3

CONTEXT & TRENDS

As a guide to long-term transportation investments, Plan 2035 must meet the needs of a dynamic region, one that will change dramatically over the next 25 years. To do so, Plan 2035 considers the impact on the transportation system of a host of complex factors, including economic and demographic trends, changes in lifestyle and travel choices, as well as concerns about climate change and energy efficiency. But more than just reacting to future change, Plan 2035 recognizes that investments, if carefully chosen, can help shape and direct change, creating a balanced transportation system that supports economic and social progress while protecting natural resources and the environment.

This chapter summarizes the trends and issues considered in developing Plan 2035 and their impacts on the transportation system. Other parts of the plan discuss many of these topics in greater detail, with reference to specific investments and strategies. Appendix B provides details on the forecasts of population, employment and households used in the development of this plan.

A growing regional population will mean more and more travel through 2035. Metropark, Iselin, Middlesex County.

Population

The NJTPA region's transportation system serves a growing population. From 2000 to 2008, the 13-county region grew by over 160,000 people to 6.5 million, a 2.6 percent increase. The population increase in recent years has occurred most rapidly in suburban and outlying counties, notably Ocean (11.4 percent), Somerset (9.1 percent), Warren (7.3 percent) and Hunterdon (5.8 percent) counties. Cities and older suburbs in and around the northeast urban core remained relatively stable in population, showing both slight increases and slight declines.

Continued population growth is predicted over the life of this plan (Map 3-1). Plan 2035 foresees population in the region growing to approximately 7.8 million in 2035, a net increase from 2009 of 1.1 million people or roughly 16 percent. This will increase travel activity in every corner of the region—the NJTPA's Regional Household Travel Survey estimated that each person generates about 3.3 trips per day. Yet some areas will see more of these trips than others. Recent trends suggest that future population growth will be most rapid in lower-density, outlying counties, where sprawl patterns of development will continue to add to the number and length of auto trips. However, land use policies can affect the course of future growth. For example, the Highlands Act of 2004, discussed in greater detail in Chapter 7, has dampened the potential for growth in a large section of northwest New Jersey.

Plan 2035 seeks to encourage growth in existing population centers where infrastructure is available, in keeping with the state's emphasis on smart growth and the need to protect natural resources. This will lessen, but not eliminate, the high growth trends in the outlying counties in the region. According to computer modeling of the realistic Plan 2035 Scenario conducted for this plan, the average commuting distance will increase by only .4 miles (from 10.1 to 10.5 miles) despite the continued growth in the region. Of course, continued population and employment growth will strain existing infrastructure, requiring Plan 2035 to include a significant investment in maintenance, refurbishment, and replacement. Chapter 7 further discusses the implications of future growth patterns in the region.

Other demographic trends will also affect the transportation system. New Jersey is a state with a significant number of foreign-born residents. According to the National Center on Immigrant Integration Policy, New Jersey is ranked 6th in the nation in the size of its foreign-born population, which grew by 17.3 percent between 2000 and 2007. This pattern of immigration will continue, in particular sustaining population growth in existing urbanized areas.

