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NJ TRANSIT's Response to Shifting Travel Demand in the Aftermath of September 11, 2001

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This edition of *Travel Trends* explores how NJ TRANSIT responded to the dramatic changes in travel patterns caused by the events of September 11, 2001 combining, over the ensuing five years, nimble implementation of operational changes with the convergence of planned capacity expansion projects. It begins by chronicling the ongoing restructuring of NJ TRANSIT's regional rail services to expand capacity and access to Penn Station New York (PSNY) in Midtown Manhattan that both preceded and continued beyond 9/11. It next reports the ridership changes in the years leading up to 9/11. It then describes the dramatic changes in trans-Hudson commutation brought about by the closing of the World Trade Center PATH station. Specific attention is paid to the measures used to increase train consists and frequencies, improve scheduling, and provide consistent management of the Northeast Corridor and Morris & Essex Line MidTOWN DIRECT services into and out of Penn Station New York. It also describes PSNY's retention of high ridership levels after the reopening of the PATH World Trade Center station in November 2003 and continuing steps to increase trans-Hudson commuter rail capacity in the short term. The final section looks to the future by describing the next generation of projects intended to expand NJ TRANSIT's core system capacity into Midtown Manhattan to accommodate anticipated increases in demand for regional rail services over the next several decades.

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In December 1998, the Rutgers Board of Governors established the Alan M. Voorhees Transportation Center (VTC) within the Edward J. Bloustein School of Planning and Public Policy at Rutgers, The State University of New Jersey. VTC was created to spearhead an informed public discussion of transportation policy issues in the state of New Jersey. The center seeks to establish itself as a communication center with a commitment to simplifying and clarifying transportation issues, policies, and data for public consumption, allowing for more informed policy choices by voters and public officials.

VTC addresses a wide range of transportation issues that are of concern to New Jersey residents. The center also identifies and explores transportation linkages to other public policy areas, such as economic development, land use, political governance, finance, and social policy.

A primary objective of VTC is to conduct research on aspects of transportation not otherwise addressed by conventional sponsors. The center also plays a pivotal role in convening forums, conferences, and seminars on critical transportation issues.

Areas of concentration include:

- Interaction of transportation and land use
- State transportation finance
- Transportation institutional analyses
- Pedestrian and bicycle mobility and safety
- Governmental policy concerning freight movement
- Transit planning assistance to local governments

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A Maturing Regional Rail System and Growing Ridership

Over the past two decades, NJ TRANSIT has significantly expanded its services and today carries approximately 25 percent more passengers systemwide than 20 years ago. In fact, one out of every 10 New Jersey workers uses public transportation to get to work—double the national average, according to the 2000 Census. It is the strength of the Manhattan jobs market that accounts in large part for this growth and the high proportion of transit use for New Jersey-to-Manhattan commutation.

Manhattan employment is strategically vital to New Jersey's economy. In the 2000 Census, more than 270,000 workers living west of the Hudson River, mostly from New Jersey, commuted each day to Manhattan. More than 40,000 of these daily commuters travel by rail through the Northeast Corridor tunnels. This labor market has, in turn, become increasingly important to the Manhattan economy. Between 1980 and 2000, commutation into Manhattan from west of the Hudson River increased 10 times faster than from upstate New York, Long Island and Connecticut combined. Today, just as many suburban commuters now enter Manhattan from west of the Hudson River (New Jersey; Orange and Rockland counties) as from the east (Long Island, Connecticut and upstate New York suburbs east of the Hudson River.)

The economic stakes for New Jersey in maintaining this cross-state relationship are profound, because New Jersey workers in Manhattan generate a disproportionately large share of income. Although the workforce of New Jerseyans working in Manhattan in 2000 represented only 6.7 percent of the state's workforce, it produced $35 billion, or 10 percent of all personal income for the state of New Jersey.

Regional population growth is projected to maintain a steady pace through 2025, increasing nearly 16 percent to 7.6 million in northern and central New Jersey, according to the North Jersey Transportation Planning Authority (NJTPA). Each of the 13 counties in the NJTPA region is expected to experience growth. The New Jersey labor force is forecasted to increase 12.3 percent (to 5,191,200) by 2025.[1] Moreover, in New York State, the west-of-Hudson population of Orange and Rockland counties is forecasted to grow to more than 850,000 by 2025.[2] From the destination perspective, forecasts call for 200,000 new office sector jobs in Manhattan.

The transit system is crucial to making this movement across the Hudson River into Manhattan's wealth-generating economy work. At the Hudson River crossings into Manhattan, transit's market share is more than 80 percent, including: NJ TRANSIT commuter rail, buses, PATH trains operated by the Port Authority of NY & NJ, and ferries.

Midtown has emerged as the predominant concentration of jobs in Manhattan and by itself represents the largest central business district in the United States. By 1990, it overshadowed Lower Manhattan in numbers of workers and square feet of office space, accounting for 58 percent of all employment in the borough, versus 20 percent for downtown. For the past 20 years, NJ TRANSIT has embarked on a strategy to improve rail access to Midtown Manhattan for New Jerseyans and, with assistance from the New York Metropolitan Transportation Authority, for New York residents living in Rockland and Orange counties. The late-19th Century system NJ TRANSIT inherited from Conrail and its predecessor bankrupt railroads was oriented mainly toward Lower Manhattan, the early core of the region's Central Business District. These rail links terminated along the western shore of the Hudson, where riders connected to ferries and the predecessor of PATH, the Hudson & Manhattan Railroad. To this day, only one direct rail connection exists between the commuter rail system in New Jersey and Midtown Manhattan, the complex built by the Pennsylvania Railroad 100 years ago, now known as the Northeast Corridor, focused on Penn Station New York (PSNY.)

The NJ TRANSIT commuter rail network today includes 11 separate lines in northern and central New Jersey, the spine of which is the Northeast Corridor (NEC), stretching from Trenton to Penn Station New York. (A 12th line in southern New Jersey links Philadelphia with Atlantic City.) Built by the Pennsylvania Railroad in various stages during the 19th and 20th centuries, the NEC trackage used by NJ TRANSIT trains is now owned, managed and maintained by Amtrak which operates approximately 100 intercity trains a day through New Jersey. The importance of the Northeast Corridor to the NJ TRANSIT system cannot be overstated—as of August 2006, 410 of NJ TRANSIT's 723 weekday trains used the Northeast Corridor for all or part of their journey. The busiest segments are those between Newark Penn Station and Penn Station New York, which now alternate between two and four tracks.

[1] New Jersey State Data Center, Population and Labor Force Projections: New Jersey 2002–2005
[2] New York Metropolitan Transportation Council, 2004

Figure 1. NJ TRANSIT Rail System

Midtown Strategy

In the immediate wake of 9/11, NJ TRANSIT's Midtown strategy proved fortuitous in addressing the altered commuting demands. For the long term, it will enable the agency to keep pace with the growth in commuter rail travel to that destination projected over the next two decades.

Until 1996, the only NJ TRANSIT lines operating over the NEC were its Northeast Corridor service, North Jersey Coast Line (NJCL) and the Raritan Valley Line. (See Figure 1) At that time, NJ TRANSIT Northeast Corridor Line trains terminated or originated at PSNY as did most NJCL trains. (Currently, a few NJCL trains, operating via Newark Penn Station, terminate and originate at Hoboken.) Raritan Valley Line trains offer no direct service into PSNY; they terminate and originate on weekdays at Newark Penn Station. (Some weekend Raritan Valley Line trains terminate and originate at Hoboken.)

Over the past 15 years, NJ TRANSIT has undertaken a series of major capital projects (some under the rubric "New Initiatives") to better integrate the passenger rail system, so that more riders could gain access to Midtown Manhattan via PSNY. It has also increased access to the system, adding destinations by building new stations and large parking facilities. Much of this work has been designed to increase access to PSNY from lines that formerly neither connected with nor permitted transfers to the NEC.

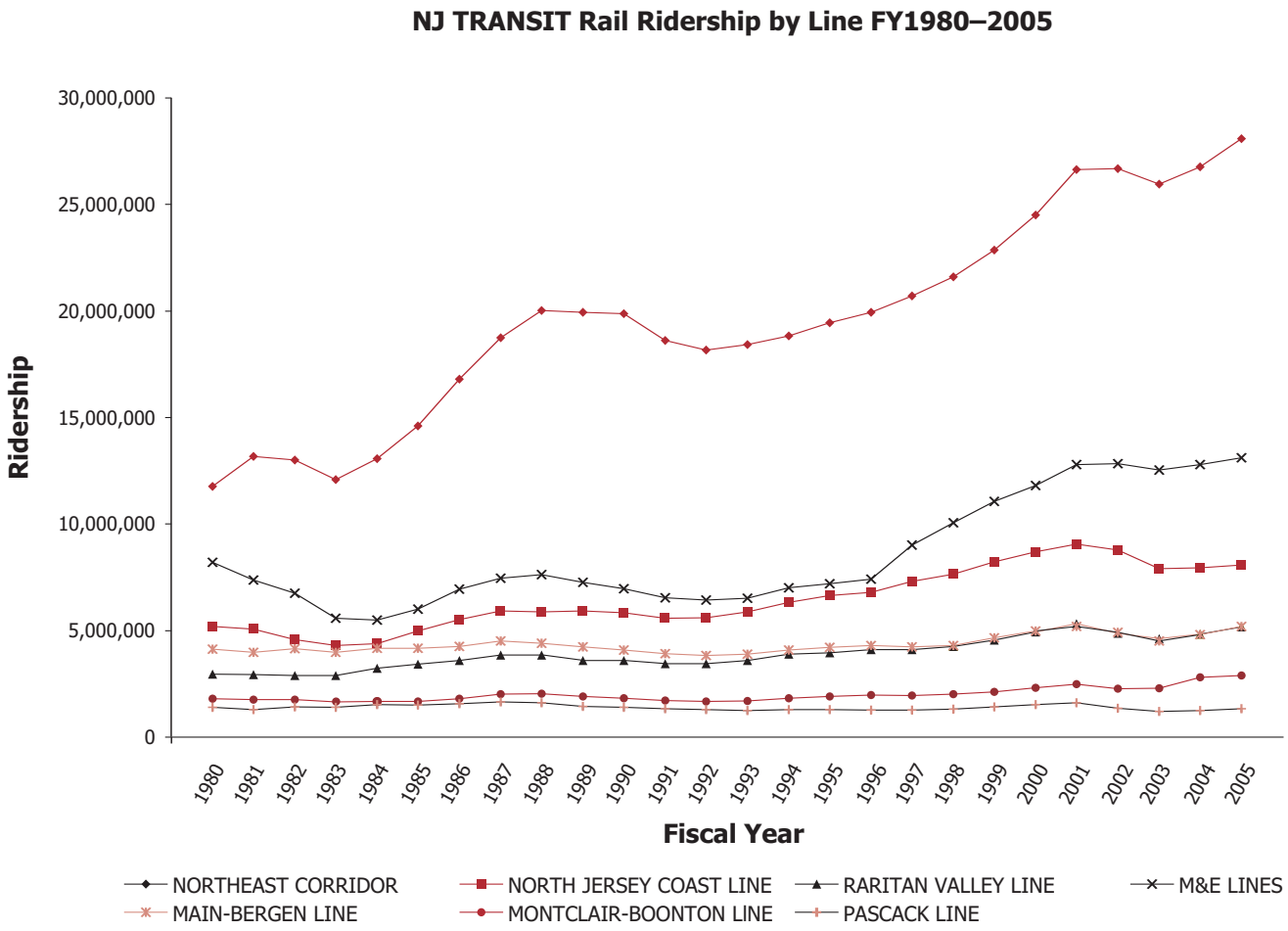
These lines, that had operated exclusively to and from Hoboken where passengers could transfer to PATH and ferries for trips into Manhattan, include the Morris & Essex (consisting of the Morristown and Gladstone branches), the Montclair Branch and Boonton Line and the Main, Bergen, Port Jervis and Pascack Valley lines. (Under a funding arrangement with the NYMTA, NJ TRANSIT operates express service for Metro-North Railroad between Hoboken and the upstate New York stations on the Pascack Valley Line, as well as service to Port Jervis utilizing the Port Jervis and Main/ Bergen lines.) The predominant destination for commuters on these Hoboken-destined lines historically has been Lower Manhattan.

