

PLAN 2035

Appendix D

Transit Investment Analysis

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

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Appendix D: Transit Investment Analysis

Introduction

The northern New Jersey transit network, consisting of rail, bus and ferry facilities, provides a fast and reliable means of moving nearly 1 million travelers each weekday. In doing so it adds a level of flexibility and redundancy to the transportation system that is matched by only a handful of other metropolitan regions across the nation. It is responsible for diverting hundreds of thousands of trips each day from the region's congested highway networks, safeguarding the region's air quality, reducing greenhouse gas emissions, providing essential travel to the disabled and those without cars and contributing to the quality of life enjoyed by the region's residents.

While historically the rail system focused on serving Manhattan-bound commuters, increasingly it is providing travel options for reaching destinations within the state like the Jersey Shore, downtown Newark and Hudson River Waterfront. The region's bus network, which serves two-thirds of transit passengers, provides an effective circulation system for communities especially in urbanized areas as well as serving long-distance commutes from many locations. The bus and rail transit network is supplemented and supported by a host of other services and facilities – commuter ferries, community shuttle buses, park-and-ride lots, employer-sponsored vanpools, subscription buses, among them.

Major projects are improving the transit network. The Access to the Region's Core (ARC) Hudson River rail tunnel now being constructed will create opportunities for improved Manhattan commuting as well as making possible rail expansions that can serve other destinations as well. Over the past few years, other key projects have been completed or commenced -- a rail spur to the Meadowlands sports complex, extension of the Hudson Bergen Light Rail Transit system to 8th Street in Bayonne, an innovative "GoBus" bus line providing enhanced service in Newark and Irvington, the introduction of bi-level rail cars for added capacity, purchase of new easy-to-board low-floor buses, among a host of others. These improvements have been matched by complimentary system upgrades, including new parking decks, upgraded stations, new fare collection systems, improvement of maintenance facilities and others.

The thrust of these improvements has been to make transit more competitive with auto travel in terms of speed, convenience, price and reliability-- especially for work commutes. They have bolstered economic development in forms and locations that are sustainable and environmentally sound -- including reviving business districts around bus and rail terminals.

The NJTPA has made support for and enhancement of the transit system among its highest priorities. Nearly half of all available federal transportation funding each year is allocated to the transit system. Plan 2035 calls for strategic investments that will make transit a viable travel alternative for a greater share of residents over the next two decades.

Yet the transit system faces difficult challenges in maintaining a state of good repair and expanding its service to the region. Over the past two decades, government capital and operating support for transit services has remained flat even as demand for services has grown, forcing periodic fare hikes and limiting service expansion. Meanwhile population has continued to shift to suburban areas where low densities makes attracting riders and creating cost effective operations difficult. Recently, the recession has taken its toll, reducing ridership – and revenues -- after record increases in recent years. Even as the economy improves over the long term, the system will have to adapt to new and changing demographics and travel demands.

This appendix surveys these and other issues well as specific strategies and projects that will be pursued over the next 25 years. Tables at the end of the appendix provide the status of transit projects and project concepts at various stages of development. The main body of Regional Transportation Plan 2035 draws upon and incorporates the data, analyses and recommendations presented in this appendix.

Transit System

The region's transit system includes:

- Eleven commuter rail lines and two light rail lines operated by NJ Transit
- A NJ Transit bus network of 242 bus routes -- of those 175 are operated directly by NJ Transit and 67 are contracted out to private carriers.
- Approximately 60 additional local and commuter bus routes operated independently by private carriers.
- Numerous local shuttles run by either TMAs or counties. A number of municipalities also run their own shuttles.
- The 14-mile PATH commuter rail service connecting Newark, Harrison, Kearny, Hoboken and Jersey City with Lower and Midtown Manhattan.
- Over 79,000 park-and-ride spaces serving the region's commuter rail stations, bus lines and ridesharing facilities.
- Three ferry operators that run 20 passenger ferry routes linking New Jersey with New York City out of 17 facilities.

Trends & Forecasts

The last two decades has seen a renaissance of transit use in the region. Bus and rail ridership grew 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. The growth was driven by a strong metropolitan economy together with new transit services and facilities – including Midtown Direct services on the Morris & Essex and Montclair-Boonton lines, the Secaucus Junction station, light rail lines in Newark and Hudson/Bergen counties, among others.

Despite this robust growth, transit accounts for a relatively small share of overall travel. According to US Census data from 2007, 11 percent of commuters in the NJTPA region travel to work by transit, while eighty-two percent of commuters travel to work by car. Among those traveling by car, 73 percent drive alone and 9 percent carpool with at least one other occupant. However, in some urbanized locations transit captures large shares of commuters. In Hudson County 38 of residents use transit to get to work. That figure rises to 45 percent in Jersey City. In Newark it is 21 percent, nearly double the regional average. For commutations to Manhattan, transit is the dominant mode: 80 percent of northern New Jersey residents who work in the Manhattan Central Business District (from south of 59th Street to the Battery) commute by transit.

The years 2007-2008 were a turning point for transit use. Rapidly rising fuel prices led transit ridership to climb to record levels. During the last quarter of calendar year 2007, average weekday passenger trips for the first time rose above 900,000. In spring 2008 these trips climbed still more to 950,000. Weekend trips set a record at 753,000. Later in the year, however, weakening economic conditions and a fall back in gasoline prices, began to reverse the gains. By January and February of 2009, ridership was down by about 3.5 percent from the same time a year earlier and continuing to decline.

While the timing of an economic recovery is highly uncertain, Plan 2035 foresees a positive long term future for regional transit, with the network capturing an increasing share of regional trips over the next 25 years. The demand for transit will grow with the expected increases population and the likelihood of environmental and energy constraints on expanded auto use, among other factors. The region's transit system will be poised to respond to and capture the future demand given the extensive transit infrastructure already in place as well as planned improvements coming on line, such as the Hudson River ARC tunnel. However, fully realizing the potential for transit ridership growth will depend in large part on decisions made by public officials throughout the region and state to support the transit system -- in particular by shaping land use to make possible cost effective transit services and providing adequate financing for transit capital and operating needs. These issues are discussed in further detail below.

Scenario modeling conducted for Plan 2035 has indicated the possible range of future transit ridership growth. In the Baseline scenario, which models a continuation of recent funding trends, transit ridership is expected to increase 42 percent over the next 25 years. This substantial increase is in large part due to the expanded services made possible by the new ARC tunnel and related system upgrades – including increasing trains crossing the Hudson from 23 per hour to 48 per hour in peak periods. Under the Plan 2035 scenario, which is the vision of the future that underpins Plan 2035 and includes modest funding increases and land use changes, transit trips increase at about the same rate as under the baseline scenario, again reflecting the influence of ARC. However, under this scenario there will be more funding for qualitative improvements to the transit system as well as \$100 million per year in federal funding available to apply to additional system expansions after the completion of ARC. Under the Aspirational scenario, which models substantial funding increases supporting expanded transit services and more extensive Smart Growth land use changes, transit ridership is seen as growing 60 percent by 2035.

Appendix D: Transit Investment Analysis

Transit Supporting Land Use

In “Visioning” workshops conducted throughout the region in fall 2008 for Plan 2035, participants nearly universally expressed a desire for increased transit -- particularly rail services -- for their areas. Many recognized the benefits of expanded transit, not only in providing travel alternatives for commuting but in relieving traffic congestion plaguing the region, reducing greenhouse gas emissions, and supporting social goals.

