 72: Statford
23	I-78 & Rt. 22: Phillipsburg***
24	Rt. 46 & CR 517: Hackettstown***
25	Rts. 31 & 57: Washington***
26	Rts: 33/66/18 & GSP: Asbury Park***

Subregional Input***

Criteria for Identifying Potential Sites:

Highway segments with:

- Concentration of retail stores and businesses (e.g., mall, strip mall)
- recurring congestion

Major Retail Employment (25+ Employees)

Potential Site Identified based on Retail and Road Volume

Potential Site Identified based on Retail Only

Existing Access Management Code

- Fully controlled Access
- Accesss along Street or Interchange Only
- Right-turn Access with Provision for Left-turn Access via Jughandle
- Driveway with Provision for Left-turn Access via Left-turn lane
- Driveway with Provision for Left-turn Access (Limited by Spacing Requirements)
- Driveway Access Limited be Edge Clearance and Safety Considerations

10 5 0 10 Miles

N

Source: North Jersey Regional Transportation Model, 2007

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Potential Areas for Freight Improvement

Identified areas are candidates for the strategies indicated. These are detailed further on subsequent maps. Other strategies may also apply as shown elsewhere in this document.

June, 2009

Map F.1

1: V

2: V

3: V

4: V

5: V

6: V

7: S

8: S

9: S

10: S

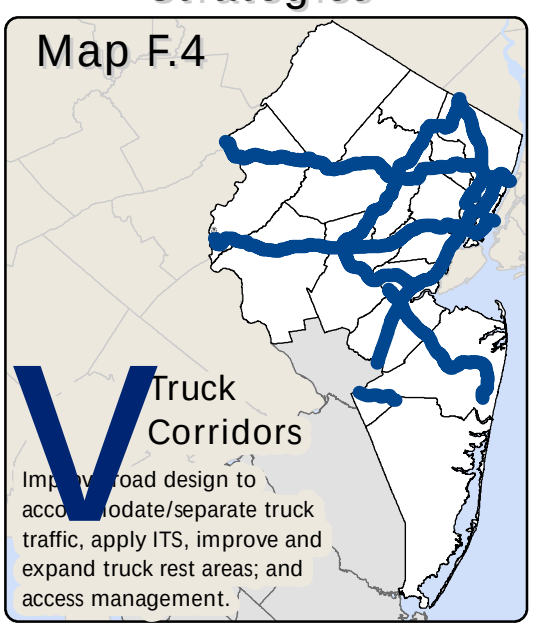
11: S

12: S A

13: S A C

Detailed Strategies

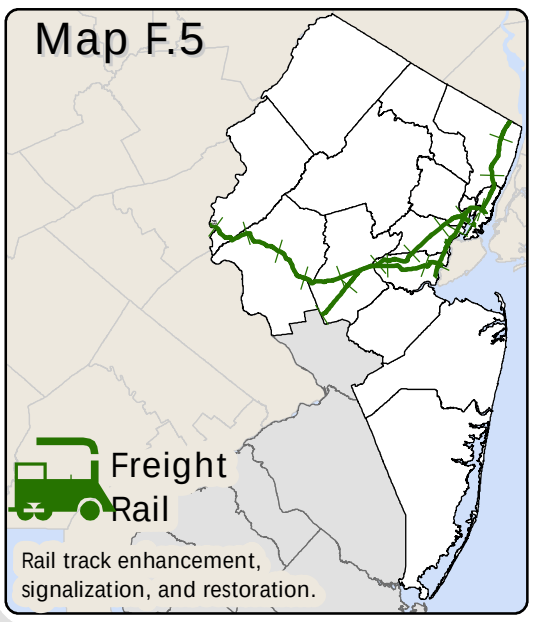
Map F.4



V Truck Corridors

Improve road design to accommodate/separate truck traffic, apply ITS, improve and expand truck rest areas; and access management.