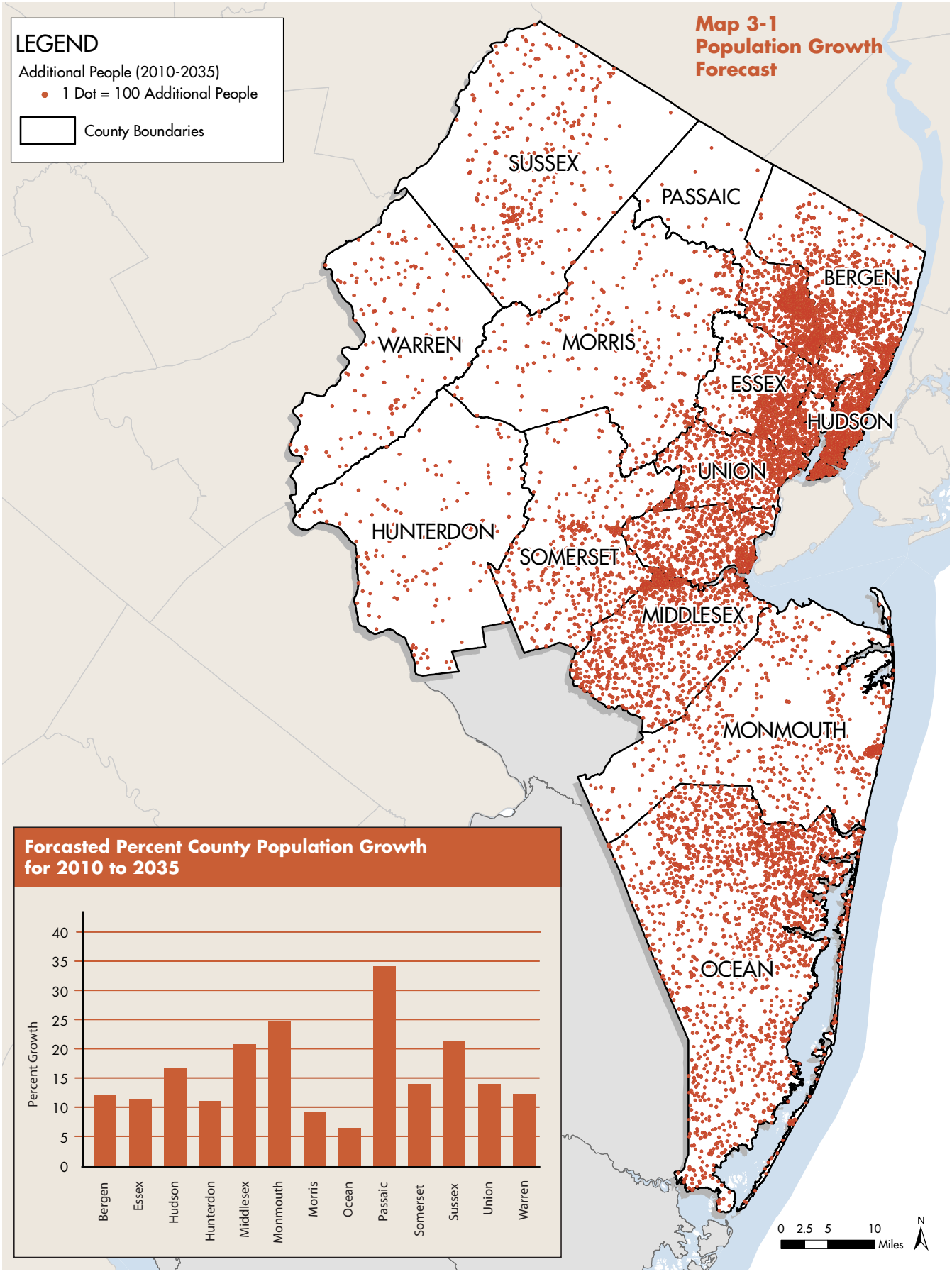
Many newcomers to the region are economically disadvantaged and depend on transit for daily travel needs, as do the elderly and disabled populations that are unable to drive a car. Many live in urban centers, and when jobs and services move into the auto-dependent suburbs, they are left with fewer options for employment, education, and medical services. The Job Access and Reverse Commute (JARC) and New Freedom programs provide transportation options for these populations throughout the state, and are discussed in greater detail in Chapter 6.

Additionally, low-income and minority populations historically have borne the burden of noise, pollution and other negative impacts of infrastructure investments, without necessarily benefiting from them. Highways have split neighborhoods, blocked access to waterfronts, and created harmful levels of emissions in some residential neighborhoods. Plan 2035 continues to weigh environmental justice issues when prioritizing infrastructure investment in order to prevent increased burdens on low-income communities.