Yet in considering changes in land use to make possible expansion of transit there was often disagreement. Participants at the workshops were asked to consider clustering buildings, promoting mixed use development and focusing development in forms and locations that will provide easy access to rail and bus transit -- called Transit Oriented Development (TOD). Many towns in the region have adopted these measures and taken part in NJ DOT's Transit Village Program. But especially in suburban and rural areas, some residents -- as expressed at the Visioning workshops -- are concerned that adopting denser patterns of development will change the characters of their communities. Yet, despite these differences, the discussion did not have a polarizing impact by drawing sharp contrasts between densities. Also discussed were examples of good planning where open space is preserved and development is clustered such that people have an improved quality of life without feeling that areas outside the older, more densely developed places are being overdeveloped.

Recognizing these concerns as well as the need to avoid drastic changes without community consent, Plan 2035 nevertheless calls for continuing efforts to encourage transit supporting land use changes wherever possible. While there is little doubt that autos will remain the primary means of mobility for the vast majority of the region's residents, failure to make transit a travel option in a greater number of places will leave the region unprepared to meet future challenges. In particular, as energy costs increase over the long term -- only the timing of the increase and the mitigating impacts of technology are in doubt -- the region will be more vulnerable to the kind of serious economic dislocations experienced during the run-up of gasoline prices in 2008. In addition, channeling expanded population into auto-oriented sprawl development, as was done in the past, will overburden roads in a wider area of the region and impose further damage to the state's environment as well as contributing to climate change. Well-planned expansions to the transit system over the long term can help avert these threats but land use measures to support the transit system must begin in the near term.

Therefore Plan 2035 calls for elected officials to work closely with residents and the private sector to identify and pursue opportunities for transit supporting land uses. Chapter 7 of Plan 2035 discusses many of the policies the NJTPA will pursue in its own planning. Among the key approaches that must be adopted throughout the region include:

Appendix D: Transit Investment Analysis

- Using master plans to align land use plans and zoning regulations with transit investments and services.
- Designing new development with transit in mind, including clustering buildings and developing access networks that favor transit and ridesharing.
- Identifying and preserving future transit right-of-ways, not only for rail but for bus stops, stations, dedicated bus ways, etc.
- Reorienting and adapting major employment and retailing clusters to make them more accessible by transit.
- Limiting parking or imposing parking fees – or conversely providing Transitchek or other incentives for transit use.
- Adopting a “complete streets” approach that encourages walking, bicycling, transit use by all users, including children, seniors, and disabled.
- Integrating transit into the design of infrastructure projects including bus stops and lanes.

Without serious efforts to realize these and other land use approaches, many of the expansions to the transit system proposed and desired by residents will not be viable. Expansions to the rail network in particular are extraordinarily expensive. In order for a proposed rail expansion project to compete for limited federal funding it must meet stringent standards for cost effectiveness, including demonstrating a strong ridership base. Transit supporting land use around stations and along routes is a key to generating ridership levels needed to make transit projects competitive.

As indicated later in this appendix, NJ Transit is planning a variety of rail expansions in the region over the long term. However, the agency’s success in pursuing the projects and its speed in implementing them fully will be very much determined by the willingness of affected communities to “lay the groundwork” with transit supporting land use changes. The same groundwork must be laid to support creating new park and rides, bus routes and the Bus Rapid Transit systems as well as to implementing more frequent service on existing rail line and bus routes. In sum, proposals for transit expansion must be accompanied by commitments to create transit supporting land uses in communities throughout the region.

Financing Limits

The NJTPA supports a long term vision of the development of the transit network. However, financing for both operating and capital costs is a central constraint on how and when elements of the vision can be achieved. These constraints are discussed in the context of overall transportation funding in Chapter X of the plan.

NJ Transit is one of the most efficiently operated public transit agencies nationwide, supporting nearly 50 percent of its day-to-day operating costs through fares and other revenues. The rest is made up by yearly appropriations from the state and federal governments. This subsidy is based on a recognition that encouraging transit ridership is an effective means to achieve a host of social, economic and environmental benefits. The subsidies keep fares at reasonable levels and make transit competitive with auto travel for many types of trips.

Additional smaller sources of operating revenue supplement NJ Transit operating expenses, usually on a route-by-route level. That is, some counties contribute a small local match for specific NJ Transit routes; some private employers such as United Parcel Service contribute funds to operate a specific NJT bus or shuttle route to their facilities; and grants from state or federal programs (such as Job Access and Reverse Commute and Temporary Assistance for Needy Families) support some services.

To continue the benefits of transit, elected officials at the state and federal level must address a growing funding shortfall faced by the transit sector. To help close the funding gap, NJ Transit raised fares in June 2007 by an average of 9.6 percent. A prior fare increase in 2005 had raised fares by an average of 10 percent (fares had also risen in 2002, but in the previous ten years had remained stable). These increases have still left a shortfall in operating funds. NJ Transit has been forced to divert funds from its capital funding to support operations -- a practice that detracts from the agency's ability to meet capital needs for maintaining and improving the transit infrastructure and vehicles.

Action by elected officials to bolster funding for transit will address other problems. Continual cost-cutting, for instance, leaves the agency with fewer staff and other resources to meet the needs of its growing customer base. It also limits its ability to expand services including new bus routes and rail lines that impose additional operating expenses especially during start-up periods. Uncertainty about the level of appropriations to be received for operations each year prevents NJ Transit from efficiently budgeting the funding it does receive.

Aside from concerns about operating funds, the agency must consider the often monumental capital costs involved in pursuing system expansions, particularly on the rail network, as touched on previously. Funding for major rail expansions in most cases requires gaining Full Funding Grant Agreements (FFGA's) from the Federal Transit Administration. Obtaining FFGA's is highly competitive, with hundreds of proposals across the country vying for funding. FTA requires extensive studies to demonstrate that proposed rail lines can meet high standards of cost effectiveness, including attracting sufficient riders to justify operating costs. The federal grants typically cover only half of project costs with the remainder to be matched by state and other sources.

Commitments of scarce funding to such proposed expansions must be balanced against other capital funding needs. In particular, NJ Transit faces mounting costs -- which now consume more than half available capital funds -- to maintain its existing system. It must also provide service and facility upgrades on this core system to keep pace with growing

Appendix D: Transit Investment Analysis

demand. Added spending is required to comply with a host of mandates, notably addressing concerns for improved security and upgrading facilities to comply with the Americans with Disabilities Act. In sum, decisions about future transit services in the region must be made with primary concern for NJ Transit's financial "bottom-line" -- that is, its ability to sustain and grow its "business" in line with available finances.

To address the funding needs of transit, Plan 2035 recommends that the New Jersey Legislature, in renewing the state Transportation Trust Fund, provide both capital and operating support for NJ Transit sufficient to meet current and future needs. The legislature should also create a stable funding mechanism for transit operations. At the federal level, in deliberations on the pending reauthorization of SAFETEA-LU, the nation's principle transportation law, Congress must support the nation's transit network with additional funding and more flexibility among funding categories.

While the funding challenges are great, elected officials in congress and the state legislature have the authority and tools available to fully address the funding needs. Repeatedly in the past they have acted to provide needed funding for the transit network. With renewal of both the federal and state Trust Funds pending, the NJTPA is fully confident that, recognizing the pressing needs before them, elected officials take reasonable steps to ensure adequate financing.

