

**US Army Corps
of Engineers®**
New York District

Final Environmental Impact Statement

**for the
Route 92 Project**

**proposed by the
New Jersey Turnpike Authority**

October 2006

In cooperation with

**U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
N.J. Department of Transportation**

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Lead Agency

United States Army Corps of Engineers New York District

Cooperating Agencies

United States Environmental Protection Agency
United States Fish and Wildlife Service
New Jersey Department of Transportation

October 2006

**FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR DEPARTMENT OF THE ARMY APPLICATION NO. 1999-00240-J1
FOR THE ROUTE 92 PROJECT
PROPOSED BY THE NEW JERSEY TURNPIKE AUTHORITY**

October 2006

Responsible Lead Agency

US Army Corps of Engineers - New York District
Regulatory Branch
26 Federal Plaza, Room 1937
Jacob K. Javits Federal Building
New York, New York 10278-0090

Cooperating Agencies

US Environmental Protection Agency - Region 2
US Fish and Wildlife Service
New Jersey Department of Transportation

Abstract

In accordance with National Environmental Policy Act (NEPA) and US Army Corps of Engineers (USACE) regulations, this Final Environmental Impact Statement (FEIS) has been prepared to assist the USACE - New York District in reaching an informed decision on an application for a Department of the Army permit, Application No. 1999-00240-J1, submitted by the New Jersey Turnpike Authority (NJTA), PO Box 5050, Woodbridge, New Jersey, 07095.

Under the federal Clean Water Act, NJTA seeks authorization to discharge fill into 12.03 acres of waters of the United States, including wetlands, as part of NJTA's proposed Route 92 highway project. A further 1.16 acres of wetlands would be permanently shaded by bridges. Proposed Route 92 would be a 6.7-mile, limited access toll highway that would serve as an east-west highway link connecting US Route 1 in South Brunswick Township with the New Jersey Turnpike at Interchange 8A in Monroe Township. The proposed project in South Brunswick, Plainsboro, and Monroe Townships would pass through land mostly used for agriculture, with lesser amounts of parkland and other open space, commercial, and residential uses also present. NJTA has proposed a wetland mitigation plan in which 57 acres of wetland would be constructed and an additional 202 acres of forested wetland and upland would be preserved.

NJTA-proposed Route 92 requires a permit pursuant to Section 404 of the federal Clean Water Act, 33 U.S.C. Section 1344. Jurisdiction for the application transferred from the New Jersey Department of Environmental Protection to USACE on October 26, 1998. After an initial evaluation of the application and a Public Hearing held on March 29, 1999, a "Notice of Intent" to prepare this EIS was published in the Federal Register on April 28, 2000. A Public Scoping Meeting was held on June 8,

2000, and a Final Scope of Work was issued on April 30, 2001. Following the publication of the Draft EIS in April 2004, a public hearing was held on May 20, 2004.

This FEIS includes the comments on the Draft EIS and the responses to those comments. Under the guidance of NEPA, this FEIS describes the purpose of and analyzes the need underlying NJTA's proposal to improve regional mobility by creating new east-west arterial highway capacity in southwestern Middlesex County, known as proposed Route 92. The EIS then evaluates alternatives to the NJTA proposal, to assess whether the project purpose might be accomplished by another plan that would result in lesser environmental impact. Finally, the EIS describes the beneficial and adverse impacts of alternative projects, including proposed Route 92, that have the potential to achieve project purpose with fewest adverse impacts, as determined through an alternatives screening analysis. USACE has not made a determination of the agency's preferred alternative in this FEIS.

The public is encouraged to review this FEIS and provide comments on the information contained therein. A USACE public notice announcing the availability of this document and providing the dates of the comment period will be published concurrently with an announcement of its availability in the *Federal Register*. The public notice is available on the District's website, accessed via www.nan.usace.army.mil. Comments must be submitted in writing prior to the end of the comment period to the following address:

US Army Corps of Engineers - New York District
Regulatory Branch (Attn: James Cannon)
26 Federal Plaza, Room 1937
Jacob K. Javits Federal Building
New York, New York 10278-0090

To reduce costs and the use of paper, copies of this FEIS and its printed appendices will be made available at repositories to be listed in the public notice. The FEIS is also available on the New York District website, www.nan.usace.army.mil. Individual copies of the printed FEIS are limited. Printed copies of the FEIS will be provided only upon specific request. The appendices and comments with responses will be provided on a CD-ROM. For further information on the FEIS, write to Mr. James Cannon, Regulatory Project Manager, at the above address, via electronic mail at nan.route92eis@usace.army.mil, or call him at (917) 790-8412.

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Section ES

Executive Summary

ES.1 Major Findings

ES.1.1 Background

When the New Jersey Turnpike was constructed 50 years ago, its purpose was to provide faster, more efficient travel for north-south trips, such as those between New York City/points north and Philadelphia/points south. The New Jersey Turnpike became the route of choice for north-south trips, replacing the use of US Route 1 and US Route 130, which were designed and built to older standards.

While the New Jersey Turnpike continues to fulfill its role of serving mid-Atlantic regional transportation needs, US Route 1 remains a favored route for trips between northern Middlesex County (where many of the state's largest highways converge), the Princeton area (an area of significant economic and housing growth in New Jersey), and the Trenton, New Jersey Capital City area. For a distance of 22 miles, from the northeast Trenton area to the New Brunswick area, US Route 1 and the New Jersey Turnpike exist as nearly parallel north-south highways, about 6 miles apart.

In the New Brunswick area, US Route 1 connects to the New Jersey Turnpike, via a short (one mile) segment of Route 18, at Turnpike Interchange 9. In the Trenton area US Route 1 connects to the New Jersey Turnpike via an eight mile section of Interstate 195 and 295, at Turnpike Interchange 7A. Major traffic congestion occurs on US Route 1 between the Trenton area and the New Brunswick area that is attributable to the strong economic and population growth trends and the suburban character of the land development that has occurred. In spite of its proximity, the traffic congestion on US Route 1 cannot effectively be relieved by available capacity on the New Jersey Turnpike, in part because no arterial highway connection links US Route 1 to the New Jersey Turnpike between Interchange 9 and Interchange 7A. Alternative routes for motorists between New Brunswick and Trenton are limited, and increasingly involve use of local roadways.

Since 1980, strong population and employment growth has occurred in the communities along US Route 1 between New Brunswick and Trenton. Continued rapid growth is projected in central New Jersey over the next two decades, based on the strong economy of the area, the high demand for housing, the presence of developable land, good schools, and the desirable location between Princeton University and Rutgers University. Significant office and research development has occurred in the Princeton region, a function of the availability of a highly educated labor force. In addition, a national-scale warehousing and distribution center has developed around NJ Turnpike Interchange 8A. The office, commercial, and population growth along US Route 1, coupled with the extensive warehousing and business activity around NJ Turnpike Interchange 8A has resulted in increasing traffic volumes on the area's roads.

Two frequently observed effects of the increasing traffic volumes using US Route 1 and regional roadways are:

1. extensive traffic congestion occurs throughout this suburban region, and,
2. substantial and increasing volumes of “through” traffic, delivering goods and commerce between business “centers” compete for space on the roadway system with traffic having local work, shopping, and recreational destinations.

A new east-west highway in southwestern Middlesex County has been discussed by the Middlesex County Planning Board and the New Jersey Department of Transportation (NJDOT) for many years, to address the lack of east-west highway connectivity in this area. In 1992, the New Jersey State Legislature enacted a law transferring authority over the Route 92 project from NJDOT to the New Jersey Turnpike Authority (NJTA) (Chapter 474 of the Public Laws of 1991, codified as NJSA 27:23-23.8).

Since 1992, NJTA has further developed the concept of this toll-supported east-west arterial highway through a series of engineering and environmental studies. NJTA-proposed Route 92 would be a 6.7-mile limited-access toll highway that would provide express east-west travel capacity for through traffic, and connect US Route 1 in South Brunswick Township to US Route 130 and the New Jersey Turnpike at Interchange 8A in Monroe Township. Proposed Route 92 would consist of two travel lanes in each direction. The proposed project includes four interchanges that would connect the highway to existing roads, three of which are state or federal highways (US Route 1, US Route 130, and Interchange 8A), and the fourth is a connection to a major employment center (Perrine Road). A proposed toll plaza facility would be constructed within the proposed alignment west of US Route 130.

Construction of a new east-west arterial highway is proposed by NJTA to provide a high capacity, high speed link between the major north-south highways in central New Jersey, and between the growing business, commercial, and population centers, thus improving regional mobility. An arterial highway is defined by the NJ Dept. of Transportation as a highway primarily for through traffic, usually a continuous route.

The arterial highway proposed by NJTA would improve mobility by accommodating the increasing through traffic on a high-speed limited-access highway, thereby reducing local roadway congestion, by removing through traffic from local roads. It would also improve regional mobility by providing efficient access to alternative routes for north-south traffic that now uses US Route 1, and provide flexibility in choice of route in the event of traffic congestion or delay along any of the north-south corridors.

Between the Trenton area and the New Brunswick area only local and/or secondary (county) roads are available to traffic traveling between US Route 1 and the New Jersey Turnpike (connecting at Turnpike Interchanges 8A or 8). When congestion, or less frequently occurring events such as vehicular accidents or roadway maintenance occur on one of the north-south highways, travelers cannot efficiently change their route so as

to utilize alternative north-south highway routes (for example, by switching their route to utilize the New Jersey Turnpike or US Route 130, instead of US Route 1, or vice versa). Because the local and secondary east-west connecting roads are increasingly congested, and are not designed to operate at highway speeds, the New Jersey Turnpike cannot be effectively accessed so that it might serve as an alternate north-south travel route to US Route 1.

