NJTPA STRATEGY EVALUATION

REGIONAL TRANSPORTATION NEEDS









North Jersey Transportation Planning Authority, Inc.

October 2007

About the NJTPA

The North Jersey Transportation Planning Authority is the federally authorized Metropolitan Planning Organization for 6.5 million people in the 13-county northern New Jersey region. Each year, the NJTPA oversees the investment of more than $2.5 billion in transportation improvement projects and provides a forum for interagency cooperation and public input into funding decisions. It also sponsors and conducts studies, assists county planning agencies and monitors compliance with national air quality goals.

The NJTPA Board of Trustees includes 15 local elected officials, including one representative from each of the 13 northern New Jersey counties—Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren—as well as from the cities of Newark and Jersey City. The Board also includes a Governor's Representative, the Commissioner of NJDOT, the Executive Directors of NJ Transit and the Port Authority of New York & New Jersey and a Citizens' Representative appointed by the Governor.

Preface: Strategy Evaluation

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 needs analysis discussed in this publication is one element of this 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 most recent RTP, entitled *Access & Mobility 2025* was adopted in 2005; another update is scheduled for adoption in 2009.

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.

The Strategy Evaluation generates several products. They are:

1. Accessibility and mobility needs of places (the focus of this publication)
2. Prioritized strategies to address place-based needs
3. Refined project or program concepts and studies
4. Guidelines for prioritization of concepts and projects
5. Analysis and priorities for the Regional Transportation Plan update of 2009

Regional Transportation Needs

Introduction

Northern New Jersey's transportation system is incredibly effective. Yet it is the responsibility of the North Jersey Transportation Planning Authority (NJTPA) to allocate funding to see that the system is both maintained and improved. This report describes the results of the initial phases of a study to help the NJTPA better carry out these responsibilities.

Nearly two-thirds of the $2.5 billion spent on the region's transportation system each year goes to keeping existing facilities in good working order, preserving an enormous public investment made over generations and generations. The NJTPA mainly allocates this funding based on inspections and other objective measures of the system's condition. Roads, bridges, pavement and other facilities that are oldest or in the worst shape generally get the highest priority for maintenance funding.

Allocating funding to improve and upgrade the system—rather than just maintain it—is more complex. The types and number of possible improvement projects is virtually limitless. Such projects include redesigning intersections, adding new park and ride lots, building new roadways or rail lines, adding sidewalks and bike trails, creating new highway exits and others.

Setting priorities for funding improvements requires decision makers first to make policy choices about what is important—how much transportation service is valued, what transportation is worth from a financial standpoint, and how transportation balances against other compelling societal goals. Once policy choices are made, decision makers must have objective measures to help them understand what is really happening "on the ground," where people are experiencing travel hardships and where there can be reasonable expectation of success in attempting improvements.

The NJTPA follows this two-fold process. It made a series of policy choices in adopting its long range Regional Transportation Plan in September 2005. Based on these adopted policies, the NJTPA in 2007 initiated an assessment of transportation needs throughout the region as part of a broader "Strategy Evaluation" that will yield recommendations for specific improvement projects and strategies. This report presents the summary findings of the initial phase of the Strategy Evaluation— the 2007 needs assessment.

Defining and Assessing Needs

In this study, needs represent transportation problems, such as unacceptable levels of traffic congestion, and opportunities, such as a densely populated area that could be better served by transit. That is, needs are defined both negatively, in terms of problems to be addressed, and positively, in terms of opportunities for improvement.

Identifying transportation needs is no easy task in a diverse and complex region like northern and central New Jersey. With 6.5 million people living in 13 counties and 384 municipalities, the region contains virtually all types of land use. The transportation system in the region faces heavy and complicated demands for travel by both people and businesses.

The policies established in the NJTPA's Regional Transportation Plan—particularly in the plan's Regional Capital Investment Strategy (RCIS) discussed in the box on page 2—provide guidance in narrowing down and prioritizing needs to a manageable list. These policies point to the aspects of the system and its performance that should receive priority attention in defining needs.

For instance, the RCIS urges improved public transportation, smart growth, greater bicycle pedestrian travel, improving roadway efficiency, etc. The ongoing involvement of the NJTPA's subregions—the counties and cities on the Board of Trustees—provided further guidance (see box page 3).

Full Needs Report Available

This publication summarizes a detailed technical report, *Strategy Evaluation Needs Analysis in the NJTPA Region*. The full report, including data on needs around the region, is available on the NJTPA website:

http://www.njtpa.org/Plan/Need/SE

Based on NJTPA policies, the following four types of needs became the focus of this analysis:[1]

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.

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.

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.

[1] Other types of needs, notably safety, freight and environmental quality, are the subject of other planning processes at the NJTPA.

Regional Capital Investment Strategy

In March 2005, the NJTPA adopted its first Regional Capital Investment Strategy, or RCIS. This document sets principles and policy guidelines for allocating funds between different transportation investment categories, such as public transit expansion and enhancement, roadway expansion and enhancement, transportation demand management, intelligent transportation systems, dedicated freight facilities, bicycle/pedestrian facility improvements, and so on. As the NJTPA allocates roughly $2.5 billion annually, the RCIS plays a significant role in dictating the agency's planning and prioritization processes. For example, following the special emphasis of the RCIS on public transit and bicycle/pedestrian facility improvement, the Strategy Evaluation sets performance targets in such a way that it results in a large number of places with needs involving these modes.

The Strategy Evaluation effort draws heavily on RCIS principles and guidelines for determining place types, setting objectives for place types, selecting performance measures, and setting performance targets. For example, following the special emphasis of the RCIS on public transit and bicycle/pedestrian facility improvement, the Strategy Evaluation sets performance targets so as to identify a large number of places with public transit and bicycle/pedestrian mobility needs. Similarly, on the basis of the smart growth principle of the RCIS, performance targets or standards are tailored to different place types.

Performance Measures

Need *Problems to be addressed or opportunities for improvement*	**Measure** *Quantifiable indicator of need*
Roadway delay due to extreme congestion or hotspots	Percent of total trip time spent in extreme congestion
Roadway delay due to incidents	Crashes on roads
Routine roadway delay	Delay in minutes per trip
Public transit use	Percent of commuting trips by transit
Access to major destinations (centers)	Average trip length in miles
Walk/bike trips	Percent of all trips by walking/biking

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 performance measures shown in the box below were used to assess the needs around the region.

Place Types & Needs

The NJTPA recognizes that transportation needs and performance vary greatly depending on the landscape. To take into account this variability, the region was divided into ten "place types" based on land use type, population density, job density, nature of economic activities, street pattern, and so on. This categorization allows standards of performance to be set in keeping with the features of the varied landscapes in the NJTPA region. 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).

The region's 384 municipalities—and, in several cases, parts of municipalities—were assigned to place types, creating 397 "places" in the region for the purpose of identifying needs (See Map page 4).

The Needs Maps

The results of the NJTPA needs analysis are depicted on six maps in this publication, one for each of the performance measures. An additional map depicts special considerations involving environmentally sensitive areas and low income/minority populations. Of the 397 places, each place has at least one need, indicating that problems or opportunities for transportation improvement exist everywhere. Yet the nature of the problems and opportunities vary across place types because of differences in their land use characteristics and proximity to activities.

It should be noted that the six performance measures used to create the maps fall into two groups: roadway delay measures and smart growth measures. For the roadway measures—delay due to extreme congestion, delay due to roadway incidents, and delay from routine traffic—places that experience the worst performance are considered to have highest need. For instance, for routine roadway delay, a place was selected as having the highest need if it experienced the worst 10 percent of delay in the region or within its place type. The standard used for each need and other explanatory information is indicated on the page opposite each map.