Map F.5

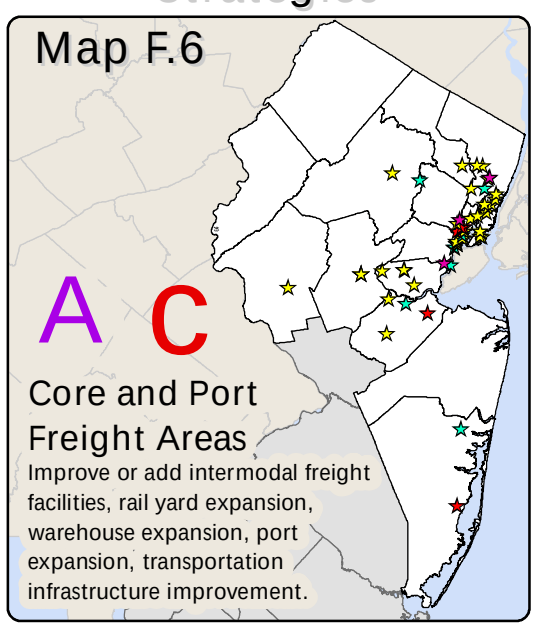


Freight Rail

Rail track enhancement, signalization, and restoration.

Detailed Strategies

Map F.6



A **C**

Core and Port Freight Areas

Improve or add intermodal freight facilities, rail yard expansion, warehouse expansion, port expansion, transportation infrastructure improvement.

Legend

Intermodal Facility Types

- AIR & TRUCK
- RAIL & TRUCK
- TRUCK & TRUCK
- TRUCK - PORT - RAIL

- Truck Corridors
- Freight Rail Corridors
- Port Area
- Core Freight Facilities Area

Improve Freight Movement

Strategy Definitions and Examples

1. **Truck Corridors:** Roadway improvements.
   Examples:
   - Intelligent Transportation System (ITS)
   - Driver rest areas improvement and expansion
   - Access Management

2. **Rail Freight Corridors:** Rail track improvements.
   Examples:
   - Rail signalization improvement
   - Rail track enhancement
   - Rail track restoration

3. **Core/Intermodal Freight Facilities:** Infrastructure improvements to meet future freight movement and warehouse needs.
   Examples:
   - Intelligent Transportation System (ITS)
   - Intermodal freight facilities improvement and development
   - Intermodal/transportation connectivity improvement
   - Warehouse expansion and addition

4. **Port Facilities:** Specific infrastructure improvements to address future port related needs.
   Examples:
   - Rail yard improvement and addition
   - Port capacity improvement and expansion
   - Larger cargo vessels needs

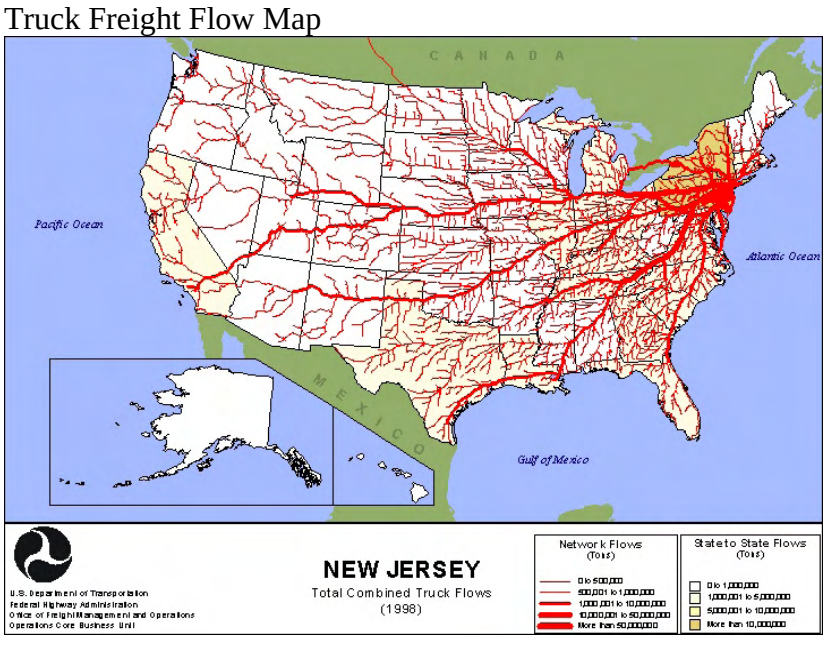
Strategy Areas and Applicable Strategies: This table references the Strategy Areas shown on map F.1 on the following page. It lists the ID numbers shown on the map, names of the Strategy Areas and the strategies that could be applied in each Strategy Area.

