Improvements at New Jersey Turnpike Interchange 9
*Township of East Brunswick, Middlesex County, New Jersey*

# EO 215 Environmental Impact Statement (DRAFT)


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## RAMP ABBREVIATIONS

**Ramp ET:** Ramp from NJ Route 18 northbound to toll plaza

**Ramp NT:** Turnpike southbound exit ramp

**Ramp SIT:** Ramp from the northbound Turnpike inner lanes to the toll plaza

**Ramp SOT:** Ramp from the northbound Turnpike outer lanes to the toll plaza

**Ramp ST:** Turnpike northbound exit ramp

**Ramp TE:** Ramp from the toll plaza to NJ Route 18 southbound

**Ramp TNO:** Ramp from the toll plaza to the Turnpike outer northbound lanes

**Ramp TSO:** Ramp from the toll plaza to the Turnpike outer southbound lanes

**Ramp TW:** Ramp from the toll plaza to NJ Route 18 northbound

**Ramp WT:** Ramp from NJ Route 18 southbound to toll plaza

# 1.0 DESCRIPTION OF THE PROPOSED PROJECT

## 1.1 Introduction

The New Jersey Turnpike Authority (NJTA) proposes to address safety and operational deficiencies at Interchange 9 of the New Jersey Turnpike (Turnpike) by improving existing roadway geometry and traffic operations. This Environmental Impact Statement (EIS) inventories the existing conditions of the site, describes the environmental implications of the proposed project, and identifies proposed mitigation measures.

New Jersey Executive Order No. 215 (1989) requires all departments, agencies and authorities of the State to prepare and submit an environmental assessment or environmental impact statement to the New Jersey Department of Environmental Protection (NJDEP) to document and support all major construction projects. Projects with construction costs in excess of $5 million and land disturbance in excess of five acres are considered Level 2 projects and are subject to the preparation of an EIS. The construction cost of this project is estimated to be $26 million and it is expected to result in approximately 17 acres of ground disturbance.

The EIS has been prepared in accordance with the requirements established in Executive Order No. 215. Section 1.0 of the EIS introduces and describes the project. The purpose and need statements for the proposed project are described in Section 2.0. Section 3.0 provides a description of the existing conditions within the project area and the potential implications the proposed project may have on the resources present within the project area. An alternatives analysis evaluating each alternative on engineering and environmental parameters is included in Section 4.0. Section 5.0 provides a review of the public outreach effort and agency coordination. Anticipated approvals for the project are listed in Section 6.0.

## 1.2 Project Sponsor

The NJTA is the sponsor of the proposed project. NJTA was established by the Turnpike Authority Act (N.J.S.A. 27:23-1 et. seq), which was enacted by the State Legislature in October 1948. The purpose of the NJTA is “to construct, maintain, repair and operate a modern express highway in New Jersey”.

## 1.3 Project Setting, History and Regional Transportation Context

Interchange 9 is located at Turnpike milepost 83.0 in the Township of East Brunswick, Middlesex County. The interchange consists of twelve ramps and a sixteen lane toll plaza with five entry lanes, ten exit lanes and one closed reversible lane.

The majority of the Turnpike was constructed in 1951 and was the first toll road in New Jersey. It runs from Carneys Point Township, Salem County to Fort Lee Borough, Bergen County, connecting interstate crossings of the Hudson and Delaware Rivers. The Pearl Harbor Memorial Extension was constructed in 1954 and connects the mainline at Interchange 6 with the Pennsylvania Turnpike. The Newark Bay Hudson County Extension opened in 1956. It is part of the Interstate 78 corridor, connecting Newark with lower Manhattan.

Originally, the highway consisted of two travel lanes in each direction between Interchanges 1 and 11, increasing to three travel lanes in each direction between Interchanges 11 and 16. Since first opening, it has grown from 118 miles to 148 miles and has expanded in width in various locations throughout its corridor to accommodate increases in traffic flow. The first widening was 83 miles long and occurred in 1955, increasing the lanes from Exit 4 to Exit 10 to six (three in each direction) and from Exit 10 to Exit

14 to eight (four lanes in each direction, two express and two local). The dual-dual roadway system, where the inner roadways are used by cars and the outer roadways are open to all vehicles, was introduced to the Turnpike with a widening project between Exits 10 and 14 in 1966. The dual-dual system was extended down to Interchange 9 in 1973, widening the Turnpike from six to twelve lanes and again in 1990 at Interchange 8A, where it was widened from six to ten lanes.

Several other widening and improvement projects have been undertaken on the Turnpike, including the introduction of the EZ-Pass system and the "MAGIC" (Metropolitan Area Guidance Information and Control) system, both introduced in 2000. The EZ-Pass system lessens congestion at toll plazas by allowing motorists who have EZ-Pass to travel the turnpike at reduced rates during non-peak hours. The "MAGIC" system "uses radar, pavement sensors, electronic message signs, fiber-optic cable and closed circuit cameras to alert drivers to traffic accidents or weather hazards, and to post best alternate routes" (http://www.nycroads.com/road/nj-turnpike/). Both of these systems assist motorists on the Turnpike and improve travel conditions.

The primary focus of this project is to improve safety and travel conditions at Interchange 9, which connects the Turnpike to NJ Route 18. NJ Route 18 is a heavily traveled arterial roadway, serving regional and local transportation needs of over 85,000 vehicles per day. NJ Route 18 is a north/south roadway beginning in the Township of Wall, Monmouth County where it intersects with NJ Route 138 and continues north to the Township of Piscataway, Middlesex County where it ends at Interstate 287.

The project area is primarily developed with major transportation corridors including the Turnpike, NJ Route 18 and US Route 1, as well as commercial businesses, and residential developments. Single-family residential developments are located to the immediate west of NJ Route 18 throughout the length of the study area and along Ainsworth Avenue. Existing noise walls and vegetated buffers separate these residential areas from NJ Route 18 and the Turnpike. The Village Swim Club is located on Tower Center Boulevard within the study area and has an outdoor pool, basketball, tennis and picnicking facilities. The Hilton East Brunswick and the Holiday Inn Express are also located on Tower Center Boulevard.

## 1.4 Project Design and Operation

### 1.4.1 Existing Conditions

Interchange 9 is located in the Township of East Brunswick and provides access to the Turnpike via NJ Route 18. The interchange experiences a high volume of traffic, with approximately 6,600 Passenger Car Equivalents (PCEs) in the AM peak hour and approximately 6,200 PCEs in the PM peak hour. The interchange consists of 12 ramps. The toll plaza consists of sixteen lanes, with normal AM and PM operations allocating five entry toll lanes and ten exit toll lanes with a reversible lane between the entering and exiting traffic normally closed.

### 1.4.2 Description of the Proposed Improvements

The project proposes geometric and operational improvements to Interchange 9 and NJ Route 18 by reconfiguring the existing interchange with NJ Route 18. Please refer to Appendix B for a figure depicting the proposed Initially Preferred Alternative (IPA).

The project proposes to replace Ramp WT (ramp from NJ Route 18 southbound to the toll plaza) with a two lane ramp with shoulders using the NJTA's absolute minimum desirable design radius of 150 feet. The project will shift both directions of Route 18 east to accommodate the larger radii of Ramps WT and TE (ramp from the toll plaza to NJ Route 18 southbound) with minimum public right-of-way acquisition west of NJ Route 18. A retaining wall will be constructed between Ramp TE and Westons Mill Road to avoid grading impacts on this local road that provides circulation through the residential development and

to avoid any impacts to adjacent residences. Ramp WT will remain the inside ramp with lane widths of 16.5 feet and super elevation of 6% to accommodate a design speed of 25 MPH in accordance with the NJTA's design standards. NJ Route 18 southbound traffic will enter Ramp WT approximately 400 feet after the Naricon Place traffic signal via two auxiliary lanes. The ramp will take traffic under NJ Route 18 and to the existing toll plaza. Traffic exiting the toll plaza destined for NJ Route 18 southbound will travel via Ramp TE under the same NJ Route 18 underpass as Ramp WT. Ramp TE will remain the outside ramp. The ramp will have a lane width of 22 feet and shoulders in accordance with NJTA standards. Ramp TE traffic will enter onto NJ Route 18 southbound as an added lane that will become the third lane of NJ Route 18 southbound prior to the bridge over the Turnpike mainline.

The southern limit of the shift of NJ Route 18 to the east will begin north of the bridge over the Turnpike mainline and end south of the bridges over Westons Mill Pond to the north. An additional 500 foot long auxiliary lane will be added on NJ Route 18 southbound prior to the Naricon Place signalized intersection to provide additional storage space for vehicles destined to Ramp WT. Due to the alignment shift of Route 18, this auxiliary lane falls within the footprint of the current highway.

NJ Route 18 southbound will have three lanes of traffic passing through the Naricon Place Intersection. The right lane will merge to reduce the highway to two lanes after Ramp WT, maintaining the current condition.

NJ Route 18 northbound will have three lanes of traffic passing though the Naricon Place intersection with an additional auxiliary lane for right turns into Tower Center Boulevard. Similar to the southbound direction, beyond the intersection the right lane will merge to create two northbound lanes prior to the entrance of Ramp TW (ramp from the toll plaza to NJ Route 18 northbound). Ramp TW will be realigned slightly to accommodate the shift of NJ Route 18. To minimize the acquisition of right-of-way to the east of NJ Route 18, a retaining wall will be constructed between NJ Route 18 and Ramp TW. Ramp TW will remain two lanes and will utilize the existing bridge under Naricon Place. Ramp TW will merge with NJ Route 18 northbound after the intersection increasing NJ Route 18 northbound to four lanes. A separate auxiliary right turn lane will be provided from Ramp TW for vehicles from the Turnpike to exit onto Tower Center Boulevard.

Ramp ET (ramp from NJ Route 18 northbound to the toll plaza) will be realigned to accommodate the shift in NJ Route 18. The ramp will flare out to two lanes near the Toll Plaza. The ramp will have one driveway connecting to the adjacent former Turnpike Authority Administration Building.

### 1.4.3 Design Criteria

The project will follow the criteria of the *NJTA Design Manual* (with amendments) for the portions of the project within the jurisdiction of the Turnpike. Where work is proposed on roadways under the jurisdiction of the New Jersey Department of Transportation (NJDOT), the criteria of the *NJDOT Design Manual, Roadway* and the *NJDOT Bridges and Structures Design Manual* will apply. Work proposed for local roads will be designed to meet the criteria of the AASHTO *Policy on Geometric Design of Highways and Streets.*

### 1.4.4 Construction Methods and Schedule

The proposed improvements at Interchange 9 will be constructed by contractors working for the NJTA. The construction contract will be advertised, awarded and managed using the standard specifications stated at N.J.A.C. 19:9-2 and procurement processes administered by the NJTA. All prospective bidders must be prequalified by the Chief Engineer.

The proposed improvements represent a major construction effort for the contracting industry. With the current economic climate, the proposed improvements and construction contract will provide an excellent opportunity to create jobs and foster the economic recovery.

As currently planned, construction is anticipated to begin in the Summer of 2012 and is expected to be completed in the Summer of 2014.

The Initially Preferred Alternate includes re-alignment of NJ Route 18 to the east, which provides increased radii for Ramps TE and WT; the widening of Ramp WT to two lanes; and the widening of NJ Route 18 southbound. Structure 84.34B, Route 18 over Turnpike Ramps WT and Ramps TE, will be replaced. A conceptual construction staging scheme is as follows:

- Stage 1: Construct relocated internal circulation road on the former NJTA Administration Building followed by the proposed Ramps ET and pavement on the east side of the Ramp TW.
- Stage 2: Construct NJ Route 18 NB bridge, retaining walls on the east side of NJ Route 18 NB, Naricon Place bridge widening, and the widening adjacent to the NJ Route 18 SB approach to the signal at Naricon Place. Construct the temporary traffic signal at Naricon Place.
- Stage 3: Activate temporary traffic signal and shift NJ Route 18 NB traffic onto the new bridge. Demolish existing NJ Route 18 NB bridge and construct NJ Route 18 SB bridge within the approximate limits of the old NB roadway. Construct the retaining wall between Ramp TE and Westons Mill Road and off-line portions of Ramp TE.
- Stage 4: Modify temporary traffic signal and shift the through lanes of NJ Route 18 SB onto the new SB bridge. Tie in southern limit of Ramp TE onto NJ Route 18 SB, shift traffic onto the portions of the new Ramp TE pavement, construction portions of Ramp TW. Tie in both ramps to existing at the bridge (as proposed widening of the ramps cannot be completed until the SB bridge is demolished). Shift the right turn lane for Ramp TW onto the new southbound bridge. Demolish NJ Route 18 SB bridge and complete the construction of the new bridge.
- Stage 5: Construct portions of Ramps TE and WT at the bridge. Complete remaining portions of Ramps TE and WT using staged construction.

Assuming no significant profile adjustments, the reconstruction of the Naricon Place intersection, approach Route 18 roadway work (alignment shift, crown line shift, mill and overlay), and completion of the ramps will be done with staged construction utilizing temporary lane closures during permissible hours. During construction, traffic will be maintained using NJDOT and NJTA standard construction staging and traffic control procedures, as applicable.