Collaboration with Subregions & Partners

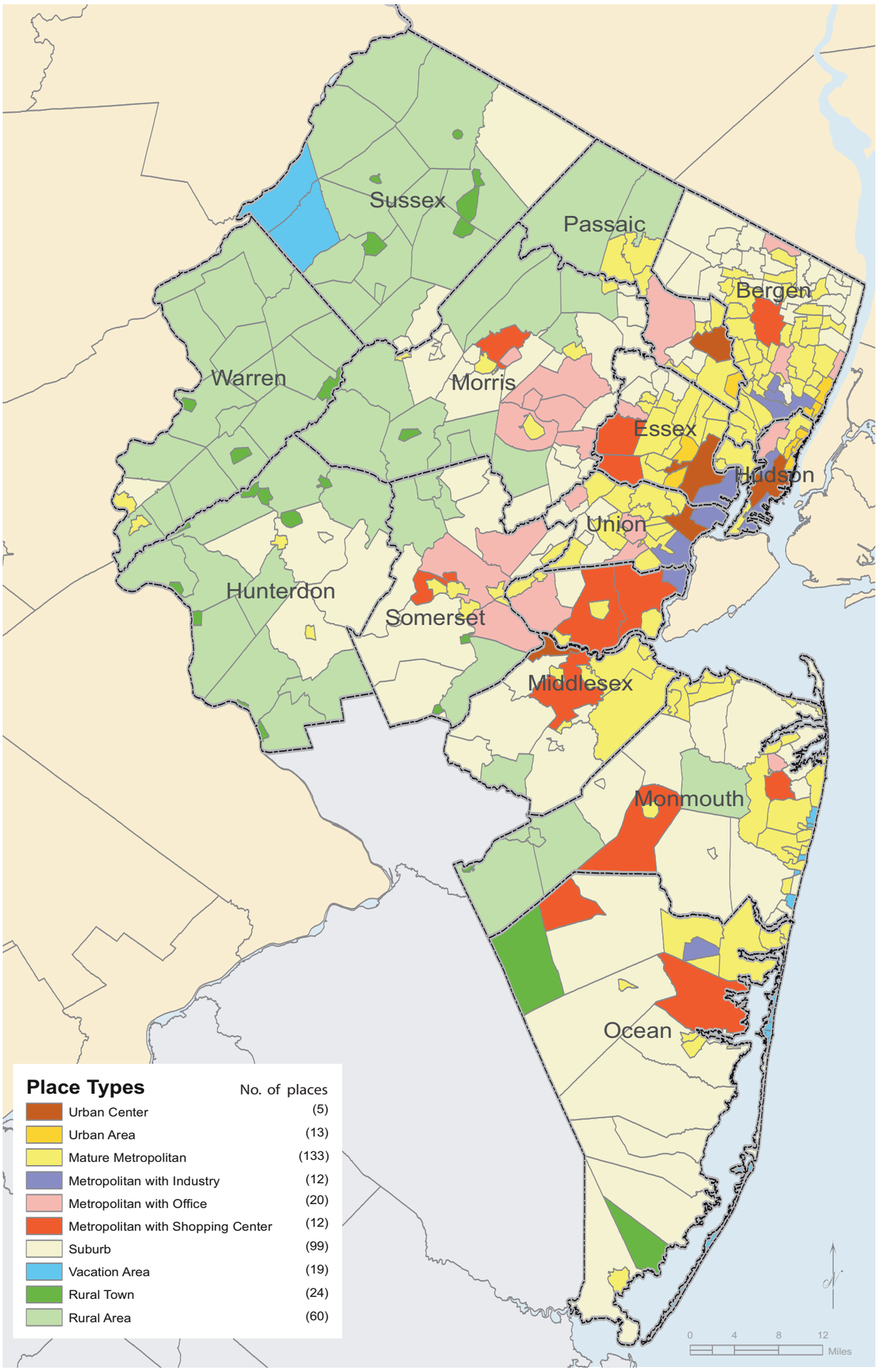
From the very beginning of the effort, NJTPA subregions and partners have been an integral part of the Strategy Evaluation process. Since June 2006, numerous workshops or meetings have been held to acquire insights and feedback. Through these and other interactions, many participants have assisted in determining place types, setting place-type objectives, selecting performance measures, and finalizing place-based needs. Partner agencies contributing to the process include the NJ Office of Smart Growth, the Port Authority of New York and New Jersey, New Jersey Transit, various offices of New Jersey Department of Transportation, and neighboring Metropolitan Planning Organizations.

A place "experiencing" delay in this context refers to the delay encountered by travelers traveling to or from that place. Thus if a large number of residents of a particular town routinely travel over a congested highway located several towns away, their home town will still be identified as having a need (even though the roadway is not physically located there).

The smart growth performance measures—public transit use, average trip distance, and share of walk/bike trips— are treated differently. For these measures, an assumption is made that there is a need for all places, but some have higher need than others. Although these measures partially focus on the lowest-performing places, they also take into account opportunities in places especially conducive to such travel. For example, although the share of walk/bike and transit trips are relatively high in urban centers like Newark and New Brunswick, needs in these places are still considered high because of the opportunities they provide for further improvements.

The page facing each map includes observations on how the need depicted in the map is distributed around the region and how it is manifested in each of the ten place types.

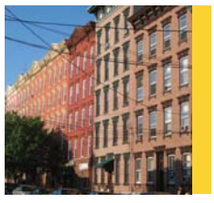
Map 1. Place Types



Explanation of Place Types

The region was divided into ten "place types" shown below (and discussed on p. 2) to allow standards of performance to be set in keeping with the features of the varied landscapes in the NJTPA region:

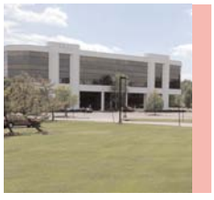
Urban Center: These are the region's largest cities with a wide variety of land uses, the highest density of population and employment, and old infrastructure. They serve as dominant economic centers for the entire region and provide housing to a large number of households belonging to diverse demographic and socioeconomic groups. Newark is an example.



Urban Area: They have land use and population characteristics similar to Urban Centers, but do not themselves necessarily function as regional economic centers. Their infrastructure is old and their housing stock includes a large proportion of apartments. An example is Hoboken in Hudson County.

Mature Metropolitan Area: These are predominantly residentially oriented places with older housing stock developed at somewhat lower density than Urban Areas. Although many contain local commercial and service activities, they are not regionally scaled economic centers. A typical example is Montclair in Essex County.

Metropolitan with Industry: This place type includes cities or parts of cities that have significant industrial, port and/or warehousing activities. They serve as economic centers of regional significance and their infrastructure and housing stock are typically older. An example is Carteret in Middlesex County.

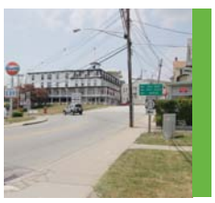


Metropolitan with Office: This place type includes places with a significant number of white-collar or office jobs, where workers from various parts of the region converge for employment. The housing stock of these typically highway-oriented places consists mainly of single-family homes, although they may also contain small proportions of multi-family units. A typical example is Parsippany in Morris County.

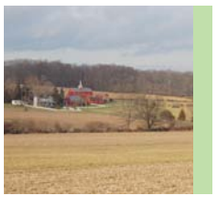
Metropolitan with Shopping: They contain one or more regional shopping malls that attract shoppers from large parts of the region. Like Metropolitan with Office places, these are often highway-oriented and their housing stock also consists mainly of single-family homes. A typical example is Paramus in Bergen County.

Suburb: Sometimes known as bedroom communities, these places are almost exclusively residential in nature. Their housing stock contains mainly single-family homes built at low densities. Workers living in these places primarily commute to work in other parts of the region. Middletown in Monmouth County is a typical example.

Vacation Area: These places have a significant proportion of seasonal housing units and they typically contain recreational amenities such as beaches or ski resorts. Economic activities in these places are mainly oriented toward recreation, but various local commercial and service activities may also be present. An example is Seaside Heights in Ocean County.