In anticipation of NJ TRANSIT's investment in the "New Initiatives" projects, the Kearny and Montclair Connections and Secaucus Transfer, NJ TRANSIT has increased its access into and out of PSNY by negotiating with Amtrak an increase in the number of "slots," or train allocations within the Northeast Corridor schedule. Key steps in the expansion of slots and their allocation to NJ TRANSIT were the installation of a High Density Signal system and an upgrade in traction power (see below.) Later, in 2005, it negotiated a takeover from Amtrak of *Clocker* operations (peak period express trains between Philadelphia, selected points in New Jersey and PSNY) further increasing its allocation of "slots."

Prior to the "New Initiatives" projects, the maximum number of slots into PSNY was 18 in the morning peak hour, allocated as follows: 11 to NJ TRANSIT and up to 7 for Amtrak. The "New Initiatives" improvements increased the number of maximum peak period slots to 23 per hour, with NJ TRANSIT using 17 or 18, and Amtrak the other 5 or 6, the combination depending on the hour. Further, NJ TRANSIT gained another three morning slots and four evening slots when Amtrak surrendered the slots that had been filled by the *Clockers*.

Since 1983, the demand for peak period service into Midtown Manhattan via the Northeast Corridor has tripled, and today more than three-quarters (77 percent) of NJ TRANSIT's 227,000 daily rail commuters rely on the NEC for some part of their journey. Part of that growth is attributable to ridership gains on the lines that had been operating over the NEC prior to 1996. For example, annual ridership on the NEC Line has grown over 41 percent in 15 years, from 19,859,100 (FY 1990) to 28,076,689 (FY 2005.) (See Figure 2) But sizable growth is also attributable to the lines that gained access to the NEC over the last decade either for direct operation into PSNY or via transfers at the Frank R. Lautenberg Station at Secaucus Junction.

Figure 2. Rail Ridership Trends 1980–2005



Source: NJ TRANSIT

The major NJ TRANSIT initiatives to increase accessibility to PSNY via the NEC have included:

- **MidTOWN DIRECT** rail service, introduced in June 1996, allowed Morris & Essex trains that previously served only Hoboken to traverse the newly constructed Kearny Connection onto the Northeast Corridor for new electric one-seat service to PSNY. In September 2002, NJ TRANSIT joined the Montclair Branch and Boonton Line in Montclair (via the Montclair Connection) and introduced a new MidTOWN DIRECT electric service to PSNY for Montclair and Bloomfield area riders. Boonton Line riders from outlying points can transfer to MidTOWN DIRECT trains. These MidTOWN DIRECT services have added 99 weekday and 44 weekend trains to the NEC. M&E ridership grew from 6,963,476 in FY 1990 to 13,090,699 in FY 2005, an increase of 88 percent, much of which came after the mid-1996 launch of MidTOWN DIRECT. Of the 13 million current M&E riders, 8 million use MidTOWN DIRECT; nearly 1.5 million riders annually are using Montclair Branch/Boonton Line MidTOWN DIRECT.
- **Secaucus Junction** rail service was initiated on a weekday basis in December 2003, introducing a Midtown Manhattan connection via the Northeast Corridor for riders aboard Main, Bergen, Port Jervis and Pascack Valley line trains. The new transfer station offered commuters from Bergen County, the most populous in New Jersey, and other west-of-Hudson counties improved rail access to Midtown Manhattan. By September 2006, more than 12,000 riders were using the transfer station each weekday.

In support of its "New Initiatives" program that re-oriented commuter rail service to Midtown Manhattan (and prior to the events of 9/11), NJ TRANSIT had taken a number of steps to expand the infrastructure of the Northeast Corridor as well

as its fleet of passenger cars and locomotives. These steps, which turned out be fortuitous when travel patterns shifted after 9/11, included:

- NJ TRANSIT financed a new **High Density Signal** system in conjunction with the Kearny Connection, Montclair Connection and Secaucus Transfer projects that allowed the total number of NJ TRANSIT and Amtrak peak period trains operating in the heavily congested Newark-PSNY corridor to increase from 18 per hour to 23. The new signal system enabled NJ TRANSIT to substantially increase its share of peak hour trains, from 11 (of the prior capacity of 18) to 17 or 18, depending on the hour, of the 23 now available. (The "New Initiatives" agreement anticipated a capacity of 25 trains during the peak hour; however, NJ TRANSIT and Amtrak, through informal agreement, have limited the maximum number of hourly moves to 23 because of the continuing need to "reverse" trains out of New York back to New Jersey to make additional runs. These "reverse moves" cross the path of inbound trains and consume one or two precious peak slots per hour into New York.)
- NJ TRANSIT installed a new **frequency converter** at Sunnyside Yard in Queens, delivering a needed boost in traction power for the Northeast Corridor, particularly in the segment between Newark and PSNY which would become more heavily traveled with the implementation of the "New Initiatives" projects.
- In September 2002, NJ TRANSIT opened its **East End Concourse** in Penn Station New York to better handle the increased flow of commuter travel into and out of Manhattan. The improvements included additional platform capacity to accommodate more and longer trains; new vertical access points between the platforms and the concourse had been opened on an accelerated basis in November 2001.
- NJ TRANSIT, in March 2004, opened the first phase of its new **Morrisville Yard** across the Delaware River from Trenton in Pennsylvania. Morrisville Yard enables NJ TRANSIT to position more NEC morning peak period trains directly from Trenton and to reduce the practice of "reversing" early morning PSNY-destined trains back to New Jersey in order to make additional runs. Morrisville Yard also eliminates operating conflicts east of Trenton station where trains often had to cross over four tracks to reverse direction on arrival or departure. Serving as the western terminus for NJ TRANSIT's NEC service, the yard now can store four trains, or 40 cars. In late 2006, the remainder of the yard is scheduled to go into service, adding space for another six trains, or 60 cars, plus a two-track maintenance shop specifically equipped to handle new bi-level passenger cars.
- Another step related to implementation of the Montclair Connection and Secaucus Junction projects that proved helpful in responding to the changed travel patterns after 9/11 was NJ TRANSIT's **rolling stock** replacement and expansion program. Between September 2002 and 2004, some 200 new Comet V cars ordered by the agency were placed into revenue service. The Comet V's, each providing 115 seats, will enable NJ TRANSIT eventually to retire its aging and technically obsolete fleet of 70 Comet I cars. The net gain for NJ TRANSIT was 13,900 seats and came during a critical period when PATH was not operating to Lower Manhattan and NJ TRANSIT was expanding service on its Midtown DIRECT and NEC lines. In addition, as part of the fleet expansion required for these projects, the agency ordered, and has since fully acquired, 29 high horsepower ALP-46 electric locomotives. This gave NJ TRANSIT rail operators the ability to lengthen trains when required by post-9/11 conditions. These locomotives supplant ALP-44 electric locomotives that are limited to train consists of up to eight single-level cars (or six bi-level cars); the new ALP-46 can power trains with up to 12 single (or 10 bi-level cars).

In the period from 1998 to 2004, NJ TRANSIT also invested in a number of new facilities that either added accessibility to the system from lines that operated on or connected with the Northeast Corridor, or added new destinations: These include:

- **Hamilton Station** opened in 1998 on the NEC in response to booming ridership demand in the greater Mercer County area, and now accounts for 3,325 average weekday boardings. Construction of a 2,000-space commuter parking deck adjacent to the station, authorized through a multi-year lease agreement by NJ TRANSIT's Board of Directors in October 2004, is now underway.
- A new intermodal station opened on the NEC in October 2001 at **Newark Liberty International Airport** connecting NJ TRANSIT and Amtrak trains to the airport's monorail system, adding 4,800 daily NJ TRANSIT riders, the majority traveling to and from PSNY.

Future conditions at PSNY will be improved as a result of NJ TRANSIT's agreement in November 2005 to become the anchor tenant in the new **Moynihan Station** on 8th Avenue in Manhattan. Immediately adjacent to PSNY within the Farley Post Office building, the new station is intended to accommodate forecasted ridership growth by providing additional egress from train platforms, passenger waiting space and ticketing.