The capacity of the New Jersey Turnpike was expanded in central New Jersey in the 1980s, and NJTA studies show that there is currently adequate capacity on the mainline New Jersey Turnpike to accommodate regional traffic from the congested US Route 1 corridor; however, NJTA is currently planning a mainline widening to ensure that sufficient capacity continues to be available.

The need for a project such as Proposed Route 92 arises as a result of robust economic and residential development activity, both in the past and as forecast for the future. NJTA looks to couple improved regional mobility with support of coordinated efforts to reshape existing and proposed development. Managing future growth creates an opportunity to support and sustain the traffic relief that would be provided by a new arterial highway (specifically designed to improve travel for through traffic, and serve as a link between major north-south highways). This effort would involve the participation of the project area municipalities and state agencies, including NJTA. While NJTA does not have direct control or jurisdiction over the land development approval process, it seeks to collaborate with the New Jersey Department of Environmental Protection (NJDEP), the New Jersey Office of Smart Growth, the New Jersey Department of Transportation (NJDOT), the counties of Mercer and Middlesex, and local municipalities to help shape future growth into sustainable patterns.

Proposed Route 92 is the NJTA's preferred alternative; however, the US Army Corps of Engineers (USACE), the preparer of this EIS, is neither an opponent nor a proponent of the NJTA proposal, and the full range of decision options regarding the permit application is available to the USACE District Engineer in responding to the application.

NJTA applied to USACE for a federal Clean Water Act permit seeking approval of proposed wetland fill related to construction of proposed Route 92. In its review, USACE has determined that a decision upon this permit application would be a major federal action significantly affecting the quality of the human environment. This determination triggered implementation of the National Environmental Policy Act (NEPA), which calls for the USACE to prepare an EIS. An EIS provides a broad range of information and analysis designed to assist the permitting agency in reaching an informed decision on the permit application.

This EIS has been prepared to assist the USACE–New York District in reaching an informed decision on Application No. 1999-00240-J1, submitted by NJTA on January 6, 1999, for the Proposed Route 92 project. The applicant seeks a permit pursuant to Section 404 of the Clean Water Act to discharge fill material in waters of the United

States. The application submitted to USACE requests authorization to permanently discharge fill material in 12.03 acres of waters of the United States, including 11.58 acres of wetlands, as a result of construction activities related to Proposed Route 92. A further 1.16 acres of wetlands would be permanently shaded by the bridges included in the project design. In addition, 2.92 acres of temporary fill would be required during construction, but removed prior to project completion.

This EIS, under the guidance of NEPA, describes the purpose of, and analyzes the need underlying NJTA's proposal to improve regional traffic mobility by creating new east-west arterial highway capacity in southwestern Middlesex County, known as proposed Route 92. The EIS then evaluates alternatives to the NJTA proposal, to assess whether the project purpose might be accomplished by another plan that would result in lesser environmental impact. Finally, the EIS describes the beneficial and adverse impacts of alternative projects, including proposed Route 92, that have the potential to achieve project purpose with fewest adverse impacts, as determined through an alternatives screening analysis.

ES.1.2 Purpose and Need

Transportation Needs in the Project Area

The main highways serving traffic passing through the project area are all oriented in a north-south direction: the New Jersey Turnpike (with Interchanges 8 and 8A along the area's eastern edge) and US Route 130 on the eastern side of the area, and US Route 1 and NJ Route 27 on the area's western side. Residential, commercial, and industrial land use in southwestern Middlesex County and northeastern Mercer County is generally concentrated along the major north-south highways and interchanges in the area. The major peak hour traffic flows in the traffic study area are the north-south flows along the New Jersey Turnpike, US Route 1, and US Route 130.

Within the 25-mile corridor along US Route 1 – between Route 18 in New Brunswick and Interstate 195/Route 29 in southern Mercer County – motorists wishing to travel between the existing north-south corridors must use local and secondary east-west roads passing through suburban communities in Plainsboro, South Brunswick, Cranbury, West Windsor, and East Windsor Townships, or travel along US Route 1 to link to the connecting north-south highways.

Intensive development of new homes, office complexes, retail centers, warehousing facilities, and other places of employment such as medical and institutional facilities in southwestern Middlesex County and northeastern Mercer County has resulted in worsening congestion on the road network. Traffic modeling conducted for this EIS indicates that congestion will significantly worsen in the future. County and State planners have forecast that historically strong development trends will continue, but planned County and NJDOT increases in roadway capacity are limited. The high peak-hour north-south volumes cause delay at many intersections in the project area, particularly along US Route 1. However, severe congestion also occurs on two-lane east-

west roads, such as Ridge Road, Dey Road, Cranbury Neck Road, and Plainsboro Road. Regional and local mobility continues to deteriorate as travel demand increases.

When much of the road network exceeds capacity, even minor volumes of additional traffic, or any reduction in capacity (resulting from construction or accident), may trigger the uncontrolled spread of capacity losses throughout the entire road network. As the road network becomes increasingly congested network analysis must be performed at the regional level to understand how the many instances of capacity deficiency might be interrelated.

The traffic model developed for this EIS coupled a regional model (and area of analysis) to a detailed "Central (New) Jersey" area model. The Central Jersey model contains a detailed representation of the road system -- from NJ Route 18 in the north to Mercer Co. Route 571 in the south, and from the New Jersey Turnpike and Middlesex Co. Route 535 on the east to NJ Route 27 on the west. The detailed local traffic model is "nested" within the 22-county regional traffic model developed for NJDOT's Penns Neck Area EIS, , prepared between 2001 and 2004.

By the year 2028, the traffic model projects that morning westbound peak hour travel demand will exceed the total capacity of the east-west roadways by 25 percent, assuming no major changes occur in road capacity. Area-wide, morning peak hour travel times are expected to increase by about 50 percent on average. Almost all key intersections in the area will be unable to process peak hour demand in the future without significant delays.

For this EIS, the origins and destinations of trips that are projected to cross a "screenline" were evaluated. The "screenline" is an imaginary line that is used to analyze the total volume of traffic that crosses the imaginary line, which is positioned in a north-south direction roughly halfway between US Route 1 and US Route 130. Because the screenline is oriented north-to-south, the screenline helps to determine the amount of traffic that travels east to west and west to east in the traffic study area.

In the year 2028 the traffic model projects that a total of about 270,000 to 300,000 vehicles per day will cross the screenline in both directions. About 25 percent of these vehicles are expected to be through traffic, passing through the area. Through traffic traveling on the local roads contributes to traffic congestion, causes local neighborhood impacts (such as noise, vibration, dust, and reduced pedestrian safety), and creates traffic safety issues. Through traffic, by NJDOT definition, is more appropriately served on regional arterial highways, and routes for through traffic should be separate from local roadway routes.

The traffic model was used to predict future peak hour through traffic volumes crossing the screenline. The model shows significant increases in through traffic that will cross the screenline (i.e., constituting an east-west trip) in future years. The analysis shows more than a doubling of through traffic traveling east-west across the screenline by 2028, increasing from 4,565 peak hour trips to 10,117 trips.

Prior studies of proposed Route 92 also recognized another serious traffic issue—the use of local and secondary roads by trucks for goods transport, especially as related to the increasing role of the lands surrounding Interchange 8A as a national warehousing center. These roads traverse long-established residential and neighborhood commercial areas, many of which are set close to the roadways. These roads are mainly two-lane designs with tight curves and minimal turning radii at intersections. The increasing volumes of through truck traffic diminish quality of life and neighborhood character. Without any changes to the traffic network, future increases in truck volumes on local east-west roads are predicted to increase by approximately 35 percent.

Project Purpose

As discussed above, the volume of traffic, especially through traffic, traveling to and from the southwestern Middlesex County and northeastern Mercer County study area continues to increase. This is principally attributable to three factors: the strong pace of residential and business development in the overall study area, the emergence of a national-scale warehousing complex in the Interchange 8A area, and the continued growth of the Princeton area and surrounding municipalities as high prestige business and residential locations.

The increasing volume of through traffic is causing worsening traffic congestion, and regional mobility is reduced because of the absence of east-west arterial highway routes. Worsening congestion and reduced mobility lengthen the duration of the work commute by area residents and employees, reduce the convenience and safety of non-work trips by residents, reduce bicycle and pedestrian safety, impact air quality, increase the cost of trucking and business operations, and diminish the quality of life for residents and businesses located along congested local roads.

The absence of sufficient arterial highway routes to carry the increasing percentage of through automobile and truck traffic in this intensively suburbanized area contributes significantly to reduced regional mobility. The increasing volume of through traffic is exacerbating existing congestion. Traffic modeling shows that new regional transportation system capacity is needed to address the expanding traffic demands of the region and improve regional travel mobility.

Project Purpose: USACE determines that the purpose of NJTA’s Route 92 project is to improve regional mobility, especially east-west mobility, for the central New Jersey area in and around southwestern Middlesex County and northeastern Mercer County.

For purposes of this EIS, USACE considers “mobility” to be the movement of people and goods conveniently, reliably, safely, and in acceptable travel time, by transportation system components that will enhance economic development and that are compatible with community and the environment. “Regional mobility” considers improvements at the transportation network scale, such as highways and freeways that principally carry through traffic, and that complement the functions of the local and county road system.

Past and projected residential and commercial growth in the study area, continued expansion of the goods distribution facilities around NJ Turnpike Interchange 8A, and vehicles traveling between the NJ Turnpike and the Princeton/Trenton areas generate significant traffic, considerably overloading the existing roadway network, especially during peak travel times.