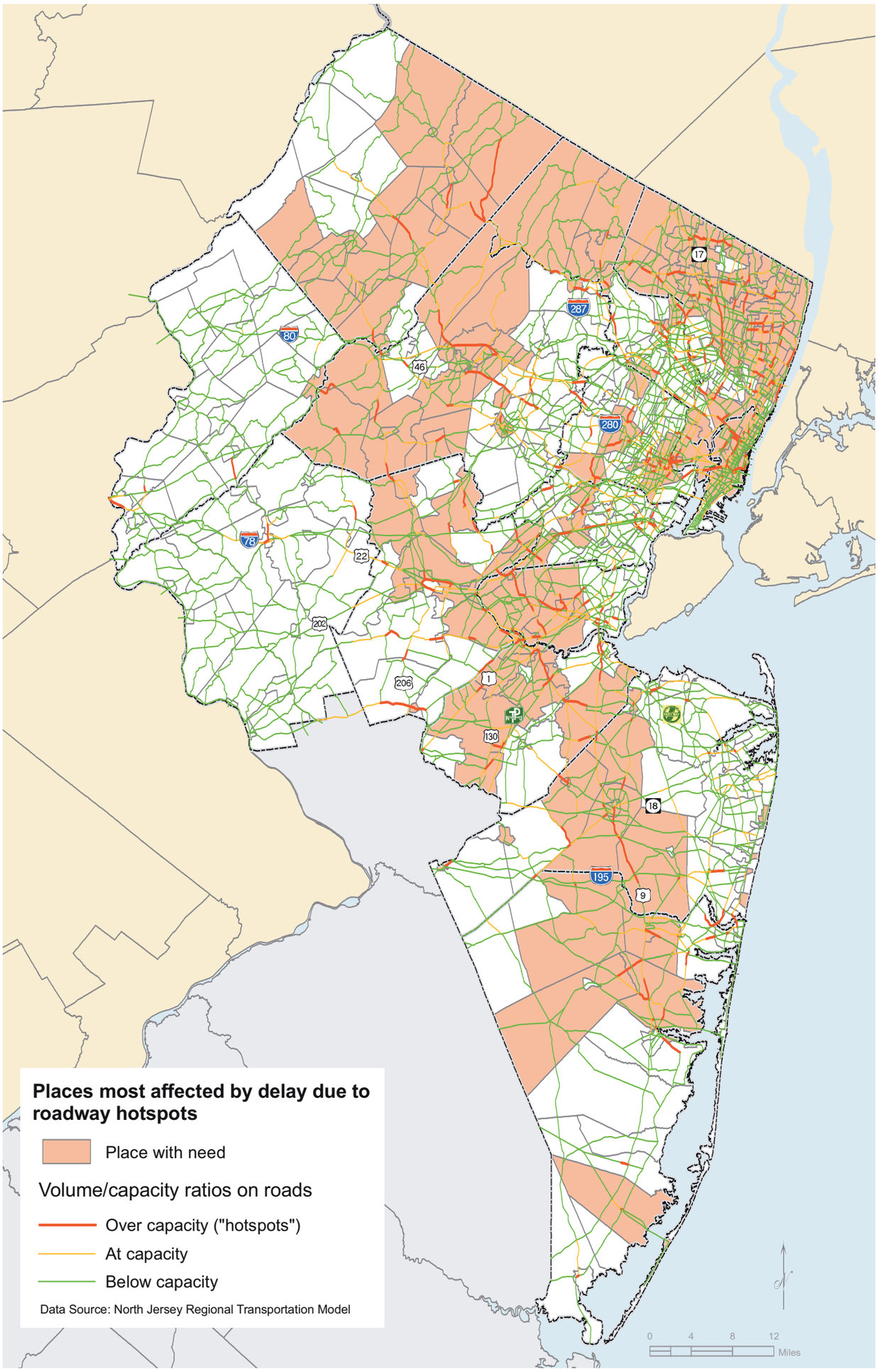


Rural Town: These small and compact geographic areas typically serve as local activity centers for the population of surrounding rural areas. In addition to residential land uses, they contain some local commercial and service activities. Examples are Sussex and Franklin Boro in Sussex County.



Rural Area: These places have the lowest population density of all place types, and farming is their predominant economic activity. An example is Alexandria in Hunterdon County.

Map 2. Roadway Hotspot Delay



Explanation of Roadway Hotspot Delay

Definition. Roadway hotspot delay is one of the most serious types of delay facing both automobiles and trucks; it results in stressful travel and imposes severe time and monetary costs on roadway users. In this study, hotspot delay is defined as the percent of individuals' total trip time that is spent in extreme congestion. For example, Montclair residents on average spend 3 minutes of a 17-minute morning trip in extreme congestion; therefore the roadway hotspot delay for Montclair is roughly 18 percent. The measure is estimated separately for trips coming to and those leaving from each place.

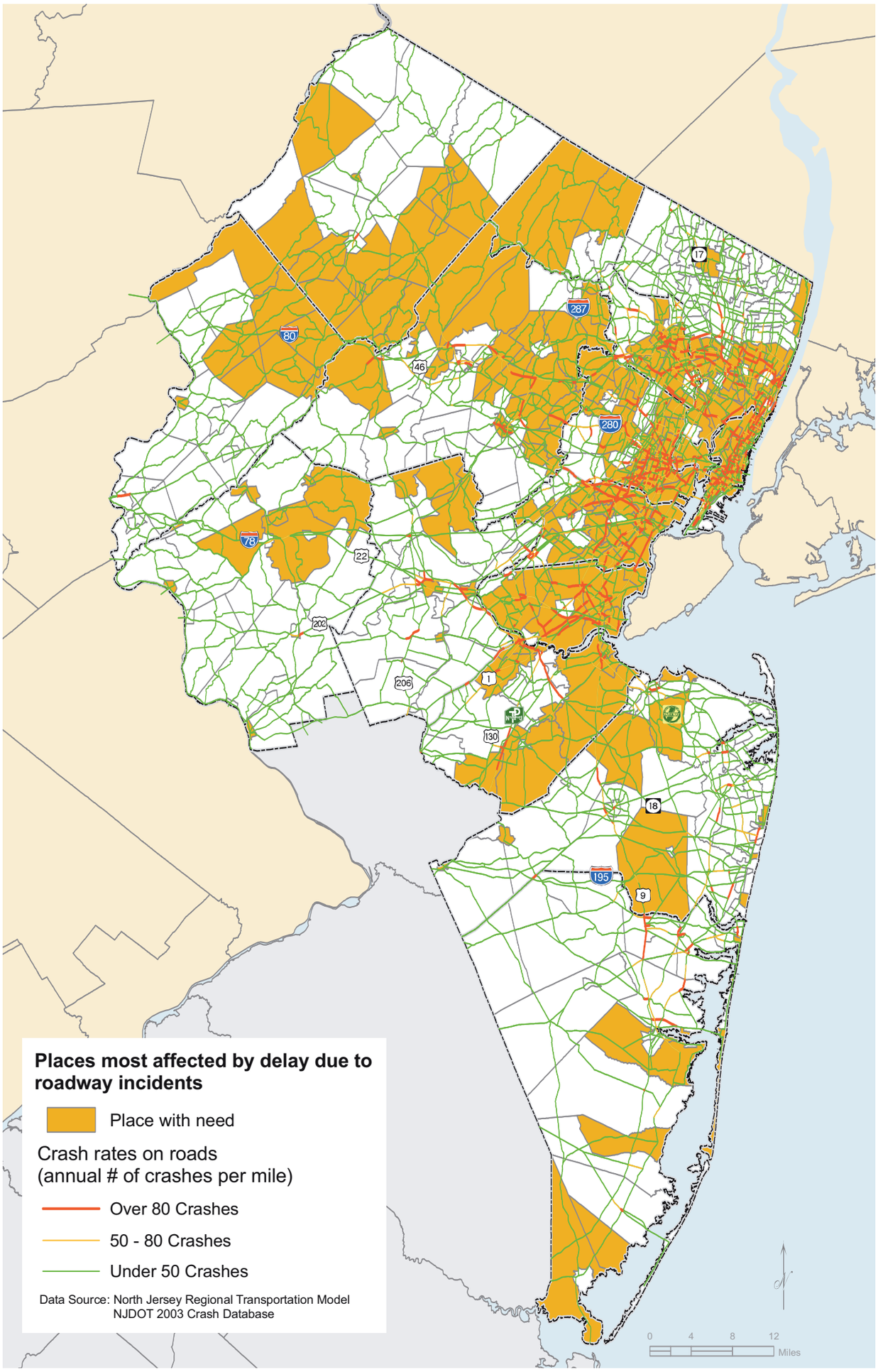
Analysis. Data shows that roadway hotspot delay is experienced by over two fifths of the places of the region. It is most commonly experienced by residents and businesses in Urban Centers, followed by Metropolitan Places with Shopping Centers and Urban Areas. This is quite understandable because traffic 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.