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On lines now feeding the NEC, NJ TRANSIT made major investments in the last several years at the following stations:

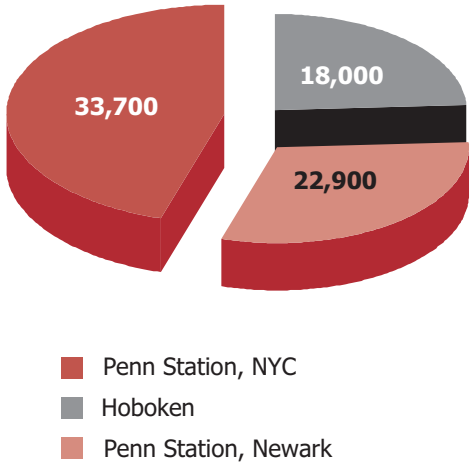
- In April 2003, a new $27 million Raritan Valley Line station opened in **Union**, providing new access from Union to the rail network and to Kean University, Schering-Plough and Elizabethtown Gas. The station also offers parking to commuters who had been shut out of lots at Westfield, Garwood, Cranford and Roselle Park. The station was serving more than 700 daily riders after two years.
- A new $27.5 million rail station opened on **Route 17 in Ramsey** in August 2004 to serve projected long-term growth in ridership induced by the Secaucus Transfer from northern Bergen County on the Main/Bergen Line. The station added more than 1,200 parking spaces, relieving the pressure for parking spots at constricted town center stations in Mahwah, Ramsey, and Allendale, and in Suffern, N.Y.
- In October 2004, NJ TRANSIT opened a new Montclair–Boonton Line station in Little Falls at **Montclair State University** off of busy Route 46. By adding 1,500 spaces, the station helped alleviate heavy demand for parking in the Montclair area, spurred by the opening of the Montclair Connection. The MSU station also provides a park–ride opportunity for residents living north and west of Montclair and a convenient transfer point for Boonton Line passengers to switch to MidTOWN DIRECT trains.

Manhattan-bound Ridership Patterns Prior to September 11, 2001

Before the more than 26-month closure of the World Trade Center PATH station on September 11, 2001, approximately 74,600 morning peak period passengers bound for Manhattan traveled on NJ TRANSIT trains destined either for PSNY, or Newark Penn Station or Hoboken Terminal to transfer to PATH service. (See Figure 3) Of those:

- 45 percent (or 33,700 passengers) traveled through to PSNY
- 31 percent (or 22,900 passengers) transferred to PATH in Hoboken
- 24 percent (or 18,000 passengers) transferred to PATH in Newark

Figure 3. NJ TRANSIT Morning Peak Period Ridership by Terminal Arrivals, Prior to September 11, 2001



Source: NJ TRANSIT

At the time of 9/11, the WTC station was still the most heavily used in the PATH system, accounting for 59 percent of all PATH Manhattan ridership, followed by the 33rd Street Station at 24 percent. However, a shift in the volume of New York-bound commuters destined for Midtown rather than Lower Manhattan was apparent well before 9/11. For instance, PATH ridership to WTC had slipped from 45.4 percent of total boardings in Hoboken in 1996 to 37.7 percent by 9/11. The Midtown 33rd Street station was the destination for 28.4 percent of PATH riders who boarded in Hoboken prior to 9/11.

On the NEC prior to September 11, 2001, 40 peak period trains, consisting of 329 cars providing 37,835 seats, arrived in PSNY each weekday morning. The 33,700 riders headed into PSNY included 25,300 passengers who used Northeast Corridor or NJCL direct service, plus Raritan Valley Line riders who transferred in Newark to NEC or NJCL trains. Another 8,200 passengers were aboard MidTOWN DIRECT, and 200 were Montclair Branch riders who transferred at Newark Broad Street Station onto MidTOWN DIRECT service prior to the opening of the Montclair Connection.

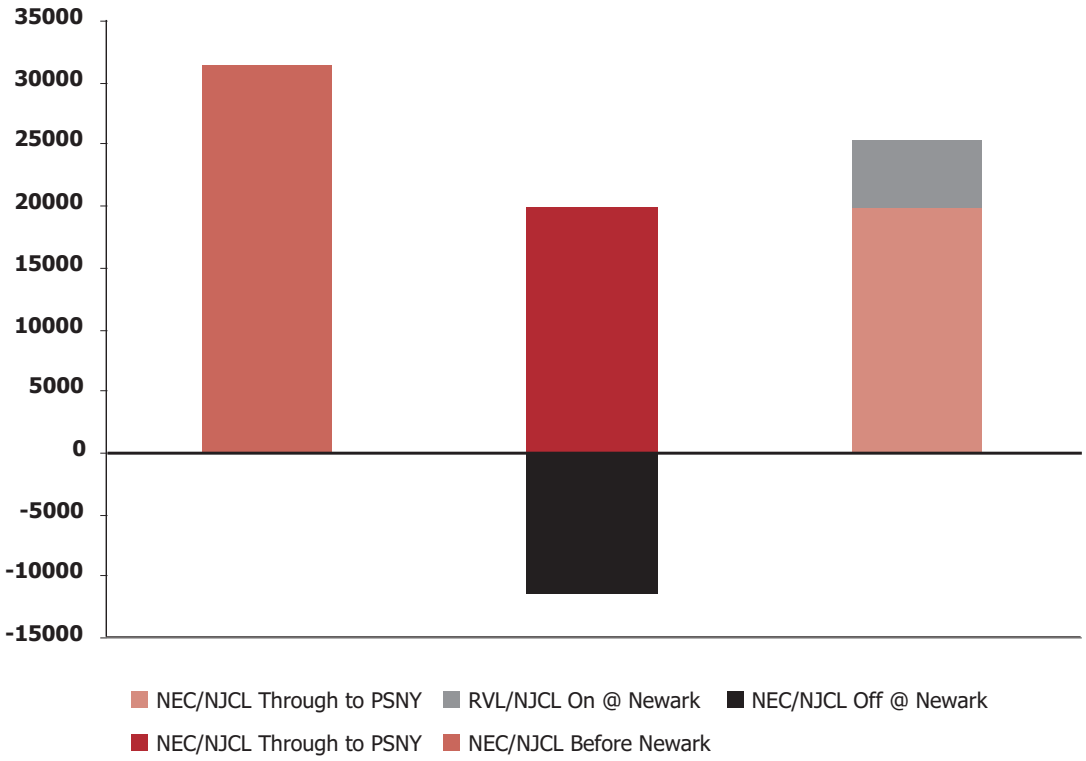
Prior to September 11, 2001, virtually all of the riders arriving in Hoboken transferred to PATH trains serving either the World Trade Center station in Lower Manhattan or the 33rd Street line serving stations between Lower and Midtown Manhattan. Of the 22,900 passengers arriving in Hoboken, most (13,700) were aboard Main, Bergen, Pascack Valley or Port Jervis trains. The remainder arrived via Newark Broad Street Station aboard Morris & Essex Lines trains (4,650) or Boonton or Montclair trains (4,050). Just 500 were NJCL riders.

An important factor in the rationale for the building of the Secaucus Junction station was that, prior to 9/11, trains departed Newark Penn Station for New York during the morning peak period with 6,100 fewer passengers than when they arrived. (See Figure 4) This was because the number of passengers who exited at Newark for local destinations or to transfer to PATH outnumbered those who boarded at Newark for the trip into PSNY. NJ TRANSIT was counting on this excess capacity to provide the seats it expected to need for passengers transferring at Secaucus Junction from Main, Bergen, Port Jervis and Pascack Valley trains to Northeast Corridor service into PSNY.

The Effects of 9/11 on NJ TRANSIT Rail Services

Demand for NJ TRANSIT service into PSNY grew dramatically after September 11, 2001 as 14,800 passengers, a staggering 44 percent increase, shifted to PSNY trains during the morning peak period by the start of October. This was further reflected in the Midtown/Downtown balance of trans-Hudson crossings for all modes. Prior to 9/11, the balance was 70/30 between Midtown and Downtown; by October, Midtown accounted for 90 percent of morning peak period crossings as access to Lower Manhattan was restricted to ferry service.[3] This heavy travel into Midtown occurred despite a

Figure 4. Morning Peak Period Passenger Exchange at Newark Penn Station, Prior to September 11, 2001



Source: NJ TRANSIT

[3] These figures apply only to trans-Hudson crossings below 60th Street in Manhattan, excluding the George Washington Bridge crossing uptown. Use of the Holland Tunnel was closed to the public for more than a month after 9/11.

downturn in Manhattan employment that had started in the second quarter of 2001 and intensified after the terror attack. Three factors contributed to this rise:

First, the destruction of the World Trade Center PATH station, as well as closure of the PATH Exchange Place station in Jersey City, resulted in the cessation of all PATH service to Lower Manhattan, severing a vital transportation link for New Jersey residents who were employed there. Prior to 9/11, 39,350 riders utilized PATH's World Trade Center station during the morning peak period from Hoboken, Newark, Jersey City and Harrison. The 35,000 riders PATH carried on its 33rd Street line prior to 9/11 surged to more than 50,000 by October, further contributing to the sudden shift in balance between Midtown and Downtown trans-Hudson crossings.

Second, the destruction and extensive damage to office buildings in the World Trade Center area brought about a significant shift in jobs to Midtown Manhattan and out of the city. (See sidebar below)

Finally, single occupant vehicle restrictions imposed in late September at the Holland and Lincoln tunnels, forced many would-be drivers to seek alternative transportation into the city. Lincoln Tunnel restrictions were in effect from September 28, 2001 through April 22, 2002. The Holland Tunnel was closed to all but emergency vehicles through late October when it was reopened with the restrictions on SOVs; the SOV restriction at the Holland Tunnel continued until November 17, 2003. The various closings and restrictions limited trans-Hudson commute options, leaving commuters to choose between ferry services, carpooling, PATH service on the 33rd Street line, or riding NJ TRANSIT trains and buses into Midtown Manhattan.