One financing approach that warrants broader public debate is addressing the cost advantages enjoyed by drivers for many trips as a result of "hidden" subsidies like free parking and restraints on taxes and fees supporting auto use. Making transit use more competitive with driving by incrementally raising some costs associated with driving may be worthy of consideration. It could both boost transit ridership and provide a source of funding for transit operations. Another approach worthy of consideration is allocating to transit a share of funds raised through climate change and energy initiatives – such as cap and trade programs – based on the transit sector's positive contributions to the environment. Chapter 8 of Plan 2035 summarizes funding options for the future. No funding mechanism will be without public controversy. But given the widespread desire for expanded public transit in northern New Jersey –as expressed at the NJTPA's Visioning workshops – funding proposals that make clear the specific expanded services and benefits to be realized may have a reasonable chance of garnering public support.

Plan 2035 Transit Initiatives

Within the context of financial and land use constraints discussed above, over the life of Plan 2035 NJ Transit and other transit providers in the region can be expected to respond to many of the needs and desires of communities throughout the region for improved and expanded transit services. As the MPO for its region, the NJTPA can help identify these priorities, analyze emerging needs and set directions for future investments. In all cases investments must be carefully targeted to the most cost effective strategies. This will require careful study, implementation in step with demands and use of creative approaches and technologies.

The major transit initiatives and strategies that will be pursued over the next 20 years are summarized below – state of good repair, ARC tunnel, rail system, Amtrak, the PATH system, the bus system, bus rapid transit, private carrier buses and system access and connectivity.

State of Good Repair

As discussed in chapter 4 of Plan 2035, NJ Transit spends the majority of its capital funding each year for preservation and maintenance. This includes replacing vehicles as they age as well as attending to 600 rail bridges, over 500 miles of track, signal systems, stations and other infrastructure -- the large majority in the northern New Jersey region. With this investment, delays due to breakdowns and system failures are held to a minimum.

Elements of the rail system that must be maintained include:

- Track – Upgrading and replacement of rail, ties, switches and grade crossings must occur as part of a continuous program. NJ Transit replaces 10 miles of track every year.
- Structures – In addition to inspecting and maintaining 600 bridges, the agency must attend to a large number of other structures such as culverts.
- Electric Traction – Overhead catenary wire and power substations must be maintained.
- Signaling – Maintenance and upgrades are required for grade crossing warning systems, train operation signals, switching and interlocking signal devices and the communication backbone
- Rolling Stock – The useful life of rail equipment can exceed 25 years if properly maintained and overhauled. Currently, NJ Transit must replace self-propelled cars over 30 years old and aging diesel locomotives.
- Stations – A number of NJ Transit’s train stations need improvement including providing accessibility for individuals with disabilities.

NJ Transit must maintain its fleet buses in good operating condition.

- Rolling Stock – NJ Transit is replacing many of its buses including the ongoing purchase of 1,145 transit-style buses (approximately 200 buses per year over six years).
- Equipment Overhaul – The useful life of buses can exceed 12 years, if properly maintained and overhauled.
- New Minibus Equipment – Smaller buses are being purchased for the Access Link Para-Transit service
- Private Carrier Improvement Program – NJ Transit has provided private carriers over 500 cruiser buses as part of cruiser bus procurement. Private carriers also receive funding for rehabilitation of vehicles, facility improvements, and vehicle purchases.

- Environmental Friendly Bus Purchases – New buses being purchased are designed to reduce emissions through use of compressed natural gas, ultra-low sulfur fuel or hybrid-electric power plants.
- Passenger Facilities, Bus Terminals and Shelters – NJ Transit must maintain and rehabilitate a large number of bus passenger facilities
- Park-Ride Locations – Numerous park-and-ride facilities at bus stops must be kept in safe condition including attending to lighting, pavement and shelters.

In addition these purely maintenance needs, there is an ongoing need to address “core system capacity needs.” These involve upgrading and improving rail lines to address capacity, reliability and other shortfalls. These needs exist with or without the ARC tunnel. On the bus side, these needs include expanding garage space and places to stage buses for the evening rush hours.

Looking towards the future, investment in information technology will improve the system’s efficiency and improve the passenger travel experience. Better and more integrated information about transit and highway delays or service disruptions, along with multi-modal fare integration, will allow transit riders to make informed decisions about their trips and to move seamlessly between the many options available in the region.

In recent years, NJ Transit has attended to all these needs to maintain a state of good repair for the region’s extensive transit network. However, as discussed above, funding constraints must be addressed.

Access to the Region’s Core (ARC) Tunnel

The Access to the Region's Core (ARC) project involves building two new state-of-the-art single-track tunnels under the Hudson River. Supporting the tunnel will be a new rail station adjacent to Penn Station New York under 34th Street. Improvements in New Jersey include new track along the Northeast Corridor and a connection to existing rail lines serving residents of Bergen, Rockland and Orange counties, resulting in a one-seat ride to New York for the first time. Raritan Valley Line customers would also benefit from a one-seat ride.

The NJTPA has made completion of the ARC tunnel the highest long range transit priority. The final cost of the tunnel is projected to be \$8.7 billion. Together with \$3 billion in funding from the federal government, contributions will include \$3 billion from the Port Authority and \$1.25 from the NJ Turnpike. In addition, in May, 2007, the NJTPA Board of Trustees approved a resolution to reallocate \$1 billion over 10 years (2008-2017) to the ARC Tunnel. This would be accomplished by flexing federal highway dollars to the transit portion of the TIP. An equal amount of state transportation funds would be allocated to NJDOT from NJ Transit. . In January 2009 the Federal Transit Administration (FTA) issued a Record of Decision (ROD) that determined that the requirements of the National Environmental Policy Act of 1969 (NEPA) have been satisfied. A groundbreaking was held in June 2009.

Appendix D: Transit Investment Analysis

The ARC will relieve a significant choke point in the regional rail system. Currently, NJ Transit provides 44 million passenger trips annually to Penn Station New York, a 150-percent increase in just the last 10 years. This brings the existing rail infrastructure to capacity during peak hours. Without the tunnel, it is doubtful the rail system could accommodate the growth of rail passenger demand over the next two decades. It will provide the capacity necessary to meet future trans-Hudson demand and to accommodate the various proposed rail expansions.

Strategic Commuter Rail Expansions

Expansion of the region's rail network is a key long term goal. Several projects have been completed in recent years (see Table 1 at the end of this chapter). In addition, three projects – the ARC tunnel, the Lackawanna Cutoff to Andover and the Passaic-Bergen NYS&W Project – have been approved for funding as part of the fiscally constrained portion of this transportation plan (Table 2). Several other projects are now undergoing various levels of planning and environmental analysis as possible candidates for future funding (Table 3). These include:

- Northern Branch Light Rail or Commuter Rail to Bergen County
- Monmouth-Ocean-Middlesex Rail Line
- West Trenton Line
- Lackawanna Cutoff (to Scranton). (It should be noted, however, that beyond the extension to Andover as the Minimum Operating Segment, or MOS, undertaking extension further west towards Scranton will depend on capital and operating support from Pennsylvania and its counties.)
- Extension of Raritan Valley Line or Morris & Essex Line to Phillipsburg (It should also be noted that NJ Transit anticipates initiating an assessment of the technical feasibility of extending the RVL west of the Delaware River to Allentown, in cooperation with the Lehigh Valley MPO. This will be a multi-jurisdictional effort.)

These future candidate projects include building entirely new rail lines, extending existing rail lines and adding passenger trains on existing freight lines. The proposals involve both commuter rail and light rail technologies and extend across the NJTPA region. The projects are at various stages of preparation, including a number that are undergoing environmental analyses required for federal funding. Additional studies of transit needs and project concepts (both rail and bus) identified by the NJTPA subregions and various agencies (including NJ Transit) are listed in Table 4 as considerations for the future.