Potential Strategies. It is critical to address roadway hotspot delay because of its serious impact on quality of life and economic growth in the region, affecting residents, workers, and businesses alike. Strategies to address roadway hotspot delay might involve roadway operational improvements, reduction of single-occupant vehicles through expansion of carpooling or public transit, and intelligent transportation systems technology. Adding capacity to roadways is possible in extreme cases to clear bottlenecks, but because of the substantial cost, environmental considerations, and the potential for improvements to be short-lived, this approach is generally considered a last resort. Roadway hotspot delay could also decrease if more efficient land use patterns were encouraged and developed.

Place Type	Total Number of Places	Places with Need	Percent of Places with Need	Population of Places with Need	Percent of Regional Population in Places with Need
Urban Center	5	3	60%	537,000	17%
Urban Area	13	7	54%	224,000	7%
Mature Metro	133	58	44%	948,000	30%
Metro w/Industry	12	4	33%	29,000	1%
Metro w/Office	20	9	45%	195,000	6%
Metro w/Shopping	12	8	67%	340,000	11%
Suburb	99	43	43%	631,000	20%
Vacation Area	19	8	42%	14,000	<1%
Rural Town	24	9	38%	34,000	1%
Rural Area	60	22	37%	196,000	6%
Grand Total*	**397**	**171**	**43%**	**3,148,000**	**100%**

*Totals may not add due to rounding

Map 3. Unexpected Roadway Delay



Explanation of Unexpected Roadway Delay

Definition. Unexpected roadway delay occurs due to unpredictable events on roadways, such as accidents, stalled vehicles, or unforeseen breakdowns of public utilities. Because of its unpredictable nature, it greatly frustrates travelers in addition to adding time and monetary cost to travel. This type of delay is an indicator of the transportation system's reliability.

This study uses the number of crashes on roadways that could potentially affect inhabitants of a place in their daily travel as a surrogate for overall unexpected roadway delay. As accidents are a major contributor to such delay, accident rates are a fairly representative measure of the reliability of roadway travel. For example, as the residents of Cranbury could be potentially affected by about 400 roadway crashes annually, whereas Lakehurst residents encounter 200, Cranbury's unexpected roadway delay is twice that of Lakehurst. This measure is also estimated separately for trips coming into and going out of each place.

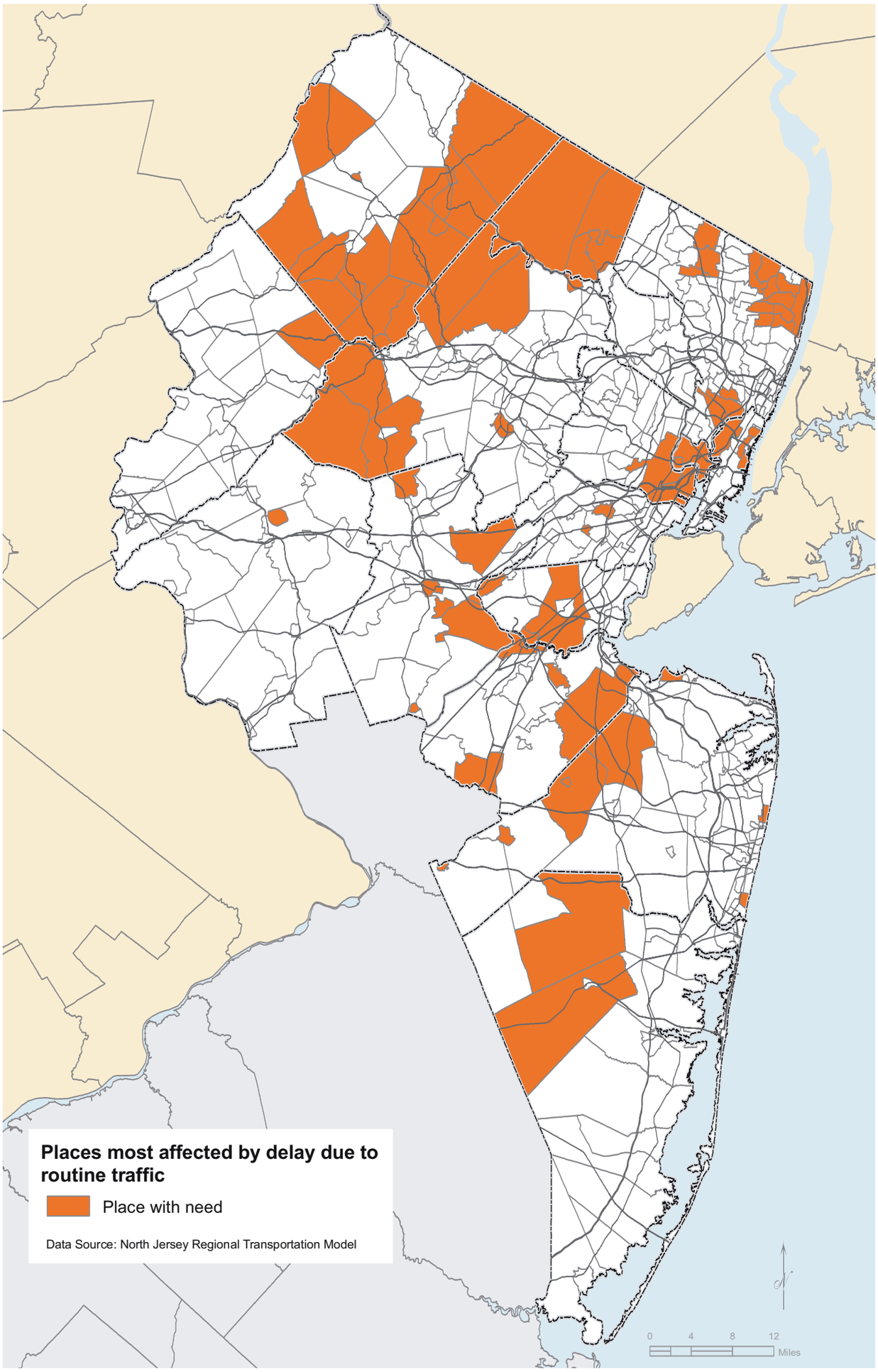
Analysis. Unexpected roadway delay affects proportionally larger number of Urban Centers, Urban Areas, and Metropolitan places with Industry compared to other place types. This likely relates to the high density of travelers within such places leading to crowded road conditions and a large number of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

Potential Strategies. Like roadway hotspot delay, unexpected delay could also be detrimental to quality of life and the economic well being of the region. Because of its psychological impact on travelers, unanticipated traffic jams can themselves cause additional accidents due to impatience and road rage. When such delay occurs on freeways, or other limited access highways, emergency service programs can substantially speed recovery. Other possible strategies include enhancement of transit and other automobile alternatives, highway operational improvements, and intelligent transportation systems. When travelers are warned ahead of time about potential construction or alerted in advance of encountering accident locations, alternate routes may be taken, stress may be reduced, and the delay itself may be lessened.