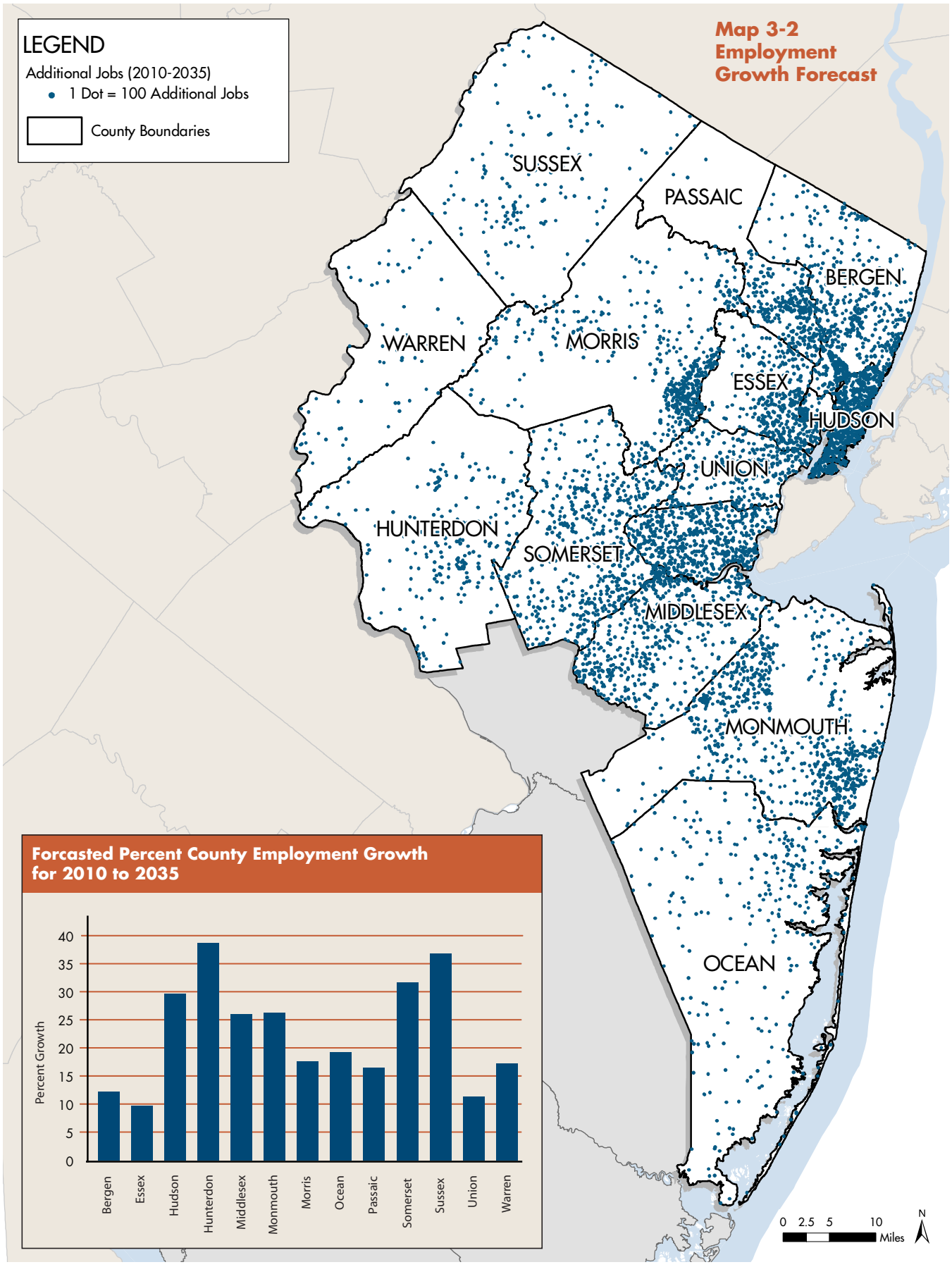
Another important trend is the aging of the population. In 2000, 13 percent of the state's population was 65 or older. By 2035, it will be 20 percent or more. The shift to an older population has substantial implications for transportation planning. In the future, the elderly will drive more, which suggests the need for measures to accommodate older drivers, such as making roads easier to navigate through modified design and signage. For those who cannot or choose not to drive, providing attractive travel alternatives will be necessary. In addition to continuing to make public transit more available and accessible, new residential developments for seniors should offer the possibility of a pedestrian lifestyle.

Due to the aging of the population and lifestyle choices, household size is projected to continue to decrease, resulting in a 21 percent increase in the number of households by 2035. Smaller, more numerous households tend to generate an increase in trips on the transportation system. Other impacts of the aging populations are unknown, such as how many people will remain in the workforce, and the potential effects of more travel specifically for healthcare and recreation. Implementation of the Coordinated Human Services Transportation Plan, discussed in Chapter 6, will help address transportation needs related to the aging population.

Map 3-1
Population Growth Forecast



Forcasted Percent County Population Growth for 2010 to 2035


LEGEND
Additional Jobs (2010-2035)
1 Dot = 100 Additional Jobs
County Boundaries
Map 3-2
Employment
Growth Forecast
SUSSEX
PASSAIC
BERGEN
WARREN
MORRIS
ESSEX
HUDSON
UNION
HUNTERDON
SOMERSET
MIDDLESEX
MONMOUTH
OCEAN
Forcasted Percent County Employment Growth
for 2010 to 2035
Percent Growth
0
5
10
15
20
25
30
35
40
Bergen
Essex
Hudson
Hunterdon
Middlesex
Monmouth
Morris
Ocean
Passaic
Somerset
Sussex
Union
Warren
0 2.5 5 10
Miles
N

Economy

The current recession is putting a damper on virtually all types of economically vital travel, but economic growth is predicted to resume to some extent in the next few years. In the 25-year horizon of this plan, additional economic cycles of growth and decline are certain to occur. This means Plan 2035 must prepare for continued demands on all aspects of the transportation infrastructure over the long term.

The region's many office parks and corporate campuses generate a great deal of travel. Bedminster, Somerset County.