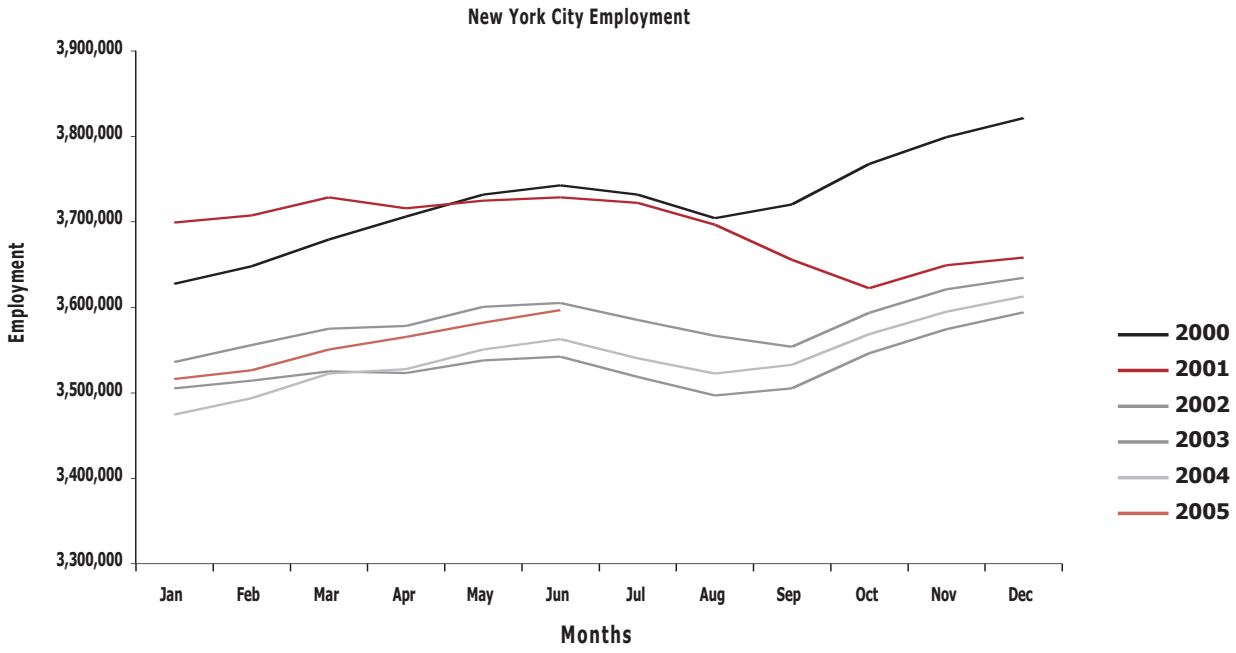
Literally almost overnight, the long-growing importance of PSNY to the NJ TRANSIT system became profoundly more critical. In addition to serving the existing pool of workers employed in Midtown Manhattan, PSNY now had to accommodate many commuters whose jobs had relocated to Midtown along with those who were able to continue working in Lower Manhattan but required a different rail route. Many workers who previously transferred to PATH at Newark now had to travel to PSNY and transfer to the New York City bus and subway system for the ride to Lower Manhattan. Similarly, some Morris & Essex riders, who previously transferred to PATH at Hoboken, shifted to MidTOWN DIRECT trains to PSNY.

Economic Changes between December 2001 and October 2002

As noted, the New York City economy had begun to decline during the second quarter of 2001 and then dropped precipitously following the events of 9/11. As of May 2001, employment levels were starting to fall below their comparable monthly level for 2000. By December 2001, a total of 130,000 jobs had been lost. Particularly hard hit were the finance, insurance and real estate sectors which lost 25,000 jobs between September and October 2001. The 9/11 attacks destroyed or damaged 60 percent (35 million square feet) of Lower Manhattan's Class A office space, displacing 114,000 workers. By July 2002, just 19 million square feet of that office space was in use. Only about 53,000 jobs (or 47 percent) had returned to Lower Manhattan.[4] Of the balance, about 25,000 jobs (or 22 percent) relocated to Midtown and almost 12,000 jobs (or 10 percent) moved to New Jersey.[5]

In the year following the attacks, New York City lost another 140,000 jobs, declining at an average monthly rate of 3.8 percent (See Figure 5).[6] This job loss, of course, affected ridership on NJ TRANSIT commuter rail services. Total core system daily ridership fell from 75,150 in December 2001 to 70,500 by October 2002. This represented a 6.2 percent decline, or 4,650 in-bound passengers, during the morning peak period.

Figure 5. Annual New York City Employment Change 2000–2005



[4] These numbers include workers reassigned from other sites or those newly hired.
[5] New York Metropolitan Transportation Council, Technical Memorandum No. 31
[6] New York State Department of Labor

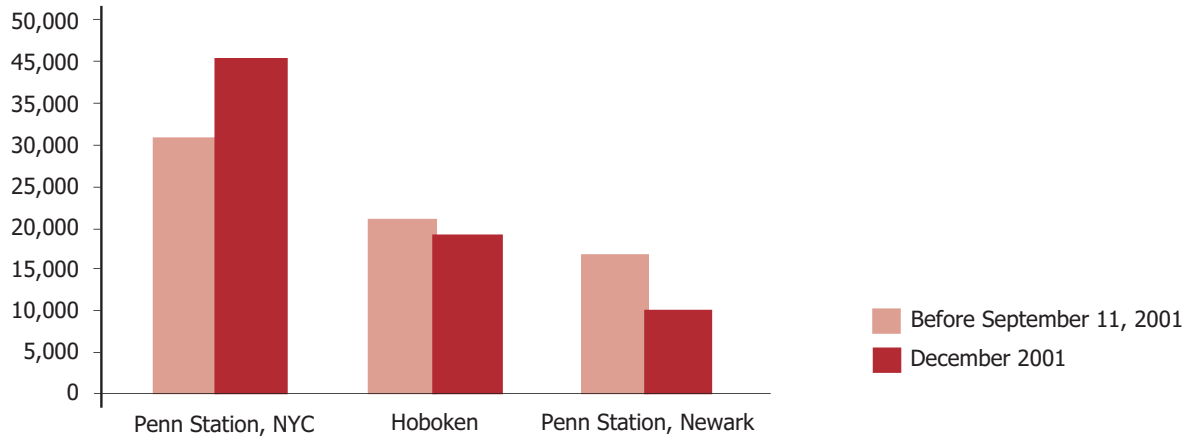
The Immediate Aftermath—through December 2001

In the three months following September 11, 2001, as more and more commuters returned to work and sought alternatives to PATH, the pressure on NJ TRANSIT rail service into PSNY eased somewhat, then stabilized by December 2001 at 43,900 morning peak period riders, a 30 percent increase over the pre-9/11 level. PSNY now claimed the majority (58 percent) of NJ TRANSIT's inbound passengers, whereas it had accounted for just a 45 percent share versus Newark and Hoboken prior to 9/11.

The decline in the number of passengers disembarking at the other two terminals with the loss of PATH's WTC service was most dramatic at Newark. As Figure 6 shows, the number of passengers exiting NJ TRANSIT trains at Newark fell 40 percent, from 18,000 to 10,750, reducing its share of all inbound Manhattan passengers to only 14 percent. This remained true even after PATH introduced an alternative one-seat service from Newark Penn Station on its 33rd Street line. Ridership into Hoboken dropped 10 percent, from 22,900 to 20,500, reducing its share of all inbound passengers from 31 percent to 27 percent. (See Figure 6) The loss of PATH WTC ridership was mitigated in large degree by a shift to the 33rd Street line. [7]

When ridership shifted to PSNY following 9/11, passenger exchange patterns at Newark changed dramatically and the excess capacity that had existed on PSNY-bound trains leaving Newark disappeared. Trains that had left Newark with 6,100 fewer passengers than when they arrived prior to 9/11, just two months later were leaving Newark with 2,400 more passengers than when they arrived. (See Figure 7) The available seating that had existed prior to September 11th was filled and as many as 10,000 passengers during the morning peak period were left standing on PSNY-bound trains. This dramatic increase was felt particularly aboard NEC Line trains.

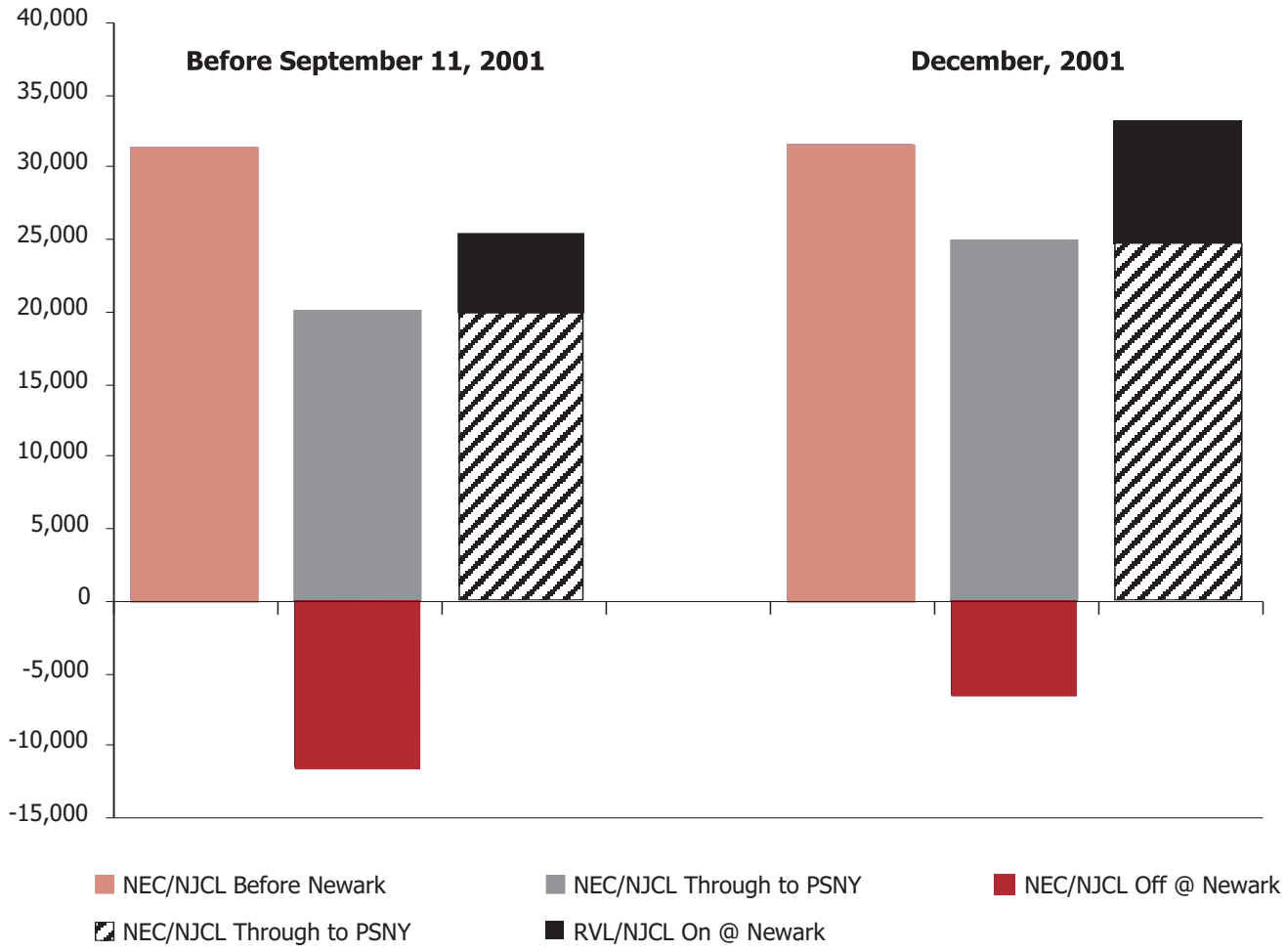
Figure 6. NJ TRANSIT Morning Peak Period Ridership by Terminal Destination



Source: NJ TRANSIT

[7] Hoboken boardings contributed to the enormous ridership surges PATH experienced on the 33rd Street line. Passenger volumes more than doubled after September 11 at Christopher Street (117 percent), 9th Street (135 percent), and 14th Street (131 percent). The largest absolute increase occurred at the 33rd Street station, where one-way ridership jumped by almost 10,400 daily riders (or 70 percent). Hoboken am peak period boardings increased from 15,700 prior to 9/11 to 20,000 by December 2001.