Place Type	Total Number of Places	Places with Need	Percent of Places with Need	Population of Places with Need	Percent of Regional Population in Places with Need
Urban Center	5	5	100%	800,000	23%
Urban Area	13	10	77%	356,000	10%
Mature Metro	133	46	35%	1,056,000	30%
Metro w/Industry	12	9	75%	77,000	2%
Metro w/Office	20	10	50%	231,000	7%
Metro w/Shopping	12	2	17%	195,000	6%
Suburb	99	44	44%	583,000	17%
Vacation Area	19	9	47%	17,000	<1%
Rural Town	24	17	71%	43,000	1%
Rural Area	60	24	40%	169,000	5%
Grand Total*	**397**	**176**	**44%**	**3,527,000**	**100%**

*Totals may not add due to rounding

Map 4. Routine Roadway Delay



Explanation of Routine Roadway Delay

Definition. Of the three types of roadway delays considered, this type of delay may be the least onerous because travelers can take it into account in their travel plans. It therefore imposes a more moderate amount of time and cost on travelers. Routine delay is expressed as the travel time in excess of freely flowing travel. For example, since the residents of Toms River would have spent an average of only 13 minutes on their morning commutes under free-flowing traffic conditions, but in reality spend as much as 16 minutes, routine delay for trips coming out of Toms River is about 3 minutes. Like the previous two measures, this is also obtained for both incoming and outgoing traffic for a place.

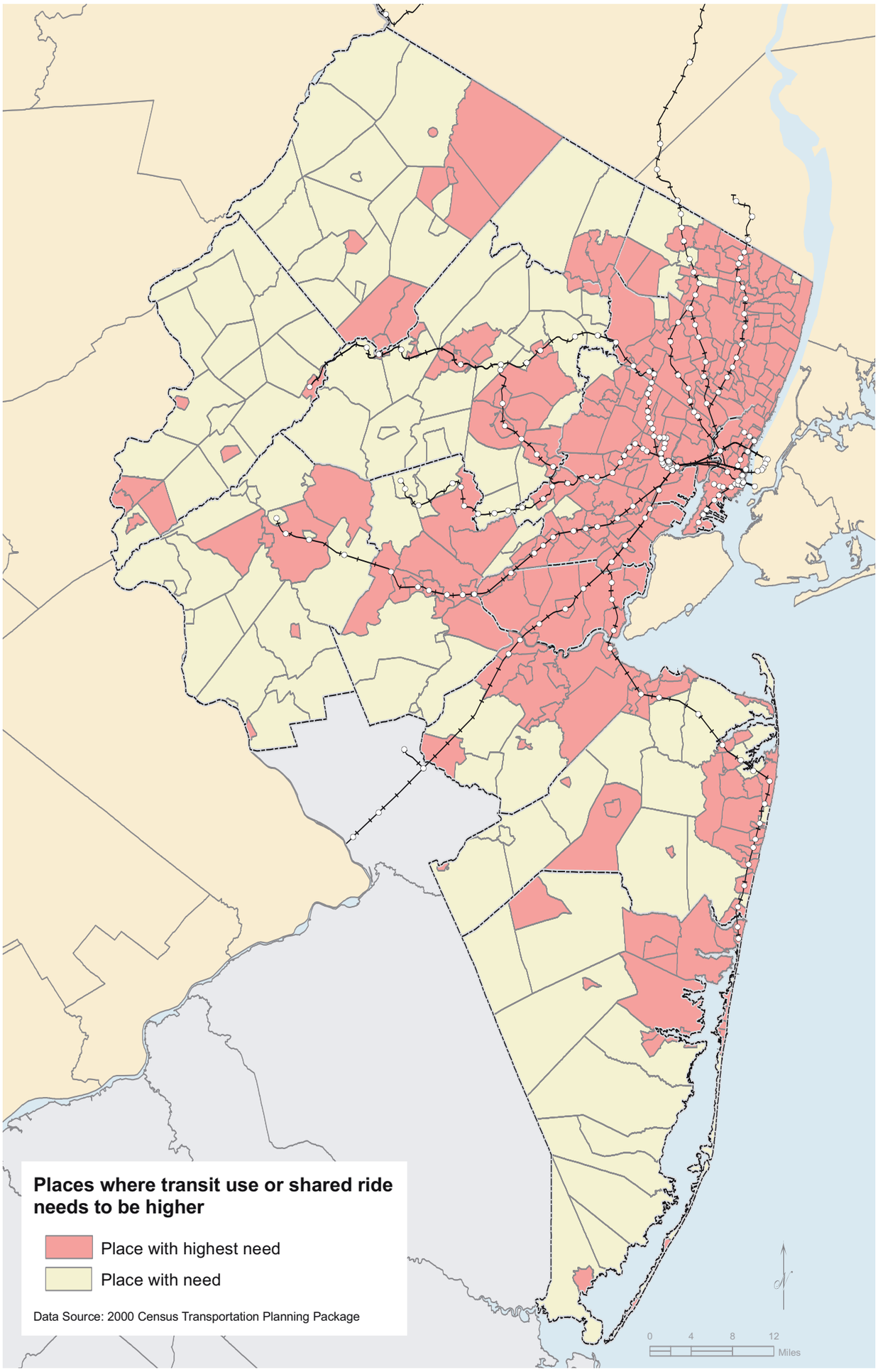
Analysis. Places identified as affected by routine delay are small in number because of the relatively low priority placed on this measure. Nonetheless, Urban Centers are highly affected by this type of delay because of perennial congestion within and around these places. Residents of Rural Towns and 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.

Potential Strategies. Routine roadway delay, while itself less serious, is actually quite interrelated with the other dimensions of roadway delay. Regularly crowded roads often have hotspots. They also lack "breathing room" for recovering from more minor incidents; on the most congested roads, even a small disruption can immediately become a major jam. Strategies to address routine delay would differ from place type to place type. Potential strategies to address routine delay in Urban Centers could be promotion of automobile alternatives, highway operational improvements and transportation technology. For Rural Towns and Rural Areas, appropriate strategies could be reduction of trip length through land use planning or the provision of faster or direct access to nearby centers, so that people making trips to distant activity centers could perform their activities in nearby centers.

Place Type	Total Number of Places	Places with Need	Percent of Places with Need	Population of Places with Need	Percent of Regional Population in Places with Need
Urban Center	5	2	40%	308,000	22%
Urban Area	13	3	23%	151,000	11%
Mature Metro	133	23	17%	302,000	22%
Metro w/Industry	12	3	25%	22,000	2%
Metro w/Office	20	3	15%	64,000	5%
Metro w/Shopping	12	1	8%	98,000	7%
Suburb	99	16	16%	240,000	17%
Vacation Area	19	5	26%	9,000	1%
Rural Town	24	8	33%	18,000	1%
Rural Area	60	19	32%	170,000	12%
Grand Total*	**397**	**83**	**21%**	**1,382,000**	**100%**

*Totals may not add due to rounding

Map 5. Transit Share



Explanation of Transit Share

Definition. Reducing automobile trips, especially those made by single-occupant vehicles is a key NJTPA objective. Planning for smart growth greatly emphasizes public transit and shared ride with the expectation that their increasing popularity would be associated with efficient use of infrastructure, and preservation of natural resources and the environment. This study specifically focuses on the share of public transit use and shared rides overall. The data applied relate to commuting trips, and the transit share of a place is defined as the percentage of commutes that are made by public transit. For example, a total of about 13,500 commuting trips are made in a day from Nutley, out of which about 1,100 are made by public transit. Therefore, the share of transit trips for Nutley is around 8 percent. In the estimation, this measure was broadened somewhat to account for additional features such as access to Manhattan specifically and a rating developed by NJ Transit that takes into account density of population, jobs and households without cars. Overall, the indicator is intended to identify the places where use of transit and shared ride ought to increase.