# 2.0 PURPOSE AND NEED

## 2.1 Introduction

This section describes the purpose and need of the project. The purpose establishes the transportation problems that will be resolved by the proposed project and the need provides data to support the purpose. The purpose and need guide the development of alternatives and the selection of the preferred alternative.

## 2.2 Project Purpose

The purpose of the project is to make necessary geometric and operational changes to address current inadequate conditions and future projected traffic volumes at Interchange 9 and the adjacent portion of NJ Route 18. The significant traffic congestion at Interchange 9 and on NJ Route 18 impacts the operations of both the NJ Turnpike and the state highway. Contributing factors to the problems at the interchange include the high traffic volumes entering and exiting the toll plaza, the short weaving distances due to substandard half-lengths within the plaza and the traffic congestion on NJ Route 18.

## 2.3 Project Need

Fifteen interchanges were previously studied by URS, as a consultant to the NJTA, in a separate effort to evaluate the need for interchange/toll plaza improvements on the Turnpike north of Interchange 8A. Of the fifteen studied, Interchange 9 was identified as one of the top three in need of operational and safety improvements. To meet current and future demands, the interchange and connections with NJ Route 18 need to be upgraded and expanded. There are several geometric and operational issues and deficiencies associated with the Interchange and conditions on NJ Route 18 that result in traffic congestion, long queues, weaving and accidents, particularly during AM and PM peak hours on both facilities. As a result, Jacobs incorporated the findings from the URS report and conducted a traffic study to further evaluate the existing issues and deficiencies and to project future conditions/deficiencies. The proposed project will improve the flow of current and future traffic both through Interchange 9 and along NJ Route 18.

### 2.3.1 Issues within NJTA Jurisdiction

*Geometric Issues*

The Interchange has several geometric issues that interfere with the safety and operational standards of the Turnpike. The NJTA standards require a minimum half-length of 500 feet. A half-length is the distance from the center-line of the toll plaza to the physical gore of the ramps. The half-lengths of the current inside and outside entry and inside and outside exit toll plaza half length areas are all less than 420 feet.

The current access to the former Turnpike Administration Building is provided from the Turnpike via a left turn lane with a turning bay located in the median area between the outside entry and exit toll plazas. Due to the proximity of the median to the travel lane downstream of Toll Lane 6, this reversible toll lane is closed except during periods of significant exiting volume.

Ramps TSO (from the tolls to the southbound outer roadway) and TNO (from the tolls to the northbound outer roadway) have an existing radius of 150 feet and 175 feet, respectively, and do not meet the NJTA design standards for minimum desirable ramp radii. Furthermore, Ramp TNO's downgrade along the horizontal curve is a contributing factor in reported truck overturns that have occurred on the ramps.

The horizontal curvature of Ramp SOT (from the northbound outer roadway to the toll plaza) as it merges with Ramp SIT (from the northbound inner roadway to the toll plaza) along a downgrade limits the distance between vehicles traveling on both ramps, resulting in weaving issues and congestion on the inside exit approach to the toll plaza. The outside exiting ramps to northbound and southbound NJ Route

18, Ramps TE and WT, have less than desirable radii. The ramps also pass under the NJ Route 18 overpass, limiting the sight distance of traffic from southbound NJ Route 18 at the entry to the toll plaza.

The configuration of the ramps entering the toll plaza from the northbound and southbound mainline have a half-length distance that is less than the desired Turnpike standard. The orientation of the entrance to the toll plaza from the northbound roadway limits the ability of drivers to access toll lanes on the north side of the plaza. This causes vehicles that are entering the plaza from the northbound Turnpike destined for northbound NJ Route 18 to weave across the entire plaza. Generally, this move is accomplished after the toll, which is where more than half of the accidents at the toll plaza have occurred. This is particularly important during the AM peak hour as 1,204 vehicles are attempting to make this movement. The PM peak hour has 309 vehicles attempting this movement.

*Operational Issues*
Existing conditions at the Interchange provide five toll lanes for entering traffic, with three E-Z Pass lanes, one manual lane and one Dual Automatic Ticket Issuing Machine (DATIM) lane. A prior NJTA study, that analyzed the toll plaza capacity, showed insufficient manual entry capacity during the AM and PM peak hours. Jacobs confirmed the field observations of the queuing at the manual and DATIM lanes during the AM and PM peak hours and showed that the E-Z Pass lanes were under-utilized.

It is estimated that in the future years 2020 and 2025, as overall volumes and E-Z Pass participation will increase, the entry toll lanes will require at least one additional E-Z Pass lane. The increased use of E-Z Pass should alleviate the demand on the manual lane to allow the exiting manual lanes to process future manual ticket volumes.

The existing Interchange assigns ten lanes to exiting traffic. The earlier study indicates that there is sufficient capacity for exiting traffic. Additionally, the future capacity analysis also indicates that the exiting toll lanes should provide adequate capacity.

The AM peak period has two different directional peak hours. The first hour is from 7:00 AM to 8:00 AM, and experiences significant volume entering the northbound Turnpike from NJ Route 18. The second hour is from 8:00 AM to 9:00 AM, and experiences significant volume from the southbound Turnpike exiting onto northbound NJ Route 18. During the earlier peak hour, NJ Route 18 southbound delivers volume to the toll plaza in groups due to the signal on NJ Route 18 metering the traffic through the intersection with Naricon Place. These vehicles weave in substandard half-lengths on both sides of the entry toll lanes to access the ramps to the northbound and southbound Turnpike mainline.

During the second AM peak hour, congestion on northbound NJ Route 18 results in severe queues that extend beyond the toll plaza and reach the southbound Turnpike mainline. The severe queuing causes vehicles exiting the northbound Turnpike and destined for northbound NJ Route 18 to travel across the gore area and yield to southbound Turnpike exiting traffic. The right lane of Ramp TW is underutilized due to the downstream divergence of northbound NJ Route 18 and the northbound US Route 1 ramp. Ramp TE to southbound NJ Route 18 is blocked by the queues from the Ramp TW. The crash analysis indicated that 51% of the accidents occurred in the exit area and 75% of the reported accidents were sideswipe collision type, which are due to severe congestion along Ramp TW as it merges with northbound NJ Route 18 and vehicles weaving through this congestion to access Ramp TE. Additionally, 40% of the reported accidents occur during the morning. Furthermore, the future conditions analysis estimates that approximately 90% of vehicles on Ramp TW from NJ Turnpike will attempt to weave to the left two lanes to access northbound NJ Route 18 or southbound US Route 1.

During the PM peak period, queues were observed along Ramp WT that extended back onto southbound NJ Route 18 as a result of congestion at the entry toll lanes contributed to the ramp's substandard radius and lack of capacity. During this peak period, there is significant volume and congestion on southbound NJ Route 18. Future conditions project the volume on this ramp to be 1,598 in the AM and 1,889 in the PM. With these conditions, a second lane is necessary for the ramp to operate efficiently.

### 2.3.2 Issues outside NJTA Jurisdiction

*Geometric Issues*

The Route 18 southbound approach to Ramp WT currently experiences significant congestion that often causes traffic to backup through the NJ Route 18 interchange with US Route 1. The proximity of the traffic signal at Naricon Place to the nose of Ramp TW, the substandard radius of the ramp and the single lane on the ramp all contribute to this congestion.

A significant amount of the operational issues at the exit toll plaza are a result of geometry associated with the divergence of northbound NJ Route 18 and the ramp to northbound US Route 1. The divergence to northbound US Route 1 ramp utilizes two lanes while northbound NJ Route 18 diverges to the west with two lanes. Vehicles exiting the Turnpike onto NJ Route 18 must weave across two lanes in a distance less than 1,000 feet in order to continue on NJ Route 18.

*Operational Issues*

The majority of the traffic operation issues impacting the toll plaza are a result of the conditions on NJ Route 18. There are several capacity and operational issues associated with NJ Route 18 within the vicinity of the Interchange. One capacity issue is the reduction of NJ Route 18 travel lanes at the divergence of northbound NJ Route 18 and the ramp to northbound US Route 1. There are also capacity limitations of the NJ Route 18 bridge over US Route 1. This capacity issue results in queues that extend from NJ Route 18, onto and past Ramp TW, through the exiting toll lanes, and can reach the southbound Turnpike. These queues also extend several miles to the south of northbound Route 18. This congestion associated with the convergence of NJ Route 18 and the NJ Turnpike is significant because of heavy volumes, lane drops, and weaving.

# 3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

## 3.1 Introduction

This section provides a description of the existing environmental resources and conditions in the vicinity of the project limits (referred herein as study area). The study area is approximately 172 acres in size and is located in the Township of East Brunswick and the City of New Brunswick. Existing environmental resources described in this section are based on conditions as they existed during site inspection(s) and/or secondary sources used for assessing each resource. Specifically, the following resources are presented in this section:

- Soils and Geology
- Water Resources
- Wetlands
- Threatened and Endangered Species
- Cultural Resources
- Contaminated Materials
- Land Use and Zoning
- Community Facilities, Open Space and Parkland
- Sensitive Receptors for Air Quality and Noise
- Environmental Justice
- Traffic and Transportation
- Air Quality
- Noise

Each resource listed above is evaluated and separated into the following sub-sections for the existing project conditions. Both short-term and long-term, and beneficial and adverse impacts that could result from the construction of the project's Initially Preferred Alternative (IPA) compared to the No-Build Alternative are evaluated. The project's final design will seek to minimize and/or mitigate any unavoidable adverse impacts to resources. Please refer to Appendix A for maps depicting the identified resources in relation to the study area and the IPA.

## 3.2 Soils and Geology

### 3.2.1 Introduction

Middlesex County lies in the Piedmont and Upper Coastal Plain physiographic provinces. The study area is located within the Piedmont physiographic province, which consists of slightly folded and faulted sedimentary rock of Triassic and Jurassic age and igneous rocks of Jurassic age. The soils reflect the varying landscape of the project area from the floodplains associated with the Lawrence Brook to the upland areas near NJ Route 18. Within the project area itself, upland and disturbed soils are common.

### 3.2.2 Data Sources and Methodology

The State of New Jersey Geographic Information System (GIS) database and the United States Geologic Survey (USGS) references and website were reviewed to identify geologic features within the study area. Soil types within the study area were evaluated based on the Natural Resource Conservation Service (NRCS) Soil Data Mart and the United States Department of Agriculture (USDA) Web Soil Survey. Emphasis was placed on the location of acid-producing soils, hydric soils, and soils that exhibit unique qualities.

### 3.2.3 Bedrock Geology in the Study Area

The bedrock geology of the study area is primarily composed of the Raritan Formation and the Passaic Formation. A 500-feet wide swath, 100-feet wide swath and a 200-feet wide swath of the Passaic Formation Grey Bed were also identified along the northeast axis, northwestern project boundary and eastern portion of the study area, respectively.

*Raritan Formation – Upper Cretaceous, Upper Cenomanian*
The Raritan Formation consists of clay, sand, lignite, and gravels representing progradational alluvial plain, coastal and nearshore marine environments. It consists of very micaceous silty and sandy beds. Based on available data from the New Jersey Department of Environmental Protection (NJDEP), the Raritan Formation is associated with acid-producing soils. Formations associated with acid-producing soils contain sulfide compounds and pyritic nodules that produce sulfuric acid when exposed to aerobic conditions.

*Passaic Formation – Lower Jurassic and Upper Triassic*
The Passaic Formation consists of predominantly red beds of argillaceous siltstone, silty mudstone, argillaceous, very fine grained sandstone, and shale. Coloration is mostly reddish-brown to brownish-purple and grayish-red. The beds typically occur in 10 to 23 feet thick cyclic playa-lake-mudflat sequences and fining-upward fluvial sequences. The Passaic Formation is not associated with acid-producing soils.

*Passaic Formation Gray Bed – Lower Jurassic and Upper Triassic*
The Passaic Formation Gray Bed consists of gray to black silty mudstone, gray and greenish to purplish-gray argillaceous siltstone, black shale, and medium to dark-gray argillaceous, fine-grained sandstone. The gray lakebeds occur in groups of two to five cycles throughout the majority of the formation, although in some parts they occur as single cycles. The Passaic Formation Gray Bed is not associated with acid-producing soils.

### 3.2.4 Surficial Geology in the Study Area

According to available data from the New Jersey Geologic Survey (NJGS), the surficial geology within the study area consists of Alluvium, Pennsauken Formation, Upper Stream Terrace Deposits, Weathered Coastal Plain Formations, and Weathered Shale, Mudstone, and Sandstone. Alluvium surficial geology is from the Holocene and late Pleistocene epochs and contains variable amounts of organic matter deposited in modern floodplains and channels. The Pennsauken Formation was formed during the Pliocene epoch and is typically found in erosional remnants of former river plains that occupied the broad valley between South Amboy and Salem. It consists of sand, clayey sand, pebble gravel, silt and clay and can be as much as 140 feet thick. Upper Stream Terrace Deposits consist of sand, pebble gravel and silt and was formed in the middle to late Pleistocene age. Upper Stream Terrace Deposits typically formed in nonglacial stream terraces 20 to 50 feet above the modern floodplain. The Weathered Coastal Plain Formation consists of exposed sand and clay of the Coastal Plain formations and includes thin, patchy alluvium and colluviums material and pebbles left from the erosion of the surficial deposits. The geologic age of Weathered Coastal Plain Formations vary, but were primarily formed during the Pleistocene age with some local areas formed during the Miocene and Pliocene epochs. Weathered Shale, Mudstone, and Sandstone were formed during the Pleistocene epoch and can vary in depth from 10 feet on shale and mudstone to 30 feet on sandstone.