One major factor contributing to worsening traffic congestion is that no east-west arterial highway exists in the southwestern Middlesex County/northeastern Mercer County region to serve the increasing traffic volumes traveling between the NJ Turnpike Interchange 8A (including the warehousing complex surrounding the Interchange) and the extensive US Route 1 business center that continues to develop in southwestern Middlesex County / northeastern Mercer County.

A second major factor inhibiting regional mobility is the absence of an east-west arterial highway link between existing major north-south highways to facilitate access by travelers to the least congested north-south route between the New Brunswick area and Princeton/Trenton area. Because no arterial highway linkage currently exists between north-south highways in the study area, traffic cannot efficiently re-route to alternate north-south routes that exhibit available capacity. Because there is no east-west arterial highway connector between existing north-south highway routes, these existing investments in regional mobility cannot effectively be utilized by drivers. Providing east-west linkage between major north-south highways would increase the efficiency of the existing road network by allowing through traffic to select the most direct, least-congested route for north-south travel.

Finally, because there is no east-west arterial highway in southwestern Middlesex County/northeastern Mercer County, a hierarchical road network that allows through traffic to travel on routes that are separate from local traffic does not exist, diminishing quality of life and creating congestion on the local road system. Increasingly, through traffic and regional traffic is being carried by, and is congesting, local roads.

A hierarchical roadway network is a system that promotes the use of local streets for local access and circulation, and promotes the use of highways for through traffic and large truck traffic. The goal of providing a hierarchical network of roads is to separate local traffic from through traffic. The advantages of a hierarchical network are recognized by the Middlesex County Planning Board, in its Transportation Plan for the County. Creating hierarchical roadway networks is a long-established and widely-applied transportation planning objective that protects the quality of life for residents along local roads, and supports efficient travel for non-local trips. The South Brunswick Township Master Plan recommends that "local traffic should be separated, as much as possible, from through traffic", which is an expression of hierarchical network principles.

The transportation model prepared for this EIS indicates significant and steadily worsening traffic congestion throughout the study area due to the strong past and future

development trends in the region. A hierarchical road network would reduce the impacts that have been caused by increased volumes of through traffic using local roads to travel between the Trenton/Princeton area and New Jersey Turnpike Interchange 8A, and the major warehousing/distribution center that exists around Interchange 8A.

Example locations where providing new arterial highway capacity for through traffic would help preserve local circulation characteristics and quality of life for residents and small businesses living adjacent to local roads, by reducing the presence of through traffic on local roads, include:

- Plainsboro Center (around the intersection of Plainsboro Road, Dey Road, and Scudders Mill Road). Existing land uses affected by through traffic include the municipal complex, high and low density residential areas, and local commercial areas.
- South Brunswick Center (along County Route 522 in the vicinity of Kingston Lane). Existing land uses affected by through traffic include the municipal complex, high and low-density residential areas, and schools.
- Princeton Junction Center (along County Route 571 in the vicinity of the Northeast Corridor Rail Line). Existing land uses affected by through traffic include a low-density residential area, local businesses, a train station, schools, and parks.

ES.1.3 Alternatives

NEPA requires that a review be conducted of alternative approaches to meeting the need for the project, and fulfilling the project purpose (as described in Section 1 of the EIS). The EIS (in Section 2) identifies the environmental (including socioeconomic and land use) impacts of 16 alternatives (as well as several sub-alternatives) to find those alternatives with comparatively fewer adverse environmental impacts. The Alternatives Analysis then assesses the ability of each of the comparatively lower impact alternatives to meet project purpose and respond to the need for the project.

Five types of alternatives are evaluated in Section 2 of the EIS:

1. **No Action.** This alternative is a consequence of USACE not granting a permit for the proposed project. Under this alternative, no action would be taken beyond completing other roadway projects for which funds have already been committed and that meet permit requirements. Specifically, NJTA proposed Route 92 would not be constructed, nor would any other major traffic network improvement alternative be implemented as part of this project.
2. **Transportation Demand Management (TDM) Measures.** TDM measures are focused on reducing the number of single occupancy vehicles that contribute to congestion on roadways through measures such as ride-sharing, flex hours, and public transit.

3. **Existing local and county roadway capacity improvements.** This category includes alternatives that improve the capacity of existing local and county roads by widening existing roads and improving intersections. As recommended by the North Jersey Transportation Planning Authority (NJTPA) for transportation accessibility and mobility analyses, these alternatives constitute a category of alternatives known as Transportation System Management (TSM) measures (i.e., improvements to the existing roadway system that make it function more effectively).
4. **Improvements to existing regional system.** This category includes improvements to the existing regional roadway system, specifically improvements to US Route 1.
5. **New roadway facilities.** The category includes construction of new roadways, and may include either local roads, or highways, or both.

Within each of these five broad categories, the following specific alternatives are evaluated:

1. No Action
 - No permit is issued and no implementation of the NJTA proposed action (i.e., no implementation of the proposed regional roadway capacity improvements)
2. Transportation Demand Management
 - Ridesharing-Carpooling/Vanpooling Programs
 - Alternative Work Hours
 - Parking Management
 - High Occupancy Vehicle (HOV) Lanes
 - Transit Services and Support, including Bus Rapid Transit
 - Public Transit Operational Improvement
 - Bicycle and Pedestrian Facilities
 - Transportation Management Association Involvement
3. Existing Local and County Roadway Capacity Improvements
(New Lanes added to Existing Roads, or Intersection Improvements)
 - US Environmental Protection Agency (USEPA) Suggested Modified No-Build Alternative
 - Route 522 Widening (with and without extension to New Jersey Turnpike)
 - Dey Road Widening
 - Plainsboro - Cranbury Road Widening
 - Cranbury Neck Road Widening
 - Composite Local Roadway Improvements Program
4. Improvements to the Existing Regional Roadway System
 - US Route 1 Widening in South Brunswick
 - US Route 1 Widening in South Brunswick with Signal Removal

5. New Roadway Facilities

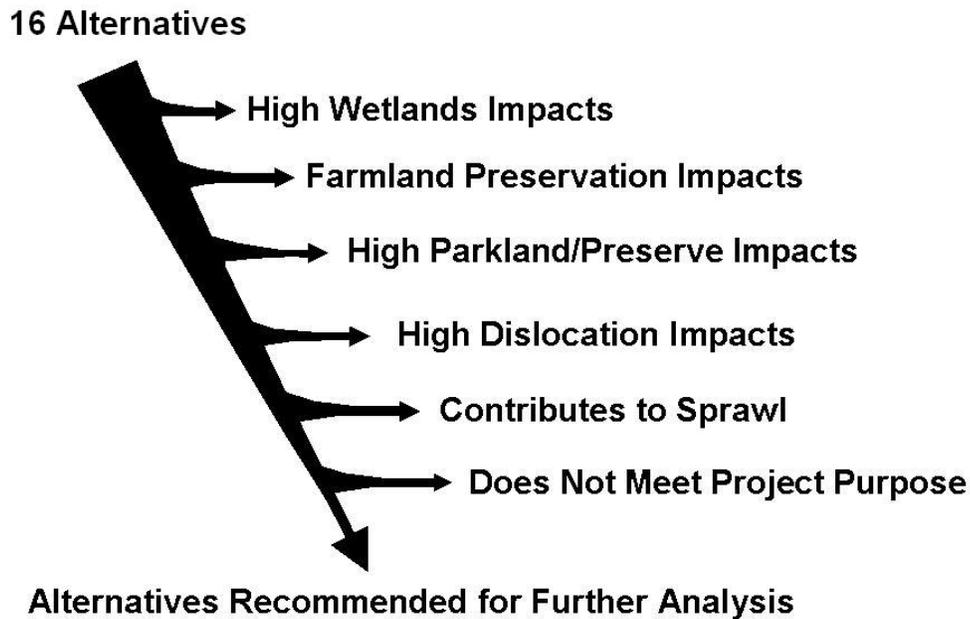
- NJTA Proposed Route 92 with Terminus at Route 1, including sub-alternatives
- USEPA Suggested Alignment
- Dey Road Parallel Alignment
- Plainsboro - Cranbury Road Parallel Alignment
- South Brunswick Alignment - Modified

NJTA has authority only to implement proposed Route 92 (or a modification thereof, such as the sub-alternatives discussed in Section 2). NJTA highway facilities are paid for by toll revenues collected from its users; these funds are not co-mingled with transportation funds for non-toll roadways. (Non-toll roadways are under the jurisdiction of NJDOT, counties, or municipalities.) NJTA toll revenues cannot be used for maintenance projects, unless they involve Turnpike facilities. Nevertheless, NEPA guidance (46 FR 18026) requires that alternatives that may be beyond the capability of the project sponsor to implement should be evaluated in an EIS as long as they are reasonable and potentially effective alternatives. Although other state or local sponsors would be needed to implement many of the alternatives, they have been examined equally with respect to ability to meet the project purpose and need, and their impacts.