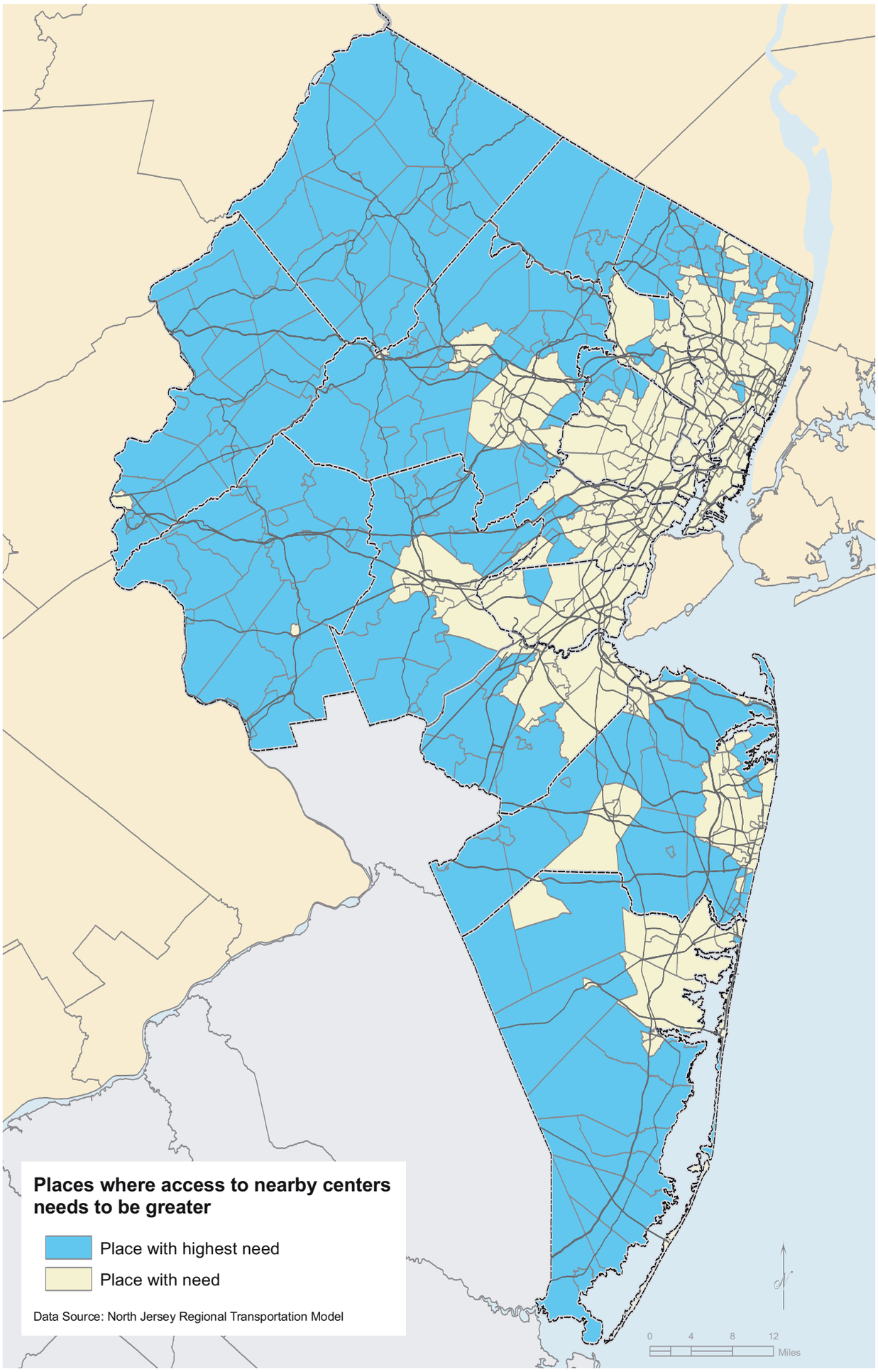
Analysis. While it is desirable for transit and shared ride use to increase everywhere, the highest needs are mostly identified in the entire eastern part of the region (practically from Beachwood in Ocean County to Alpine in Bergen County) and many smaller pockets further to the west. The heavily urbanized 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.

Potential Strategies. A clear strategy for increasing transit use would be enhancement of transit service itself, but high costs limit the areas where it is practical. Highway operational improvements can also serve transit, as many congested roads are also heavily used by buses. Designing bus-only lanes or enabling buses to pass by traffic queues may also be useful. A smart growth approach such as transit villages and other transit-oriented design also supports growing transit ridership, as does improving access to existing transit facilities (on foot, by bicycle or by car). As for increasing shared-ride trips, car and vanpooling programs such as those run by the region's Transportation Management Associations could be expanded.

Place Type	Total Number of Places	Places with Need	Percent of Places with Need	Population of Places with Need	Percent of Regional Population in Places with Need
Urban Center	5	5	100%	800,000	16%
Urban Area	13	13	100%	448,000	9%
Mature Metro	133	133	100%	2,239,000	44%
Metro w/Industry	12	12	100%	91,000	2%
Metro w/Office	20	20	100%	417,000	8%
Metro w/Shopping	12	12	100%	483,000	10%
Suburb	99	53	54%	498,000	10%
Vacation Area	19	9	47%	19,000	<1%
Rural Town	24	8	33%	38,000	1%
Rural Area	60	4	7%	24,000	<1%
Grand Total*	**397**	**269**	**68%**	**5,057,000**	**100%**

*Totals may not add due to rounding

Map 6. Access to Nearby Centers



Explanation of Access to Nearby Centers

Definition. Planning for smart growth emphasizes good access to nearby centers from any place. When such access is absent, people make long trips to distant activity centers, thereby adding to vehicle miles, pollution and congestion. For example, Franklin Boro residents now average 13 mile trips because they travel to distant activity centers (such as shopping, schools or offices), but having better access to nearby centers might reduce their trip length by a few miles. Although it is desirable to minimize trip length from all places, this measure is more significant for places in the fringe areas, where activity centers are few in number. In heavily urbanized areas, destinations are already concentrated and trip lengths are relatively short.