### 3.2.5 Soils in the Study Area

Soil types within the study area were identified from the NRCS Soil Data Mart and the USDA Web Soil Survey. General soil properties are discussed below and include seasonal high water table, hydrologic soil group, drainage class, soils that exhibit unique farmland qualities, and AASHTO group classification.

The "seasonal high water table" (SHWT) is the highest average depth of groundwater during the wettest season. Soils that are saturated with water near the surface are significantly limiting for most construction purposes and will affect most development. As the project advances, the SHWT in areas with proposed stormwater management features will be field verified.

The "hydrologic soil grouping" assesses the runoff potential for each soil series in the county and takes into account factors such as soil texture, permeability and percentage of slope. Soils are assigned to one of four groups according to the rate of infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms. The four hydrologic groups are as follows:

*Group A:* Soils in Group A have a high infiltration rate (low runoff potential) when thoroughly wet. Water is transmitted freely throughout this group. These soils mainly consist of deep, well-drained to excessively drained sands or gravelly sands.

*Group B:* Soils in Group B have a moderate infiltration rate when thoroughly wet. Water transmission through the soil is unimpeded. These soils mainly consist of moderately deep or deep, moderately well-drained or well-drained soils that have moderately fine texture to moderately coarse texture.

*Group C:* Soils in Group C have a low infiltration rate when thoroughly wet. Water transmission through the soil is somewhat restricted. These soils typically have a layer that impedes the downward infiltration of water or soils of moderately fine texture or fine texture.

*Group D:* Soils in this group have a low infiltration rate when thoroughly wet. Water movement through the soil is restricted or very restricted. Group D soils typically consist of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material.

*Dual Hydrologic Group:* In soils that are assigned a dual soil group (e.g. A/D), the first letter is for the drained area and the second letter is for the undrained area.

The "drainage class" refers to the frequency and duration of saturation during soil formation. There are six classes of natural drainage: excessively drained, extremely drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained.

The NJ NRCS has established various designations for soils within New Jersey that exhibit unique qualities. These include NJ Prime Farmland Soils, NJ Farmland Soils of Statewide Importance, NJ Farmland Soils of Local Importance, NJ Farmland Soils of Unique Importance, and NJ Hydric Soils. Prime Farmland Soils are all those soils in Land Capability Class I and selected soils from Land Capability Class II and are best suited for producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to produce a sustainable high yield of crops, while using acceptable farming methods. Unique Farmland Soils are soils other than Prime Farmland Soils that are used for the production of specific high-value food and fiber crops. It has the special combination of soils quality, location, growing season, and moisture supply needed to economically

produce sustained, high quality, and high yields of special crops when treated and managed according to acceptable farming methods. Farmland soil of statewide or local importance is land other than prime or unique farmland that has been designated by state or local agencies as being important for the production of food, feed, fiber, forage, or oilseed crops. In New Jersey, farmland of statewide importance includes those soils in land capability Class II and III that do not meet the criteria as Prime Farmland Soils.

The AASHTO group classification is a system that classifies soil types specifically for geotechnical and engineering purposes related to highway and airfield construction. The classification system is based on particle-size distribution and Atterberg limits.

The study area is mapped as being underlain by nine soil types from eight soil series. The following soil types underlie the site:

*Downer-Urban Land Complex, 10 to 15 percent slopes (DouC)*
This soil type is composed of approximately 55 percent Downer, 30 percent Urban land and 15 percent minor components. It is a well-drained soil found on uplands with depth to the water table ranging from 48 to 122 inches and a low available water capacity. The parent material consists of loamy fluviomarine deposits and/or gravelly fluviomarine deposits. A typical profile is 0 to 13 inches loamy sand, 13 to 30 inches sandy loam, and 30 to 60 inches stratified gravelly sand to sandy clay loam. It is in the hydrologic group B and is not on the hydric soils list. The AASHTO group classification rating is A-2-4.

*Klinesville Channery Loam, 6 to 12 percent slopes (KkoC)*
This soil type is composed of approximately 85 percent Klinesville and 15 percent minor components. It is somewhat excessively drained and is found on hills and piedmonts. The parent material consists of fine-loamy residuum that is weathered from shale and the depth to a restrictive layer is approximately 10 to 20 inches, consisting of paralithic bedrock. Depth to the water table is greater than 60 inches and has a very low available water capacity. A typical profile is 0 to 9 inches channery loam, 9 to 11 inches very channery loam, and 11 to greater than 60 inches weathered bedrock. It is in hydrologic group D and is not on the hydric soils list. This soil does not have an AASHTO group classification rating.

*Klinesville Channery Loam, 18 to 25 percent slopes (KkoE)*
This soil type is composed of approximately 85 percent Klinesville and 15 percent minor components. It is somewhat excessively drained and is found on side slopes. The parent material consists of fine-loamy residuum that is weathered from shale and the depth to a restrictive layer is approximately 10 to 20 inches, consisting of paralithic bedrock. Depth to the water table is greater than 60 inches and it has a very low available water capacity. A typical profile is 0 to 3 inches channery loam, 3 to 10 inches channery loam, silt loam, 10 to 14 inches very channery loam, channery silt loam, very channery silt loam, and 14 to greater than 60 inches weathered bedrock. It is in hydrologic group C/D and is not on the hydric soils list. The AASHTO group classification rating is A-2-4.

*Manahawkin Muck, 0 to 2 percent slopes, frequently flooded (MakAt)*
This soil type is composed of approximately 85 percent Manahawkin muck and 15 percent minor components. It is very poorly drained and is typically found on nearly level to level floodplains and adjacent to large streams and rivers. The parent material consists of organic, woody material over sandy alluvium. Depth to the water table ranges from 0 to 6 inches and the available water capacity is very high. A typical profile is 0 to 47 inches muck, and 47 to greater than 60 inches sand, gravelly sand, loamy sand, gravelly loamy sand, and very gravelly sand. It is in hydrologic group D and is on the hydric soils list. This soil is also listed on the farmland of unique importance list. The AASHTO group classification rating is A-8.

*Nixon Loam, 2 to 5 percent slopes (NknB)*
This soil type is composed of approximately 85 percent Nixon and 15 percent minor components. It is a well-drained soil found on flats and coastal plain uplands. The parent material consists of old fine-loamy alluvium derived from arkose and/or shale. Depth to the water table is greater than 60 inches and available water capacity is moderate. A typical profile is 0 to 11 inches loam, 11 to 30 inches loam, sandy clay loam, and gravelly sandy loam, 30 to 40 inches sandy loam, loamy sand, and gravelly sandy loam, and 40 to 60 inches stratified loamy sand, gravelly sandy loam, sandy clay loam, and loamy sand. It is in hydrologic group B and is not on the hydric soils list. This soil is also listed as a prime farmland soil. The AASHTO group classification rating is A-4.

*Nixon-Urban Land Complex, 0 to 5 percent slopes (NkpB)*
This soil type is composed of approximately 45 percent Nixon, 40 percent Urban and 15 percent minor components. It is a well-drained soil found on flats and coastal plain uplands. The parent material consists of old fine-loamy alluvium derived from arkose and/or shale. Depth to the water table is greater than 60 inches and available water capacity is moderate. A typical profile is 0 to 11 inches loam, 11 to 30 inches loam, sandy clay loam, and gravelly sandy loam, 30 to 40 inches sandy loam, loamy sand, and gravelly sandy loam, and 40 to 60 inches stratified loamy sand, gravelly sandy loam, sandy clay loam, and loamy sand. It is in hydrologic group B and is not on the hydric soils list. The AASHTO group classification rating is A-4.

*Sassafras-Urban Land Complex, 0 to 5 percent slopes (SapB)*
This soil type is composed of approximately 60 percent Sassafras, 30 percent Urban and 10 percent minor components. It is a deep, well-drained soil found in uplands. The parent material is loamy and/or gravelly fluviomarine deposits. Depth to the water table is greater than 60 inches and available water capacity is moderate. A typical profile is 0 to 12 inches sandy loam or loamy sand, 12 to 18 inches sandy loam or gravelly sandy loam, 18 to 28 inches sandy clay loam or gravelly sandy clay loam, 28 to 40 inches loamy sand, sandy loam, gravelly sandy loam or gravelly loamy sand, and 40 to greater than 60 inches sand, loamy sand, sandy loam, gravelly sandy loam, gravelly loamy sand, or gravelly sand. It is in hydrologic group B and is not on the hydric soils list. The AASHTO group classification rating is A-4.

*Urban Land (UR)*
Urban land is land that is mostly covered by streets, parking lots, buildings and other structures of urban areas. Urban land soils vary in composition and do not have a typical series description with specific characteristics or ratings.

*Woodstown Sandy loam, 2 to 5 percent slopes (WoeB)*
This soil type is composed of approximately 80 percent Woodstown and 20 percent minor components. It is a deep, moderately well-drained soil found on uplands and terraces. The parent material is old alluvium and/or sandy marine deposits. Depth to the water table ranges from 18 to 42 inches and the available water capacity is moderate. A typical profile is 0 to 26 inches sandy loam, 26 to 30 inches sandy clay loam, 30 to 36 inches sandy loam, and 36 to greater than 60 inches loamy sand, gravelly loamy sand, sand, or gravelly sand. It is in hydrologic group C and is not on the hydric soils list. This soil is also listed as a prime farmland soil. The AASHTO group classification rating is A-4.

### 3.2.6 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, there would be no direct or indirect impacts to existing soils or geologic features within the project area.

### 3.2.7 Proposed Project Impacts

The IPA is underlain by urban land and Downer-Urban Land Complex. Construction activities would result in short-term disturbance to the subsurface materials through excavation and the installation of deep foundations for structures. Installation of deep foundations may result in temporary vibratory impacts and possible minor short-term settlement.

Since the majority of the project area is underlain by the Raritan Formation, which as discussed above is identified by the NJDEP as having the potential for acid-producing soils, mitigation measures to reduce the impacts from exposing acid producing soil may be required. The decrease in pH of the soil caused from the exposure of acid producing soils may create environmental conditions unsuitable for vegetation. Acid-producing soils are those soils with a pH of 4 or less, or soils that contain iron sulfide materials. Testing will be performed to confirm the presence of these soils and to delineate the area. If acid-producing soils are identified, mitigation procedures that minimize the exposure will be undertaken.

Any excavated areas that require backfill will be filled with clean soil that meets NJTA standards, as well as NJDEP requirements as set forth in the Technical Requirements for Site Remediation. No acid-producing or contaminated soils will be used for backfill.

Short-term soil erosion and sedimentation is anticipated as a result from the disturbance of soil materials during construction. The Soil Erosion and Sediment Control Plan Act, Chapter 251, P.L. 1975 as amended (N.J.S.A. 4:24-39 et seq.) regulates construction and land disturbing projects to reduce the adverse impacts from storm water runoff, to retard non point source pollution from sediment and to conserve and protect the environment. To meet the requirements of the Soil Erosion and Sediment Control Plan Act, a soil erosion and sediment control plan will be developed. The plan would mitigate the impacts resulting from construction activities and may include the following:

- Placing mulch or suitable ground cover immediately after a slope is graded;
- Installing silt fences, hay bales, and stabilized entrances to construction sites;
- Installation of conduit outlet protect to reduce velocities from pipe outfalls;
- Seeding slopes simultaneously with roadbed construction;
- Acid-producing soil containment; and
- Using dust control methods on areas cleared for construction.

The proposed soil erosion and sediment control plan must be reviewed and receive certification. Certification is granted by the jurisdictional Soil Conservation District, which in Middlesex County is the Freehold Soil Conservation District.

## 3.3 Water Resources

### 3.3.1 Introduction

Water resources discussed in this section include surface water, ground water, and NJDEP tidelands. Potential impacts to water resources located within the study area are discussed below and pertain primarily to indirect impacts from increase in impervious pavement and temporarily impacts from construction.

### 3.3.2 Data Sources and Methodologies

An assessment of existing water resources within the project area was conducted based on available data and maps from the NJDEP and NJGS. Field reconnaissance was performed to verify the conclusions

made from the available data and to identify additional resources that may have not been previously identified.

### 3.3.3 Surface Water

NJDEP's Division of Water Resources establishes water quality standards for the State via the Surface Water Quality Standards (N.J.A.C. 7:9B). The standards classify streams based on their water quality and provide the basis for determining what appropriate uses for those waters are. Waters are first classified as either fresh (FW), saline/estuarine (SE), or saline/coastal (SC). A number is then assigned to each waterbody indicating the relative quality of the water with 1 being the highest and 3 being the poorest. The suitability of the water for trout is also indicated and included non-trout (NT), trout maintenance (TM), and trout production (TP).