Since 1990, employment in the region increased by 15 percent from 2.6 million jobs to 3.0 million jobs in 2007. Most of this increase occurred in the 1990s, with overall regional employment from 2000 to 2007 remaining relatively stable. However, some counties realized substantial employment increases: Monmouth, Middlesex and Ocean counties each added more than 10,000 net new jobs during the period.

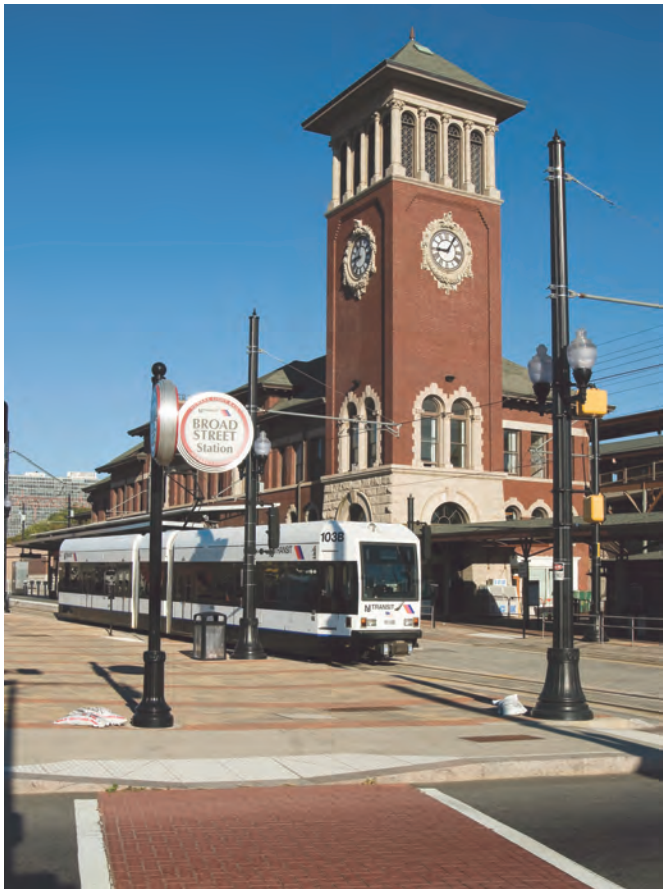
The recession, commencing in January 2008, led to significant employment losses. The New Jersey unemployment rate almost doubled from 4.2 percent prior to the recession to 8.2 percent in April 2009. These job losses will offset any gains since 2000, creating a net employment loss for the decade of the 2000's.

Gauging the timing and dimensions of the recovery and future growth in demand is difficult. The near term economic outlook remains extremely uncertain. The Congressional Budget Office, in its January 2009 testimony to Congress, foresaw "a marked contraction in the U.S. economy in calendar year 2009, with real (inflation-adjusted) gross domestic product (GDP) falling by 2.2 percent [and] a slow recovery in 2010, with real GDP growing by only 1.5 percent." However, it also voiced uncertainty about the "degree and persistence of turmoil in financial markets and the resulting impact on the future course of the economy," given the unprecedented aspects of the current crisis. For the longer term, the Budget Office estimates that the nation will not reach its full potential output in terms of GDP until early 2015, and after that will grow at the rate of 2.3 percent through 2019. This is slightly below the 2.6 growth rate of 2004 to 2007.

For purposes of preparing this plan, the NJTPA assumed that the current recession will have lasting effects in terms of lowering the trajectory of average growth over the life of the plan. This will have consequences, most notably in somewhat constraining the long-term growth in travel demand as compared to projections in the previous 2005 plan and creating the fiscal challenges discussed later in this plan. Nevertheless, in total, Plan 2035 projects that employment in the region will increase from 2009 levels by approximately 17 percent (or about 515,000 jobs) in the next 25 years to a total of about 3.7 million for the region. (Map 3-2)

The economic downturn will also have lasting effects on the nature of employment in the region. While the downturn has affected all sectors of employment, it has particularly impacted the many northern New Jersey residents employed in professional and business services, manufacturing, construction and financial sectors (as defined by the U.S. Census). The financial sector alone accounted for 7 percent of the region's employment, with concentrations in Hudson (19 percent), Morris (14 percent), Bergen (13 percent), Essex (13 percent) and Middlesex (12 percent) counties.

With the recovery in the near- to mid-term, it is expected that jobs lost in these key sectors will rebound to some extent, but this gain will not fully offset losses. In the long term, the region will likely resume significant growth but also undergo a shift in the nature of employment in its economy. The region—together with the larger New York-



Light rail provides an alternative mode of transportation in urban areas. Broad Street Station, Newark.