The following review process was used to evaluate the alternatives:

- Alternatives that are similar in their ability to fulfill the project purpose but that are found to have comparatively greater adverse environmental impact as a result of the analysis of alternatives were not recommended for further consideration or more detailed study in the FEIS. Impacts that differentiated the alternative projects included wetland fill, loss of permanently protected farmland, loss of protected parklands/preserves, residential and commercial dislocation, and facilitating sprawl development. The evaluative stepwise process used to differentiate the alternatives, based on their environmental impacts, is illustrated in Figure ES-1.
- Alternatives that exhibited consistency with smart growth planning principles and the New Jersey State Development and Redevelopment Plan, and alternatives that exhibited potential to contribute to sprawl were assessed in the alternatives screening process.
- Alternatives were further differentiated based on their relative ability to meet the basic project purpose. Alternatives that exhibited low effectiveness in achieving traffic improvement pursuant to the traffic modeling analysis were not considered for more detailed analysis in the FEIS.
- Pursuant to the analysis of alternatives, those alternatives that best met the project purpose, on a comparative basis, and that exhibited fewer adverse environmental impacts, on a comparative basis, were then evaluated in additional detail with respect to their impacts in Section 4.

Figure ES-1
Alternatives Analysis



The results of the alternatives analysis are summarized in Table ES-1 and discussed below.

Implementation of TDM and transit measures would likely provide some relief from traffic congestion in the study area, but would not substantially address the project need. TDM and transit measures are most effective in reducing traffic congestion in locations that exhibit high densities of residential development and that are located near major employment centers. Interest in implementing a public transit system along the congested US Route 1 corridor led to initiation in 2004 of the Central New Jersey Route 1 Bus Rapid Transit (BRT) Alternatives Analysis, managed by New Jersey Transit. A report of the study issued in February 2006 estimates that a BRT system would increase the percentage of work trips using transit from a range of 2% to 4% to a range of 5% to 9% in the core study area of Plainsboro, West Windsor, Princeton Township and Princeton Borough. The report estimates that the BRT system would cost \$600 million to \$700 million to implement. The BRT study is continuing.

Previous analyses have suggested that a BRT system, together with smart growth land use development, implementation of travel demand reduction strategies, and highway improvements could reduce the anticipated growth in roadway congestion. The preliminary assessment appears to be consistent with ongoing studies, which suggest that BRT could be a complement to expanded road network capacity, but would unlikely be a substitute for it.

**Table ES-1
Alternatives Evaluation Summary**

| Alternative | Permanent Wetland/Open Water Impacts (acres) | Impact to Preserved Farmland (acres) | Parkland Impacts | Direct Impact to Historic Sites? | Residential Impacts | Commercial Impacts | Public Facilities Impacts | Facilitates Sprawl Development | Meets Project Purpose? |
|--|--|--------------------------------------|---|----------------------------------|---------------------|--------------------|---------------------------|---------------------------------------|------------------------|
| South Brunswick Alignment – Modified | 43.0 | 0 | Loss of 34 acres of Plainsboro Preserve | No | n/a | n/a | n/a | Slightly | No |
| Composite Local Roadway Improvements Program | 20.0 | 0 | 0 | Yes | 180 | 10 | 6 | Significantly | Partial |
| Dey Road Parallel Alignment | 3.6 | 27 | 0 | No | 63 | 4 | 0 | Significantly | No |
| Plainsboro – Cranbury Road Parallel Alignments | 5.6 | 33 | Public open space part of Estates at Grovers Mill Subdivision | Depends on alignment | 12 | 4 | 0 | Significantly | No |
| USEPA Suggested Alignment | 13.0 | 0 | Loss of 38 acres of Plainsboro Preserve | No | 11 | 0 | 1 | Slightly | Partial |
| Route 522 Widening (with/without extension to New Jersey Turnpike) | 2.0 / 7.0 | 0 | Pigeon Swamp State Park impact | No | 58 | 1 | 4 | Significantly | No |
| Plainsboro – Cranbury Road Widening | 0.6 | 0 | 0 | Yes | 41 | 5 | 2 | Moderately | No |
| Cranbury Neck Road Widening | 4.3 | 0 | 0 | Yes | 63 | 2 | 0 | Moderately | No |
| USEPA Suggested Modified No-Build Alternative | 1.2 | 0 | 0 | No | 0 | 0 | 0 | No | No |
| Dey Road Widening | 7.5 | 0 | 0 | No | 18 | 1 | 0 | Moderately | No |
| NJTA Proposed Route 92 with Terminus at Route 1 | 12.0 | 0 | 14 acres reserved for roadway in Plainsboro Preserve | No | 4 | 1 | 0 | Slightly, at Perrine Road interchange | Yes |
| Two-Lane Route 92 | 9.5 | 0 | Same as above | No | 4 | 1 | 0 | Slightly, at Perrine Road interchange | Partial |
| Phased Route 92 | 12.0 | 0 | Same as above | No | 4 | 1 | 0 | Slightly, at Perrine Road interchange | Yes |
| Route 92 without Perrine Road Interchange | 12.0 | 0 | Same as above | No | 4 | 1 | 0 | No | Yes |
| US Route 1 Widening in South Brunswick | 4.0 | 0 | 0 | No | 3 | 3 | 0 | Slightly | Partial |
| US Route 1 Widening in SB with Signal Removal | 7.7 | 0 | 0 | No | 8 | 7 | 0 | Slightly | Partial |

Shaded cells identify the principal disadvantages of each alternative.

Experience with TDM measures in suburban New Jersey indicates that the implementation of such measures would not replace the need for roadway system improvements, primarily because of their limited effectiveness in suburban areas with dispersed residential origins and dispersed employment destinations. However, TDM measures could be effective as complementary strategies, and the combined effect of several TDM measures might slightly reduce congestion, and could offset the potential for minor additional highway-capacity-induced single-occupancy-vehicle (SOV) trips. A coordinated package of TDM measures and roadway system improvements would be consistent with the goals and objectives of the North Jersey Transportation Planning Authority (NJTPA) Regional Transportation Plan for the study area.

Compared to the other alternatives, the South Brunswick Alignment – Modified and Composite Local Roadway Improvements Program alternatives have greater permanent impacts to wetlands and open water than almost all other alternatives. The Composite Improvements Program alternative also has substantial dislocation impacts, particularly residential dislocations (180). Both alternatives have significant potential to contribute to sprawl. Neither alternative would be effective in meeting the project purpose of improving regional mobility, because neither alternative would separate through traffic from local traffic, which is necessary to optimize regional travel while reducing local congestion. Because of their extensive impacts, these alternatives were identified as the least desirable.

The Dey Road Parallel Alignment and Plainsboro-Cranbury Road Alignment alternatives, while exhibiting lesser wetland impacts than the alternatives discussed above, have substantial impacts on farmlands preserved by law, and, in the case of the Dey Road Parallel Alignment, has substantial residential dislocation impacts (63). Both alternatives have significant potential to contribute to sprawl by creating new direct road access to undeveloped areas. Neither alternative would substantially meet the project purpose of improving regional mobility, because neither would separate local and through traffic. Under New Jersey's Farmland Preservation program, use of legally preserved farmland for non-farm purposes is strongly discouraged, and legal impediments greatly restrict use of such lands for non-farm purposes. While there are several categories of farmland protection and recognition, farmland preservation is the strongest. For this reason these alternatives were identified as substantially infeasible.

The USEPA Suggested Alignment alternative has greater wetland impacts than most of the alternatives, and substantial direct and indirect parkland impacts (loss of 48 acres of Plainsboro Preserve in a very important location in the Preserve). This alternative has only slight potential to contribute to sprawl, but would result in comparatively great impacts to the natural environment. This alternative would not fully meet the project purpose of improving regional mobility, because it relies on a 2.1-mile section of Scudders Mill Road, and would therefore not separate local and through traffic.

The Route 522 Widening alternative (with or without extension to the New Jersey Turnpike) exhibits relatively fewer wetland impacts. However, it has substantial

parkland impacts with the extension to the Turnpike (Pigeon Swamp State Park) and substantial residential and public facility dislocation impacts with or without the extension. With the extension to the NJ Turnpike, its impacts to the Pigeon Swamp wetland complex, which has been designated as a USEPA Priority Wetland and is included in the National Register of Natural Landmarks, are significant. This alternative has significant potential to contribute to sprawl. Without the extension to the NJ Turnpike, this alternative would not meet the project purpose of improving regional mobility. With the extension to the Turnpike, this alternative still would not substantially meet the project purpose, because Route 522 was not designed to accommodate the volumes of mixed local and through traffic it would attract.

The Plainsboro-Cranbury Road and Cranbury Neck Road Widening alternatives have relatively less wetland impact than the other alternatives, but exhibit major residential dislocation impacts (41 and 63 dislocations, respectively). These alternatives would cause great adverse social impact to the community. These alternatives have significant potential to contribute to sprawl, and they would not substantially meet the project purpose because they would not separate local and through traffic, which is necessary to optimize regional mobility.

The USEPA Suggested Modified No-Build alternative has few physical and socioeconomic impacts and would not contribute to sprawl, but fails to meet the project purpose. Two of the three improvements suggested under this alternative have been implemented, and were considered to be part of the existing road system when future traffic congestion was analyzed. Even though the traffic modeling analysis includes these improvements as background conditions, the traffic modeling analysis still identifies significant need for road network improvements (as described in Section 1, Project Purpose and Need, and the transportation analysis in Section 4) above and beyond these already implemented intersection improvements. While a new interchange at US Route 130 and Route 32 has not been implemented, this road system improvement would yield little benefit in improving east-west travel congestion because it does not improve travel capacity to points west of US Route 130. While a new interchange would provide slightly improved linkage between the New Jersey Turnpike and Route 130, this benefit would be provided at only one of four needed interchange locations to improve linkage between north-south highways.