Category 1 waters (C1) are protected from "measurable changes in water quality based on exceptional ecological significance, exceptional recreational significance, exceptional water supply significance or exceptional fisheries resource(s) to protect their aesthetic value (color, clarity, scenic setting) and ecological integrity (habitat, water quality and biological functions).'

Category 2 waters (C2) are "not designated as Outstanding National Resource Waters or C1 waters for purposes of implementing the antidegradation policies."

Outstanding National Resource Waters are those high quality waters that constitute an outstanding national resource (i.e., waters of National/State Parks and Wildlife Refuges and waters of exceptional recreational or ecological significance). Waters classified as FW1 waters and Pinelands (PL) waters are Outstanding National Resource Waters.

The study area is located in the Lower Raritan, South River, and Lawrence Watershed Management Area (WMA 9) and is completely contained within the Lawrence Brook (below Milltown/Herberts Br) HUC-14 (No. 02030105130070) watershed. NJ Route 18 spans Westons Mill Pond in the northwest portion of the study area. Westons Mill Pond has been created as a result of damming the Lawrence Brook. Based on available Federal Emergency Management Agency (FEMA) stream profiles, the dams are located both upstream and downstream of NJ Route 18 at approximately 59,000 feet and 59,600 feet above the mouth of the Raritan River. The bridge carrying NJ Route 18 over Westons Mill Pond is located approximately 59,300 feet above the mouth of the Raritan River.

According to the January 4, 2010 Surface Water Quality Standards, the Lawrence Brook is classified as FW2-NT upstream of Westons Mill Dam (station 59,000) and SE1 downstream of the dam. Designated uses for FW2 waters include maintenance, migration and propagation of the natural and established biota; primary contact recreation; industrial and agricultural water supply; public potable water supply after conventional filtration treatment and disinfection; and any other reasonable uses. Designated uses for SE1 waters include shellfish harvesting; maintenance, migration, and propagation of the natural and established biota; primary contact recreation; and any other reasonable uses. The Lawrence Brook contributes to the water supply for the City of New Brunswick. Water is pumped to the New Brunswick Water Treatment Plant from Westons Mill Pond.

### 3.3.4 Groundwater

*Aquifers*

The Brunswick aquifer and the Potomac-Raritan-Magothy aquifer system underlie the study area. The Brunswick aquifer consists of sandstone, siltstone, and shale of the Passaic, Towaco, Feltville, and Boonton Formations. The groundwater is stored and transmitted in fractures. Water of the Brunswick

aquifer is normally fresh, slightly alkaline, noncorrosive and hard. The Potomac-Raritan-Magothy aquifer system consists of interbedded sand, gravel, silt, and clay separated into lower, middle and upper aquifers. Water is fresh and moderately hard with a near-neutral pH. Elevated iron and manganese are common and calcium-bicarbonate type waters dominate.

*Sole Source Aquifers*
Sole source aquifers (SSA) are those aquifers that contribute more than 50% of the drinking water to a specific area and the water would be impossible to replace if the aquifer were contaminated. Sole source aquifers are defined with guidelines set forth by the U.S. Environmental Protection Agency (EPA) as authorized in section 1424(e) of the Safe Drinking Water Act of 1974. Any federally funded project in an area that could affect ground-water in a sole-source aquifer must be reviewed by the USEPA. This 'project review area' includes the aquifer's 'recharge zone' and its 'stream-flow source zone'. The recharge zone is the area through which water recharges the aquifer. The source zone is the upstream area that contributes recharge water to the aquifer. Seven sole-source aquifers are defined in New Jersey and their project review areas cover most of the state.

Based on available data from the NJGS, the majority of the study area is located in the Coastal Plain Sole Source Aquifer. The remaining portion of the study area is not located in a Sole Source Aquifer. Since the project is not federally funded, the project is exempt from review by the USEPA.

*Well Head Protection Areas*
In New Jersey, a Well Head Protection Area (WHPA) is a mapped area calculated around a public Community Water Supply (CWS) well or a Non-Community Water Supply (NCWS) that delineates the horizontal extent of ground water captured by a well pumping at a specific rate over a two-, five-, and twelve-year period of time. According to available data from the NJDEP, no public CWS well head protection areas fall within the project area.

### 3.3.5 Tidelands

Tidelands, as defined by the NJDEP, are all lands now or formerly flowed by the mean high tide of a natural waterway. Tidelands are owned by all of the people of the State of New Jersey and require permission from the State for the primary use of these lands in the form of a tidelands license, lease or grant. Available spatial data depicting tidelands claims were examined to determine the presence of tidelands within the study area. Tidelands claims have been identified along the Lawrence Brook downstream from the head of tide at Westons Mill Dam.

A request was submitted to the NJDEP for a search of their database to identify any tidelands conveyances within the study area. A tidelands conveyance was identified to the west of the study area and consists of a 7-year license issued on January 14, 2004 to ECHG II, LLC. There is also a portion of a grant to the NJTA located to the immediate north of the study area that was issued on June 27, 1955. Please refer to Appendix G for a copy of the NJDEP Bureau of Tidelands Management Map Showing Conveyances on Lawrence Brook – Raritan River, East Brunswick Township and City of New Brunswick, Middlesex County.

### 3.3.6 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, there would be no additional direct or indirect impacts to existing water resources within the project area.

### 3.3.7 Proposed Project Impacts

*Surface Water*
As currently proposed, there are no surface waters located within the anticipated limit of disturbance of the project area. However, the project will introduce 1.23 acres of net new impervious surface and result in more than 1 acre of ground disturbance. As such, it meets the definition of major development under the NJDEP Stormwater Management Rules (N.J.A.C. 7:8). The project will incorporate structural and non-structural Best Management Practices for water quality to meet the required Total Suspended Solid (TSS) removal criteria.

As currently designed, the project proposes to construct two extended detention basins. Surficial structural BMPs have been incorporated to the maximum extent practicable. In order to meet treatment requirements while balancing Right-of-Way impacts, 5 manufactured treatments devices are proposed to supplement the surficial system. All stormwater management features have been designed in accordance with the *New Jersey Stormwater Best Management Practices Technical Manual.*

Additionally, soil erosion and sedimentation may temporarily occur during construction as described in Section 3.2.7 above, resulting in increased sediment loads to those surface waters within the watershed. The implementation of a certified soil erosion and sediment control plan will greatly reduce these potential impacts.

*Groundwater*
Since the project meets the definition of a major development, the project will be required to maintain the average annual pre-development groundwater recharge as dictated by the NJDEP Stormwater Management Rules. The groundwater recharge criterion is waived in previously developed land located in urban redevelopment areas. Urban redevelopment areas include previously developed portions of the following areas:

1. Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;
2. Designated as CAFRA Centers Cores or Nodes;
3. Designated as Urban Enterprise Zones; and
4. Designated as Urban Coordinating Council Empowerment Neighborhoods.

Based on the May 17, 2010 NJ Office of Smart Growth State Plan Map for Middlesex County, the project area is located within a Metropolitan Planning Area. Because previously developed areas located in the project area are exempt from groundwater recharge criterion, the project is not required to meet this criterion.

*Tidelands*
Although tidelands claims are located within the vicinity of the proposed project, the project is not anticipated to result in any construction activities within the boundaries of the tidelands claims. As such, the proposed project will have no effect on identified tidelands claims.

## 3.4 Flood Hazard Areas and Riparian Zones

### 3.4.1 Introduction

The flood hazard area is the land, and the space above that land, which lies below the flood hazard area design flood elevations. Flooding is typically controlled by either tidal or fluvial waters. All waters in the state of New Jersey are regulated by the NJDEP and are designated as either delineated or non-delineated. Delineated streams of those for which the 1% annual chance flood elevation has been

determined and officially adopted by the NJDEP's Bureau of Floodplain Management. FEMA also delineates floodplains nationally for communities participating in the National Flood Insurance Program (NFIP). The FEMA Flood Insurance Rate Maps (FIRMs) depict the 1% annual chance floodplain, the 0.2% annual chance floodplain, and those areas at higher elevations.

### 3.4.2 Data Sources and Methodology

Available flood hazard area maps and studies from the NJDEP and the Federal Emergency Management Agency (FEMA) were reviewed to determine whether or not project activities will occur within the regulated flood hazard area.

The NJDEP Flood Hazard Area Control Act Rules (N.J.A. C. 7:13) establishes jurisdiction over riparian zones. The width of the riparian zone is determined as follows:

- The riparian zone is 300 feet wide along both sides of any Category 1 water, and all upstream tributaries situated within the same HUC-14 watershed;
- The riparian zone is 150 feet wide along both sides of the following waters:
    - Any trout production water and all upstream waters, including tributaries
    - Any trout maintenance water and all upstream waters, including tributaries, within one linear mile as measured along the length of the regulated water
    - Any segment of water flowing through an area that contains documented habitat for a threatened or endangered species of plant or animal, which is critically dependent on the regulated water for survival, and all upstream waters (including tributaries) within one linear mile as measured along the length and the regulated water; and
    - Any segment of a water flowing through an area that contains acid-producing soils
- The riparian zone is 50 feet wide along both sides of all waters not identified above.

Available spatial data from the NJDEP and NJGS as well as correspondence from the NJDEP Natural Heritage Program (NHP) was used to determine the likely riparian zone for surface water resources within the vicinity of the proposed project.

### 3.4.3 Flood Hazard Areas

According to available FEMA Flood Insurance Rate Maps (FIRM Panels 340260001C and 340270002B), the study area is located within the 1% annual chance floodplain of the Lawrence Brook. The base flood elevation for the Westons Mill Pond portion of the Lawrence Brook within the study area is published as 22 feet (NGVD 29). Downstream of Westons Mill Pond, the base flood elevation is published as 12 feet (NGVD 29). The FEMA FIRM provides an approximate location of the floodplain.

Flood studies of the Lawrence Brook have also been developed by the NJDEP. Based on the available profiles for the Lawrence Brook, tidal flooding is the dominant flooding source from its confluence with the Raritan River to Westons Mill Pond and has a published base flood elevation of 12 feet (NGVD 29). Similarly to the FEMA study, the base flood elevation for the Westons Mill Pond portion of the Lawrence Brook within the study area is also published as 22 feet (NGVD 29). To convert elevations on the NVGD 1929 datum to NAVD 1988, subtract 1 foot.

### 3.4.4 Riparian Zones

The Flood Hazard Area Control Act Rules (N.J.A.C. 7:13) establish a regulatory riparian zone based on the attributes of the regulated water and surrounding landscape including the water quality classification,

the presence of listed species habitat, and the potential for acid-producing soils. As discussed in Section 3.3.3 above, the NJDEP Surface Water Quality Standards classifies the Lawrence Brook as FW2-NT upstream of Westons Mill Dam (station 59,000) and SE1 downstream of the dam. The study area is located in the Lawrence Brook (below Milltown/Herberts Br) HUC-14 watershed. No Category 1 waters were identified in the HUC-14 watershed. None of the identified waterbodies within the vicinity of the study area are classified as trout production. Additionally, no trout maintenance waters were identified within 1 linear mile of the study area.

The NJDEP-NHP was contacted to determine the presence of threatened and endangered species in the study area. In correspondence dated February 17, 2010, the NJDEP-NHP indicated that there are no records of occurrence for listed threatened or endangered species within the study area that are critically dependent on regulated waters for survival within 1 mile of the study area.

According to available geospatial data from the New Jersey Geological Service, the Lawrence Brook is underlain by the Passaic Formation, which is not associated with acid-producing soils. Since the waters in the vicinity of the study area are not classified as Category 1 or located within a HUC-14 watershed with a Category 1 water, are not trout production waters or located within 1 linear mile of trout maintenance waters, do not provide documented habitat for threatened and endangered species critically dependent on the regulated water for survival, and do not flow through an area that contains acid producing soils, it is anticipated that the Lawrence Brook and Westons Mill Pond would have 50 feet wide riparian zones.

### 3.4.5 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, there would be no additional direct or indirect impacts to existing flood hazard areas or jurisdictional riparian zones.

### 3.4.6 Proposed Project Impacts

Based on the location of the proposed project, no construction activities are proposed within jurisdictional flood hazard areas or riparian zones. Although no direct impacts are anticipated, ground disturbance and proposed increases in impervious surface may affect peak runoff flows, which ultimately affect flooding. The NJDEP Stormwater Management Rules requires all projects that meet the definition of a major development to incorporate BMPs for water quantity. The stormwater management system must be designed to meet one of the following criteria:

- Post-construction runoff hydrographs for stormwater exiting the site for the 2, 10, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;
- There are no increases as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the 2, 10 and 100-year storm events and that increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site; or
- The stormwater management measures are designed so that the post-construction peak runoff rates for the 2, 10, and 100-year storm events are 50, 75, and 80 percent, respectively, of the pre-construction peak runoff rates.

BMPs will be incorporated into the project to attenuate the flow of runoff off-site to meet the requirements of the Stormwater Management Rules.