ID	NAME	Applicable Strategies
1	I-80 from PA State line to I-287	
2	I-78 from PA State line to I-287	
3	I-287	
4	Rt 17 to I-287	
5	Rt 18 from Rt 138 to north of Rt 27	
6	I-95 from S. Middlesex County line	
7	West Trenton Rail Line to S. Somerset County line	
8	Lehigh Rail Line to PA state line	
9	Chemical Coast Secondary Line and Port Reading Line	
10	Greenville Branch Line and Passiac & Harsimus Branch	
11	River Line	
12	Core Freight Facilities Area	
13	Port Facilities Area	

New Jersey Freight Flow Maps – Truck and Rail

The freight flow maps below shows freight that originates and terminates in New Jersey and passes through New Jersey and New Jersey freight networks serve the national and global markets.

Truck Freight Flow Map



Rail Freight Flow Map

`

Potential Areas for Freight Improvement

Strategy Areas - Close-up 1 of 2

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Map F.2

1 Strategies apply to I-80 corridor from PA to I-287: improving and developing driver rest areas

2 Strategies apply to I-78 corridor from PA to I-287: improving and developing driver rest areas

3 Strategies apply to I-287 corridor: Intelligent Transportation System,

4 Strategies apply to Rt 17 corridor: Access Management

5 Strategies apply to Rt 18 corridor: improving and developing truck stop areas, Access Management

7 Freight Rail Strategies apply to the West Trenton Rail Line

See Map F.3 for strategy descriptions in the Core Freight Facilities and Port Areas.

Legend

Newark_Liberty_Airport

Intermodal Facility Types

AIR & TRUCK

RAIL & TRUCK

TRUCK & TRUCK

TRUCK - PORT - RAIL

Truck Road Corridors

Freight Rail Corridors

Port Area

Core Freight Facilities Area

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Potential Areas for Freight Improvement

Strategy Areas - Close-up 2 of 2

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Map F.3

11 Freight Rail Strategies apply to the River Line

10 Freight Rail Strategies apply to the Greenville Branch and Passaic & Harsimus Branch

13 In addition to the Strategies listed in the Core Freight Facilities area: improving and expanding port capacity, improving this area transportation infrastructure to hande future larger cargo vessels

9 Freight Rail Strategies apply to the Chemical Coast Secondary Line and Port Reading Line

8 Freight Rail Strategies apply to the Lehigh Rail Line

12 Strategies apply to this area: improving intermodal connectivity, areawide Intelligent Transportation System development and deployment, warehouse expansion and addition, brownfield redevelopment, improving transportation connectivity among Interstate/State/local street networks, improving and adding intermodal freight facilities

6 Strategies apply to I-95/NJ Turnpike corridor: improving and developing driver rest areas

Legend

Intermodal Facility Types

- AIR & TRUCK
- RAIL & TRUCK
- TRUCK & TRUCK
- TRUCK - PORT - RAIL

- Foreign Trade Zones
- Rail yards
- Truck Corridors
- Portway
- Portway Extension
- Truck Road Corridor
- Freight Rail Corridors
- Port Area
- Core Freight Facilities Area

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Truck Corridors for Freight Management