This very ambitious agenda of projects will confront continuing funding limits. As indicated in the financing section of this plan (chapter 8), the Plan 2035 Scenario targets 9 percent of available funds over 25 years, totaling \$12.98 billion, for transit expansion. Of this amount \$8.7 billion will be allocated to ARC. Following the completion of the ARC tunnel in 2019, the scenario foresees an average \$100 million per year in federal

Appendix D: Transit Investment Analysis

Full Funding Grant Agreements for transit expansion projects, totaling \$1.6 billion through 2035. An additional \$2.4 billion in funding is expected to be available from state and other non-federal sources. This funding can be used towards the estimated \$400 million needed for new train equipment to support services using ARC as well as matching federal grants needed to implement segments of the expansion proposals listed in Table 3 (and likely some of the proposals in Table 4).

While much can be accomplished with the anticipated funding, the high cost of transit expansions means some choices and compromises must be made. This is reflected in the NJTPA's Regional Investment Strategy (see plan addendum) which states that the region should "Expand the system in measured steps based on the ability to attract new riders and achieve cost-effective operations." In practice this will mean that all proposals must undergo careful scrutiny and study -- both as part of federally required environmental review process as well as supplemental investigations.

In studying proposals, consideration must be also given to limiting costs through phased implementation. This might involve constructing segments that stand the greatest prospect of attracting riders and serving regional needs while leaving other segments for future consideration based on the performance of the initial investment and additional funding opportunities. The studies should also look at technologies and configurations that can lessen costs, such as the use of DMU's. The studies can also consider Bus Rapid Transit, as described later in this appendix, as an alternative to light rail in some locations.

The result of these studies will be locally preferred alternatives that can be submitted for funding to FTA and advanced through the NJTPA TIP. Such locally preferred alternatives must meet FTA eligibility requirements for the "New Starts" program (or "Small Starts" program for bus systems); be physically and operationally feasible; shown to generate sufficient ridership and revenue; and result in projected public benefits that will exceed the capital and operating costs. Because of their complexity and the need to undertake extensive transit and environmental planning studies, then do preliminary engineering and then design, rail projects typically take many years to advance to an implementation stage.

In general, the NJTPA expects that at least initial operating segments of all the rail proposals listed in Table 3, if found justified and feasible through detail study, can be accomplished within the next twenty five years. The extent and timing of implementation will depend not only on funding but, as discussed previously, progress in realizing transit supporting land use in communities throughout the region

PATH system

The PATH system, operated by the Port Authority of New York & New Jersey, serves 250,000 riders each weekday and 75 million passengers each year, traveling on 4 lines serving midtown and downtown Manhattan, Hoboken, Jersey City, Harrison and Newark.

Appendix D: Transit Investment Analysis

A \$3 billion, 10-year plan to modernize the PATH system is underway. The entire 340 fleet of subway-type rail cars is being replaced. In addition the plan will create a new World Trade Center Transportation Hub, longer platforms on the Newark to World Trade Center line, better signals, an improved public address system and a major upgrade to the Harrison station. The plan will accommodate 20 percent more riders between New Jersey and Manhattan. Over the long term additional upgrades to lines serving the midtown market will be needed.

Amtrak Inter-City Rail Improvements

The Northeast Corridor Rail Line (NEC) between Trenton and New York is a vital transportation link serving more than 84 thousand New Jersey commuters each working day. Amtrak owns and operates this portion of the system that connects Boston and Washington, D.C., with station stops in New Jersey at Newark Penn Station, Metro Park/Metuchen, Princeton Junction, and Trenton. Amtrak operates 53 trains on this line and is responsible for the dispatch of all trains on the NEC including a total of 298 over the NEC for NJ Transit. Infrastructure facilities along the NEC's 57.6 miles in New Jersey are maintained by Amtrak with the support of NJ Transit, the main user of the rail line.

The Federal Railroad Administration has declared a top speed goal of 150 mph between Washington D.C. and New York along the Northeast Corridor. Previous capital improvements and maintenance have increased speeds, but significant investment is required to achieve this goal. These investments will also improve service and reliability for NJ Transit customers traveling on the Northeast Corridor, and are important to fully taking advantage of the capacity created by the ARC Tunnel.

The capital projects needed to achieve higher speeds and a D.C. to NYC trip time of 2.5 hours are estimated at \$625 million. The speed limiting factors include the condition of catenary wires, and older track, some of which has wooden ties. Additionally, equipment improvements are required to allow the high speed Acela trains to operate on highly canted track, as well as wayside and onboard safety controls that ensure that trains keep a proper distance from each other.

While the 2.5 hours goal is attainable with the \$625 million in investment, significant bottlenecks on the Northeast Corridor can only be alleviated through the replacement of additional aging infrastructure. Some of the bridges on the NEC are 99 years old.

Replacement of one major aging bridge, the Portal Bridge, is pending. A 2-track swing bridge built in 1910, the Portal Bridge is a bottleneck along the Northeast Corridor whose openings for marine traffic and periodic mechanical failures have caused rail service disruptions over many years. It will be replaced with a three track bridge, upriver of the current Portal Bridge for use by current and future Northeast Corridor trains into the current Penn Station, NY, as well as a two track bridge, downriver of the current Portal Bridge for use by future trains seeking access to the new 34th Street Station that is part of ARC. The EIS and Record of Decision were issued in December 2008. Final Preliminary

Appendix D: Transit Investment Analysis

Engineering will be completed in July 2009. Construction is expected to begin in 2010. The total project is estimated at \$1.5 billion in 2008 dollars, as per FEIS.

Other bridges along the Amtrak's Northeast corridor require upgrades, including structural component replacement, and ongoing maintenance. Funding from Congress to address these and other needs are vital to assuring safe and reliable travel on the economically vital corridor.

Bus System Improvements and Expansions

Bus service in northern New Jersey is the backbone of mass transit in the region, accounting for two-thirds of NJ Transit ridership in the region. The current bus system consists of 242 bus routes that serve the state's local, and regional travel needs including, trips for work, education, shopping or other purposes. On the average weekday in FY 2008, over 110,000 travelers rode local NJ Transit buses in northern New Jersey, while 96,000 rode NJ Transit interstate commuter buses to places like New York's Port Authority or George Washington Bridge Bus Terminals and another 16,000 people rode the agency's commuter buses to places within New Jersey like Newark or Hudson County.

Complementing NJ Transit service, NJ Transit contracts out 67 bus and shuttle routes to private operators. There are other private carrier bus routes that run independently of NJ TRANSIT throughout the NJTPA region. In addition, Transportation Management Associations (TMAs) provide shuttle buses, subscription buses and other supporting services. Private carrier buses and TMA services are discussed later in this appendix.

In general, bus transit is less expensive to operate and more flexible than new rail lines in addressing transit needs especially in suburban areas with a dispersed development pattern or any market where it is not easy to walk to or from a train station. Buses also provide essential mobility to transit dependent populations including low income residents, the disabled and the elderly. Despite the importance of the bus system, the speed, reliability, and convenience of bus travel suffers due to the growing road congestion in many locations.