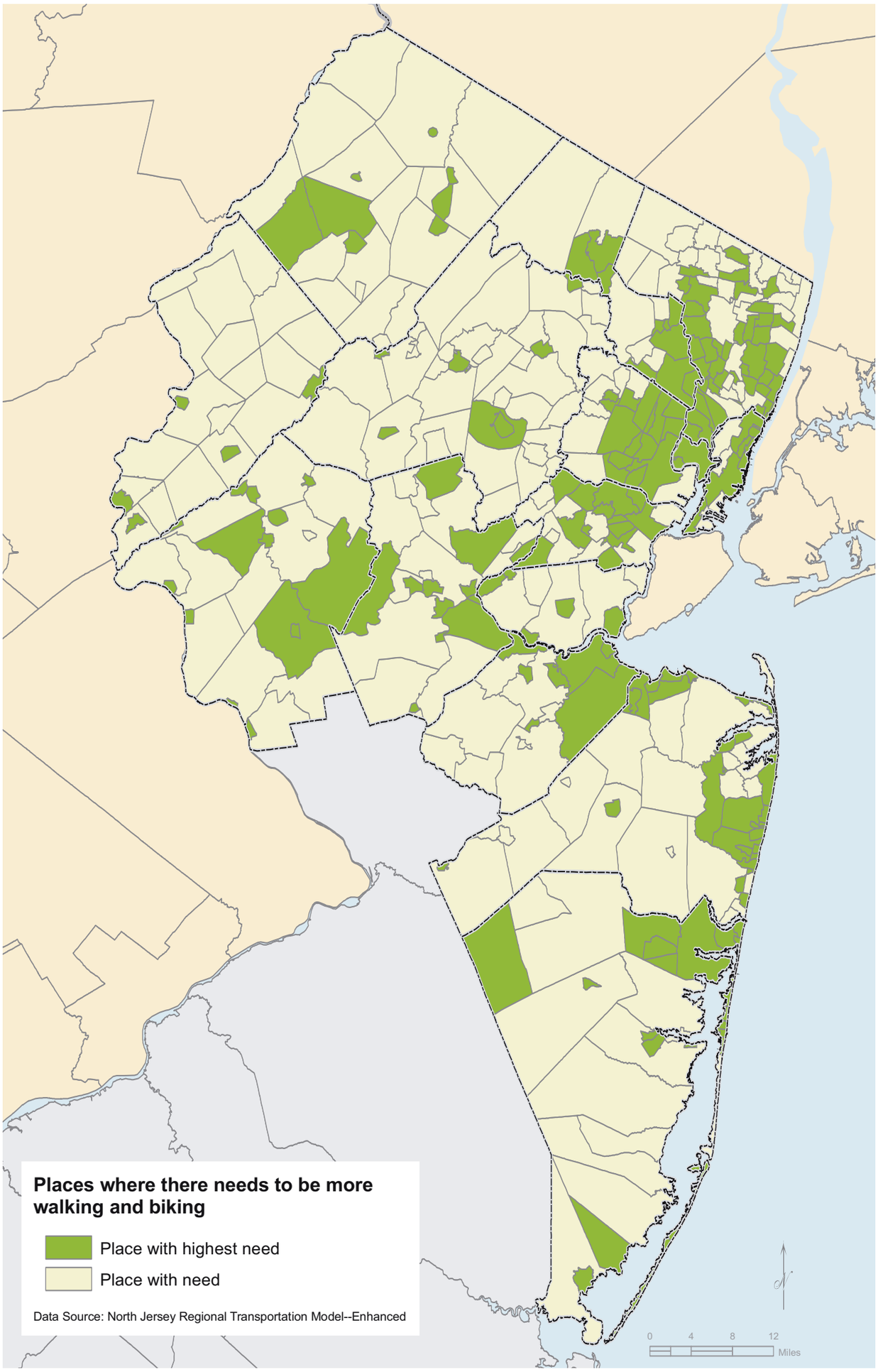
Analysis. The need for better access to nearby centers is predominantly felt by Suburbs, Rural Towns, and Rural Areas. The obvious reason is that people living in these areas must make substantially longer trips by automobile than those from denser areas. While the residents of these types of places 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.

Potential Strategies. Operational improvements on highways connecting a place to its nearby center may induce residents to perform daily activities there instead of at a more distant location. For example, if most residents of Middletown are currently traveling to New Brunswick and averaging 15 automobile miles per trip, by making nearby Eatontown more accessible through improvements on Route 35, their trip lengths and vehicle miles could be reduced. Greater use of public transit and more mixed land uses (such as a better balance between jobs and housing) could also serve to reduce trip length and miles traveled by automobile. In addition, encouraging further smart growth development—like the creation of new town centers or redevelopment within existing "Main Streets"—could bring destinations substantially closer to homes.

Place Type	Total Number of Places	Places with Need	Percent of Places with Need	Population of Places with Need	Percent of Regional Population in Places with Need
Urban Center	5	0	0%	0	0%
Urban Area	13	0	0%	0	0%
Mature Metro	133	14	11%	82,000	4%
Metro w/Industry	12	0	0%	0	0%
Metro w/Office	20	1	5%	14,000	1%
Metro w/Shopping	12	0	0%	0	0%
Suburb	99	99	100%	1,354,000	71%
Vacation Area	19	5	26%	8,000	<1%
Rural Town	24	24	100%	70,000	4%
Rural Area	60	60	100%	374,000	20%
Grand Total*	**397**	**203**	**51%**	**1,902,000**	**100%**

*Totals may not add due to rounding

Map 7. Walk/Ride Share



Explanation of Walk/Bike Share

Definition. Similar to public transit, increasing the walking or biking share of trips is a priority of the NJTPA. Bicycle/pedestrian share is defined as the percentage of all trips made during a day that are made by either of these "human-powered" modes. For example, since a total of about 40,000 trips are made by the residents of Metuchen during a day, of which 2,400 are made by bicycling or walking, the share of walk/bike trips for Metuchen is about 6 percent. The benefits from walking and bicycling are many. They promote health, add to the liveliness of streets and community character, complement public transit, and can supplant automobile travel for shorter trips.

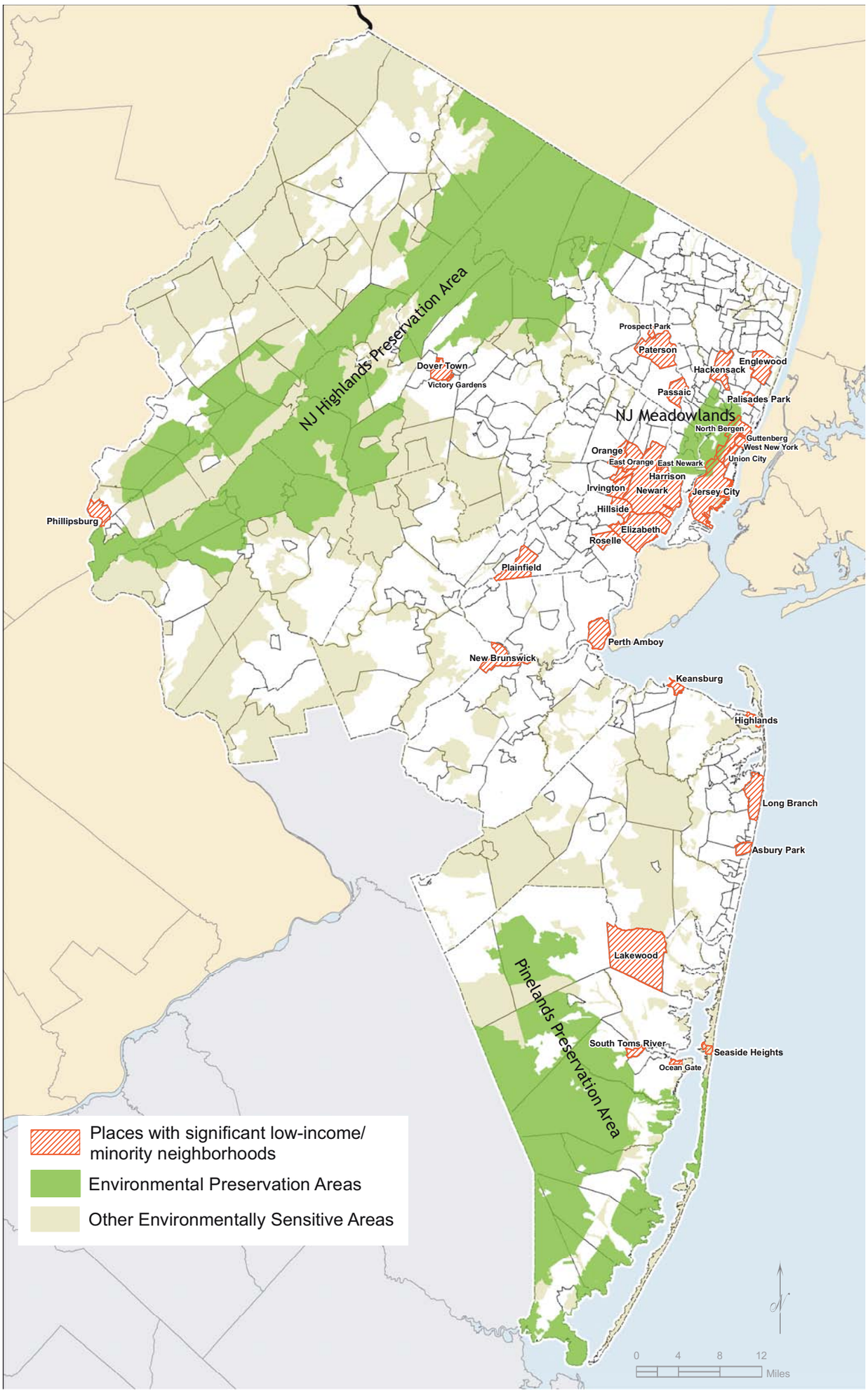
Analysis. Increased walking and biking is a need for all places in the region. These needs are identified as relatively high in Urban Centers, Urban Areas, Mature Metropolitan Areas, Metropolitan Places with Industry and Rural Towns because they provide greater opportunities for enhancement than other 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.