## 3.5 Wetlands

### 3.5.1 Introduction

The Freshwater Wetlands Protection Act (N.J.S.A. 13:9B) establishes State jurisdiction over regulated activities occurring within freshwater wetlands, their transition areas, and State open waters. A wetland delineation was performed in support of the project by qualified scientists. The methodologies employed and the findings of the wetland delineation are presented below. Refer to Appendix E for a copy of the completed routine wetland delineation forms.

### 3.5.2 Data Sources and Methodology

A wetland investigation and delineation was performed in March 2010 for the study area. Prior to field investigations, the project was located on 7.5 minute United States Geologic Survey (USGS) Quadrangle mapping (New Brunswick, New Jersey). This mapping was evaluated for topographic relief, drainage patterns, and subwatershed characteristics, which would suggest potential wetlands. The New Jersey Department of Environmental Protection (NJDEP) Freshwater Wetlands (FWW) mapping and the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping were examined for wetlands within the study area.

Wetland areas were delineated following the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (January, 1989). This manual was prepared by the Federal Interagency Committee for Wetland Delineation (FICWD) consisting of representatives from the US Army Corps of Engineers (ACOE), US Environmental Protection Agency (USEPA), the US Fish and Wildlife Service (USFWS), and the National Resource Conservation Service (NRCS). In accordance with this methodology, the following parameters are characteristic of wetlands:

1. The land is dominated by hydrophytes;
2. The substrate is undrained hydric soil; and
3. The substrate is saturated with groundwater or flooded for a significant part of the growing season each year.

Positive indicators of the above listed parameters are the basis for wetland identification. All three parameters must be present in order for an area to be identified as wetland, unless abnormal or atypical conditions are determined to be present. The Federal Manual procedures were used for the determination of wetland boundaries and supplemented by the USFWS National List of Plant Species that Occur in Wetlands: 1988 Northeast (Reed 1988) for the identification of hydrophytic vegetation.

The New Jersey Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-2.4) classifies wetlands into three general categories based on their resource value in order to determine the size of the transition area and to assess necessary mitigation. The classifications include:

1. Freshwater wetlands of exceptional resource value;
2. Freshwater wetlands of intermediate resource value;
3. Freshwater wetlands of ordinary resource value.

According to the NJDEP Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-2.4), a freshwater wetland of exceptional resource value discharges into FW1 or FW2 trout production waters or their tributaries, is present habitat for threatened or endangered species, or is a documented habitat for threatened or endangered species, which remains suitable for breeding, resting or feeding. A freshwater wetland of ordinary resource value include isolated wetlands smaller than 5,000 $ft^2$, ditches, swales and

detention facilities created by humans in an area that was previously uplands. A freshwater wetland of intermediate resource value is any wetland that does not meet the definition of exceptional or ordinary.

### 3.5.3 Regulated Wetlands

A wetland investigation and delineation in March 2010 throughout the study area that resulted in the delineation of eight regulated areas. All wetlands and State open water areas are located within the jurisdiction of the NJDEP. The delineated wetlands and State open water areas are depicted on Figures 13, 14, and 20.

*Area A*
Area A is located within the Ramp TSO infield and consists of a channelized State open water that flows north into an unmapped tributary to the Lawrence Brook. A small isolated upland island was identified in the southern portion of the tributary. The State open water area is not identified on the NJDEP freshwater wetland mapping or the USFWS NWI mapping. Vegetation along the banks of the State open water includes red maple (*Acer rubrum*, FAC), sweetgum (*Liquidambar styraciflua*, FAC), limited pin oak (*Quercus palustris*, FACW), skunk cabbage (*Symplocarpus foetidus*, OBL) and *Poe* species. A fringing wetland is located to the east of the State open water and is described below as Area B. According to the Middlesex County Soil Survey maps, the State open water area is underlain by Manahawkin muck, frequently flooded (MakAt), which is listed on the NRCS New Jersey Hydric Soils List (February 2010).

*Area B*
Area B is located to the immediate east of Area A and is a mix of palustrine deciduous forested wetlands and disturbed wetlands. This wetland system is not identified on the NJDEP freshwater wetland mapping or the USFWS NWI mapping. Vegetation throughout the forested portion of the wetland is dominated by red maple and sweetgum, with limited pin oak and witch hazel (*Hamamelis virginiana*, FAC-). White oak (*Quercus alba*, FACU), black cherry (*Prunus serotina*, FACU), limited red maple and pin oak, Japanese honeysuckle (*Lonicera japonica*, FAC-), poison ivy (*Toxicodendron radicans*, FAC) and *Poe* species are present in the adjacent upland. The disturbed portion of the wetland consists of common reed (*Phragmites australis*, FAC-). According to the Middlesex County Soil Survey maps, the State open water area is underlain by Manahawkin muck, frequently flooded (MakAt), which is listed on the NRCS New Jersey Hydric Soils List (February 2010). Soil samples extracted in the field exhibited a reduced matrix of 7.5YR 4/1 and 4/2 with limited redoximorphic features and meets the criteria for F6, Redox Dark Surface, as described in the NRCS *Field Indicators of Hydric Soils in the United States, Version 7.0* (2010). Evidence of wetland hydrology observed at the site included drainage patterns, water-stained leaves, oxidized root channels, FAC-neutral test and saturated soils. The boundaries of the wetland were determined by a change in the vegetative community, topographic gradient and where the presence of hydric soil indicators or wetland hydrology no longer existed.

*Area C*
Area C is located to the immediate north of the Ramp TSO. Area C is hydrologically connected to Area A via a culvert. Area C consists of a channelized State open water that flows north into an unmapped tributary of the Lawrence Brook. Area C is not identified on the NJDEP freshwater wetland mapping or the USFWS NWI mapping. Vegetation within the banks of the State open water includes red maple, sweetgum, pin oak and *Poe* species. No fringing wetlands were present. According to the Middlesex County Soil Survey maps, the State open water area is underlain by Manahawkin muck, frequently flooded (MakAt), which is listed on the NRCS New Jersey Hydric Soils List (February 2010).

*Area D*
Area D consists of a channelized State open water identified as an unnamed tributary to the Lawrence Brook. Area D is located to the north of Area C and is connected to Areas C and A by a series of culverts. Area D is not identified on the NJDEP freshwater wetland mapping. The northern portion of the delineated area is identified as Estuarine, Subtidal, Unconsolidated Bottom, Subtidal (E1UBL) by the USFWS NWI. Vegetation immediately surrounding the State open water includes red maple, sweetgum, pin oak and *Poe* species. No fringing wetlands were present. According to the Middlesex County Soil Survey maps, the State open water area is underlain by Manahawkin muck, frequently flooded (MakAt), which is listed on the NRCS New Jersey Hydric Soils List (February 2010). Area D converges with the Lawrence Brook at its northernmost point.

*Area E*
The right bank of the Lawrence Brook in the vicinity of the structures carrying the New Jersey Turnpike over the water is delineated as Area E. This reach of the Lawrence Brook flows in an eastern direction towards the Raritan River. Area E is not identified on the NJDEP freshwater wetland mapping. The USFWS NWI identifies the majority of this portion of the Lawrence Brook as Riverine, Tidal, Unconsolidated Bottom, Permant-Tidal (R1UBV). The eastern periphery of the delineated area is identified as Estuarine, Subtidal, Unconsolidated Bottom, Subtidal (E1UBL). Within the vicinity of the study area, the right bank of the Lawrence Brook is disturbed and armored with riprap to protect the existing structures carrying the New Jersey Turnpike over the water body. The Middlesex County Soil Survey maps identify Area E as water. No fringing wetlands were present.

*Areas F, G, and H*
The left bank of the Lawrence Brook and Westons Mill Pond in the vicinity of the structures carrying NJ Route 18 over the water was delineated as Area F and the right bank as area H. A drainage ditch converges with Area F approximately 45 feet upstream from the NJ Route 18 northbound bridge. Neither the Lawrence Brook nor Westons Mill Pond are identified on the NJDEP freshwater wetland mapping. The USFWS NWI identifies the majority of this portion of the Lawrence Brook and Westons Mill Pond as Riverine, Subtidal, Unconsolidated Bottom, Permanently Flooded (R2UBH). Vegetation surrounding the banks consists of American beech (*Fagus grandifolia*, FAC+), pin oak, white oak, red maple, poison ivy, Japanese honeysuckle and multiflora rose (*Rosa multiflora*, FACU). According to the Middlesex County Soil Survey maps, the State open water area is underlain by Klinesville channery loam (KkoE KkoC) and water. Klinesville channery loam soils are not listed on the NRCS New Jersey Hydric Soils List (February 2010).

Area G consists of a gabion stone-filled fence drainage ditch. It is not identified on the NJDEP freshwater wetland mapping. However, this State open water area is identified by the USFWS NWI as Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Semi permanently Flooded, Excavated (PSS1Fx). According to the Middlesex County Soil Survey maps, the State open water area is underlain by Klinesville channery loam (KkoE).

### 3.5.4 Regulated Transition Areas

A transition provides an ecological transition zone from uplands to freshwater wetlands which is an integral portion of the freshwater wetlands ecosystem, providing temporary refuge for freshwater wetlands fauna during high water episodes, critical habitat for animals dependent upon but not resident in freshwater wetlands, and slight variations for freshwater wetland boundaries over time due to hydrologic or climatologic effects. Transition areas also provide a sediment and stormwater control zone to reduce the impacts of development upon freshwater wetlands and freshwater wetland species. The NJDEP Freshwater Wetlands Protection Act Rules establishes transition areas adjacent to freshwater wetlands of

exceptional and intermediate resource values of 150-foot and 50-foot wide respectively. A transition area is not required adjacent to a freshwater wetland of ordinary resource value or adjacent to a State open water.

Only one wetland, Area B, was identified and delineated within the study area. Based on the resource value definitions, Area B would be classified as wetlands of intermediate resource value and would have a 50-foot wide transition area. All other delineated areas meet the definition of a State open water and as such, will not have an associated transition area.

### 3.5.5 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, there would be no additional direct or indirect impacts to existing wetlands or their transition areas.

### 3.5.6 Proposed Project Impacts

Based on the location of the proposed project and the delineated wetlands, as currently proposed, all construction activities will occur outside the regulated wetland resources. As such, no additional direct or indirect impacts to existing wetlands or their transition areas are anticipated.

## 3.6 Threatened and Endangered Species

### 3.6.1 Introduction

Species of special status include those species that are considered to be rare in the State of New Jersey or are listed on state or federal lists of threatened or endangered species. The Endangered Species Act of 1973, as amended is Federal legislation that is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing extinction of plants and animals. In support of the project, State and federal agencies were contacted to determine the potential for threatened and endangered species to be present within the study area. The habitat requirements for the identified species were then compared to the habitats currently within the study area.

### 3.6.2 Data Sources and Methodologies

The NJDEP Natural Heritage Program (NHP) and United States Fish and Wildlife Service (USFWS) were consulted to confirm the historical or present potential existence of any threatened, endangered or rare species in the study area.

A request was submitted to the NHP for a search of its database for any protected species referenced within one mile of the project site. The NJDEP GIS Landscape Project Data Version 2.1 (2008) was also reviewed for any mapped occurrences of threatened or endangered species. The USFWS NJ Field Office maintains a list of Federal listed species by municipality. This list was reviewed to determine the presence of federally protected species within the vicinity of the proposed project.

Based upon the results of the database searches, the study area was evaluated for potential habitat for protected species with respect to proposed IPA.

### 3.6.3 Natural Heritage Program

The NJDEP-NHP database rseponse letter, dated February 17, 2010, identified records of occurrence for great blue heron (*Ardea herodias*, Species of Special Concern) within the study area. Eastern box turtle (*Terrapene carolina carolina*, Species of Special Concern) and northern harrier (*Circus cyaneus*, State

Endangered) were identified within 1 mile of the study area. None of the identified species are included on the NJDEP List of Threatened and Endangered Spcies that are Critically Dependent on Regulated Waters for Survival (rev. May 15, 2008). Please refer to Appendix D for a copy of the correspondence.

### 3.6.4 Landscape Project Version 2.1

The NJDEP GIS Landscape Project Version 2.1 data layers were overlaid on aerial mapping and were reviewed with respect to the study area location. According to the geospatial data, there are no threatened or endangered species located within a quarter mile of the project site. The only referenced endangered species in the NHP response letter, northern harrier, is located approximately 4,600 feet to the east of the study area.

### 3.6.5 U.S. Fish and Wildlife Service

The USFWS NJ Field Office maintains a list of Federal listed species by municipality. Based on the list dated December 2009, there is a historical presence of bog turtle (*Glyptemys muhlenbergii,* federally threatened), potential for Indiana bat (*Myotis sodalis,* federally endangered), and a present population of swamp pink (*Helonias bullata,* federally threatened) in East Brunswick. In New Brunswick, there is potential for Indiana bat. Swamp pink is listed as extirpated in New Brunswick.