To help address these issues – and to foster a more positive image of bus travel -- various strategies and improvements will be pursued by NJTPA, NJ Transit and its other member agencies over the next 25 years. Laying the groundwork for these efforts, NJTPA and NJ Transit have cooperated on a number of recent and ongoing studies of the bus system in these region. These include:

- I-78 Corridor Transit Study
- Newark-Elizabeth Bus Study
- Northwest New Jersey Bus Study
- Jersey City Bus Study
- Northeast New Jersey Metro Mobility Study (formerly known as the Bergen-Passaic Bus Study)

Appendix D: Transit Investment Analysis

These and future studies will take a corridor or subregional level examination of bus service and facility needs across all areas of the NJTPA region. These include improving coordination and cooperation among affected jurisdictions, use of new bus technologies, enhancements, priority treatments, highway improvements and support facilities.

A key strategy that must be applied regionwide are measures to help buses bypass congestion. That is, if bus travel is to remain viable and attractive to travelers, buses must be freed from the increasing congestion on roads throughout the region. As discussed in the next section, several Bus Rapid Transit (BRT) systems are being considered for the NJTPA region that will incorporate a host of technologies to speed buses on a specific bus line, but there are smaller-scale interim measures that can be implemented to improve speed and reliability for all buses along a corridor.

In general, buses in the region should be able to operate at posted speed limits at all times -- even during peak hour congestion. To move towards this goal, the design of all roadway improvements should include physical features to facilitate bus movement and improve pedestrian access, such as road "cut outs," wider/upgraded shoulders and pedestrian walkways at bus stops. New technology that will benefit bus travel such as computerized signal systems, variable message signs, electronic toll collection, etc. should also be advanced. Further, the region must support preferential "treatments" and other measures to speed bus travel including:

- Implementing preferential signal systems to speed buses through congested roadway intersections. Traffic signal priority technology allows buses to communicate with signals so that a light stays green slightly longer or turns green slightly sooner so that an approaching bus does not have to wait at a red light. This has proven successful in several US cities such as Los Angeles and is being tested in New York City. There must be high volume of buses on the route and significant congestion for this to be cost-effective. In the NJTPA region, a limited type of signal priority -- a short bus lane "queue jump" with a green signal that applies only to buses -- was implemented in downtown Newark in 2008 along the Raymond Boulevard Exclusive Bus Lane. This benefits over 3,000 commuters using 130 buses departing from Newark Penn Station each evening. NJ Transit and Essex County have partnered in a plan to install an expanded, more sophisticated application of the technology in the Newark area along the route of the planned Liberty Corridor Bus Rapid Transit System (See Table 2). One application will be along Bloomfield Avenue, where the signal priority program will be evaluated for application elsewhere in the region if successful in the Newark area.
- Expanding the use of highway shoulders for bus operations along highly congested routes during peak hours. While this requires rebuilding highway shoulders to Federal standards and making other improvements, it is being employed successfully in the region. On Route 9, buses are currently allowed to travel in the shoulder on a section of US 9 in Old Bridge Township when traffic

speeds drop below 35 MPH. Signage and bus stop pullouts protect buses and motorists where this special lane separation occurs. NJ Transit plans to expand this operation farther south into Monmouth County in the future. This treatment has also been applied on a section of Route 22 in Union Township, has been proposed in the I-78 Corridor Transit Study for sections of I-78 and Route 22 in Somerset County.

- Expand the Lincoln Tunnel Exclusive Bus Lane (XBL): The exclusive bus lane on I-495 into the Lincoln Tunnel is by far the busiest and most productive bus lane in the nation, accommodating approximately 1,700 buses and 62,000 commuters daily. But the XBL has nearly reached its capacity. A phase II study by the Port authority (follow up to an earlier study of a second inbound XBL) is examining the feasibility and best means of expanding this facility. This expansion should be pursued as part of a multi-modal investment plan if a feasible project emerges from this study. The study is analyzing the feasibility of several options including combined bus and 3 person + HOV lanes, among others. Exclusive bus lanes are proposed for other sections of this same busy east-west bus corridor further west, including Route 3 in Hudson County and Route 46 in Passaic County. Issues such as evening rush hour bus flows, staging and storage must be adequately addressed. In particular, the current Port Authority Bus Terminal facility has exceeded its bus parking capacity. Studies will be needed to create expanded lay-over parking facilities near the Lincoln tunnel, preferably connected to the current bus terminal. Similarly, bus parking solutions must be examined for lower Manhattan, Hoboken and Exchange Place in Jersey City. Expanding bus service into Manhattan is very dependent on addressing this issue of bus storage and staging.

Bus Rapid Transit

Over the past decade, Bus Rapid Transit (BRT) has become a viable mode of local rapid transit for smaller urban communities where light rail is either not justified or cannot be implemented quickly enough to solve severe mobility problems. BRT involves a combination of the transit priority treatments (such as signal priority and queue jumpers) described above, plus more advanced infrastructure, such as bus-only transit-ways, off-vehicle fare collection and even self-guided buses that can “dock” at raised BRT station platforms like a train. The idea behind BRT is to develop new bus systems that function with the speed and efficiency of a light rail system, but with lower costs and shorter construction timeframe and greater operating flexibility. BRT is also able to be incrementally built so it can be scaled to mirror available funding while still generating benefits within a shorter time frame.

With three highly used light rail systems already in operation and limited opportunity for new rail systems, development of BRT will be a critical component of the region’s future transit system. The first BRT-like system in the region was implemented in Newark and Irvington in April 2008, as NJ Transit’s Springfield Avenue “GoBus.” It includes a reduced number of stops, unique bus vehicles, high visibility signage, simple route

Appendix D: Transit Investment Analysis

structure, and upgraded passenger information systems. These are the first steps toward a more advanced BRT system for that corridor. Other proposed BRT systems in advanced planning stages are described below.

The proposed *Central New Jersey Route 1 Bus Rapid Transit* system in northern Mercer and southern Middlesex Counties is one project that would implement a wide array of BRT treatments along the heavily traveled US Route 1 corridor from South Brunswick to Lawrence Township. It would make use of both existing roads with improvements and new alignments. A 2006 study examined alignments, BRT technologies, station locations, ridership, potential for coordination with private sector development, municipal plans and cost effectiveness.

NJ Transit is studying the development of a *Greater New Brunswick Area Bus Rapid Transit* system in Middlesex County. This study will focus on two corridors along Route 18 and Route 27, crossing at the New Brunswick rail station. These corridors would connect residential areas with downtown New Brunswick, the Northeast Corridor rail line, the five Rutgers University, New Brunswick area campuses and other destinations. It would also connect to the proposed Route 1 BRT system to the south. A Phase I report has been completed and work on Phase II of the study is underway.

A third BRT system is being developed by NJ Transit for the Newark area. *Liberty Corridor Bus Rapid Transit* will run from Bloomfield, through downtown Newark to Newark Liberty International Airport and to the Port of Newark. This on-street BRT system will provide a faster, more direct, and user friendly transit route to connect these important destinations. Frequent service will operate almost 24 hours per day, taking advantage of branding tactics, enhanced shelters, buses and information systems used in the Springfield Avenue GoBus project. A pilot program to implement traffic signal priority for buses along the BRT corridor in partnership with the City of Newark and Essex County will expedite transit vehicles through congested intersections. Branches will serve downtown Newark and the University Heights district along the way, and will be coordinated with local buses, light rail and commuter rail stations.

There are other transit studies underway which have a BRT focus. One example is the Northeast New Jersey Mobility Study (formerly called the Bergen-Passaic Bus Study) which encompasses examining the feasibility of a BRT service in Bergen County at the request of and in cooperation with that county.