The Dey Road Widening Alternative exhibits moderate wetland impacts (7.5 acres) and moderate residential dislocation impacts (18), and would facilitate sprawl to a moderate degree. Most significantly, the Dey Road alternative would use local roads to carry regional traffic, and does not provide an efficient connection to the New Jersey Turnpike because it increases the burden on local intersections as traffic moves toward Interchange 8A. Because this alternative exhibits moderate wetland and residential dislocation impacts and does not meet the project purpose it was identified as less desirable than other alternatives.

The USEPA Modified No-Build alternative and the Route 522, Plainsboro-Cranbury Road, Cranbury Neck Road, and Dey Road widening alternatives would not reduce regional through traffic using the local road system. Increasing levels of local and regional through traffic would create congestion on these roads, make local travel more difficult, discourage walking and bicycling, and reduce the quality of life in adjacent communities and neighborhoods.

A two-lane Route 92 sub-alternative would reduce wetland impacts by 2 acres and slightly reduce other environmental impacts relative to a four-lane configuration. However, it would be significantly less effective at improving regional mobility by separating through traffic from local traffic. Traffic modeling shows that a two-lane Route 92 would reach 100% of its capacity by 2008. A two-lane Route 92 was determined to insufficiently fulfill the purpose of the project, because it would not adequately address reduction of projected future congestion.

Similarly, a phased two-lane to four-lane Route 92 would be inefficient from a planning perspective, and would ultimately not decrease environmental or socioeconomic impacts, because the second phase would need to begin construction almost immediately upon completion of the first two lanes. However, because the phased Route 92 sub-alternative would meet the project purpose, and would temporarily avoid some environmental effects, it was considered for further study.

Removal of the Perrine Road interchange from proposed Route 92 would reduce the loss of farmland by approximately 5 acres, but would not significantly reduce other adverse impacts. It is also predicted to cause more congestion on Route 1 and local roads in the area because it would provide fewer access options for the office development area that currently exists between Schalks Crossing Road and US Route 1 (Forrestal Center and others). Because removal of the Perrine Road interchange would have limited environmental and socioeconomic benefit and would decrease the traffic improvement that would result from proposed Route 92 (and thereby increase congestion and air pollution), this sub-alternative was also eliminated from further consideration.

The US Route 1 Widening in South Brunswick (with or without signal removals) and NJTA Proposed Route 92 have minor to moderate wetland and dislocation impacts and minor park and socioeconomic impacts, while fully or partially meeting the project purpose. US Route 1 Widening with signal removal would have moderate commercial dislocation impacts. Proposed Route 92 would have an impact on the northern section of Plainsboro Preserve; however, when Plainsboro Township created the preserve it anticipated construction of proposed Route 92 through the preserve.

Based on the comparative assessment of the alternatives, two alternatives have been identified that have low to moderate wetland impacts, do not cause substantial adverse physical and/or socioeconomic impacts, reduce potential sprawl effects, and substantially meet the project purpose of improving regional mobility. They are:

- Proposed Route 92 with Terminus at Route 1, both as-proposed and with phased implementation
- Route 1 Widening in South Brunswick with Signal Removal

In addition, the No action/No build alternative (under which no permit is issued, and no project would be implemented to address project purpose and need) is carried through for further analysis.

The alternatives evaluated in the preceding sections were screened based on their environmental, social, and smart growth impacts, and their ability to meet the project purpose of improving regional mobility.

ES.1.4 Affected Environment

Section 3 of the FEIS describes the existing conditions of the environment within the project study area, and is the basis of the more detailed impact evaluation conducted in Section 4 of the FEIS for the No Action alternative, proposed Route 92, and the US Route 1 Widening alternative. Section 3 documents the environmental, cultural, transportation, socioeconomic, and land use settings of the alternative corridors and adjacent areas. The FEIS includes subsections on geology/soils, water resources, wetlands, fish and wildlife, farmland, historic and cultural resources, air quality, transportation, noise, aesthetics, known contaminated sites, human health, socioeconomics, land use, and environmental justice.

The Potential Impact Corridor for Proposed Route 92 is defined as a 1,000-foot-wide study area spanning the centerline of the proposed Route 92 project, reaching from US Route 1 near Ridge Road in South Brunswick to the New Jersey Turnpike at Interchange 8A in Monroe, including the proposed road improvements. The Potential Impact Corridor for US Route 1 Improvements is defined as a 1,000-foot wide swath spanning the centerline of US Route 1 between US Route 130 in North Brunswick and Independence Way in South Brunswick. The general Project Study Area comprises a larger area of several square miles surrounding the alternatives in southwestern Middlesex County and northeastern Mercer County.

The Project Study Area consists of relatively flat to rolling topography with land depressions generally consisting of water features (wetlands, watercourses, ponds and lakes). The elevation ranges from a low point of approximately 70 feet above mean sea level (MSL) to a high of approximately 260 feet.

The study area is characterized by palustrine wetland systems associated with Devil's Brook, Shallow Brook, Heathcote Brook, and Oakeys Brook (refer to Section 3.3.4). The majority of the potential impact corridor of Proposed Route 92 is within and adjacent to the Devil's Brook and Shallow Brook wetlands, while the potential impact corridor for the US Route 1 Widening is within and adjacent to the Heathcote Brook and Oakeys Brook wetlands. The Devil's Brook and Shallow Brook watersheds support extensive wetland complexes along their waterways. The Devil's Brook wetlands are generally

located north of, and parallel to, Proposed Route 92; the Shallow Brook wetlands are generally located south of, and parallel to Proposed Route 92. These wetland ecosystems range from emergent to forested vegetative communities.

The wetland systems in the vicinity of the proposed Route 92 project are generally characterized by a vegetative community consisting of an upper canopy of red maple, sweetgum, pin oak and green ash; a shrub canopy consisting of spicebush, sweet pepperbush, common greenbrier, highbush blueberry, and swamp azalea; and a moderately thick herbaceous layer consisting of skunk cabbage, cinnamon fern, sensitive fern and spotted jewelweed. In limited areas, the forested wetland gives way to emergent wetlands, characterized by herbaceous emergent plants with little or no overstory. Several man-made wetlands consist primarily of broad-leaved cattail and woolgrass.

The United States Fish and Wildlife Service (USFWS) records had indicated that potentially suitable habitat for the federally listed bog turtle is located in the vicinity of the proposed Route 92 project, along Lawrence Brook. In addition, USFWS noted that Cooper's hawk, savannah sparrow, and wood turtle, all state listed as threatened, are known to occur in the vicinity of the proposed project site. Two surveys were performed in the forested wetlands in the Devil's Brook area specifically for wood turtle and bog turtle; the surveys determined that there is in fact low potential for suitable wood turtle habitat and no potentially suitable bog turtle habitat in the project study area. According to USFWS, the project area is not designated as a "critical habitat" for threatened or endangered species under USFWS regulations.

NJDEP Natural Heritage Program (NHNHP) has records for occurrences of State of New Jersey (but not federal) listed species of southern arrowhead and low spearwort within the Proposed Route 92 Corridor. Comet darter, American waterwort, tall boneset, soapwort gentian, shore quillwort, slender water-milfoil, humped bladderwort, and Britton's coast violet have been documented near the immediate vicinity of the corridor. A rare plants evaluation was completed for the project; it found that of the species previously reported in the general vicinity of the project, only southern arrowhead was determined to be likely present within the proposed right-of-way. Tall boneset was not included in the rare plants evaluation, as it was not listed at the time the evaluation was performed. In addition, the Landscape Project, NJDEP Division of Fish and Wildlife's publicly-available critical habitat mapping program, shows that suitable habitat patches of emergent wetland, forest, grassland and forested wetland occur on the project site, and has records for bobolink, savannah sparrow, and wood turtle in habitat patches within the Project Study Area. Refer to Section 3.3.5 for further discussion on fish and wildlife.

The core Traffic Study Area (see Section 3.7) consists of the towns of South Brunswick, Plainsboro, and Cranbury in southwestern Middlesex County; and the townships of West Windsor and East Windsor (including Hightstown) in northeastern Mercer County. The main highways serving traffic passing through this area are all oriented in

a north-south direction: the New Jersey Turnpike (with Interchanges 8 and 8A along the area's eastern edge) and US Route 130 on the eastern side of the area, and US Route 1 and NJ Route 27 on the area's western side. NJ Route 32 provides a connection between US Route 130 and the New Jersey Turnpike at Interchange 8A.

A series of east-west local and secondary roads connect to the four north-south highways in the Traffic Study Area, providing access to the towns as well as serving local circulation needs. These roads include County Route 610 (Deans Lane), Major Road, New Road, County Route 522, Ridge Road, Friendship Road, Broadway Road, Dey Road, Scudders Mill Road, Plainsboro Road, Cranbury Neck Road, and County Route 571. The newly constructed Hightstown Bypass (NJ Route 133) is a 3.7-mile, divided, four-lane limited-access highway in the town of East Windsor, allowing east-west traffic passing through East Windsor to bypass the town of Hightstown. The principal peak hour traffic flows in the Traffic Study Area are the north-south flows along US Route 1, the New Jersey Turnpike, and US Route 130. The most serious congestion in the Traffic Study Area, however, occurs on the two-lane east-west roads, such as Dey Road, Plainsboro Road, and Ridge Road. Currently, approximately 16 percent of traffic on these roads is through traffic.