Indiana bats hibernate in caves and abandoned mine shafts from October through April. During the spring and summer, these bats roost under tree bark during the day and forage for flying insects in and around the tree canopy at night. A variety of habitats are used for foraging; however, streams, floodplain forests and impounded bodies of waters are preferred. Several forested areas adjacent to the Lawrence Brook have been identified within the study area. Due to their proximity to water, the area may be suitable for Indiana bat foraging habitat. According to the New Jersey Geological Service, the closest abandoned mine is French's Mine in New Brunswick. This mine is located approximately two miles to the northwest of the study site, which is within the possible range of a summer population of Indiana bats.

Bog turtles usually occur in small, discrete populations, generally occupying open-canopy, herbaceous sedge meadows and fens bordered by wooded areas. Bog turtles depend on a mosaic of micro-habitats that include dry pockets, saturated areas, and areas that are periodically flooded for foraging, nesting, basking, hibernating, and sheltering. There is no characteristic bog turtle habitat present within the project area.

Swamp pink is an herbaceous plant found primarily in palustrine forested wetlands including swampy forested wetlands, meandering streamlets, headwater wetlands, and spring seepage areas. According to the USFWS, swamp pink requires areas to be perennially saturated, but not inundated, by floodwater. The water table must be at or near the surface, fluctuating only slightly during spring and summer months. There is no favorable habitat for swamp pink present within the study area and no individuals or populations were observed during field reconnaissance.

### 3.6.6 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, there would be no additional direct or indirect impacts to threatened or endangered species.

### 3.6.7 Proposed Project Impacts

Project activities are proposed to occur within existing disturbed areas. Although the project will result in the removal of some existing vegetation within the in-fields immediately adjacent to the existing roadway corridors, based on the disturbed nature of the location, it is not anticipated that the project area actively

supports critical habitat for threatened or endangered species. To mitigate potential effects, appropriate tree clearing timing restrictions, as determined by the regulating agencies, may be incorporated into the contract documents. As such, it is not anticipated that the proposed undertaking will result in significant impacts to threatened or endangered species.

## 3.7 Cultural Resources

### 3.7.1 Introduction

The New Jersey Register of Historic Places Act Rule (N.J.A.C. 7:4) requires the review of projects that encroach upon cultural resources listed on the New Jersey Register of Historic Places. A preliminary cultural resources investigation was performed to determine the presence of cultural resources within the study area. Both archaeological resources and historic architectural resources were considered. Since federal involvement is not anticipated for the project, review under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800) is not required.

### 3.7.2 Data Sources and Methodologies

The potential for cultural resources within the study area was established through a review of sites listed with the New Jersey State Historic Preservation Office and the New Jersey State Museum (NJSM). A preliminary cultural resources screening was completed in an effort to identify any recorded and known archaeological and historic architectural resources within the study area.

### 3.7.3 Description of Resources

Research at the HPO was conducted in March 2010 to review available data and determine the presence of cultural resources that are listed on or considered eligible for listing on the National Register of Historic Places. The Edward S. Kearny House (NR: 4/6/1979; SR: 1/21/79) is located at 9 NJ Route 18 and within the study area. According to available information, it is speculated that the building was constructed in the third quarter of the nineteenth century and is typical of the vernacular pattern book buildings constructed during that time period. No additional sites or historic districts were identified.

An examination of available files at the NJSM was conducted in March 2010. An archaeological site (EMANCO-120, 28-Mi-160) containing prehistoric debris was identified and is located to the east of Burnet Street and to the north of Edgebrook Lane. The southern portion of the site is located within the study area. No additional archaeological sites were identified.

### 3.7.4 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, there would be no additional direct or indirect impacts to cultural resources.

### 3.7.5 Proposed Project Impacts

As currently proposed, it is not anticipated that the project will encroach on either the Edward S. Kearny House or the identified archaeological site. The Edward S. Kearny House is separated from NJ Route 18 southbound by an existing noise wall. The project does not propose to move or impact the noise wall within the vicinity of the Edward S. Kearny House. Additionally, all work performed will be within the existing NJDOT right-of-way near the Edward S. Kearny House. The identified archaeological site is located outside of the proposed limits of disturbance. Based on the disturbed nature of the land use in the project area, the probability of encountering historic archaeological resources is low. The project will be submitted to the HPO for review and comment. It is anticipated that the project will have no effect on cultural resources.

## 3.8 Contaminated Materials

### 3.8.1 Introduction

A contaminated materials screening was performed by Rowbear Consulting, P.C. and is documented in a report titled *Contaminated Materials Screening Report for New Jersey Turnpike Interchange 9 Improvements OPS No. T3254* (2010), which is included in Appendix F. The screening assessed the potential for soil and groundwater contamination based on past and current land use. The methodology employed to complete the screening and results are included below.

### 3.8.2 Data Sources and Methodology

Historic, federal and state records pertaining to hazardous waste activities were reviewed. Field reconnaissance was performed to verify the obtained data and to identify additional sources of hazardous waste. No historical fire insurance maps (a.k.a. Sanborn Maps) were available for the study area.

*EDR Reports and Records Review*
A comprehensive database search was performed for the study area and within 300 feet of the study area using Environmental Data Resources, Inc. (EDR). The databases provide information as it relates to "recognized environmental conditions" within the study area as well as adjoining and surrounding properties. Information pertaining to surrounding properties was evaluated to assess risk and to ascertain the potential for impacts to the study area. The databases searched include:

- Federal NPL site list
    - NPL National Priority List
    - Proposed NPL Proposed National Priority List Sites
    - NPL LIENS Federal Superfund Liens
- Federal Delisted NPL site list
- Federal CERCLIS list
    - CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System
    - FEDERAL FACILITY Federal Facility Site Information listing
- Federal CERCLIS NFRAP site List
    - CERC-NFRAP CERCLIS No Further Remedial Action Planned
- Federal RCRA CORRACTS facilities list
    - CORRACTS Corrective Action Report
- Federal RCRA non-CORRACTS TSD facilities list
    - RCRA-TSDF RCRA - Treatment, Storage and Disposal
- Federal RCRA generators list
    - RCRA-LQG RCRA - Large Quantity Generators
    - RCRA-CESQG RCRA - Conditionally Exempt Small Quantity Generator
- Federal institutional controls / engineering controls registries
    - US ENG CONTROLS Engineering Controls Sites List
    - US INST CONTROL Sites with Institutional Controls

- Federal ERNS list
    - ERNS Emergency Response Notification System
- State- and tribal - equivalent CERCLIS
    - HWS RE-EVAL Site Re-Evaluation Report
    - HIST HWS Known Contaminated Sites Listing
- State and tribal landfill and/or solid waste disposal site lists
    - SWF/LF Solid Waste Facility Directory
- State and tribal leaking storage tank lists
    - LUST UST Active Remediation Sites Listing
    - INDIAN LUST Leaking Underground Storage Tanks on Indian Land
- State and tribal registered storage tank lists
    - MAJOR FACILITIES List of Major Facilities
    - INDIAN UST Underground Storage Tanks on Indian Land
    - FEMA UST Underground Storage Tank Listing
- State and tribal institutional control / engineering control registries
    - ENG CONTROLS Declaration Environmental Restriction/Deed Notice Sites
- State and tribal voluntary cleanup sites
    - NJ PF Publicly Funded Cleanups Site Status Report
    - INDIAN VCP Voluntary Cleanup Priority Listing
- Local Brownfield lists
    - US BROWNFIELDS A Listing of Brownfield Sites
- Local Lists of Landfill / Solid Waste Disposal Sites
    - ODI Open Dump Inventory
    - DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
    - SWRCY Approved Class B Recycling Facilities
    - HIST LF Solid Waste Facility Directory
    - INDIAN ODI Report on the Status of Open Dumps on Indian Lands
- Local Lists of Hazardous waste / Contaminated Sites
    - US CDL Clandestine Drug Labs
    - US HIST CDL National Clandestine Laboratory Register
- Local Land Records
    - LIENS 2 CERCLA Lien Information
    - LUCIS Land Use Control Information System
    - LIENS Environmental LIENS
- Records of Emergency Release Reports
    - HMIRS Hazardous Materials Information Reporting System

*Historical Topographic Map Review*
Historical Topographic maps from 1901, 1902, 1954, 1970, 1981, and 1995 were reviewed. The maps label the general area to be near Weston's Mill.

*Historical Aerial Photography Review*
Rowbear reviewed Historical Aerial Photographs provided by EDR dated 1954, 1963, 1972, 1978, 1984, 1995 and 2006. The 1930 aerial map available on the NJDEP –iMap database was also reviewed.

*Historic Fill Review*
Rowbear reviewed the Historic Fill maps prepared by the NJGS to identify locations where fill has been placed in the past. The New Jersey Department of Environmental Protection presumes that fill placed in the past or in an unregulated manner New Jersey has the potential to contain contaminated materials.

*Field Reconnaissance*
Rowbear conducted a windshield survey of the study area during the week of April 4, 2010 to validate database and historical mapping related to land use patterns. The field investigation identified several potentially contaminated sites.

### 3.8.3 Description of Findings

*EDR Reports and Records Review*
The information provided in the EDR Report was reviewed and several potentially contaminated sites were found within the study area. For detailed descriptions of the identified sites, please refer to Appendix F for a copy of the Contaminated Materials Screening Report.

*Historical Topographic Map Review*
Historical Topographic maps from 1901, 1902, 1954, 1970, 1981, and 1995 were reviewed. The maps label the general area to be near Weston's Mill. The 1901 and 1902 show little development in the study area with the existing Tower Center Boulevard being the only road in the area connecting New Brunswick with South River. The 1954 map showed that Interchange 9 had been constructed and residential subdivisions built in the area southwest and northeast of the interchange. By 1970, the light industrial /warehouse buildings along Kennedy Boulevard and Tower Center area were developed. By 1981 the Turnpike was dualized and Interchange 9 expanded. The residential areas and warehouse areas had expanded. By 1995, development in the Tower Center had been expanded. The observable 2006 development patterns were consistent with the 1995 maps.

*Historical Aerial Photography Review*
Rowbear reviewed Historical Aerial Photographs provided by EDR dated 1954, 1963, 1972, 1978, 1984, 1995 and 2006. The 1930 aerial map available on the NJDEP –iMap database was also reviewed. Overall, the development patterns observable from the historic Topographic Maps is consistent with the development patterns observable from aerial photographs.

Based on the 1930 map, the study area was mostly farmland except forested areas along the steep banks of the Lawrence Brook. US Route 1 had been constructed and NJ Route 18 bridge over Lawrence Brook was under construction. The 1954 photo shows that the Turnpike was already constructed and the Tower Center area is just being cleared. The 1963 photo shows the Tower Center to have low-level hotel and office buildings with surface parking lots. By 1972, a park and ride lot was built east of the Tower Center office buildings and the warehouse area to the east of the Interchange was built. A swim club was constructed to the north of the Tower Center area. By 1978, the Turnpike was dualized and minimal changes through 1984. By 1995 the current Tower Center was expanded and it incorporated the park and ride into the parking decks for the Tower Center.

*Historic Fill Review*
Interchange 9 is located along the northern shore of the Lawrence Brook a tributary of the Raritan River. According to the NJ Geological Survey, Historic Fill of the New Brunswick Quadrangle, historic fill has been placed in the study area. The historic aerial photos and the aerial photography show this fill was placed by the NJTA in 1954 and again in the 1970s to build the highway across Lawrence Brook and to construct the overpass ramps in the Interchange. The New Jersey Department of Environmental Protection assumes that all historic fill is contaminated above the applicable residential soil remediation standards NJAC 7:26E-3.12(a). Enhanced testing and delineation of the historic fill is required prior to excavation, reuse or disposal of fill in the areas delineated as historic fill.

*Field Reconnaissance*
The field investigation identified several potentially contaminated sites. A summary of each site is below.

New Jersey Turnpike Authority Administration Building:
The NJTA Administration Building was identified on the Leaking Underground Storage Tanks (LUST) list. Based on the EDR report, no further action (NFA) was issued for a prior discharge. On-going remediation activities were observed during field reconnaissance.

25 Kennedy Boulevard - The Home News Tribune:
The property was identified on the State Superfund Site (SHWS), Underground Storage Tank (UST), LUST, and the Resource Conservation and Recovery Act (RCRA)-Non-Generator sites lists. The property is currently occupied by the Home News Tribune, but is referred to as the Bristol Meyers Squib property in the EDR report.

26 Kennedy Boulevard – Insurance Restoration Specialists:
The property was not identified in the EDR report; however, during field reconnaissance, numerous abandoned trucks, steel drums, storage tanks and dirt piles were observed towards the rear of the building.

Intersection of McGuire Street and Kennedy Boulevard:
The site was not identified in the EDR report; however, during field reconnaissance, two potential monitoring wells located in the northwest quadrant of the intersection were identified.

37 Westons Mill Road:
The property at 37 Westons Mill Road was identified on the SHWS site list. Based on the EDR report, the status of the case is closed.

19 Ainsworth Avenue:
The property at 19 Ainsworth Avenue was identified on the SHWS site list. Based on the EDR report, the status of the case is closed.

100 Naricon Place - AT&T Communication Inc.:
The property was identified on the RCRA-Non-Generator list. The EDR report also indicates past heavy metal contamination at the site.