Figure 7. The Morning Peak Period Exchange Process at Newark Penn Station—Before September 11, 2001, Compared With December 2001



Source: NJ TRANSIT

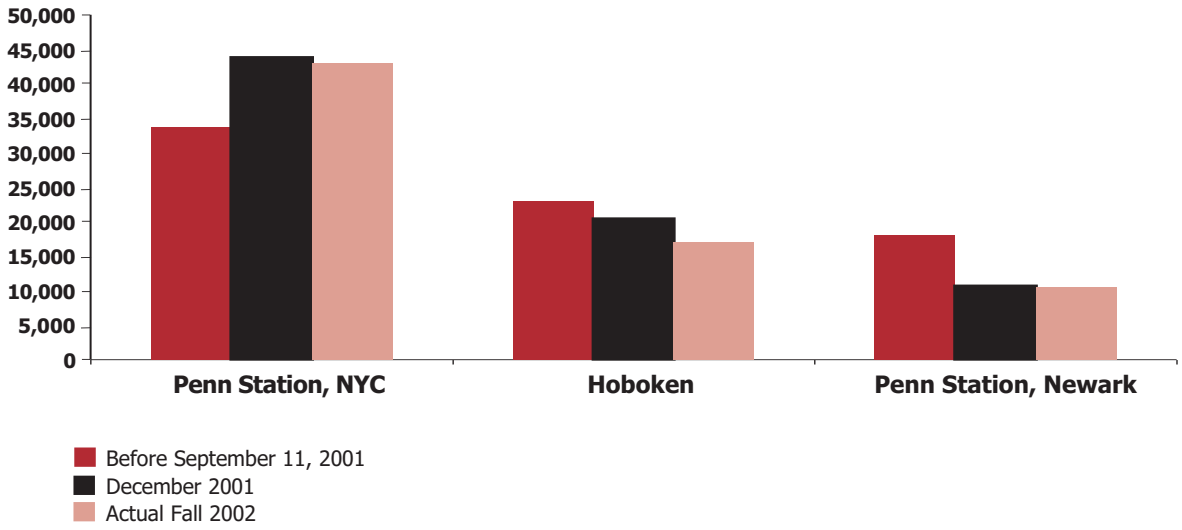
One Year After 9/11

As the economic recession deepened into 2002 and due to the ongoing 9/11-related employment dislocations, NJ TRANSIT's rail ridership, including into PSNY, declined during the year. But, PSNY's share of total trans-Hudson commuter rail travel continued to grow, increasing to 61 percent of NJ TRANSIT's Manhattan-bound am peak commuters by December 2002. [8] (See Figure 8) Hoboken's ridership share fell most dramatically—to 24 percent, while Newark's ridership stabilized at 10,500, enabling its share to rebound modestly to 15 percent. By the fall of 2002, the reversal in passenger exchange patterns that had occurred after 9/11 in Newark remained largely intact. During the Fall of 2002, 1,750 more passengers left Newark for PSNY than arrived during the morning peak, although this was down somewhat from the 2,400 excess in departures the year before in December 2001.

Squeezing More Out of the System

The events of 9/11 forced NJ TRANSIT to reconfigure its operating plans and procedures to dramatically increase peak hour capacity into and out of PSNY to accommodate the almost overnight shift in demand from Lower to Midtown Manhattan. Compounding this challenge was NJ TRANSIT's loss of overnight train storage within PSNY earlier in the summer to accommodate an Amtrak construction project in the vicinity of PSNY. Further handicapping NJ TRANSIT's immediate response was the fact that the Comet II overhaul program had begun, removing 24 to 26 cars with a total of over 2,600 seats from the fleet at any time. Looming a year into the future was the coming demand for additional Northeast Corridor service and rolling stock presented by the Montclair-Boonton MidTOWN DIRECT service. Nevertheless, through a combination of innovative train and crew manipulations along with new arrangements with Amtrak, NJ TRANSIT was able to overcome those challenges in the immediate aftermath of 9/11 and absorb the brunt of the new ridership surge to PSNY.

Figure 7. NJ TRANSIT Morning Peak Period Ridership by Terminal Destination



Source: NJ TRANSIT

[8] The decline in NJ TRANSIT's PSNY am peak arrivals was due to a drop in NEC/NJCL ridership, which fell from 33,900 in December 2001 to 30,750 by December 2002. This was partially offset by Montclair-Boonton am peak ridership into PSNY, which grew nearly sixfold as a result of the September 2002 launch of MidTOWN DIRECT Service, growing from 300 in December 2001 to 1,700 by December 2002. M&E MidTOWN DIRECT ridership also grew during that period, from 9,700 to 10,500 by December 2002.

NJ TRANSIT's ability to respond gained flexibility by the corresponding drop in demand for service to Lower Manhattan. In short, NJ TRANSIT was able to draw upon existing equipment from routes which had suffered a ridership decline. The shift in demand compelled NJ TRANSIT to transfer rail cars and locomotives from its Hoboken Division to Northeast Corridor, North Jersey Coast Line and MidTOWN DIRECT trains, lengthening consists where possible. Within a week of 9/11, two morning peak trains were added to MidTOWN DIRECT service. In addition, it was able to re-deploy trainsets (15-18 cars) freed up by a minor service reduction required to allow reconstruction of one of the Bergen tunnels outside Hoboken Terminal. Moreover, the agency's aging fleet of Comet I cars, which were to be retired from service, gained a temporary reprieve to help meet demand while still serviceable.

A second key step was Amtrak's agreement to allow an additional morning Trenton-Newark Northeast Corridor train to continue on to PSNY; similarly, an evening Newark-Trenton peak hour train was permitted to originate in New York, absorbing an additional slot in the peak hour at PSNY. To obtain the necessary "slots" into and out of PSNY for the two trains, Amtrak and NJ TRANSIT agreed to take advantage of the additional slots provided through the High Density Signal system project ahead of schedule while utilizing the old signal system.

Fast Turns

A third (and the most innovative) step was NJ TRANSIT's decision to fine-tune its system of moving trains into and out of PSNY, by adopting a procedure of "fast turns," whereby incoming trains are quickly serviced at the platform within PSNY and then dispatched back to New Jersey as westbound trains. Through its "fast turn" procedures, NJ TRANSIT was able to reduce its train turnaround times at PSNY from 20-30 minutes down to 12-20 minutes. To achieve this, NJ TRANSIT changed its operating procedures to integrate equipment between the Hoboken and Newark divisions by separating crew turns from equipment turns. Previously, trains and crews arriving in PSNY aboard Hoboken Division trains would depart only in Hoboken Division service; Newark Division crews and trains functioned similarly. With "fast turns," NJ TRANSIT flexibly assigned equipment to the next outbound train with the same number of cars regardless of division. In addition, NJ TRANSIT was able to free up track space in PSNY by arranging to have NJ TRANSIT "road crews" take trains to Sunnyside Yard in Queens rather than using Amtrak crews. Avoiding the need for a crew change prior to the move to Sunnyside reduced dwell time in PSNY from 15 to 25 minutes down to 7 to 10 minutes.

To further aid "fast turns," NJ TRANSIT in November 2001 accelerated the opening of escalators and stairs in the East End Concourse during the morning peak commuting hours, cutting the amount of time needed to clear passengers from the platform in half, from 10 to 5 minutes.

As a result, each train could now cover an earlier westbound departure, freeing up one trainset each day for use on other trips. In some cases, this meant that a train could run back out to a midpoint on the line, such as the Jersey Avenue station in New Brunswick, to provide more frequent eastbound service. Meanwhile, in New Jersey, physical improvements at yards in Bay Head, Great Notch and Dover similarly helped to speed up light maintenance and inspection to facilitate "fast turns" and reduce track congestion.

An unexpected benefit was NJ TRANSIT's expanded use of Sunnyside Yard for train storage. To overcome its loss of overnight storage for up to six trains within Penn Station New York due to Amtrak's "JO" interlocking reconstruction project in Queens, NJ TRANSIT relocated those trainsets to Sunnyside Yard. This reduced the time available for light maintenance and inspection, requiring mechanical forces to complete these inspections more quickly. NJ TRANSIT found, however, that Sunnyside Yard storage was beneficial by allowing storage of longer trains (up to 12 cars) than was possible within the confines of PSNY, where the maximum train length was 10 cars. In addition, NJ TRANSIT had been feeling pressure for storage at its outlying yards within New Jersey as its fleet grew. In sum, NJ TRANSIT increased its use of Sunnyside for overnight and/or daytime storage to include 17 trainsets. These trains can depart Sunnyside early in the morning to locations in New Jersey from where they originate peak-period revenue service to New York, or leave Sunnyside in the afternoon to originate afternoon peak period service from PSNY to New Jersey.

By January 13, 2002, these steps had enabled NJ TRANSIT to add more than 6,000 seats and eight peak period trains, five during the morning and three during the evening. Within the next six months, another 3,800 seats and one evening peak period train had been added, while the soft economy was reducing demand by 2,100 riders. In May, NJ TRANSIT made temporary arrangements with Amtrak to extend its cross-honor agreement to cover three morning intercity trains operating between Newark and PSNY. This had a limited effect on capacity. By June 2002, the number of systemwide standees had plummeted from 18,300 in the immediate aftermath 9/11 to under 1,500.

In preparation for the September 2002 launch of Montclair-Boonton MidTOWN DIRECT service, NJ TRANSIT had begun exploring the use of a "zone scheduling" system to take advantage of unused capacity on the Northeast Corridor. The

9/11-induced shift of travel to PSNY made it a tool to squeeze more capacity out of the existing system and accelerated its introduction. The basis of a zone scheduling system on the NEC is that its track layout through New Jersey is, generally speaking, a four-track railroad with the two outside tracks used predominantly by NJ TRANSIT for local service and the two inside tracks used by Amtrak for express service. NJ TRANSIT found that the relatively low frequency of Amtrak service during the morning and afternoon peak periods offered valuable unused capacity on the inside tracks. Through zone scheduling, NJ TRANSIT could operate trains on the outside tracks to serve Trenton, Hamilton and Princeton Junction and then switch to the inside tracks on leaving Mercer County to run as expresses to Newark and New York. This operating scheme freed up space on the outside tracks further up the line for more local trains to serve the intermediate stations between Jersey Avenue in New Brunswick and Metropark.