Private Carrier Buses in New Jersey

In addition to NJ Transit, there are 27 private bus carriers in the NJTPA region operating approximately 60 local and interstate bus routes. Many companies date back generations to an era in New Jersey where all public transit was privately run. They are vital to the communities they serve, yet they face a unique set of challenges and needs. Although many private carriers receive discounted leases on new bus equipment, they must make a profit on their operations to survive; a daunting task in the public transportation industry.

Appendix D: Transit Investment Analysis

Private carriers tend to build a loyal ridership base, and private sector investment avoids burdens on local and state agencies and taxpayers.

However, some common concerns are higher fares relative to NJ Transit bus routes; routes that focus primarily or exclusively on New York express service, bypassing local markets; and less investment in passenger facilities, new vehicles and expansive operations (especially off-peak). In addition, some private carriers, burdened by high fuel and insurance costs or competition from rail, have scaled back on their operations leaving NJ Transit, counties and municipalities scrambling to come up with contingencies to replace the service on short notice. In some areas, such as portions of Hudson and Passaic Counties, private jitney and passenger van operations have expanded to meet the specific local needs of certain neighborhoods for low cost, high frequency service to certain destinations, such as NYC. The current ad hoc operation of some of these services is causing local concern over safety as these vehicles stop to pick-up/drop-off passengers in heavy traffic locations. These services are not bound by the usual restrictions of standard transit bus services which have to follow a published timetable and meet certain other customer expectations. More thought is needed on how these services can function within the fabric of a total transit system.

Several recent studies (including the I-78 Corridor Transit Study and Northwest NJ Bus Study) recommend public-private partnerships between private bus carriers and NJ Transit, and other entities. It is hoped that this strategic planning assistance will not only empower the private carrier industry to better adapt to changing conditions, but also incorporate private and locally run service into the effort a more seamless and integrated transit network. Integration of ticketing, schedules, bus facilities and transit priority treatments (such as signal priority and queue-jumpers) would allow the bus system, public and private, as a whole to more effectively serve the region.

Improve System Access and Connectivity

Measures to improve the ability of residents to access the transit system – through walking, biking, autos, shuttle buses, as well as transfers from other lines and routes – as well as measures to facilitate connections to a wide range of destinations will have important regional benefits. They create the kind of intermodal system that allows residents to routinely consider transit as an alternative for all or part of their trips. They can also make more efficient use of existing infrastructure while lessening the need for costly expansions and making possible greater service frequency. Among the key strategies that must be pursued are the following:

Expand Park-and-Rides - There are many opportunities throughout the region to expand bus park-and-ride capacity. These facilities serve as cost-effective collecting points for commuters, especially in low density suburban areas. Opportunities include making use of underutilized parking areas at key malls and other shopping areas in the region and establishing “mini-bus terminals” at these locations and new bus park-and-rides along key highway corridors such as the I-78 corridor. Where possible, bus park-and-rides

Appendix D: Transit Investment Analysis

should be combined with parking for the railroad system so intermodal centers can be created that provide the opportunity for integrated bus and rail services.

Support Local Shuttles: Community shuttles can play an important role in providing access to the transit system. These small buses often link residents with rail or bus service during peak commuting hours and then serve other purposes during the day. These purposes can include travel for seniors and residents without cars. In addition, shuttles can promote economic development and historic and eco-tourism by connecting rail and bus stations to historic and outdoor sites, such as parks and hiking areas, lakes and rivers, and historic buildings and districts. Such multi-purpose shuttle services are well-suited to this densely populated region and reduce the demand for auto travel. They can be an important component of Transit Oriented Development and improved transit in the suburbs. Transportation Management Associations (discussed below) have played a role in providing such shuttles. The NJTPA in cooperation with NJ Transit provides TMAs with Congestion Mitigation and Air Quality (CMAQ) funds to support shuttles. In 2007, funding was provided to 7 new and 5 on-going shuttle routes.

Develop new transit hubs - Developing intermodal transit hubs where people can conveniently access more than one transit mode via car, bus, shuttle, bicycle, or on foot will be a critical tool in promoting increased transit use as well addressing parking constraints. The ability to connect safely and conveniently between modes at the same location as well as walk to and from the transit facility could remove a major barrier to transit use, especially for intrastate trips. The goal is to locate and scale transit hubs to fit with a variety of regional, community and neighborhoods needs. Transit hubs have been developed in several locations (such as Wayne Route 23 and Mt Arlington) and numerous others have proposed, including at rail stations in older downtown business districts.

Selectively expand rail station parking and explore shared car options – NJ Transit will continue to expand parking near train stations to reduce waiting lists at many locations. However, many towns object to such expansions due to concerns about congestion and their use by non-residents. Creating parking decks at regional hub stations with highway access can help address local opposition. The Ramsey-Route 17 rail station with a 1,200 car parking deck, opened in 2005, and a parking facility at Secaucus Junction with 1,100, opened in 2009, are examples of such regional facilities. In addition, parking facilities serving multiple towns with significant transit commuters such as towns in southeastern Morris County hold promise. Stations can also set aside parking for autos that individuals rent or share with others (through Zipcar or other services) for use to and from their work places. These could include short range electric cars that charge overnight at the stations.

Better accommodate bikes on transit and at stations - NJ Transit provides accommodations that encourage bicycle connections to its fleet of trains and buses. The agency currently provides parking capacity for about 2,300 bikes at its public facilities, with racks available at 90 percent of its rail stations. In addition, about 400 enclosed, weather-proof bike lockers are available for long-term rental at NJ Transit facilities for a modest fee. Standard-frame bicycles are generally allowed on NJ Transit trains and light

Appendix D: Transit Investment Analysis

rail cars during off-peak hours and non-holidays (collapsible bicycles can be brought aboard at all times). Bicycles are permitted at all times on buses with racks on the front or with underfloor luggage compartments on a first-come, first-served basis.

Fare automation and integration – To help realize the goal of a single payment system providing convenient access to all regional transit systems, NJ Transit and the Port Authority of New York and New Jersey will begin a pilot program in 2009 to offer PATH’s automated “Smart Card” for fare payment on two New Jersey Transit local bus routes that link to PATH stations in Jersey City. A significant step to fare integration was taken in 2005 when the PATH system began accepting the Metropolitan Transportation Authority’s Metrocard – the farecard for the New York City subway system. NJ Transit is also pursuing fare integration with certain private carriers as a way to further consolidate disparate transit routes into a single cohesive system. Some limited fare integration programs with private carriers already exist in Hudson and Essex Counties under the NJ Transit subsidized “Bus Card” program. NJ Transit monthly rail pass holders system wide can already transfer for free to the agency’s bus services for at least one fare zone, while some NJ Transit monthly bus passes allow free passage on light rail services. Additional sources of revenue will be needed to subsidize the privately run systems, as such arrangements can still result in lost fare revenue, at least initially.

Community Mobility

The need to move beyond just addressing journey-to-work trip making is evident given the expressed concern to improve total mobility and address a variety of environmental and energy issues. Moving in this direction requires that a new area of emphasis be established focused on a wide variety of community mobility needs. These needs are more varied and must be custom fitted to the specific situations and circumstances of the community and prospective transit customer population. The following are two of the ways to address these wider future needs which compliment other initiatives mentioned previously.