Section 3.12.1 provides demographic information for the four municipalities in the Project Study Area. The population of South Brunswick Township, the largest of the five Traffic Study Area municipalities, increased by 46 percent between 1990 and 2000, principally as a result of land development. This was the highest growth rate among the five municipalities, and was almost four times greater than the 12 percent growth of the Middlesex County population during that decade. The population of Plainsboro Township grew 42 percent between 1990 and 2000. The Middlesex County Planning Department (MCPD) projects that the population of both South Brunswick and Plainsboro will increase by 50 percent between 2000 and 2020, three times the growth rate projected for the County as a whole. The population of Monroe Township grew 26 percent between 1990 and 2000; MCPD projects that the population of Monroe Township will increase by 35 percent between 2000 and 2020. The population of North Brunswick Township grew 16 percent between 1990 and 2000; MCPD projects that the population of North Brunswick will increase by 22 percent between 2000 and 2020.

Zoning in the project corridor study areas ranges from low-density residential to commercial to light industrial. The Proposed Route 92 Corridor passes mainly through office/research/conference and low-density residential areas. Approximately 3.9 miles of the 6.7 miles of proposed Route 92 would pass through land currently assessed as farmland for property tax purposes. The agricultural land through which Route 92 would pass is somewhat concentrated in the western and central portions of the corridor, but a significant stretch of the eastern portion of the proposed Route 92 would also pass through active agricultural land. The US Route 1 Corridor lies mostly within industrial and commercial areas. Refer to Section 3.13.2 for more information on land use and zoning.

ES.1.5 Environmental Impacts

As discussed in Section 2, the alternatives proposed over the history of the Route 92 project were evaluated to ascertain how well each meets the project purpose and to assess its comparative potential environmental impact. Among the broad set of alternatives considered in Section 2, a subset of alternatives that best met purpose and need with relatively lower levels of impact were recommended for more detailed analysis.

The environmental impacts of the No Action alternative, the Route 92 alternative (and phased subalternative), and the US Route 1 Widening and Signal Removal alternative are discussed in Section 4. Some of the US Route 1 alternative impact discussion is divided into “widening only” and “widening with signal removal”, which helps to segregate impacts by construction element, because a significant portion of the impact of that alternative would be due to intersection alteration rather than the widening of US Route 1.

Several types of impacts are presented in Section 4. The Federal Council on Environmental Quality regulations (40 CFR 1508.8 and 1508.7) define the impacts that must be evaluated during the NEPA process. *Direct impacts* are those that are caused by a proposed project and occur at the same time and place. For example, the loss of wetland value and acreage from filling would be a direct impact. *Indirect impacts* are caused by a project, but occur later in time or are removed in distance. Induced development resulting from increased highway traffic is an example of an indirect impact. *Cumulative impacts* result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future action that may be undertaken by any party. Economic growth in a region after increased development could be considered a cumulative impact.

Through the course of preparing this EIS, several specific impact issues have been identified that combine several environmental and/or socioeconomic parameters, and therefore are better served by an integrated discussion. Included in this list are the following:

- **Devil’s Brook Watershed/Wetland Complex.** Most wetland impacts related to the proposed Route 92 project would occur within the Devil’s Brook wetland complex. This entire forested system is approximately 1,650 acres. The proposed Route 92 project would traverse the southern half of the forested tract, leaving a 500-acre area south of the roadway and a 1,150-acre area north of the roadway. Originally, the Devil’s Brook stream corridor and wetland complex flowed southwest through what is now the Plainsboro Preserve. A private farm road along the Plainsboro-South Brunswick border, often called Turkey Island Road, crosses Devil’s Brook at the same location where proposed Route 92 would cross the brook. Formerly, a 4-foot culvert carried the flow of Devil’s Brook under Turkey Island Road. At least 10 years ago, the Turkey Island Road culvert was blocked and the entire flow of Devil’s Brook was diverted to the northwest through a drainage channel along the Plainsboro-

South Brunswick border. This channel flows into a drainage channel that parallels the Amtrak Northeast Corridor rail line. The drainage channel along the Amtrak line flows southwest to a point west-southwest of McCormack Lake, where it merges with the flow from the lake and the flow of Shallow Brook from Broadway Swamp to the east. Under existing conditions, the flow of the northern branches of Devil's Brook does not reach McCormack Lake or the forested wetlands along Devil's Brook northeast of the lake.

Impacts of proposed Route 92 to the hydrology of the Devil's Brook wetlands complex would be reduced by several features of the proposed roadway design, such as culverts and bridges. Specifically, two 500-foot-long bridges are proposed to span this wetland complex (one at Devil's Brook and one at the Amtrak rail line), preserving the surface and subsurface water hydrology. These structures would also enable the passage of reptiles, amphibians, and larger animals, thus reducing fragmentation effects on these populations. The placement of roadway fill would lead to some localized surface and subsurface changes to the wetlands immediately adjacent to the roadway.

Forest fragmentation is also a concern, as this could affect neotropical bird migration. While fingers of forested land crossing the Proposed Route 92 Corridor could be negatively affected by fragmentation, most of the forested Devil's Brook wetland complex would remain undisturbed (approximately 1,150 acres north of the proposed roadway and 500 acres south of the proposed roadway). Broadway Swamp, also adjacent to the proposed alignment, consists of a minimum of 2,400 acres of forested land south of the proposed roadway. About 12 acres of wetlands would be filled as part of the construction of proposed Route 92. Impacts to surface and groundwater quality due to highway runoff are also a concern along the proposed project. NJTA has committed to full compliance with stormwater management requirements recently adopted by NJDEP, which require significant improvements in the quality of runoff before discharge. A range of stormwater Best Management Practices (BMP's), including extended detention basins, low velocity overland flow, and bioretention are proposed to control water quality impacts.

- **Plainsboro Preserve.** The proposed Route 92 project would pass through the northern end of the Plainsboro Preserve. Approximately 12.5 acres of the preserve north of the proposed roadway would be separated from the rest of the preserve. As with other parts of the Devil's Brook watershed, habitat and hydrologic fragmentation is a possible result. As discussed above, however, roadway design would allow both surface water and wildlife to cross under the highway. Adverse aesthetic impacts of proposed Route 92 would be diminished by the existing forest present over much of the preserve. Because the proposed roadway is at the northern end of the Plainsboro Preserve, construction- and use-related impacts would be restricted to a relatively small portion of the preserve. The project would not significantly affect the wildlife and aesthetic value of the entire property.

- **Historic Resources.** The historic Village of Kingston has expressed concerns regarding the volume of traffic using the local roads that would travel to and from Route 92 on Kingston's local roads. Of particular concern is travel on Heathcote Road, a two-lane rural roadway without shoulders, bordered by residences constructed very close to the road. Together with Ridge Road, it provides an east-west connection between US Route 1 and NJ Route 27. The Heathcote Road intersection with NJ Route 27 is the major intersection in the Village. The network model used for this project estimates that proposed Route 92 would not increase overall traffic in Kingston, but an additional 20 trucks would use Heathcote Road and the adjacent portion of Ridge Road during each peak hour. If restrictions on truck traffic and traffic calming measures were implemented on this road, the traffic impact of proposed Route 92 on Heathcote Road would be reduced.
- **Consistency with Planning Principles and the New Jersey State Development & Redevelopment Plan.** Proposed Route 92 would draw regional through-traffic away from local roads. This is expected to make local driving more amenable and efficient and facilitate alternative forms of transportation, such as walking and bicycle riding. Removal of through traffic from neighborhood centers would improve quality of life and would tend to strengthen the identification of residents with their communities while fostering more efficient development designs (such as interconnected developments, which are generally not desirable when they become routes for through traffic).

The areas in South Brunswick where proposed Route 92 might potentially stimulate development—the interchange areas—are areas the Township has designated for commercial and industrial development. The area in South Brunswick where Route 92 would have no interchanges, and would therefore have little potential to stimulate development, is an area South Brunswick has designated for relatively sparse development. Proposed Route 92 could stimulate development in areas where South Brunswick has planned for commercial and industrial development to occur.

The Plainsboro Master Plan states that proposed Route 92 is “a priority for the Township,” and that the Township supports Route 92 and “encourages [its] timely implementation.”

With respect to the New Jersey State Development and Redevelopment Plan, proposed Route 92 would begin and end in a Suburban Planning Area, PA2, and would pass through an Environmentally Sensitive Planning Area, PA5. The State Plan “anticipates continued growth throughout New Jersey in all Planning Areas.” Development is encouraged in PA1 and PA2 and is accommodated in PA3, PA4 and PA5. The State Plan directs that infrastructure investment decisions should encourage growth in areas that are already developed or are currently developing, and should discourage development sprawl into undeveloped areas. Proposed

Route 92 would have no interchanges in the Environmentally Sensitive Planning Area, and would therefore not directly enhance access to that area.

Proposed Route 92 interchanges near the Environmentally Sensitive Planning Area (for example, the proposed Route 92-Perrine Road connection) would indirectly enhance access to that area, and potentially accelerate existing development trends. NJTA believes that improved mobility must be coupled with a coordinated attempt on the part of local municipalities and state agencies (through New Jersey's Smart Growth initiatives) to reshape existing and proposed developments that support and sustain traffic relief provided by proposed Route 92. State agencies look to collaborate closely with local communities to ensure that future development occurs in sustainable patterns.

- **Induced Development.** Much of the open land within the proposed Route 92 Corridor is currently zoned for residential or commercial development. Growth and development pressures exist independent of the development of proposed Route 92, and much of the development that is proposed would likely occur with or without proposed Route 92.

Because proposed Route 92 would be a limited access highway, it would not enable linear development along its route. With no interchanges between Perrine Road and US Route 130, it would not connect to cross streets that would make available new lands for development. Secondary development impacts could potentially occur at the interchanges of proposed Route 92 with US Route 1, Perrine Road, US Route 130 and New Jersey Turnpike Interchange 8A. The lands surrounding the interchange areas are already extensively developed, approved, or zoned for development. Control of future development in these locations remains principally under the jurisdiction of the municipal development review process and the guidance of municipal Master Plans.