The first zone train was added in the evening peak period in September 2002 from PSNY to serve the Mercer County stops. The process was integrated into the schedule through October 2005 with "outer" zone trains serving Mercer County stations operating every 15 minutes; "middle" zone trains serving the Jersey Avenue-to-Metropark stops operating every 11 minutes. A similar philosophy was employed on the M&E where "expresses" originating in Summit and Dover began early in 2002.

A year after the events of 9/11, on September 30, 2002, NJ TRANSIT completed the Montclair Connection and inaugurated MidTOWN DIRECT service on the combined Montclair-Boonton Line, offering commuters a new one-seat ride service to Manhattan. Certain trains that previously ran only from Montclair's Bay Street Station to Hoboken began running directly from a new station at Montclair State University to PSNY. Providing better options for getting to PSNY from Montclair-Boonton Line stations, the new one-seat service cut 10 minutes off the trip between Montclair and Midtown Manhattan over the NJ TRANSIT-PATH combination. The new service also provided additional seating capacity for Manhattan-bound passengers at Secaucus Junction, when that station opened 15 months later. A week prior to the launch of the new service, the new 7th Avenue Concourse at PSNY fully opened, providing additional stairway and elevator access to the platforms serving Tracks 1 through 12. NJ TRANSIT customers now had a separate concourse, waiting area and ticketing area from the one shared with Amtrak at the 8th Avenue end of the station.

As a result of these system enhancements and changes, NJ TRANSIT was to add 11 inbound trains to the morning peak period, increasing the number from 40 trains before September 11, 2001 to 51 by the end of October 2002, more than a 27 percent increase. (See Figure 9)

In total, 107 train cars were added during this period (See Figure 10)—growing capacity from 37,800 seats to 50,140 seats, an increase of 32.5 percent. (See Figure 11) Matching improvements were also made to the evening peak period—nine trains, 103 cars and 11,845 seats were added, boosting capacity 33 percent for the return trip home.

Figure 9. Growth in Peak Trains
April 2001–December 2003

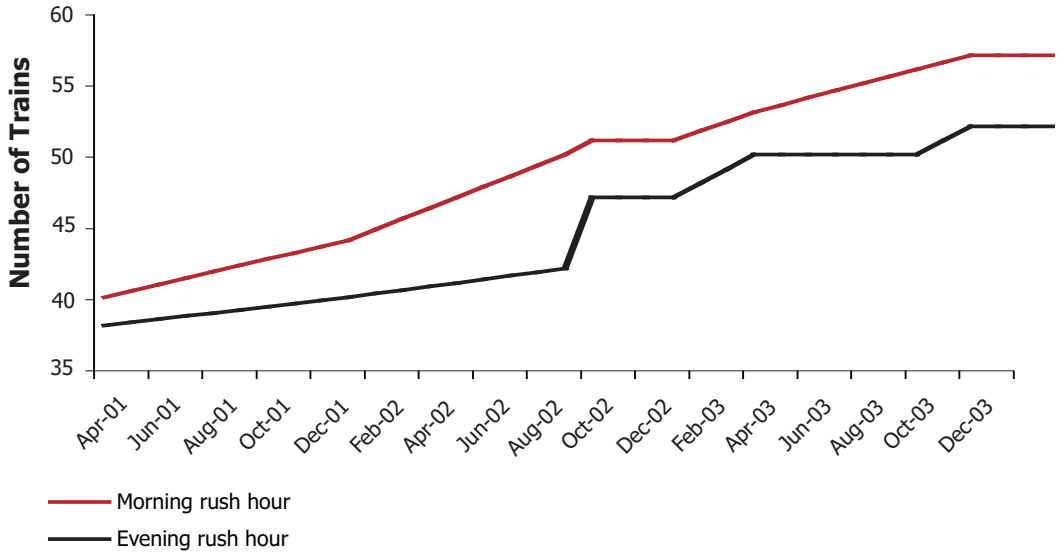


Figure 10. Growth in Peak Hour Cars
April 2001–December 2003

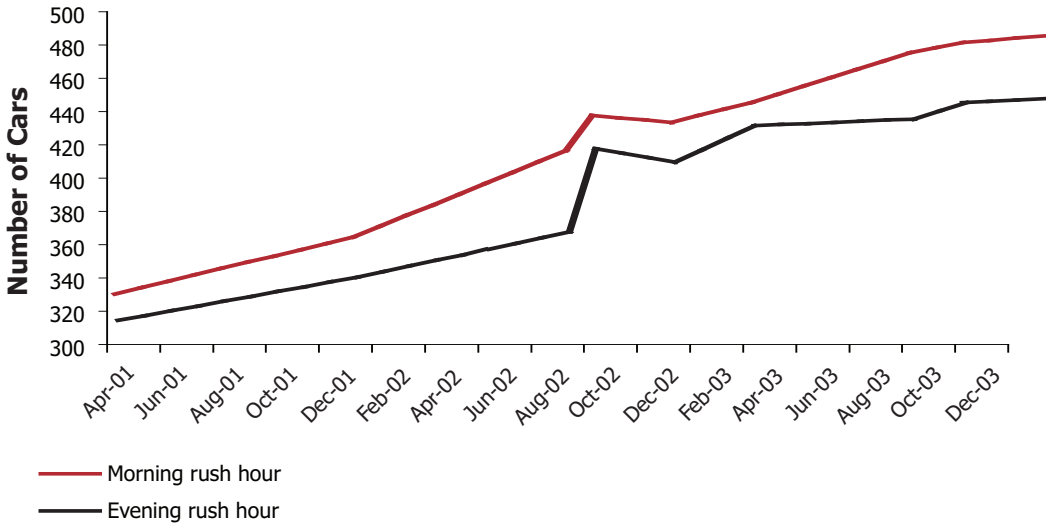
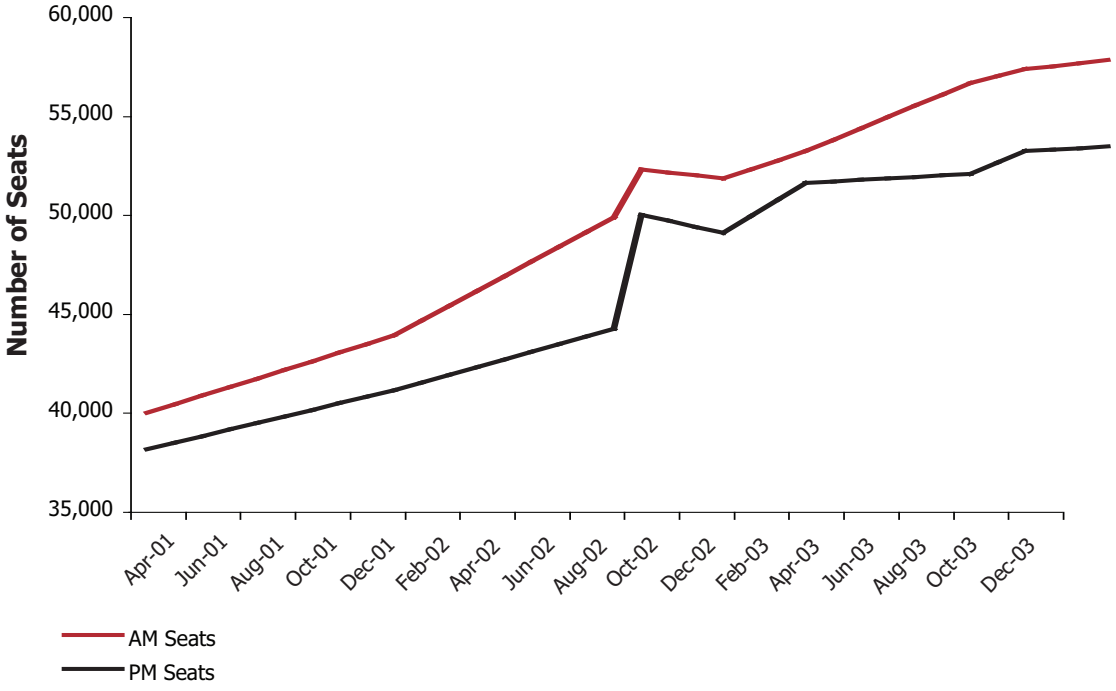


Figure 11. Growth in Seating Capacity
April 2001–December 2003



2003 to Present—Impact of Restoration of PATH Service to WTC

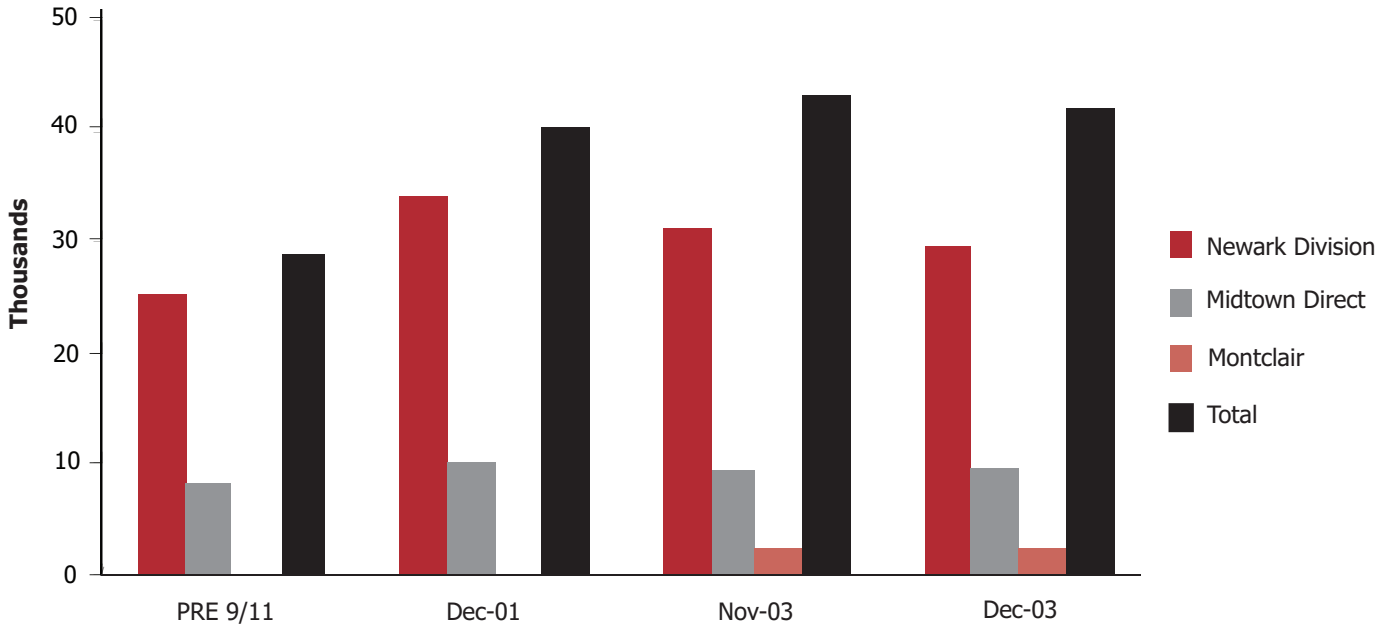
The trans-Hudson rail system continued to evolve over the next three years, partly in response to the re-opening of PATH service to the World Trade Center in December 2003. The most noteworthy development was the continued expansion of rail capacity on the NJ TRANSIT rail system to Midtown Manhattan and the permanence of the shift in demand patterns for travel to that destination.