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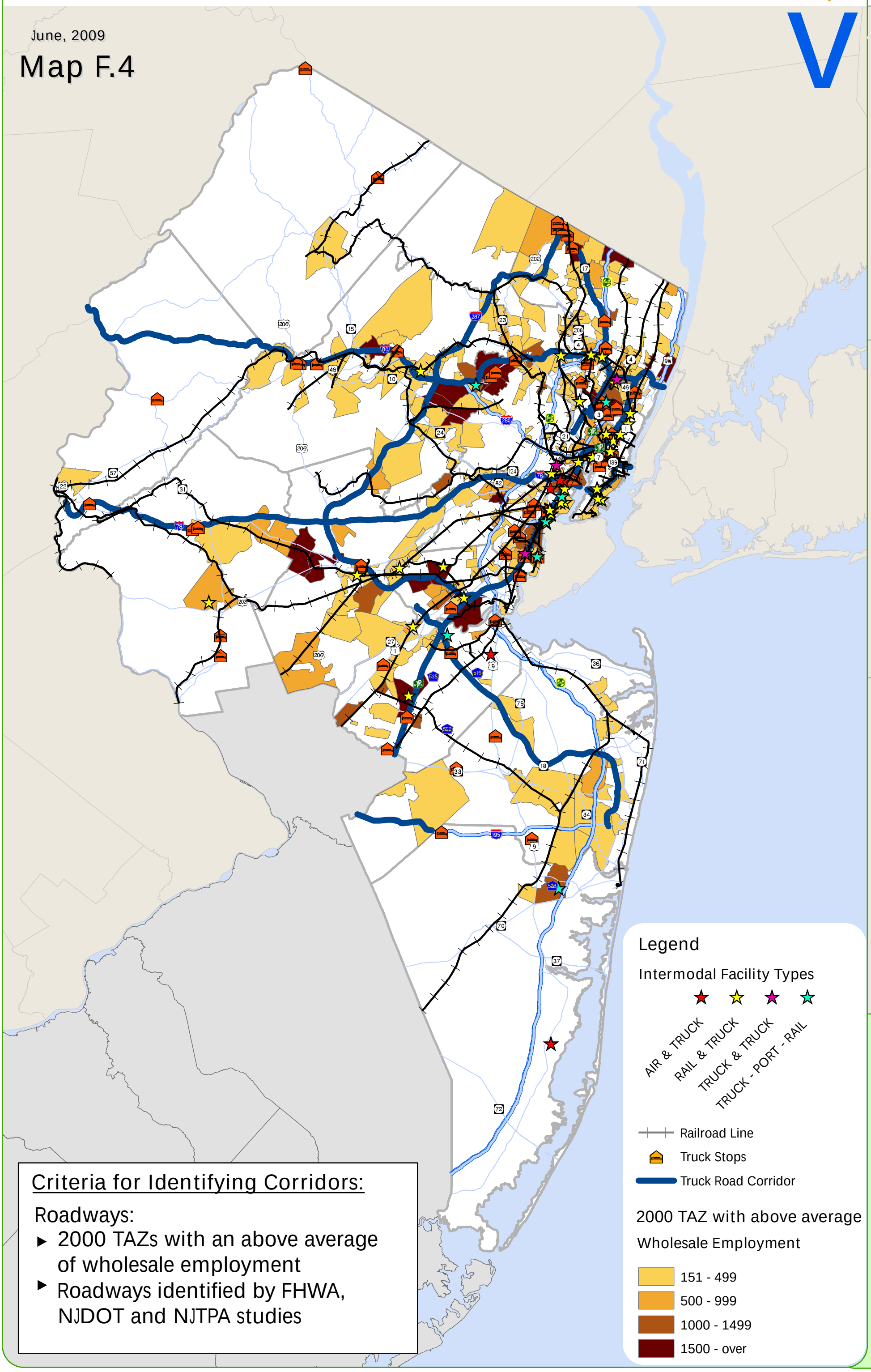
Map F.4

V



Criteria for Identifying Corridors:

Roadways:

- 2000 TAZs with an above average of wholesale employment
- Roadways identified by FHWA, NJDOT and NJTPA studies

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Rail Corridors for Freight Improvement