Proposed Route 92 is designed to maintain mobility on the local and regional road networks. Transportation modeling conducted for this EIS indicates that Route 92 would not provide transportation capacity beyond what is currently needed (i.e., no excess capacity is proposed). Rather, traffic modeling indicates that Route 92 would provide only the transportation capacity needed to accommodate growth that has already occurred or is already in the process of occurring. Without improvements such as Route 92, traffic growth would continue and the gap between the volume of traffic and the capacity to accommodate traffic would become steadily larger. The effect of the widening gap is to decrease the quality of life for existing residents as a result of significant congestion.

Because implementation of the US Route 1 Widening and Signal Removal alternative would do little to facilitate access to undeveloped areas, it would have little impact on "sprawl" development.

The remaining impacts set forth in Section 4 can be summarized as follows:

- **Floodplains.** The construction of the proposed Route 92 project would result in floodplain reduction at Heathcote, Devil's and Shallow Brooks within the Millstone River watershed. For any construction project, the Federal Emergency Management Agency (FEMA) prohibits encroachment within the 100-year flood boundary that will cause an increase in flood heights of greater than 1.0 foot. The State of New Jersey prohibits encroachment within the flood hazard area that will cause an increase in flood heights of greater than 0.2 feet. In general, the hydraulic analyses show that the construction of proposed Route 92 would not have a major impact on the water surface elevation of the affected brooks and tributaries, with the exception of the tributary to Heathcote Brook crossed by US Route 1. New Jersey Department of Environmental Protection regulations limit the fill or reduction of floodplain volume below the 100-year flood to a maximum of 20 percent of the flood fringe area within the right-of-way. Three of the proposed floodplain takings or net fills within the Proposed Route 92 Corridor exceed this 20 percent rule. NJTA requested exemption from the requirement when it submitted a new Stream Encroachment Permit Application to NJDEP in December 2004. NJTA and NJDEP look to ensure that the proposed project does not result in additional flooding impacts, and that it complies fully with recently enacted NJDEP stormwater management rules.
- **Water Quality.** Impacts to the waterways in the region from bridge and roadway construction, vehicular traffic, and application of deicing material could include effects of sediment and particulate matter, petroleum hydrocarbons, metals, solids and floatables, nutrients, pathogens, pesticides, and road salt. The estimated pollutant loads from proposed Route 92 would be reduced by use of Best Management Practices (BMPs), such as extended detention basins, manufactured treatment devices, and bioretention, to control water quality impacts. The 2004 Stream Encroachment Permit Application states that proposed Route 92 would comply with the New Jersey requirement that 80% of suspended solids be removed from highway runoff. Other pollutants in the runoff would also be reduced by the proposed stormwater management controls.

As most of the soils in the Project Study Area are hydrologic group B, C or D, representing moderate, slow and very slow rates of water transmission, infiltration of stormwater runoff generated by proposed Route 92 or its alternatives should not pose an adverse threat to groundwater quality. Pollutant levels would be reduced by the proposed BMPs, and, after discharge, would be taken up by plants, adsorbed by sediments and soil, or broken down by microorganisms in the soil before reaching the groundwater table.

The creation of additional impervious surfaces along US Route 1 would result in increased stormwater runoff rates compared to current conditions. If uncontrolled, the additional stormwater from US Route 1 could carry significant amounts of vehicle-related contaminants from the roadway into surface and groundwater resources. The current stormwater system in place along US Route 1 would have to be updated to convey and treat the additional stormwater runoff created by

expansion of this roadway. Various state, county and regional agencies have stormwater management regulations with which this construction would have to comply.

- **Wetlands.** As discussed in Section 4.2.3.4, 11.58 acres of wetlands and 0.45 acres of open water would be permanently filled during construction of proposed Route 92, and an additional 1.16 acres of wetlands would be permanently affected by shading from elevated sections of the roadway. To mitigate for the impact, NJTA proposes to create approximately 56 acres of wetland extending north and south from the proposed Route 92 alignment east of Haypress Road (see Section 5.3.4). The constructed wetland would be hydrologically connected to the wetland complex bordering Devil's Brook, the same wetland that would experience most of the 11.58 acres of wetland filling associated with proposed Route 92. The replacement wetland would be designed as a wetland complex composed of 12.24 acres of emergent marsh and wet meadow, 8.2 acres of scrub-shrub wetland, and 36.7 acres of forested wetland. The mitigation plan also includes creation of 0.85 acres of open water. An additional 202 acres, mostly forested wetland with some forested upland in the vicinity of Friendship Road and Miller Road, would also be preserved by NJTA as part of project mitigation.

Widening US Route 1 by two lanes (one northbound and one southbound lane) would impact approximately 4.0 acres of palustrine forested wetlands. Construction easements associated with temporary disturbance would increase this estimate. An additional 3.7 acres of wetlands would be lost as a result of roadway improvements needed to grade-separate the five targeted intersections for the US Route 1 Widening and Signal Removal alternative. Appropriate wetland mitigation would be required.

- **Wildlife.** Implementation of the proposed Route 92 project would not significantly reduce the usable habitat within the proposed Route 92 Corridor. Some interior forest habitat would be lost; however, wildlife ability to travel and the connection of the forest to the north with the forest, lake and grassland in the south would continue to exist. Major tracts of forest north and south of proposed Route 92 would remain unaffected by the project. The post-development grassland habitat should continue to provide suitable habitat for a variety of bird species.

US Route 1 widening would result in the loss of vegetation and associated wildlife habitat along the new roadway right-of-way. Assuming the US Route 1 widening requires an additional 8 to 10 feet of roadway to accommodate the proposed third north- and southbound lanes, approximately two acres of vegetated habitat would be taken for roadway construction. Additional vegetation would be disturbed during construction, as staging areas would be required along the approximately 7 miles of affected roadway. Although revegetation is usually required at the end of a construction period, it takes several decades to recreate forest habitat that might be lost during construction. An additional 8.5 acres of vegetation and associated habitat

would be lost as a result of roadway improvements needed to reconstruct the five targeted intersections for the US Route 1 Widening and Signal Removal alternative.

- **Threatened and Endangered Species.** USFWS lists habitat for federally listed bog turtle in the vicinity of the Proposed Route 92 Corridor (along Lawrence Brook), as well as state listed Cooper's hawk, savannah sparrow, and wood turtle. NJDEP also notes habitat for several other state listed species. Field surveys determined that suitable habitat for bog and wood turtles is not present within the proposed Route 92 right-of-way along Devil's Brook. Since Lawrence Brook drains to the north and Devil's Brook drains to the south, construction of Proposed Route 92 would not affect any listed bog turtle habitat located along Lawrence Brook. Several field surveys were previously conducted to confirm the presence or absence of individual threatened or rare plant species within the proposed right-of-way; only southern arrowhead was discovered within the right-of-way. Surveys were also conducted for Species of Concern (SOC) as identified by the New Jersey Division of Fish, Game and Wildlife (NJFGW). Although some of the SOC are not present within the project area due to lack of suitable habitat, some SOC might utilize habitat within the project area.

No threatened or endangered species habitat would be expected to be affected by the US Route 1 Widening alternatives, since the vegetated area affected would consist of relatively narrow bands on both sides of developed US Route 1. Additional studies would be required to determine if these species inhabit this area, but the long history of US Route 1 as a major travel route and the habitat fragmentation caused by existing development indicate a low potential for suitable habitat, especially at the roadway fringe.

- **Farmland.** The proposed Route 92 roadway and associated interchanges would displace approximately 210 acres of active agricultural land. In addition, the proposed roadway would interfere with access to an additional 78 acres of agricultural land. None of the agricultural land that would be displaced or made inaccessible is in an agricultural development area (ADA), and none of the land is subject to preservation easement under the New Jersey Farmland Preservation Program.

Because the widening of US Route 1 from four lanes to six would take place within the existing right-of-way, no significant impacts to farmland along US Route 1 would occur. However, it is likely that portions of three of the five interchanges would have to be constructed on land assessed as farmland for the Route 1 Widening and Signal Removal Alternative. Construction of a new interchange at Beekman Road and Northumberland Way could require acquisition of several acres of farmland east of US Route 1 and south of Northumberland Way. Construction of a new interchange at New Road could require acquisition of two narrow lots apparently used to access a large area of agricultural land east of US Route 1 and

New Road. It is likely that a new interchange at Route 522 would be built primarily in farmland-assessed woodland south of Route 522 on both sides of US Route 1.

- **Historic Resources.** Neither of the historic structures previously judged to be affected by proposed Route 92 (the Van Pelt-Clark House and the Dey-Bayles House) still exists. A cultural resources assessment conducted by Richard Grubb and Associates in 2002 concluded that there is a low probability that proposed Route 92 would affect archaeological or historic properties.

Most of US Route 1 between Trenton and New Brunswick, known historically as the Trenton and New Brunswick Straight Line Turnpike, is potentially eligible for listing in the National Register of Historic Places. The interchange between US Route 1 and proposed Route 92 would fall along this stretch of US Route 1. Construction of the interchange would not change the historic alignment of the primary roadway of US Route 1, but would alter the character of the roadway at the new interchange.

A cultural resources assessment identified five small areas near the US Route 1 interchanges that have a moderate to high probability for the presence of prehistoric and historic archaeological resources. Further background research, site assessment and subsurface testing to evaluate the potential impacts of interchange construction on prehistoric and historic archaeological resources would be required to assess the impacts of the US Route 1 Widening and Signal Removal alternative. No structures exist in the vicinity that appear to be eligible for listing in the National Register of Historic Places. It is therefore unlikely that construction of the interchanges would affect historic architectural resources.