New Jersey-Connecticut metropolitan region—is fortunate to have a diversified economy, a highly educated workforce, world-class research institutions, one of the nation's largest ports and distribution networks, among other economically critical assets.

These assets will likely provide a significant advantage in the competition among regions, nationally and globally, to realize future employment growth. This growth may take the form of the widely touted "green jobs"—such as developing more efficient energy technologies and retrofitting the nation's built environment to make use of them. But it may also involve other sectors and industries yet to be developed. Future sources of employment could very well involve new genetic based therapies, renewable energy, nanotechnologies or artificial intelligence systems.

Speakers at NJTPA's Plan 2035 Symposium on the Future of Transportation (see Chapter 2), raised the possibility that manufacturing of consumer goods could be bolstered in the region, after many decades of steep decline. The likelihood of significantly higher oil prices over the long term, on the order of that seen during the price spike of 2008, the experts said, could make transporting goods over long distances prohibitively expensive and favor manufacturing close to the massive consumer market in New Jersey and neighboring states. Northern New Jersey is poised to take advantage of this potential trend with its current manufacturing capacity, distribution facilities and industrial land available for redevelopment, among other assets.

One of the central themes of Plan 2035 is that investments in transportation infrastructure are vital to fully realizing these and other economic potentials. But optimizing the impact of these investments will require more than the reasonably anticipated future funding envisioned in the "Plan 2035 Scenario" discussed in Chapter 5 that forms the basis of this plan. That funding will be sufficient to maintain current system performance through a focus on maintenance with limited enhancements. Higher levels of funding, at the level of the Aspirational Scenario, would enable the region to better address current transportation problems and increase the efficiencies in movement of goods and people to support future economic growth. Citizens and officials who participated in Plan 2035 visioning workshops around the region were nearly unanimous in recognizing the importance of transportation funding and investment to the economic future of the region.

Transportation Trends

Regional demographics and economic growth, as discussed above, are the key factors that influence how and where travel occurs in northern New Jersey. The expected changes in these factors will create a variety of new and difficult challenges for the efficient operation of the regional transportation system.

The following sections provide an overview of the key transportation trends that the region expects to confront in the next 25 years. It provides a context for discussions later in this plan of how the region will invest in projects and programs to help accommodate, manage and shape transportation trends and future travel demand.

Increased Travel Demand

The volume of travel in northern New Jersey—by every single mode—will increase over the next 25 years, stressing every aspect of the transportation system.

Most of the increase will occur on the roadway system. According to 2007 Census estimates, 70 percent of commuters in the NJTPA region travel alone to work by car,

with another 9 percent traveling with at least one other passenger. Nationally, vehicle miles traveled (VMT) will grow by 60 percent by 2030. By 2035, VMT in the region is projected to increase by 16 percent over 2009 levels—along with a .4-mile increase in the average trip.

While this is a substantial increase, it represents a lower level than previously projected for the region in the 2030 Regional Transportation Plan. Past modeling had projected an increase of 1 percent per year in regional VMT; Plan 2035 projects a .7 percent increase per year, both due to lower population and employment projections and the impacts of land use measures assumed in the Plan 2035 Scenario underpinning this plan .

Based on these projections of VMT, congestion is projected to increase over the next 20 years. By 2035, under the Plan 2035 Scenario, the average delay per trip experienced by commuters will increase to 7.5 minutes from 5 minutes in 2009.

Transit ridership—on buses, rail lines and ferries—will also grow. According to US Census data from 2007, 12 percent of northern New Jersey commuters use transit to get to work, but some locations had substantially higher transit shares: Newark, 21 percent; Jersey City, 45 percent; and Hudson County, 38 percent.

More people have opted to use transit in recent years, with ridership growing 46 percent from 1990 to 2007. Over the last five years, NJ Transit rail ridership increased 23 percent, while bus ridership increased 10 percent during that time. Rising fuel prices, new services, stable fares and high employment levels all pushed transit ridership to record levels beginning in the last quarter of calendar year 2007. Records were achieved in average weekday passenger trips as well as weekend trips. This growth ended by late 2008 as fuel prices dropped, and the regional economy declined. NJ Transit ridership in January and February 2009 was down by about 3.5 percent from a year earlier. Regarding ferries, after a sharp ridership increase after 2001, ridership dropped to pre-2001 levels in 2004 and stabilized. The first few months of 2009 saw a significant decline due to the recession.

Over the long term, Plan 2035 foresees a strong rebound in transit ridership. Under the Plan 2035 Scenario, transit trips are projected to grow by 42 percent, largely as a result of improved transit services resulting from the completion of the Mass Transit Tunnel under the Hudson River. It is anticipated that a 60 percent increase in transit trips could be achieved with the increased funding levels under the Aspirational Scenario.