Support Transportation Management Associations – TMAs provide important shared-ride services to access and supplement the transit system including shuttle bus services, carpools/vanpools and subscription buses. Many of their services bridge the “last mile” between rail stations or bus stops and workplaces allowing employees to travel on transit rather driving on the longest part of their commute. TMAs also work with employers to adopt payroll incentives (like Transitchek) and guaranteed-ride-home programs that facilitate transit use. Their flexible services, tailored to the needs of particular employers and communities, will continue to provide vital support for the regional transit system.

Continue support for bus services for special needs populations: NJTPA will continue to administer grant programs that provide services to special needs populations. Two federal grant programs, Job Access and Reverse Commute (JARC) and New Freedom are specifically for providing special needs populations with transportation options to people without access to an automobile. The JARC program provides services to help low income populations in urban areas reach employment opportunities in the suburbs. The New Freedom program is intended to fund programs that provide disabled populations

Appendix D: Transit Investment Analysis

with transportation access to jobs. These programs are locally managed by county governments or TMAs. In addition, as required by the Americans with Disabilities Act, NJ Transit's Access Link program provides paratransit service comparable to the local bus service for people whose disability prevents them from using the local fixed route bus service. Many counties in the region also provide paratransit systems for senior citizens and others.

Table 1 Recently Completed Projects/Projects Under Design or Construction

<u>Projects Recently Completed/Underway</u>	<u>Description</u>	<u>Status</u>	<u>Cost Estimate</u>
Meadowlands Sports Complex Rail Spur and Station	A rail spur connecting Secaucus Junction with the Meadowlands is currently under construction will replace the bus link, providing rail customers from New Jersey and New York with a convenient rail transfer at Secaucus Junction. This will include a new station	To be completed in summer 2009.	\$200 million
Hudson-Bergen Light Rail 8 th Street Bayonne Extension	This project will extend the system south to 8th Street in Bayonne.	Currently under construction with completion expected in 2010. Completes HBLRT MOS2. A third phase of the HBLRT is planned (See Table 3).	\$100 million
Mt Arlington Station	The Mount Arlington Station project created a new intermodal facility by constructing a new Rail Station on the Boonton and M&E line adjacent to the existing Bus Park-and-Ride lot along the Route 80 corridor. The project includes two new side High Level Platforms and an enlarged Park-and-Ride lot.	Completed in spring 2008.	\$16.2 million
GoBus 25 (Springfield Avenue)	The enhanced service paves the way for Bus Rapid Transit (BRT) in the state. This express service overlay on the 25 route between Irvington and Downtown Newark incorporates interim improvements such as fewer stops to reduce travel time, customized bus “station” facilities and unique color scheme to improve safety, visibility and customer information, and on board improvements to reduce station dwell time.	Springfield Avenue GoBus enhanced bus service began April 7 2008 along Springfield Avenue corridor	\$1.2 million
Newark Light Rail Extension to Newark Broad Street Station	Construction of a one-mile extension of the Newark Light Rail from Newark Penn Station to Broad Street Station, including five new light rail stations.	Complete: Full service began in summer 2006	\$ 207 million
Port Imperial Ferry Terminal	Construction of a new three-story facility to replace the existing undersized and aging terminal.	Complete: Facility opened in May 2006	\$53 million

Table 2 - Funded Projects that are Part of the Fiscally Constrained Regional Transportation Plan

Candidate Projects	<u>Summary</u>	<u>Status</u>	<u>Cost Estimate.</u>
Access to the Region's Core (ARC) Tunnel	The construction of two new single track tunnels under the Hudson River; new rail station adjacent to Penn Station New York under 34th Street; the addition of a fifth track at Secaucus Junction and Northeast Corridor infrastructure improvements between Newark and the new tunnel portal; the construction of a direct connection between the Bergen, Main, Port Jervis and Pascack Valley lines to the Northeast Corridor via a loop track.	Construction commenced June 2009	\$8.7 billion (An additional \$400 million for new train equipment to be purchased in 2030 will bring the total to \$9.1 billion).
Union County Light Rail This is the LRT Project from Elizabeth NEC station east to Jersey Gardens Mall and then to Newark Liberty Int. Airport. This is a public/private venture.	The Union County light rail transit system (also known as NERL MOS-3) is being advanced under the New Jersey Public Partnership Act of 1997. Union County, Washington Group International, and NJDOT (with NJ TRANSIT acting as NJDOT's agent) have partnered in proposing a system connecting downtown Elizabeth with Newark Liberty International Airport. The alignment would utilize an existing CSX and Norfolk Southern freight railroad right-of-way, serving the Jersey Gardens Mall and the proposed Elizabeth ferry terminal and then proceeding along Kapkowski Road and North Avenue and terminating at airport parking lot P1. Until alignment concerns are resolved, the project is on hold and not being advanced at this time.	The Supplemental Draft Environmental Impact Study for MOS-3 has been prepared for the modified alignment. Until alignment concerns are resolved, the project is on hold and not being advanced at this time.	Up to \$500 million. This project, which has been designated under the state's Public Private Partnership Demonstration Act, will not affect fiscal constraint of the RTP as it will not require federal or state funding for capital costs or for retiring debt Resulting there from.
Lackawanna Cutoff MOS	The Minimal Operable Segment (MOS) of the Lackawanna Cutoff involves restoration of passenger service from Port Morris, NJ to Andover, NJ, a distance of 7.3 miles. The MOS is a rail spur off the outer end of the NJ Transit's existing Montclair/Boonton line. A single track will be constructed along the existing railroad right-of-way. Trains using the rail yard at Port Morris would travel back and forth to Andover to provide the scheduled train service. One grade crossing would be constructed; the balance of MOS right-of-way is grade separated. A single high-level platform, shelter and parking lot would be constructed at the Andover Township terminus. This is a segment of the proposed restoration of passenger service	Locally Preferred Alternative adopted by the NJTPA July 2008 and the FTA Finding of No Significant Impact was approved in September 2008 following review of the Environmental Assessment. Construction is expected to begin 2010.	\$36.6 million

	extending to Scranton, PA which a candidate transit strategy being studied (see Table 3 below).		
Liberty Corridor Bus Rapid Transit	This BRT system will run from Bloomfield, through downtown Newark to Newark Liberty International Airport and the Port of Newark. BRT will provide a faster, more direct, and user friendly transit route to connect these important destinations (via downtown Newark and University Heights Branches). It will be based upon the existing GOBUS project currently in service along Springfield Avenue. Elements of the new service will include: service branding, service delivery, enhanced shelters (along the northern portion of the route only) and Traffic Signal Pre-emption (TSP) technology along Bloomfield Avenue within Newark. The low floor buses will come at a later time.	The Liberty Corridor BRT project is in final design. Scheduled implementation is mid-Fall 2009.	\$14 million
Passaic/Bergen NYS&W Project	NJ Transit completed an environmental assessment for a new rail along the New York Susquehanna & Western track alignment between Hackensack and Hawthorne. This proposed service will employ self-propelled passenger railcars (DMU) to provide an initial service. The project is designed not to preclude the extension of rail service along this railroad in the future.	Agreement with NYS&W approved by NJT Board May 2009, Construction to begin in 2009.	\$163.5 million

Table 3 - Transit Strategies that are Candidates for the Fiscally Constrained Regional Transportation Plan