In June 2003, the High Density Signal (HDS) system was completed on the NEC between Newark and PSNY, facilitating the operation of additional peak hour service between Newark and PSNY, among other benefits. NJ TRANSIT and Amtrak had experimented with peak hour service levels and determined that the two railroads could reliably operate 23 trains in the peak hour. To help maintain the high volume of train movements, NJ TRANSIT has sustained the operational improvements it instituted in the aftermath of 9/11 – such as the use of "fast turns" at PSNY, zone scheduling and greater use of Sunnyside Yard in Queens for train storage.

Late in 2003, NJ TRANSIT implemented a significant step toward integrating its rail operations with the launch of service at the Frank R. Lautenberg Station at Secaucus Junction. This facility introduced a rail connection to PSNY for commuters from Bergen, Passaic, Orange and Rockland counties by allowing them to transfer between Main, Bergen, Port Jervis and Pascack Valley trains and services operating on the NEC between Newark and PSNY. Secaucus Junction enabled passengers on these non-electrified lines to transfer conveniently to frequent PSNY-bound NEC trains for the 12-to-15-minute ride to Midtown, rather than switch modes at Hoboken for the slower PATH 33rd Street ride to Midtown.

The opening of Secaucus Junction was phased in two stages during 2003 to address complex operating changes accompanying the opening of the station and lingering concerns with excessive overcrowding on trains between Newark and New York due to PATH World Trade Center area still not functioning. The first phase, which included weekend-only service for Main Line and Port Jervis Line passengers connecting with NEC, NJCL, and MidTOWN DIRECT services, began on September 6, 2003. Full weekday service

Figure 12. AM Peak Period PSNY Ridership by Line (2001-03)



began on December 15, 2003, soon after the reopening of the PATH station at the World Trade Center site on November 23, 2003.

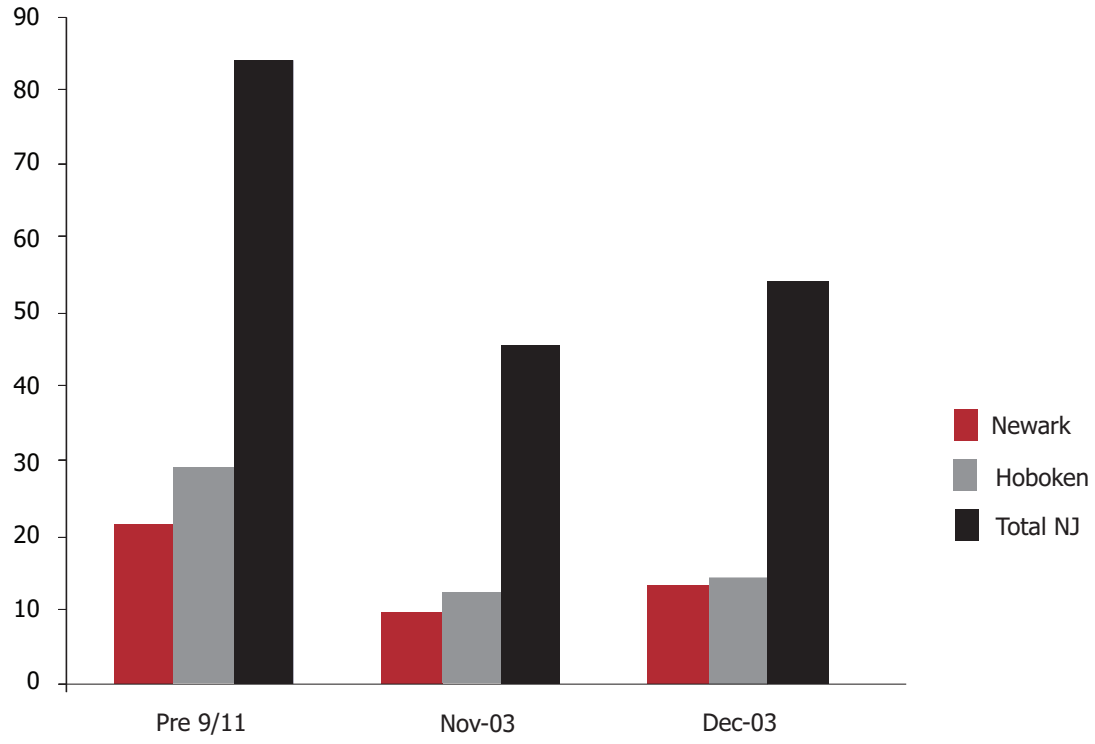
The restoration of PATH service to Lower Manhattan's temporary World Trade Center station barely caused a blip to NJ TRANSIT's PSNY ridership, a telling moment in the ongoing shift of ridership to Midtown Manhattan. NJ TRANSIT's a.m. peak ridership into PSNY dropped less than 3 percent (from 43,170 to 41,900) right after PATH WTC service was restored (see Figure 12), and by the Spring of 2005 had fully recovered to 43,600, augmented by the growing usage of the Secaucus Junction service. More significantly, PSNY's majority share of a.m. peak arrivals versus Newark and Hoboken was now permanent at 58 percent. Newark's pre-9/11 share of 24 percent had dropped to 19.3 percent; Hoboken's 31 percent share had fallen below 22 percent.

The long-term changes in destinations and travel patterns were also apparent on PATH. Its a.m. peak boardings in Newark were down a third (7,800 riders) from pre-9/11 levels; the loss in Hoboken was even more severe at 51 percent. (See Figure 13) Only 16 percent (2,000) of Hoboken's pre-9/11 PATH ridership returned with the restoration of WTC service, and few were M&E or Montclair-Boonton riders who had migrated to PSNY aboard the new and increased MidTOWN DIRECT services.

Further improvements in NEC service came in March 2004, when NJ TRANSIT opened the first phase of Morrisville Yard in Pennsylvania. The storage and service facility consists of 12 electrified tracks and allows for more efficient use of the NEC line and to accommodate future growth.

With the October 30, 2005 timetable change, NJ TRANSIT expanded the use of zone scheduling to provide outer zone passengers on the NEC line with a faster trip and middle zone passengers a better chance of getting a seat. The October 2005 schedule featured 12 outer zone trains scheduled to arrive at PSNY between 7:00 and 11:00 a.m. For outer zone passengers—starting at Trenton with stops in Hamilton and Princeton Junction stations—the improvement came in the form of more express service from Mercer County to Newark and New York.

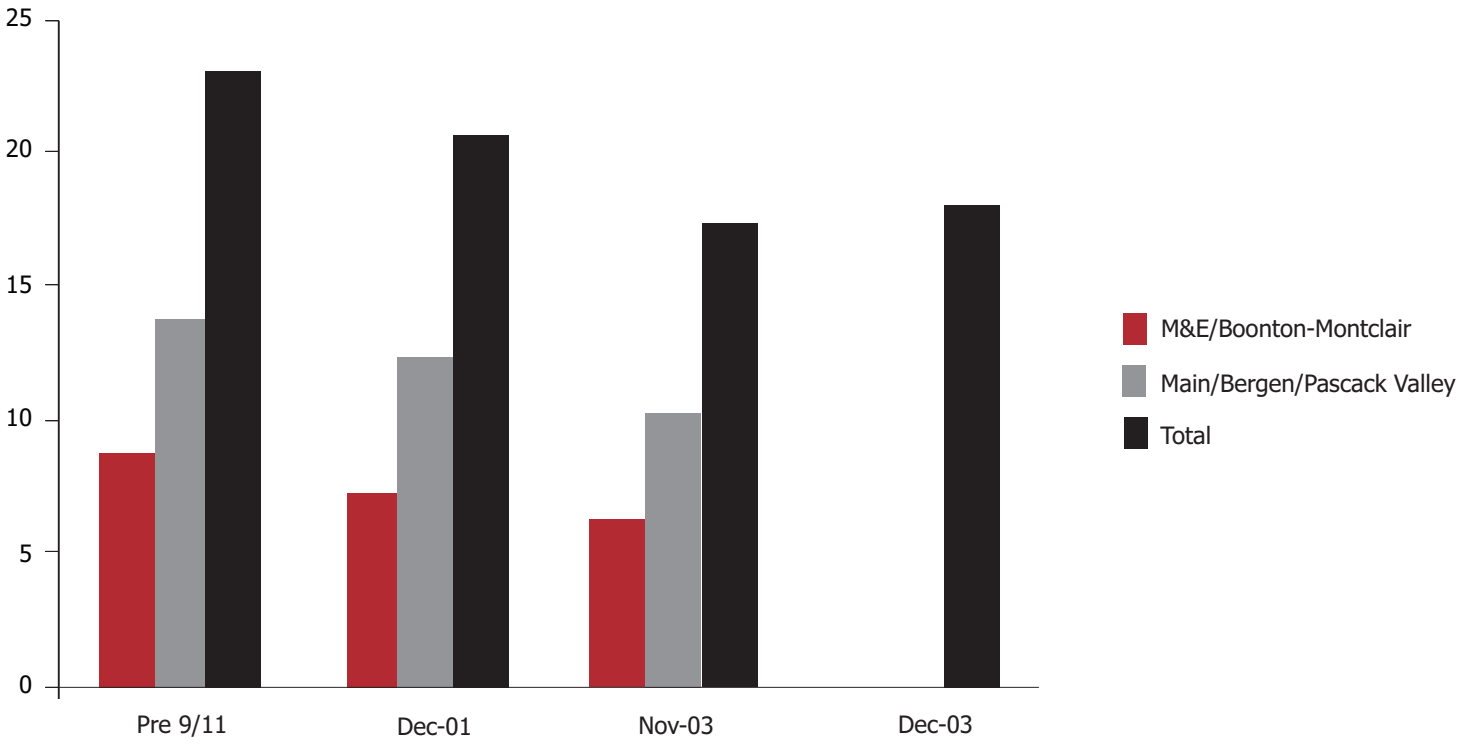
Figure 13. PATH AM Peak Period Entry Ridership: Hoboken & Newark



Part of that schedule change incorporated the final takeover of *Clocker* operations from Amtrak, enabling NJ TRANSIT to operate three additional morning express trains and four during the evening peak period between Trenton and New York. Each train offers 1,200 seats, as opposed to only 850 seats on Amtrak's *Clockers*, and stops at the burgeoning Hamilton station which the *Clockers* did not serve. This re-allocated the shares of the 23 a.m. peak hour "slots" between NJ TRANSIT and Amtrak to 20/3 or 21/2, depending on the hour. In addition, all NJ TRANSIT tickets are honored on the NJ TRANSIT trains; Amtrak had cross-honored only multi-trip tickets.