### 3.8.4 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, there would be no additional direct or indirect conflicts with hazardous material.

### 3.8.5 Proposed Project Impacts

The project proposes improvements at the bridge carrying Naricon Place over Ramp TE, which is in the immediate vicinity of 100 Naricon Place – AT&T Communication Inc property. Upon reviewing maps and aerial photographs, the AT&T facility in question does not exist at the present address. Through independent inquiries, it was confirmed that in the past, a retail store for AT&T was located at the address listed. However, the phone number listed in the EDR report as since been disconnected. The EDR Map Findings listed the property as a "small quantity RCRA generator" in 1988 and listed it again in 2006 as a RCRA non-generator.

RCRA Generators include facilities that generate 200 lbs or more of hazardous waste per calendar month, but less than 2,200 lbs. Inclusion in the database is an indication of presence of handling of a regulated waste at the site, but does not indicate known release or threatened release from the facility. Such a release would be suspected if violations were reported for a facility. No violations were reported within the database for this facility. Non-generators are facilities that have been assigned an EPA identified number, but do not generate any amount of hazardous waste. Based on the available information, there is no indication that there has been a release or threatened release at this facility and as such, it is not considered an Area of Concern.

Based on the location of the identified sites with potential for contamination and the proposed IPA, no involvement with contaminated material is anticipated.

## 3.9 Land Use and Zoning

### 3.9.1 Introduction

The section includes an inventory of the current land use and zoning within the study area. As described in Section 1, the study area covers portions of the Township of East Brunswick and City of New Brunswick in Middlesex County. However, all proposed project alternates are located entirely within the Township of East Brunswick. This section provides a basic description of the land use and zoning in the project area.

### 3.9.1 Data Sources and Methodology

The proposed project is located within the Township of East Brunswick, near its northern boundary with the City of New Brunswick. As part of preliminary investigations, the Township of East Brunswick and the City of New Brunswick were visited and zoning maps and tax maps were obtained. The zoning maps in conjunction with available current and historic aerial photography were examined to determine the existing land use trends in the project area.

### 3.9.2 Existing Land Use

The project area is primarily developed with major transportation corridors including the New Jersey Turnpike, NJ Route 18 and US Route 1, commercial businesses, and residential developments. Undeveloped forested areas have been identified along the Lawrence Brook and Westons Mill Pond. Within East Brunswick, the project area is zoned for Residential uses to the west of NJ Route 18 and for General Highway Commercial uses to the east. To the immediate north of the proposed project, the entire study area is zoned for Educational Institutional uses.

*Middlesex County*
Middlesex County comprises a total of 323 square miles of which 310 square miles are land and 13 square miles is water. It is the third largest county in the State. The county is generally flat with very minimal topographic relief, with the highest point in the Township of South Brunswick at approximately

300 feet above sea level. According to the 2000 census, there were 750,162 people residing in Middlesex County with a population density of 2,422 people per square mile. Several major state routes, US Routes, Interstates and toll highways traverse through Middlesex County.

*Township of East Brunswick*
The proposed project is entirely contained within the Township of East Brunswick. It has a total area of 22.4 square miles of which 22 square miles is dry land and 0.4 square miles is water. Settlers began arriving in the northern portion of East Brunswick in the late 1600s and the township was incorporated in 1860. The Township of East Brunswick remained a farming community until large scale housing units and roadway construction began in the 1930s, transforming it into a large suburban town. The Turnpike was extended into the township in 1951 which led to a large spike in population growth.

Today, development is concentrated on the eastern side of the township, while the western side is the sparsely developed 6.7 square mile Rural Preservation Zone. Along the Turnpike, East Brunswick is located between approximately M.P. 77.8 and M.P. 80.1; and between Ryders Lane (near M.P. 81) and the proposed project location at Interchange 9 (near M.P. 83.0).

### 3.9.3 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, existing land use patterns would not be directly impacted. Existing land use patterns of growth may be adversely affected under the No-Build Alternative as a result of continuing degradation of traffic operations.

### 3.9.4 Proposed Project Impacts

As currently proposed, the project is consistent with the existing land use. The majority of the proposed project improvements will be located within the existing right-of-way. Since the project will not result in increased capacity on the Turnpike or NJ Route 18 and the surrounding land is already developed with residential and commercial facilities, it is not anticipated that the proposed project will significantly impact existing land use.

## 3.10 Community Facilities, Public Open Space, and Parkland

### 3.10.1 Introduction

This section discusses an inventory of both public and private community facilities, public open space, and parkland. Open space is defined by NJDEP as "the basic resource for the development of recreational facilities and for satisfying the recreational needs of the state's citizens. Open space also provides the breathing room in densely populated areas, shape growth, protects natural resources, and preserves historic sites." Parkland typically includes playgrounds, picnic areas, athletic fields, bike trails, golf courses, swimming pools and marinas. According to the NJDEP Green Acres Rules (N.J.A.C. 7:36-20.2), a municipality cannot dispose of any funded or unfunded parkland unless it is first coordinated with the NJDEP.

### 3.10.2 Data Sources and Methodology

An inventory of parks, open space areas, community facilities and recreational facilities was prepared in order to identify the location and describe the use of each facility. The inventory also identifies facilities that utilize money from local, state, or federal programs, including the New Jersey Green Acres Program. Information on parks, open space, and recreational facilities within the project study corridor was obtained by reviewing maps provided by the respective counties and municipalities, as well as the Recreation and Open Space Inventory (ROSI) database maintained by the Green Acres Program at NJDEP.

### 3.10.3 Existing Community Facilities

The City of New Brunswick Fire Department Engine Company #2 is located on Burnet Street in the northern portion of the study area. No additional community facilities were identified in the vicinity of the proposed project.

### 3.10.4 Existing Public Open Space and Parkland

A preliminary list of public open space and parkland was developed from available data from local governments, a review of the NJDEP Green Acres Recreation and Open Space Inventory (ROSI), aerial photography interpretation, and field reconnaissance.

Tax maps available from the Township of East Brunswick identified publicly owned land along Westons Mill Pond. Block 13, Lot 23 is located behind private residences on North Drive and is owned by the Township of East Brunswick. The property is listed on the NJDEP ROSI. Public easements were also identified on the lots along Patton Drive. The easements are located outside of the study area so it is not anticipated that the proposed project will directly impact the easements.

Based on the City of New Brunswick Master Plan, three conservation areas are located within the vicinity of the study area including Weston Mill Watershed Properties, the Raritan River Conservation Area and the Rutgers Village Mini Park. Weston Mill Watershed Properties is approximately 13.4 acres in area and is located within Block 710.03, part of Lot 2 and Block 710.01, part of Lots 2 and 3. Raritan River Conservation Area is approximately 84.2 acres in size and is located within Block 703.03, Lots 1.01, 20, 20.01, 23 and 24. Rutgers Village Mini Park is approximately 0.11 acres in size and is located within Block 710.03, Lot 4.01. All three conservation areas are also listed on the NJDEP ROSI. However, only the Raritan River Conservation Area was purchased with Green Acres funding.

### 3.10.5 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, there would be no additional direct or indirect impacts to community facilities, open space, or parkland.

### 3.10.6 Proposed Project Impacts

As currently proposed, the project will not encroach on any identified community facilities, open space, or parkland. However, normal traffic patterns will likely be temporarily interrupted during construction. As stated above, the City of New Brunswick Fire Department Engine Company #2 is located on Burnet Street, north of the project area. Consideration should be given to the access needs of the fire company during the development of maintenance and protection of traffic (MPT) and staging schemes.

## 3.11 Environmental Justice

### 3.11.1 Introduction

The Environmental Justice Policy Executive Order further establishes the State's commitment to ensure that communities of color and low-income communities are afforded fair treatment and meaningful involvement in decision-making regardless of race, color, ethnicity, religion, income or education level. The executive order requires that all Executive Branch agencies involved in decisions that may affect environmental quality and public health shall provide meaningful opportunities for involvement to all people regardless of race, color, ethnicity, religion, income, or education level. The NJDEP administers the State's Environmental Justice Advisory Council and Environmental Justice Taskforce.

An analysis was prepared to determine whether the proposed project would have disproportionately high and adverse effects on minority and low income populations. Disproportionately high and adverse effects are those effects borne or suffered predominantly by a minority or low-income population within the defined population of the study area, and would be appreciably more severe or greater in magnitude than the adverse effects that would be suffered by the non-minority or non-low-income population. Identification of a disproportionately high and adverse impact on minority or low-income populations does not preclude a project from moving forward.

### 3.11.2 Data Sources and Methodology

Minority and low-income populations in the study area were identified using data on race and income from the 2000 U.S. Census. Blocks and block groups have been identified as areas that require closer consideration relative to environmental justice when 50% of their populations are minorities, or when 50% of the population exhibits household incomes below established low-income thresholds (i.e., the poverty level). Additionally, blocks and block groups with higher percentages of minority populations, or persons in poverty than the averages for the county in which they are located are also identified as areas requiring closer consideration relative to environmental justice. Specific details regarding racial composition and income are located in Appendix G.

Table 1
Census Blocks

| Municipality | Tract | Group | Block |
|---|---|---|---|
| New Brunswick | 60.00 | 1 | 1004 |
| New Brunswick | 60.00 | 1 | 1006* |
| New Brunswick | 60.00 | 1 | 1007* |
| New Brunswick | 60.00 | 1 | 1008 |
| New Brunswick | 60.00 | 1 | 1016 |
| New Brunswick | 60.00 | 1 | 1997* |
| New Brunswick | 60.00 | 1 | 1998* |
| New Brunswick | 60.00 | 1 | 1999* |
| East Brunswick | 64.03 | 1 | 1000* |
| East Brunswick | 64.03 | 1 | 1001* |
| East Brunswick | 64.03 | 1 | 1002* |
| East Brunswick | 64.03 | 1 | 1003 |
| East Brunswick | 64.03 | 1 | 1005 |
| East Brunswick | 64.03 | 1 | 1006 |
| East Brunswick | 64.03 | 1 | 1998* |
| East Brunswick | 64.03 | 1 | 1999* |
| East Brunswick | 64.03 | 2 | 2000 |
| East Brunswick | 64.03 | 2 | 2004 |
| East Brunswick | 64.03 | 2 | 2005 |

*no residences identified within census block

### 3.11.3 Racial and Income Characteristics

*Minority Population*

To determine the presence or absence of minority populations within the study area, census block data were compared to state, county, and municipal compositions. Please refer to Table 2 below for a summary of minority compositions for the study area.

The population of two blocks, Tract 60.00 Group 1 Block 1004 and Tract 64.03 Group 1 Block 1006, within the study area contain a higher percentage of minorities than Middlesex County. Block 1004 is located in the northwestern portion of the study area. Based on aerial photography, there are no residences within Block 1004 that are also within the study area. Several residences were identified within Block 1006 and within the study area.

Table 2
Minority Composition

| Location | Tract | Group | Block | % Minorities |
|---|---|---|---|---|
| New Jersey | - | - | - | 33.96% |
| Middlesex County | - | - | - | 38.08% |
| New Brunswick | - | - | - | 67.13% |
| East Brunswick | - | - | - | 25.13% |
| New Brunswick | 60.00 | 1 | 1004 | 77.16% |
| New Brunswick | 60.00 | 1 | 1008 | 15.79% |
| New Brunswick | 60.00 | 1 | 1016 | 6.00% |
| East Brunswick | 64.03 | 1 | 1003 | 28.85% |
| East Brunswick | 64.03 | 1 | 1005 | 19.70% |
| East Brunswick | 64.03 | 1 | 1006 | 44.05% |
| East Brunswick | 64.03 | 2 | 2000 | 25.93% |
| East Brunswick | 64.03 | 2 | 2004 | 26.23% |
| East Brunswick | 64.03 | 2 | 2005 | 0.00% |

*Low-Income Populations*
To determine the presence or absence of low-income populations within the study area, census tract data were compared to state, county, and municipal data. Please refer to Table 3 below for a summary of available economic data for the study area.

There are two census tracts within the study area, Tract 60.00 in New Brunswick and Tract 64.03 in East Brunswick. Based on the available economic data from the Census, Tract 64.03 has a lower proportion of the population below the poverty level, a higher median household income, and a higher employment rate than Middlesex County and has similar statistics to East Brunswick Township. Tract 60.00 has a higher proportion of the population below the poverty level, a lower median household income, and a lower employment rate than Middlesex County.

Table 3
Economic Data

| Location | Tract | Income below Poverty Level | Median Household Income | Civilian Labor Force Employed |
|---|---|---|---|---|
| New Jersey | - | 8.50% | $55,146 | 93.95% |
| Middlesex County | - | 6.59% | $61,446 | 94.82% |
| New Brunswick | - | 27.26% | $36,080 | 89.42% |
| East Brunswick | - | 2.83% | $61,446 | 96.51% |
| New Brunswick | 60.00 | 11.73% | $43,216 | 81.49% |
| East Brunswick | 64.03 | 2.93% | $90,538 | 96.67% |

### 3.11.4 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, the study area would experience no significant changes.