Increasing the share of walking or biking trips in the region is another priority of the NJTPA. On a regional basis, while only 4 percent of work trips are made on foot or by bicycle, 10 percent of non-work trips are made without motorized travel. This varies widely around the region: From a high of 9 percent of work trips and 31 percent of non-work trips in Hudson County, to only 2 percent of work trips and 4 percent of non-work trips in Hunterdon and Somerset counties. Land use changes that are part of the Plan 2035 and Aspirational scenarios could boost regional walking and biking trips significantly over the next 25 years.

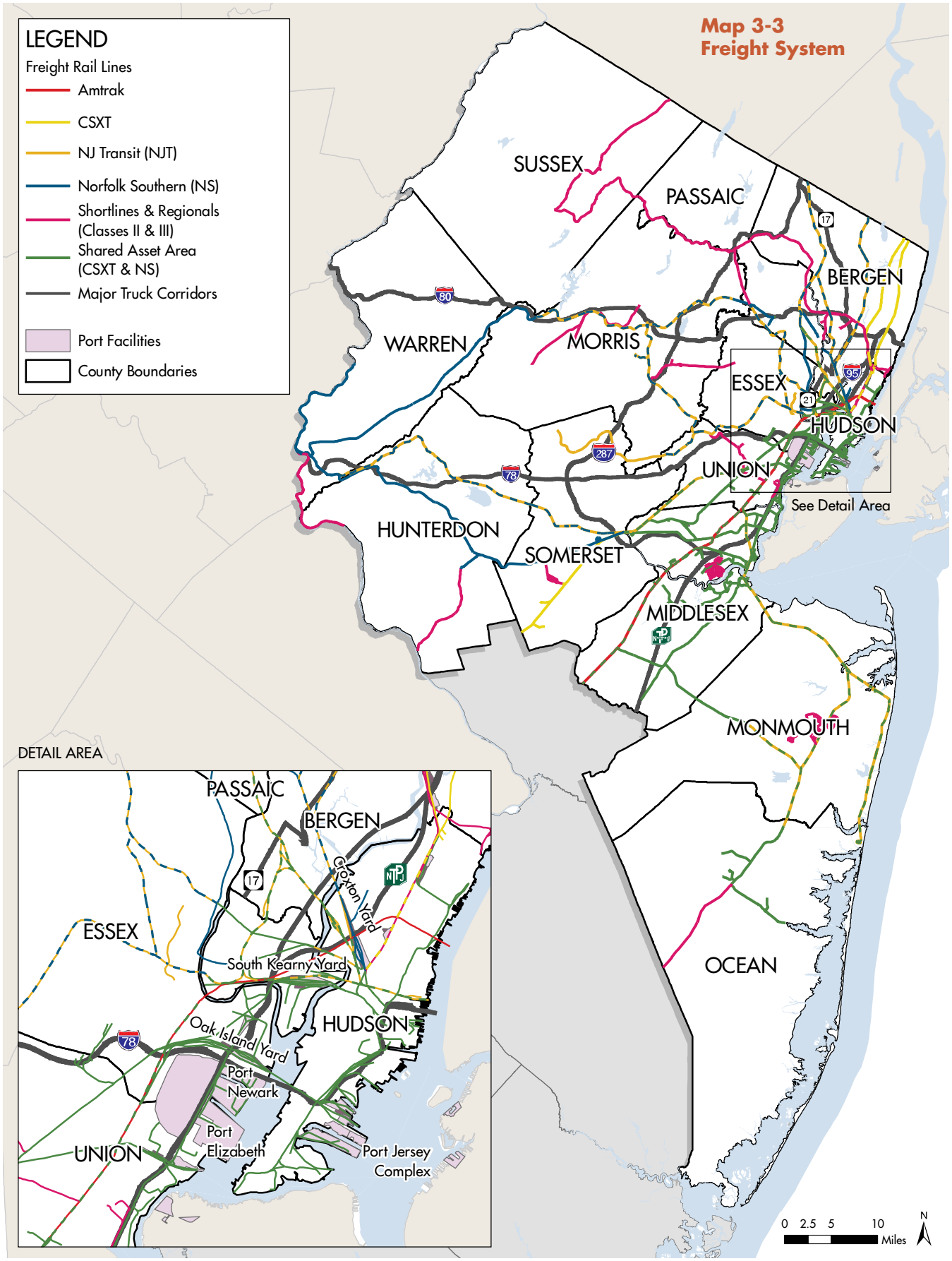
The likelihood of significant increases in regional trips by residents and businesses—including escalating freight movement, as discussed below—clearly represents a potential dilemma if measures are not taken today to prepare for it tomorrow. And yet it is important to note that it is also a sign of the region's vitality—more travel means more workers employed, more commerce being conducted, more visits to friends, more recreation and more of every activity that contributes to the region's attractiveness as a place to live. The intent of this plan is to facilitate and sustain increased travel in beneficial ways.