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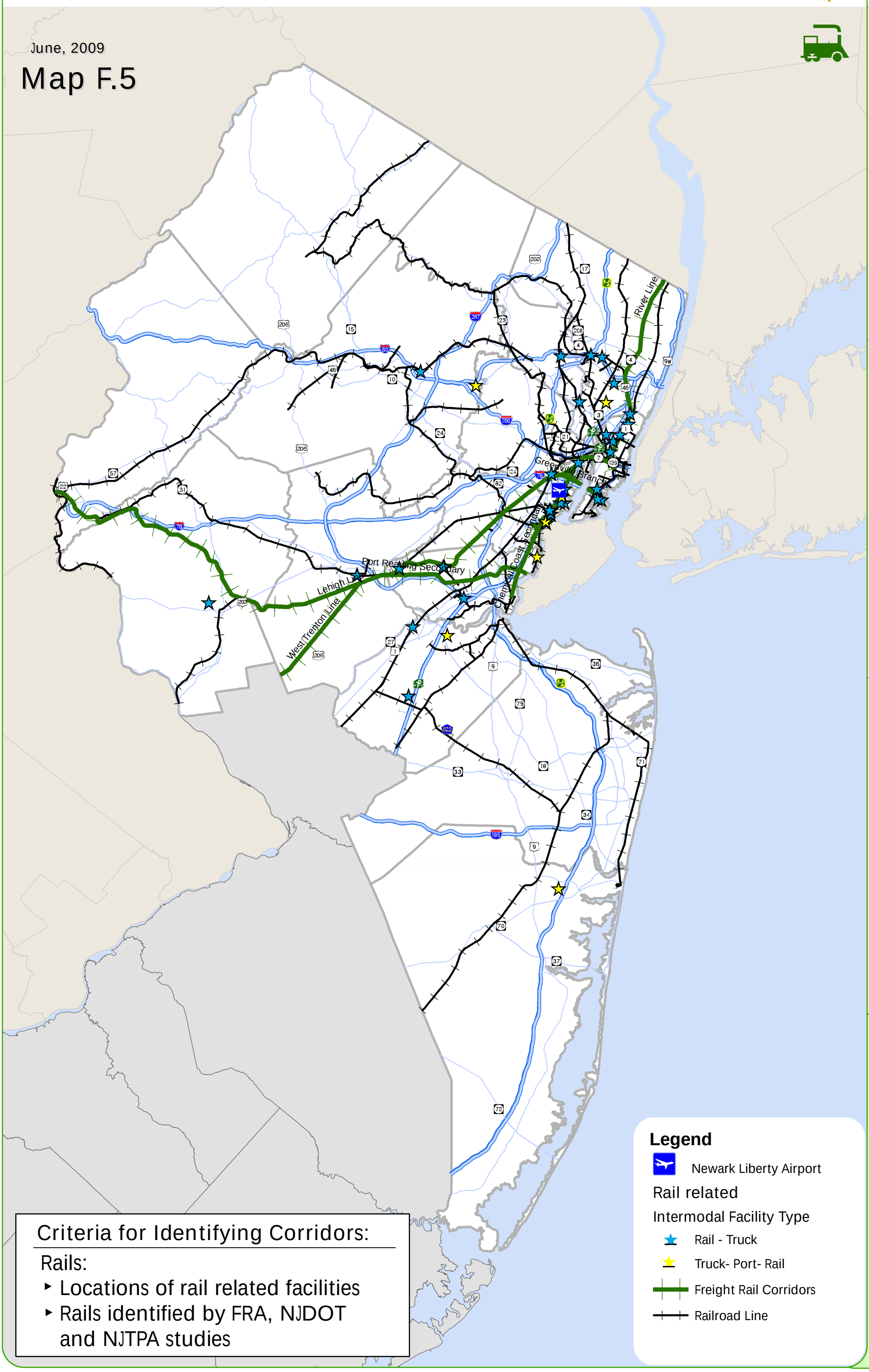
Map F.5



Criteria for Identifying Corridors:

Rails:

- Locations of rail related facilities
- Rails identified by FRA, NJDOT and NJTPA studies

Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement

Core Facilities for Freight Improvement

June 2009

Map F.6

Criteria for Identifying Core Freight Area:

Core Freight Facilities Area:

- Major cargo facilities and warehouse need areas identified by USDOT, NJDOT and NJTPA studies
- Location of custom firms, intermodal facilities and railyards

Legend

- Newark Liberty Airport

Intermodal Facility Types

- AIR & TRUCK
- RAIL & TRUCK
- TRUCK & TRUCK
- TRUCK - PORT - RAIL

- Port Strategy Area
- Truck Road Corridor
- Core Freight Facilities Area
- Custom and Brokerage Firms
- Freight Rail Corridor
- Foreign Trade Zones