For middle zone passengers between Jersey Avenue and Metropark, the October 30, 2005 schedule change brought more peak-period service, including express runs to Newark and New York. This was accomplished through the addition of new trains, made available over time through the "fast turn" process at PSNY, whereby early trains can express back out to locations such as Jersey Avenue for another peak-period trip to New York. The number of express trains from Metropark arriving in PSNY between 6:25 and 11:04 a.m. has increased from 11 to 17 since 2002.

Figure 14. Hoboken Terminal NJT AM Peak Period Ridership



Future Capacity Challenges

Short-Term Improvements

NJ TRANSIT has long understood that demand for rail service to Midtown Manhattan will continue to increase, regardless of the limited capacity to access PSNY. The short-term investments have served the agency well, but NJ TRANSIT has become increasingly focused on what is needed in the long term to eliminate the bottleneck leading into PSNY and to meet projected demand increases.

NJ TRANSIT has aggressively been purchasing new rail equipment to pave the way for the corporation's new rail initiatives. As noted, NJ TRANSIT is already operating all of its 200 new Comet V cars, 29 ALP-46 high-horsepower electric locomotives and 33 high-horsepower diesel locomotives. Five of the diesel locomotives are intended specifically to address anticipated ridership growth associated with the diesel service on the Montclair-Boonton Line through Secaucus Junction and other planned projects.

NJ TRANSIT is taking steps to dramatically improve service for passengers on the Pascack Valley line to enable it to fulfill the increased ridership potential brought about by Secaucus Junction. The Pascack Valley line is the only service that has not seen an overall increase in ridership in recent years. With financial support from Metro-North Railroad, NJ TRANSIT currently offers weekday peak-period service to Hoboken Terminal through Secaucus Junction, but there is no off-peak, reverse direction or weekend service. The addition of four new passing sidings and signal upgrades will allow for off-peak, bi-directional and weekend service in the future, eliminating freight interference and transforming the Pascack Valley from a commuter-only line into a full-service passenger rail corridor to Hoboken and PSNY (via Secaucus) that can serve a variety of trip purposes. In addition, plans call for the construction of a new rail station at the Meadowland Sports Complex that would be linked to the Pascack Valley Line via a two-track extension; service is expected to begin in late 2008 or early 2009.

Through its procurement program, NJ TRANSIT is replacing equipment with new cars that also provide additional seating. The primary example is NJ TRANSIT's decision to order a new type of equipment – bi-level rail cars. These new coaches will provide 25 percent more seating than Comet V cars, yet are configured in a two-by-two seating arrangement, thereby eliminating the underutilized middle seat, as requested by NJ TRANSIT passengers. The bi-levels have been designed specifically for NJ TRANSIT so as to ensure that they can be used throughout the system, including through the Penn Station tunnel complex. As recent experience has demonstrated, the ability to reassign equipment from one line to another allows the agency to optimize its resources.

The cars will be configured as follows:

- 112 coach cars (without restrooms) with 146 seats
- 86 coach cars (with ADA accessible restrooms) with 141 seats
- 33 cab cars (with ADA accessible restrooms) with 139 seats

The cars also will provide passengers with the latest in amenities including push button doors, automated destination signs, automated station stop announcements and state-of-the-art heating and air conditioning systems.

The first order for 100 cars was funded by the Port Authority of NY & NJ and are expected to enter service late in 2006 on the Northeast Corridor. An additional 134 rail cars are to be purchased for use on the North Jersey Coast, Main/Bergen, Montclair-Boonton, and Raritan Valley lines.

Long-Term Improvements

The NEC improvements that have already been completed—installation of the High Density Signal system, East End Concourse, and traction power upgrade as well as the purchase of bi-level coaches—are viewed by NJ TRANSIT only as initial steps toward its long-term goal of increasing the system's capacity to bring riders into PSNY. To meet the long-term mobility needs of the region, NJ TRANSIT seeks to implement far more ambitious capacity enhancements. As described below, a primary goal in addressing the region's future mobility needs lies in the agency's ability to adequately serve demand for commuter trips to Midtown Manhattan. Achievement of that goal is constrained by the largely two-track infrastructure between Newark and PSNY and the pair of 100-year-old tunnels under the Hudson River.

Since 1994, NJ TRANSIT has been advancing the Access to the Region's Core program to create additional capacity to Midtown Manhattan through the building of a new trans-Hudson River rail tunnel and new station proximate to the existing PSNY. Now in the preliminary engineering stage, the Trans-Hudson Express Tunnel (THE Tunnel) is expected to provide that capacity relief.

As an interim step, NJ TRANSIT is working on three short-term projects that are designed to squeeze more out of the existing system. They include:

- **PSNY Yard Storage**–NJ TRANSIT is exploring the use of Amtrak's Empire Line or an expansion of E Yard within Penn Station to provide additional train storage. This would improve the reliability of moving trains between the platform tracks and the yard which, in turn, would reduce station dwell time for each train and improve the overall capacity of the station for handling trains.
- **West End Concourse Extension**–This project would extend the West End Concourse, located just west of Eighth Avenue to serve all PSNY platforms. The concourse currently serves only Platforms 7 and above, but would be extended to serve Platforms 3 through 6 as part of the redevelopment of the Farley Post Office. NJ TRANSIT proposes to extend it farther to serve Platforms 1 and 2, providing additional access and egress for NJ TRANSIT passengers. Advanced conceptual engineering is currently underway to determine how to provide direct connections from these platforms to the proposed Moynihan Station in the Farley building.
- **Eastward Extension of PSNY Tracks 1-4 and Platforms 1 and 2**–This project involves extending these tracks and platforms eastward to accommodate 11- to 12-car trains. Currently, these four tracks, used exclusively by NJ TRANSIT, are constrained because Tracks 1 and 2 can handle only eight-car trains, while Tracks 3 and 4 can accommodate only nine-car trains. The extension would allow NJ TRANSIT to offer more seats (through longer trains), since the same number of trains would be able to operate into PSNY with the same dwell time. This could also help reduce eastbound train queues approaching PSNY, since more platform options would be available to full-length trains.

Beyond these interim improvements, only a new trans-Hudson rail tunnel can provide the long-term capacity relief necessary to accommodate projected passenger demand. THE Tunnel project consists of a new pair of single-track tunnels from east of Secaucus Junction under the Palisades and Hudson River that would run parallel to the existing pair of Hudson River tunnels. In addition, a new passenger station would be built under 34th Street between Eighth Avenue and the Avenue of the Americas with the capacity to accommodate eight tracks.THE Tunnel would immediately double the capacity of NJ TRANSIT's commuter rail service into midtown Manhattan by offering additional tracks, platforms and storage capacity to meet passenger demand for 2015 and beyond. The existing two-track bottleneck between Secaucus and PSNY would be eliminated, allowing for more service on the NEC and its feeder lines. A new storage facility would be constructed in Kearny to handle an expanded fleet.

One of the major benefits of THE Tunnel would be greater availability of one-seat ride service to New York aboard trains that now terminate in Newark or Hoboken. These lines include the Raritan Valley, Main/Bergen, Port Jervis and Pascack Valley, as well as the Boonton and North Jersey Coast Line south of Long Branch. One of these improvements would be a new loop track at Secaucus Junction connecting the Main/Bergen, Port Jervis and Pascack Valley lines directly onto the Northeast Corridor that would allow NJ TRANSIT to offer one-seat ride service to Manhattan from lines limited today to diesel operations. For this service and other diesel lines, new dual-mode locomotive technologies are being explored that would allow trains to operate under diesel power on non-electrified lines and then switch over to AC electric, drawing power off catenary lines through a pantograph, when running through the Penn Station tunnel complex where diesel operations are not permitted.

Another critical NEC improvement planned in conjunction with THE Tunnel is the replacement of Portal Bridge, which carries the Northeast Corridor over the Hackensack River just west of Secaucus Junction. Owned and operated by Amtrak, the existing two-track span serves as a bottleneck that constrains capacity, is required to swing open periodically to accommodate marine traffic and has experienced mechanical breakdowns. NJ TRANSIT, in partnership with the Federal Railroad Administration, the Federal Transit Administration and Amtrak, has begun preliminary environmental and engineering work.

Conclusion

The events of 9/11 had a substantial and lasting effect on the ridership at NJ TRANSIT's primary terminals at PSNY, Newark and Hoboken, accelerating an ongoing shift in travel from Lower to Midtown Manhattan. These changes took place during a period of significant capital investment in the rail system by NJ TRANSIT. Some of those on-going investments in infrastructure and rolling stock proved essential in allowing NJ TRANSIT to react to changed travel patterns and dramatically expand its seating capacity into PSNY after 9/11. NJ TRANSIT's willingness to try many operational changes enabled it to squeeze even more capacity out of the system.

With success breeds challenges and in the future, the largest challenge will be keeping up with projected ridership demand for peak-period trips to Midtown Manhattan. NJ TRANSIT's rail system has experienced substantial ridership growth in recent years and the number of passengers is projected to grow substantially by 2025. Daily trans-Hudson trips by all modes between New Jersey and New York is expected to grow over 27 percent between 2005 and 2025, from 550,000 to 700,000. By virtue of THE Tunnel project, NJ TRANSIT rail service into Midtown Manhattan would capture the lion's share of the growth—of the 150,000 new trips, 100,000 would be aboard NJ TRANSIT trains serving PSNY and a new station built under 34th Street.

Only a new rail tunnel under the Hudson River to supplement the existing 100-year old tunnels and a new passenger facility in Midtown Manhattan can truly offer that capacity relief. Such an improvement would double NJ TRANSIT's capacity to bring passengers into PSNY from points around New Jersey. THE Tunnel is a major step that will, when combined with other recent and planned capital investments, ready New Jersey's transportation system for the next 100 years.

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