Freight Movement Trends

Goods movement is a critical element of the regional economy, directly creating some 500,000 jobs associated with freight-related activities. The region is home to businesses and residences that produce and consume millions of tons of goods annually. Goods movement in the NJTPA region consists of movements that originate, terminate, or simply move through the region on our transportation system. (Map 3-3)

The NJTPA estimates that over 550 million tons of freight moves in the region annually. Of this total, 80 percent originates or terminates within the region, and 20 percent passes through the region. Trucks account for over 90 percent of all surface freight (which excludes marine traffic), with approximately 10 percent moving by rail. Even when marine traffic is included, trucks carry 76 percent of all freight in the region.

Goods movement within and through the region has increased greatly in recent years. Seaport freight traffic more than doubled between 1991 and 2007. Although rail handles a relatively small percentage of all goods moved in the region, it has been gaining ground, especially when it


Map 3-3
Freight System
LEGEND
Freight Rail Lines
Amtrak
CSXT
NJ Transit (NJT)
Norfolk Southern (NS)
Shortlines & Regionals (Classes II & III)
Shared Asset Area (CSXT & NS)
Major Truck Corridors
Port Facilities
County Boundaries
SUSSEX
PASSAIC
BERGEN
WARREN
MORRIS
ESSEX
HUDSON
UNION
See Detail Area
HUNTERDON
SOMERSET
MIDDLESEX
MONMOUTH
OCEAN
DETAIL AREA
PASSAIC
BERGEN
ESSEX
Croxton Yard
South Kearny Yard
Oak Island Yard
HUDSON
Port Newark
Port Elizabeth
Port Jersey Complex
UNION
0 2.5 5 10 Miles
N

comes to port containers. The Port's ExpressRail facility more than doubled its number of annual container lifts to over 350,000 between 2000 and 2007.

However, the economic downturn has resulted in a reduction of all aspects of goods movement in the region:

- Seaport traffic decreased 0.5 percent from 2007 to 2008. This marked the first decrease in 15 years. While to date the region's port has fared better than other U.S. ports (port traffic at the top 10 North American ports declined by an average of 5 percent in 2008), the international marine shipping industry is experiencing tremendous decreases in demand leading to idle ships of well over 1 million twenty-foot equivalent units (TEUs—a standard container size used as a measure of freight capacity) worldwide.
- The total air cargo trade at New York/New Jersey airports fell 30 percent in 2008.
- According to the Association of American Railroads, U.S. freight rail traffic for the first 20 weeks of 2009 was down 18.2 percent from the same 20-week period in 2008 in terms of ton-miles, a standard industry measure that calculates demand by summing up the product of tonnage and distance moved.
- According to the American Trucking Association, U.S. truck tonnage in April of 2009 decreased by 13.2 percent compared to April 2008. This drop resulted in the lowest monthly truck tonnage reported in seven and a half years.

Plan 2035 seeks to maintain the region's economic competitiveness by helping make port and other freight-related transportation more efficient. Port of Newark.

It is expected that as the economy recovers over the next few years, the growth of freight activity will resume. Some long-term projections prior to the recession had envisioned a tripling of freight traffic—rail, truck, marine and air cargo—over the next 25 years. The lasting effects of the recession likely mean less growth, but a doubling of traffic is still a reasonable expectation. This is based on a number of key factors, including the region's central location in the midst of a huge consumer market; its extensive marine, rail and highway infrastructure; and the extensive warehouse and distribution facilities located in the region, among others. In addition, the 2015 completion of the Panama Canal expansion will permit larger vessels to reach the East Coast from the Pacific, boosting containerized goods entering the port. As discussed in Chapter 6, accommodating these larger vessels will require addressing low clearance under the Bayonne Bridge that limits access to the port.

These projected increases in freight emphasize the need for strategic investments to accommodate goods movement and sustain economic growth, while minimizing impacts upon other transportation system users.

Safety Trends

Improving the safety of travel is a high priority of the NJTPA in all aspects of the transportation planning process. Over 220,000 motor vehicle crashes occur in the region annually, about 440 of which result in fatalities. As population and vehicle miles traveled have grown, the region's crash statistics have declined moderately. This indicates that programs designed to improve travel safety are effectively lowering crash rates.