Ridesharing & Transit Support

Transit Enhancement

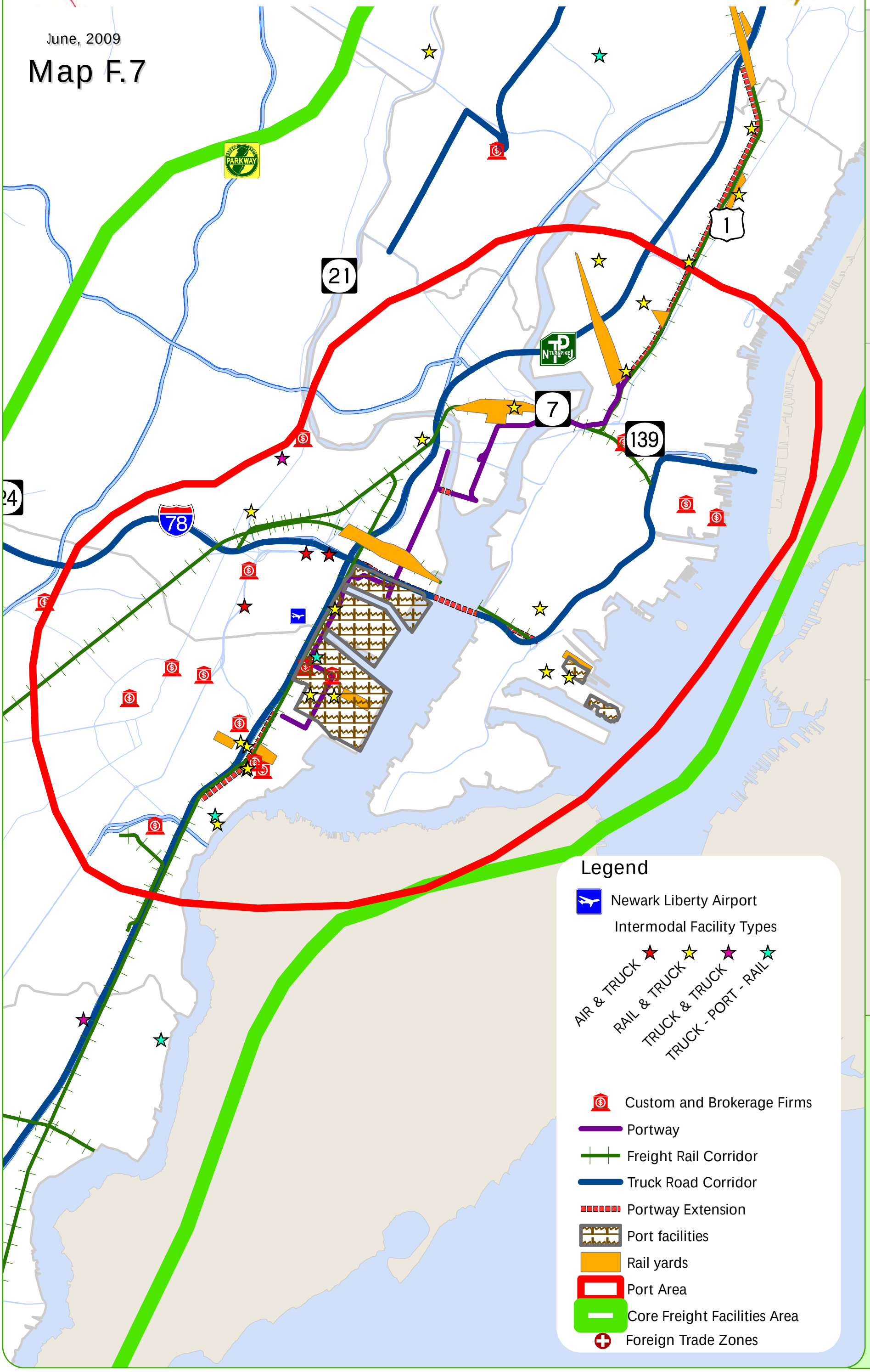
Roadway Improvement

Freight Movement

Port Area for Freight Improvement

June, 2009

Map F.7



Ridesharing & Transit Support

Transit Enhancement

Roadway Improvement

Freight Movement