- **Air Quality.** The air quality impact analysis indicates that air quality would improve with or without proposed Route 92, primarily in response to more stringent federal emissions standards. With Route 92, regional vehicular emissions of carbon monoxide (CO), nitrogen oxide (NO_x) and volatile organic compounds (VOCs) would be reduced by 35 to 88 percent compared to existing conditions. CO and VOC reductions would be slightly smaller without Route 92. With Route 92, CO ambient concentrations at the worst congested intersections in the study area would also be further reduced.
- **Transportation.** The construction of proposed Route 92 is expected to reduce the amount of peak-hour through traffic on the local and secondary east-west roads by 18 percent in 2028, as compared with the No Action alternative. Through traffic may decrease by more than 60 percent on several of these roads. In addition to reducing peak-hour traffic levels on the existing east-west roads in the Traffic Study Area, modeling indicates that construction of proposed Route 92 would generally reduce peak-hour traffic volumes along the most constricted portion of US Route 1 in South Brunswick and North Brunswick.

The model also indicates that the construction of Route 92 would result in a 17 percent reduction in peak-hour truck volume on the local and secondary east-west

roads in the Traffic Study Area, and along NJ Route 27 in Kingston. Peak-hour travel times between representative points are projected to decrease by an average of 10 percent as a result of the construction of proposed Route 92. Peak direction travel times between US Route 1 in Plainsboro and New Jersey Turnpike Interchange 8A are expected to improve by about 30 percent.

The US Route 1 Widening and Signal Removal alternative would be expected to reduce the amount of through traffic on the local and secondary east-west roads by 10 percent, as compared with the No Action alternative. Modest reductions in peak-hour traffic volumes on the local and secondary east-west roads in the Traffic Study Area, including in the sensitive areas listed in Section 1 (Plainsboro Center, South Brunswick Center, and Princeton Junction Center), would be expected. More significant reductions in peak-hour traffic volumes would be expected along NJ Route 27 in Kingston.

While the traffic-carrying capacity of US Route 1 would substantially increase, this increase would attract to US Route 1 a large number of vehicles that would otherwise use alternate routes to avoid congestion on US Route 1. As a result, US Route 1 would be expected to remain heavily congested in the peak hour in the peak direction. Most of the new traffic attracted to US Route 1 would be rerouted away from US Route 130 and the New Jersey Turnpike, which would likely be left with spare capacity.

If US Route 1 were widened, peak-hour truck volumes on the local and secondary east-west roads would be expected to drop by 8 percent as compared with the No Action scenario. The severe peak-hour congestion that is expected to occur in the Traffic Study Area due to the large amount of development expected over the next 25 years is not expected to be relieved. Most of the trips that would be diverted to US Route 1 would come from other north-south routes that are relatively uncongested. Peak hour travel times between representative points are projected to decrease by an average of 5 to 6 percent as a result of this alternative. Peak direction travel times between US Route 1 in Plainsboro and New Jersey Turnpike Interchange 8A would be expected to improve by 10-15 percent. The model demonstrates that US Route 1 Widening and Signal Removal would partially meet NJTA's objectives for this project.

- **Noise.** With the Route 92 alternative, eight receivers (defined in Section 4.2.8) would experience noise levels exceeding the applicable noise abatement criteria (NAC). The comparison of 2028 Route 92 Alternative projected traffic noise levels with existing and 2028 No Action noise levels indicates that projected noise levels do not exceed the existing noise levels by 10 dBA or greater. Proposed Route 92 would increase the Existing and 2028 No Action traffic noise levels by up to 9 and 7 dBA, respectively. Under the No Action alternative, two residential receivers and one institutional receiver would be impacted by noise exceeding the applicable NAC in 2028. Under the Route 92 alternative, five residential receivers would be impacted in

2028. Under existing (2002) conditions, the applicable NAC is exceeded at one residential receiver and one institutional receiver.

Noise modeling results for the five US Route 1 intersections redesigned as contemplated in this EIS indicate that for two interchanges a 67-dBA noise contour would extend approximately 300 feet from the center of the interchange on either side of US Route 1. For the other redesigned interchanges the 67-dBA-noise contour would extend approximately 200 feet from the center of each interchange on either side of US Route 1. One residential receiver would be impacted for three of these interchanges and none would be impacted at the other two interchanges. Since these are not new interchanges, but are only redesigned, the number of potential receivers that would be impacted compared to not redesigning these interchanges should be similar.

Nomograph modeling results indicated that during peak AM traffic conditions the No Action US Route 1 alternative traffic volumes and speeds would generate noise level of 66 dBA or greater approximately 150 feet from the edge of US Route 1. There are 16 residential receivers within or close to 150 feet from the edge of US Route 1. Therefore, these residences would most likely experience noise levels that would approach or exceed the 67 dBA NAC. Adding a lane of traffic to both sides of US Route 1 would increase noise levels at 150 feet from the edge of US Route 1 by approximately 2 dBA. This increase in noise level is considered barely perceptible. Both US Route 1 Improvement alternatives would generate a 67-dBA-noise level approximately 200 feet away.

- **Socioeconomics.** Construction of proposed Route 92 could potentially complicate access to a small number of business establishments, primarily near the eastern and western ends of the alignment. These include approximately seven businesses on NJ Route 32 east of US Route 130. The affected businesses are not the types that draw their customers from among passing motorists. Therefore, the economic impact is expected to be relatively small.

Proposed Route 92 is expected to draw traffic off local roads, and would be patrolled by the New Jersey State Police. Route 92 would not generally increase the burden on local police departments, and could reduce that burden by reducing traffic and traffic-related incidents on roads for which the local police are responsible. Local fire companies and rescue squads would provide services on proposed Route 92. Although proposed Route 92 would increase the total miles of roadway to be covered by local fire companies and rescue squads, this increase would be offset by a reduction in traffic on local roads. In addition, by improving traffic movement on local roads, Route 92 would reduce the time required to respond to emergencies on local roads.

Implementation of the US Route 1 Widening and Signal Removal Alternative would increase the capacity of the local and regional road networks. This would increase

the population and the level of economic activity that could be accommodated in the local area and the region. A widened and signal-free US Route 1 would draw traffic from local roads. This would discourage growth of traffic-related business activity on local roads to some degree, and encourage growth on US Route 1. Because US Route 1 would not be a limited access highway, the tendency for growth to concentrate at the new interchanges would be present, but would be relatively weak.

- **Land Use.** Acquisition of the right-of-way for proposed Route 92 and associated interchanges would displace four residential properties, all in South Brunswick Township. Acquisition of the right-of-way for proposed Route 92 and associated interchanges would displace one business directly in the path of the proposed ramp from southbound US Route 1 to Ridge Road. A building owned by NJTA would also be displaced. Two vacant commercial/industrial buildings would be displaced because they are at the point where the ramp connecting proposed eastbound Route 92 would merge with northbound US Route 1. Realignment of Research Way at the proposed Perrine Road-Route 92 interchange would displace three ball fields on a 20-acre recreational facility owned by Princeton University. The eastbound service road for proposed Route 92 would pass through the northern end of four developed commercial properties on the south side of NJ Route 32 between Cranbury-South River Road and Herrod Boulevard in South Brunswick. Alternate access would have to be provided for two of the properties.

US Route 1 is a long-established major highway exhibiting linear (principally commercial) development. Widening with signal removal would reinforce its character as a regional business-oriented highway.

The widening of US Route 1 to six lanes would occur within the existing right-of-way. Therefore, the US Route 1 Widening Alternative would not have significant impacts on existing land use. The potential land use impacts of the five new interchanges included in the US Route 1 Widening and Signal Removal Alternative include displacement of approximately 5 residences, impacts (including displacement) to 6 businesses, and the loss of up to 18 acres of agricultural land.

ES.2 Relationship to Environmental Protection Statutes and Other Environmental Requirements

Proposed Route 92 requires a permit from USACE allowing filling of wetlands under Section 404 of the Clean Water Act (33 USC 1344). This permit is commonly called a "Section 404 permit." NJTA submitted an application for a Section 404 permit for proposed Route 92 on January 6, 1999. USACE conducted a public hearing on the application on March 29, 1999. This EIS will assist USACE in determining whether to issue a Section 404 permit for the project. The EIS process is following USACE procedures for implementing NEPA in 33 CFR parts 230 and 325. A public hearing on the draft EIS was held on May 20, 2004.

NJTA submitted an application for a freshwater wetlands individual permit (FWIP) for proposed Route 92 to NJDEP in September 1996. On March 29, 1999, NJDEP issued the FWIP and Water Quality Certificate for proposed Route 92. The FWIP and Water Quality Certificate expired March 29, 2004, and NJTA reapplied for them in September 2005.

Because implementation of proposed Route 92 would involve construction in flood plains, the project also requires a stream encroachment permit from NJDEP. NJTA submitted an application for a stream encroachment permit for proposed Route 92 on November 21, 1996. Six revisions and supplements to the application were submitted, the last of which was submitted on April 21, 1999, but NJDEP did not act on the application. NJTA submitted a new stream encroachment application on December 27, 2004.

The Freehold Soil Conservation District must certify the soil erosion and sediment control plan for proposed Route 92. The plan was submitted for certification on July 30, 1997 and was certified on April 6, 1998. The certification expired on October 6, 2001. The soil erosion and sediment control plan will have to be resubmitted for certification.