The total number of crashes in the region dropped each year between 2003 and 2006, from a high of 248,521 to a low of 223,923. That number climbed back to 232,526 in 2007, which was still well below previous years. In 2007, crashes resulted in about 70,000 injuries, including about 4,000 to pedestrians.

Crash statistics in the region indicate that the most vulnerable travelers among us—pedestrians and bicycle riders—remain disproportionately at risk. Of the region's 428 crash-related deaths in 2007, 25 percent were pedestrians, although walking accounts for less than 10 percent of all trips in the region. This trend shows why pedestrian safety has been, and will continue to be, a

Plan 2035 seeks to protect the region's natural resources while improving transportation in a sustainable manner. Clinton Reservoir in the Highlands region, Passaic County.

top priority of the NJTPA's safety improvement work.

Crash analysis has identified many contributing factors to roadway crashes, such as driver age, experience and education; vehicle types; and inadequate roadway design. Relatively small-scale roadway design improvements can reduce safety hazards, especially at "hot spot" locations. To that end, NJTPA initiatives like the Local Safety and High Risk Rural Roads programs have focused on funding quick and simple fixes to some of the most crash-prone roadways in the region (see Chapter 6 for more on these programs).

Continued efforts and active partnerships with state and local law enforcement, state agencies such as NJDOT, NJ Transit, and the NJ Division of Highway Traffic Safety, engineers, planners, educators, medical personnel, and stakeholders is critical to improving safety through 2035. Access to accurate crash data and reliable data analysis tools makes these efforts more effective. Plan4Safety, a new crash data analysis tool developed by Rutgers University is now available for a wide variety of analyses. In its first year, already approximately 400 local, regional, and state agencies including NJTPA are using it to support their safety improvement efforts.

Environmental & Other Challenges

In addition to considering the demographic, economic and transportation trends discussed above, Plan 2035 takes into account a number of developing issues that have grown in importance to the region and its citizens since the 2005 approval of the last Regional Transportation Plan. These issues have been the subject of state and federal legislative efforts in recent years. They represent additional challenges for long-range transportation planning:

Climate Change—A near consensus has developed in the state and nation about the need to address climate change. The state's Global Warming Response Act aims to cut carbon/greenhouse emissions between now and 2020. The NJTPA has responded with the establishment of a Climate Change working group to examine how transportation planning efforts can address this global issue. Climate Change issues are discussed further in Chapter 7.

Energy Costs—Gasoline prices rose dramatically in 2008 to nearly $4 per gallon, causing disruptions to the economy and hardships for many citizens. While prices subsequently retreated, they are again on the rise in 2009. For the long term, increases in energy costs are likely to rise for the transportation sector, though they may be mitigated to some extent by new technologies or alternate fuels. Improving energy efficiency of the transportation sector and the broader economy—which simultaneously contributes to reducing carbon emissions—has been the subject of government programs and legislation, including New Jersey's Energy Master Plan. These issues are addressed further in Chapter 7.

Highlands Legislation and Master Plan—A master plan implementing the Highlands Water Protection and Planning Act was approved in 2008. As noted above, it will constrain potential development in the multi-county highlands region in the interest of preserving the environmentally-sensitive watershed. How the master plan will be implemented is still under discussion, with input from the NJTPA and its member agencies. The master plan is also addressed in Chapter 7.

Transportation Trust Funds—The transportation trust funds at both the state and federal levels must be renewed and reauthorized within the next year or two. They are the

source of funding for the majority of transportation investment in the NJTPA region. At the federal level, Congress must reauthorize the nation's principal transportation law, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which expired in September 2009. At the state level, legislators must renew the state Transportation Trust Fund, which will exhaust available funding in 2011. Assumptions about state and federal financing are addressed in Chapter 8.

Conclusion

Plan 2035 was developed at a time of great uncertainties about the future course of the regional economy—indeed the economic challenges confronting the region and the nation are in many respects unprecedented in the post-World War II era. The depth of these uncertainties—together with uncertainties about climate change, energy and other matters—immensely complicates making predictions about the future transportation demands and conditions that Plan 2035 is intended to address. Yet making judgments about the future—and assessing their implications for regional transportation—was a central task in the preparation of Plan 2035.

Drawing upon computer modeling, the advice of experts and input from elected officials and the public, Plan 2035 provides direction for the many investments—amounting to as much as $140 billion over 25 years—to be made in the region's transportation system. The uncertainties mean that the investment framework provided by Plan 2035 is based on best estimates about future conditions and system performance. But it is a framework that nevertheless insures that year-to-year investments will help meet larger goals and emerging needs vital to the region's 6.5 million citizens.