Candidate Projects	<u>Summary</u>	<u>Status</u>	<u>Cost Estimate.</u>
Northern Branch Phase 1	As a component of the West Shore Region MIS / EIS transportation improvement plan, NJ Transit is overseeing production of a Draft Environmental Impact Statement for implementation of FRA-compliant DMU-type rail service along the Northern Branch between Tenafly and North Bergen. Transfer capability to the HBLR Line and thence to the Weehawken ferry would be provided at North Bergen. Extending the HBLR from North Bergen to Tenafly is the other alternative being examined.	DEIS is underway	Less than \$500 million
Monmouth-Ocean-Middlesex	New rail line to serve Monmouth, Ocean and Middlesex counties and enhancement of Route 9 bus service. To implement passenger service, the project would rebuild the railroad infrastructure along the existing freight lines. The DEIS is examining three alignments: Lakehurst to Monmouth Junction, Lakehurst to Red Bank and Lakehurst to Matawan.	DEIS is underway.	Range of between \$1.0 and \$1.8 billion, depending on option.
West Trenton Line	Restoring commuter rail service for 21 miles on the West Trenton Line between Ewing, in Mercer County, and Bridgewater in Somerset County, where the line would connect with the existing Raritan Valley Line providing service into Newark.	Completion of Environmental Assessment Fall 2005 (released by NJT).	\$195 million
Lackawanna Cutoff	Reinstitute passenger rail service on the abandoned rail right of way of the Lackawanna Cutoff and over existing freight line in Pennsylvania. The service would extend from Scranton to Hoboken and Midtown Manhattan via transfer to the existing Morris & Essex and Montclair-Boonton trains serving Penn Station, NY. The project includes putting back 20 miles of track between Andover and the Delaware River and complete reconstruction of the line from the Delaware River to Scranton, PA including track and signal improvements to approximately 60 miles of right of way, new stations, parking facilities, a train storage yard and additional rail rolling stock. This initiative will require financial participation by the state of Pennsylvania for service in Pennsylvania.	Work progressing on obtaining a Finding of No Significant Impact from the FTA responding to the Environmental Assessment for this project from Andover, NJ to Scranton, Pa.	\$551 million
Central NJ/ Raritan Valley Transit Study	A study will investigate extending commuter rail service west to Phillipsburg,	A preliminary assessment is being	TBD

	as well as bus, shuttle and park & ride options. A technical assessment of rail service beyond Phillipsburg into Pennsylvania as a multi-jurisdictional effort with the Lehigh Valley MPO is being advanced.	conducted of transit strategies along this corridor that will produce the data necessary for evaluating the rail extension.	
Extension of Hudson Bergen Light Rail west across Rt. 440 in Jersey City	Investigate an extension of the Hudson-Bergen Light Rail system (HBLR) from the current West Side Avenue terminal to redevelopment and existing residential areas along Route 440 in Jersey City.	Alternatives Analysis to commence this year, 2009	TBD

Table 4 - Studies of Transit Needs and Project Concepts

<u>Selected Strategy</u>	<u>Summary</u>	<u>Status</u>	<u>Cost Estimate.</u>
Bus Preferential Treatments on the Route 9 & 18 Corridors	Investigate bus preferential treatments along the Route 9 and 18 corridors including opportunities for new or expanded park and rides.	This work is partially covered by Greater New Brunswick Bus Study which will be expanded to include Route 18. NJT is working with NJDOT in pursuing changes to the shoulders on Route 9 to permit bus usage from Old Bridge to Lakewood.	TBD
Intermodal Transit Hub in Elizabeth	Develop an intermodal transit hub in Elizabeth to efficiently deal with the growing bus and rail service in the area to compliment local economic development plans.	NJT has begun working on a concept design of a project to compliment work to be undertaken by NJTPA.	TBD
Anchor Glass/Old Bridge Intermodal Improvements	This project involves screening analysis of multiple sites for their suitability for creation of multi-modal regional park-rides, bus facilities, rail stations, shuttle services, and/or innovation parking solutions in the Old Bridge/ Aberdeen/ South Amboy study area, and concept planning/design for those sites and facilities deemed appropriate.	Meetings with municipalities commenced. Review of potential large sites for intermodal park & ride is underway.	TBD
Central New Jersey Route 1 Bus Rapid Transit	The proposed BRT system in northern Mercer and southern Middlesex Counties would make use of both existing roads with improvements and new alignments. A 2006 study examined alignments, BRT technologies, station locations, ridership, and potential for coordination with private sector development, municipal plans and cost effectiveness.	NJ Transit is examining near term ridership potential for segments of the system to identify the initial services and improvements to advance toward implementation. A phased implementation of the system has been proposed.	TBD
Shuttle services to rail stations	This is recognition of the ongoing planning coordination that occurs between NJT, Counties, communities and the various TMAs to improve station access. If a specific work effort of sufficient size is identified it may become a separate study.	Ongoing	TBD
Comprehensive Area Bus Study of the	Detailed assessment of NJ TRANSIT and private bus services, routes, facilities and	Work continues on final phase of study	TBD

Cities of Elizabeth and Newark	operations in the greater Newark and Elizabeth, Essex and Union county areas to evaluate potential enhancements including modifications to routes, frequencies of service, and development of Bus Rapid Transit (BRT) express service along heavily used transit corridors.	with anticipated completion in December 2009.	
Northeast New Jersey Metro Mobility Study	This study will evaluate current and projected transit accessibility and mobility needs and patterns in the northeastern portion of the NJTPA region, including Passaic and Bergen counties, and will assess bus access and mobility issues in the George Washington Bridge toll plaza area. The study will identify short term transit mobility improvements and develop a network of buses to access planned future rail services such as the Passaic-Bergen Rail Link and the Northern Branch Rail service.	2 year study initiated in early 2009. Rider and route survey activities underway.	TBD
Comprehensive Hudson County Bus Study	Assessment of select NJ Transit and private bus routes in Jersey City to develop enhancements that will support continued services and operations. The initial study is evaluating potential route operations, equipment requirements, and operating funding requirements to address potential service problems and analyze options for responding to Jersey City's needs following this initial phase, other analysis of Hudson County's needs will be progressed.	Work continues on this phase of study with anticipated completion in late 2009.	TBD
Northwest New Jersey Bus Study	Study to evaluate new and existing bus and shuttle routes, services and transit facilities in Morris, Passaic, Sussex and Warren Counties in light of emerging transit markets, changing demographics and growing traffic congestion. The study will evaluate new and enhanced park & ride lots, and transit hubs, and locations suitable for bus priority treatments.	Work continues on final phases of study with anticipated completion in late 2009.	TBD
Pedestrian Safety At and Near Bus Stops	This NJTPA study will evaluate high rates of pedestrian - vehicle crashes along major bus routes in the region and seek to identify common engineering, behavioral and/or enforcement strategies to help reduce crashes near bus stops.	Study scheduled to begin during 2009.	TBD

Follow up to New Brunswick BRT Study's	Study of BRT and bus service improvement potential in two corridors along Route 18 and Route 27, crossing at the New Brunswick rail station. These corridors would connect residential areas with downtown New Brunswick, the Northeast Corridor rail line, the five Rutgers University, New Brunswick area campuses and other destinations. It would also connect to the proposed Route 1 BRT system to the south.	A Phase I report has been completed and work on Phase II of the study is underway.	TBD
Routes 46/3 Corridor bus improvements	Bus priority treatments, intermodal facilities and other improvements to complement bus transit access to the Meadowlands, NJ Hudson River Waterfront and Midtown Manhattan.	Ongoing	TBD
Extending rail service to Flemington	Investigate use of the Lehigh Valley line and/or abandoned rail lines for passenger service to Flemington	Proposed Study	TBD
Light rail extensions	Potential extensions of the NLR and HBLR will be examined, including to the Sports Complex in East Rutherford, NJ.	Proposed Study	TBD