Potential Strategies. A standard approach to encouraging walking and bicycling is to add or enhance infrastructure. For example, quality sidewalks, bike paths and exclusive bike lanes can facilitate such travel. Such facilities can be designed in accordance with local transit plans because of the complementary nature of these modes. Improved by land use planning, such as converting single use areas to more mixed use, will generate more pedestrian and bicycle traffic. The design of neighborhoods, streets and buildings, can either contribute to pedestrian and bicycle friendliness or it can severely discourage such travel. Pedestrian crossings for divided highways and freeways can help. Perhaps because of the human scale of bicycling and especially walking, strategies that support them are related to and should be considered in virtually all other transportation improvements.

County	Total Number of Places	Places with Need	Percent of Places with Need	Population of Places with Need	Percent of Regional Population in Places with Need
Urban Center	5	5	100%	800,000	21%
Urban Area	13	13	100%	448,000	12%
Mature Metro	133	133	100%	2,239,000	60%
Metro w/Industry	12	1	8%	3,000	<1%
Metro w/Office	20	3	15%	70,000	2%
Metro w/Shopping	12	0	0%	0	0%
Suburb	99	5	5%	64,000	2%
Vacation Area	19	18	95%	34,000	1%
Rural Town	24	24	100%	70,000	2%
Rural Area	60	1	2%	5,000	<1%
Grand Total*	397	203	51%	3,733,000	100%

*Totals may not add due to rounding

Map 8. Places with Special Considerations



Explanation of Special Considerations

The needs analysis discussed in this publication—and the larger Strategy Evaluation of which it is a part—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.

The map on the facing page provides a broad picture of environmentally sensitive areas and of places with a significant percentage of low-income and minority neighborhoods in the NJTPA region.

Environmentally Sensitive Areas

As shown in the map, Northern New Jersey is home to vast and diverse ecological resources, including forests, meadowlands, marshes, freshwater wetlands, historic parks and miles of exceptional coastline and barrier islands along the Jersey shore. The NJTPA takes great care to minimize and mitigate negative impacts that transportation investments can have on the natural environment. Close coordination with the New Jersey Department of Environmental Protection, the Office of Smart Growth (OSG), Department of Transportation and other state agencies charged with safeguarding the environment is essential in focusing attention on this concern.

Through the State Development and Redevelopment Plan (SDRP), the OSG provides guidance on supporting development while preserving environmentally sensitive areas. The SDRP-identified areas are included on the map, along with the three districts—the Highlands Preservation Area in the northwestern part of the region, the Pinelands Preservation Area in the south, and the Meadowlands in the northeast—designated by law for special conservation efforts. Governing bodies have been created for each of these districts to oversee growth and preservation.

The needs analysis discussed in this report considered the SDRP "Planning Area" typology and objectives, as well as the plans and policies of the three preservation districts, to assign place types to places, select performance measures, and estimate needs. Similar considerations will enter into the subsequent stages of the Strategy Evaluation, where strategies will be evaluated, prioritized, selected and refined. In this way, the recommendations of the finalized NJTPA Strategy Evaluation—including proposed concepts for transportation projects around the region—will reflect the SDRP's guidance for environmental protection and conservation of natural resources.

Low-Income and Minority Communities

To help achieve equitable transportation investments and address federal mandates for maintaining consistency of its planning with Title VI of the 1964 Civil Rights Act, the NJTPA identifies places with a significant percentage of low-income and minority neighborhoods in the region and considers their transportation needs. It seeks a fair distribution of benefits and burdens of transportation investments among various segments of the population—an objective that helps fulfill the broad goal of "environmental justice."

Supplementing the needs assessment discussed in this publication, therefore, was a parallel analysis focusing particularly on low-income and minority populations. The results will be integrated into the final Strategy Evaluation. Using Census data at the block group level, this analysis identified 34 places with a significant percentage of low-income and minority neighborhoods for particular attention. These places, which contain 56 percent of the region's minority population and 61 percent of the poor, are shown in the map on the facing page.

While the needs estimated from the performance measures in the previous sections of this report apply to all places, low-income and minority communities often warrant further attention in transportation planning because of their unique characteristics. Such communities may have relatively low automobile ownership, below par job skills, challenging health issues, and high unemployment. Transportation needs of the identified communities were studied regarding access to pertinent activities, namely, jobs, job-training centers, healthcare facilities, childcare facilities, and drug and grocery stores. These measures of accessibility provide guidance for generating transportation improvements for these communities.

What's Next

This report presents the transportation "needs" of places throughout northern New Jersey, identifying where there are problems to be solved or there are significant opportunities for improvement. The remaining tasks of Strategy Evaluation focus on how the needs can and should be addressed.

In a region as complex as northern New Jersey, numerous transportation strategies involving diverse transportation modes are available to address the identified needs. A few possible examples are: additional transit service, highway operational improvements involving road designs or signals, technological services such as the delivery of real-time information to travelers, or additional vanpool or shuttle services . The best choices of strategy for any given need will depend on its effectiveness, cost, suitability for the place, and synergies with other strategies in the area.

The Strategy Evaluation study will use the NJTPA's broad planning policies as guidance for identifying and prioritizing strategies for different place types. Input and feedback from NJTPA partners and subregions will also be critical in choosing candidate strategies for particular places.

After strategies are prioritized and selected, those most suitable for near-term development will be further refined and developed into more specific concepts for projects. Examples of project concepts could be enhanced frequency of buses on particular routes, signal priorities for buses on congested roads, additional shuttle services to serve shopping malls, or a new overpass on a busy commercial corridor. The concepts will be handed off to implementing agencies for project development, or further advanced by the NJTPA itself in collaboration with other agencies.

In addition, a set of criteria will be developed from the analysis of needs and strategies to assist in project prioritization. This will augment the current criteria used for selecting programs and projects for advancement through the "project pipeline." The pipeline—including the NJTPA Project Development Work Program (PDWP) and Transportation Improvement Program (TIP)—is the means by which projects are readied for funding and implementation.

All these products of the Strategy Evaluation will serve as an important foundation for the 2009 update of the NJTPA Regional Transportation Plan. The place types and objectives identified in the Strategy Evaluation will help define the Plan's vision for the northern New Jersey's future, and the strategies selected for action by the Strategy Evaluation should help shape that future.

The remaining tasks for Strategy Evaluation can be summarized as follows.

Identify strategies: Coordinating with NJTPA subregions and partners, define a pool of potential strategies for addressing the identified needs.

Evaluate effectiveness of strategies: Examine the effectiveness of select strategies through computer modeling and other analysis.

Prioritize and select strategies: As guided by the NJTPA Board, using the analysis and further information from subregions and partners, prioritize and select strategies for specific locations.

Refine strategies and develop concepts: Further analyze selected location-specific strategies and sketch out transportation improvement concepts and studies to be advanced by the NJTPA and/or its partner agencies or subregions.

Develop prioritization guidelines: Use the findings from Strategy Evaluation to provide guidance for prioritizing programs and projects under direction of the NJTPA Board.

Integrate strategy evaluation into the Regional Transportation Plan: Integrate the key components and findings of Strategy Evaluation into the 2009 update of the Regional Transportation Plan.

More information, and progress reports on the Strategy Evaluation, are available at the NJTPA website at www.njtpa.org.

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