### 3.11.5 Proposed Project Impacts

By analyzing available 2000 Census data, several minority and low-income communities were identified in and within the vicinity of the study area including Tract 60.00 Group 1 Block 1004 and Tract 64.03 Group 1 Block 1006. Tract 60.00 Group 1 Block 1004 is located in the City of New Brunswick. The entire project will be contained within the Township of East Brunswick. Therefore, no project activities or right-of-way acquisitions are proposed for this block. Tract 640.3 Group 1 Block 1006 is located in the southwestern portion of the project area. Several residences have been identified within the immediate vicinity of the proposed project. The residences are located near the transition between the proposed roadway and the existing roadway. No right-of-way acquisitions are currently required for the proposed IPA from these residences. Air quality impacts are not expected as a result of the proposed action, including both direct and indirect impacts. As such, it is not anticipated that low income or minority communities will be disproportionately impacted by the project. The selected IPA greatly reduces right-of-way acquisitions that would be required for Alternates A, B, and C as discussed in Section 4.0 below.

## 3.12 Air Quality

### 3.12.1 Introduction

The United States Environmental Protection Agency (USEPA), through the Clean Air Act, has established National Ambient Air Quality Standards (NAAQS) for pollutants that are harmful to public health and the environment. The Air Quality Index (AQI) is a national air quality rating that is based on the NAAQS. It is a daily rating for air quality and indicates health effects associated with elevated levels of carbon monoxide sulfur dioxide, ground-level ozone, particulate matter and nitrogen dioxide. The AQI is divided into six categories based on the NAAQS and is associated with a different level of health concern: good (AQI 0-50); moderate (AQI 51-100); unhealthy for sensitive groups (AQI 101-150); unhealthy (AQI 151-200); very unhealthy (AQI 201-300; and hazardous (AQI over 300).

A preliminary Air Quality Technical Study was performed in January 2011. To determine if the project will have an impact on air quality, the existing environmental resources and physical conditions were inventoried to develop a baseline for which the proposed improvements could be compared. An analysis of the anticipated impacts was then performed and the agency permit requirements were reviewed. The air quality analysis is based on the proposed action and the traffic data analysis provided by Jacobs Engineering Group, Inc.

Technical studies and analysis conducted in preparation of the study are in compliance with the following laws, regulations and executive orders:

- National Environmental Policy Act (NEPA) of 1969
- 23 CFR Part 771
- 40 CFR Parts 50-52, 93, 1500 and 1506
- PL101-549, Clean Air Act Amendments of 1990
- 24 CFR 770
- Environmental Protection Agency (EPA) EPA-454/R-92-005

### 3.12.2 Existing Conditions

NAAQS have been established for six commonly found air pollutants (criteria pollutants) including particulate matter (PM), ground-level ozone ($O_3$), carbon monoxide (CO), sulfur oxides ($SO_2$), nitrogen oxides (NOx), and lead (Pb). Currently, Middlesex County is designated as a nonattainment area for the 1-hour $O_3$ (revoked), 8-hour $O_3$ and $PM_{2.5}$. Additionally, the county has a partial designation as a CO maintenance area (Not Classified), but only for the City of Perth Amboy. Generally, CO levels have improved dramatically in New Jersey over the past several decades. The last time the CO NAAQS was exceeded in New Jersey was in January 1995.

In the 2008 Air Quality Index Annual Report (the last available year), Middlesex County reported 275 Air Quality Index days. Of these days, 195 were identified as "good", 65 were labeled as "moderate", 14 were designated as "Unhealthy for Sensitive Groups" and one was identified as being "unhealthy."

### 3.12.3 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As such, the current air quality would not be directly or indirectly impacted.

### 3.12.4 Proposed Project Impacts

*Regional Level Impact*
The Clear Air Act Amendments (CAAA) of 1990 require each state to develop and submit a State Implementation Plan (SIP, or STIP for State Transportation Improvement Program) to the EPA. The SIP must contain the specific strategies and measures for controlling and reducing pollutants (CO/Ozone/PM) and contain specific criteria and procedures for assessing the conformity of transportation plans, programs and projects. The full measure of the CAAA of 1990 conformity requirements cannot be applied to any of the pollutants until EPA approves the SIP.

As a geometric safety and traffic operations project, the proposed action is exempt from a regional emissions analysis according to Title 40 CFR 93.127. Table 3 of the CFR specifies that intersection channelization projects, intersection signalization projects at individual intersections, interchange reconfiguration projects and changes in vertical and horizontal roadway alignment are exempt.

Furthermore, it is not anticipated that the proposed action will change the regional amount of Vehicle Miles Traveled (VMT). As a result, it would not change the results in the Air Quality Conformity Determination as described in NJTA's Regional Transportation Plan 2035, Appendix G, Adopted August 2009. Also, the results of the proposed action should reduce idling time, subsequently improving the regional air quality environment.

*Project Level Impact*
Several receptors that may potentially have air quality changes as a result of the proposed action were identified through a review of aerial photography and field reconnaissance. For air quality, a sensitive receptor is identified as an exterior location outside of a roadway's mixing zone. These receptors typically include residences, bus stops, parks, and/or other public places to which the general public has access.

*Carbon Monoxide*
The November 1993 transportation conformity rule requires the use of the November 1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections for projects involving or affecting Level of Service (LOS) D, E, or F intersections within CO nonattainment areas. The rule allows qualitative

methods if the analysis can provide a clear demonstration that the project does not cause or contribute to any new localized CO violations (or increase the frequency or severity of any existing CO violations, which there are none) within CO nonattainment and maintenance areas. However, the county has a partial designation as a CO maintenance area (Not Classified for the City of Perth Amboy only). Although the project does not meet any of the above criteria, it does not excuse the project from a hot spot analysis for purposes of project level conformity. As a result, a qualitative analysis is still necessary and is presented below:

- The proposed action is not in the maintenance area or in a nonattainment area.
- There is no additional through-lane capacity proposed as part of the improvement project.
- The traffic report prepared by Jacobs shows a reduction in southbound approach signal delay times.
- The nearest CO monitors are identified as #340232003, located in Perth Amboy and #340238001, located at Georges Road, West of the former Route 130/US 1 circle (North Brunswick, discontinued after 2002), both in Middlesex County. Historical monitoring data from the EPA Air Data-Access to Pollution Data website indicate that neither of these sites has exceeded the CO standards based on data available from 1998 onward.
- Many states have policies or "rules-of-thumb" to guide decisions on when quantitative modeling should be performed for a particular project. If the project was a federal undertaking, it would likely have been considered a Categorical Exclusion (CE). The Federal Highway Administration's (FHWA) CE form exempts projects that are not in maintenance or nonattainment areas from further CO analysis and lets the project proceed to the project development process.
- An air quality analysis was performed as part of the Executive Order No. 215 Enviornmental Impact Statement prepared by the Louis Berger Group Inc. and Dewberry-Goodkind, Inc (2007) for the adjacent NJTA Interchange 6-9 Widening Program. The results showed that the CO concentrations were below the NAAQS in the corridor and in many cases were below half the standard.

Professional judgment, experience and state and national CO trends indicate that the CO standard will likely never be exceeded. Therefore, there are no predicted CO impacts as a result of the proposed action. Additionally, it is expected that the improvements will benefit the local and regional CO air quality environment as a result of the improved queuing and travel times.

*Particulate Matter*

Particle matter includes very small liquid and solid particles suspended within the lower atmosphere. The EPA is concerned with inhalable particulate matter which is not filtered by the nose and throat like the larger particulates, and can reach deep in the lungs causing lung disease, emphysema or lung cancer. Particulate matter irritates the membranes of the respiratory system and therefore may affect sensitive groups such as the elderly, individuals with cardiopulmonary disease such as asthma, and children. Inhalable course particulates ($PM_{10}$) are larger than 2.5 micrometers but smaller than 10 micrometers in diameter and are caused by agriculture, grinding or crushing operations and become windblown dust that can also affect visibility. Fine particulate matter ($PM_{2.5}$) are smaller than 2.5 micrometers in diameter and is created from chemical reactions in the atmosphere and through fuel combustion by sources such as motor vehicles and power generation. The NAAQS was revised in 2008 to reflect exclusion of the annual $PM_{10}$ standard as well as a more stringent twenty-four hour $PM_{2.5}$ standard (35 ug/$m^3$) and $O_3$ (0.075 ppm).

The annual standard for $PM_{10}$ has been revoked. For $PM_{2.5}$, agencies have developed language to be incorporated into their environmental documents. Generally, any hot-spot analysis should include a summary of the method and data that were used. For projects located in nonattainment or maintenance areas that have intersections with LOS D, E, or F, a qualitative $PM_{2.5}$ analysis is performed. A reasoned

and logical explanation of why a hot spot would not be created or worsened must be determined. In making this determination, several factors must be considered, including the existing condition $PM_{2.5}$ levels, proposed and approved regulatory changes that would affect future levels, monitored concentration levels and their relationship to the standards, and the project's inclusion as part of an approved and conforming transportation plan.

Although, the traffic report prepared by Jacobs shows a reduction in southbound approach signal delay times, a qualitative discussion is included for informational purposes. The nearest $PM_{2.5}$ monitor is identified as #340230006, located in North Brunswick Township in Middlesex County. Historical monitoring data from the EPA Air Data-Access to Pollution Data website indicate that the 24-hour NAAQS criteria value was last exceeded in 2004 and the annual mean NAAQS criteria value has never been exceeded. However, it should be noted that the year 2008 had a single reading that indicated that the 1st Max and 98th Percentile 24-Hour Value was nearly 22 times the criteria and nearly 3 times the Annual Mean. Professional judgment and historical data for this site suggest that it is likely that this max and mean are an anomaly, though not yet confirmed. The 2nd Max reading was well below the 35 ug/$m^3$ standard at 23.5 ug/$m^3$. Additionally, the 2007 Annual Mean was recorded to be 12.2 ug/$m^3$, with a standard of 15 ug/$m^3$.

To fall into a possible category for higher potential particulate matter effects, the project must also create new or add significant capacity to urban arterials with traffic volumes where the AADT is projected to be approximately 125,000 with 8 percent diesel trucks (10,000 diesel trucks). As mentioned, the proposed action is not adding through-lane capacity. It is proposing geometric safety improvements to the ramps and intersection improvements at the NJ Route 18 and Naricon Place intersection, including a 500' auxiliary lane to facilitate the traffic movement on NJ Route 18 southbound to the toll plaza ramp with an extra lane added to Ramp WT. Additionally, traffic operational changes resulting from the project are likely to have a positive impact as a result of congestion reduction.

Consequently, there are no predicted impacts as a result of the proposed action. Additionally, it is expected that the improvements will benefit the local and regional $PM_{2.5}$ air quality environment.

*Mobile Source Air Toxics (MSAT*)
Mobile Source Air Toxics (MSAT) are not considered criteria pollutants but are linked to cancer and other serious health effects, such as reproductive problems or birth defects. Air toxics are mainly caused by man-made sources, including mobile sources (cars, trucks, construction equipment) and stationary sources (factories refineries, power plants) as well as indoor sources (certain building materials and cleaning solvents). Natural source air toxics are caused by volcanic eruptions and forest fires. EPA is tracking 188 toxic air pollutants regulated under the Clean Air Act. EPA separates air toxics into four emission types: major industrial sources, area and natural sources, on-road mobile sources, and non-road mobile sources. Of the 188 air toxics, EPA further identified 21 mobile-source air toxics (MSAT), and designated six as priority MSATs having the greatest influence on health. These priority MSATs include acetaldehyde, acrolein, benzene, 1, 3-butadiene, formaldehyde, and combined diesel particulate matter and diesel exhaust organic gases.

To fall into the Mobile Source Air Toxics (MSAT) category for higher potential MSAT effects, the project must create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000-150,000, or greater, by the design year. The proposed action does not add through lane capacity. Therefore, no further analysis is required.

Additionally, emissions will likely be lower in the design year than the present levels as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Though local conditions may differ, the magnitude of the EPA-projected reductions is so great (even accounting for VMT changes) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

Therefore, there are no predicted impacts as a result of the proposed action. Additionally, it is expected that the improvements will benefit the local and regional air quality environment.

## 3.13 Noise

### 3.13.1 Introduction

Sound can affect all human activities and must be considered in local and regional land use planning. Noise is described as an undesirable or unwanted sound perceived subjectively by an individual. Tolerance of a certain noise level may vary among neighborhoods, individuals, and the time of day. Public health can be affected by the degree of noise in the environment. Physiological stresses ranging in effect from increased irritability to temporary constriction of blood vessels and insomnia can occur if noise levels are severe or of an extended duration.

Sounds heard in the environment usually consist of a range of frequencies, each at a different level. The human ear does not respond equally to identical noise levels at different frequencies. The method of correlating human response to noise is called weighting. The weighting system used for this purpose is "A-weighting" and the resultant noise level is called the "A-weighted noise level" (dBA). The "A-weighted" sound level adequately describes the environmental noise at a particular instant. However, the level and frequency of noise varies constantly. Distant and continuous noise sources, such as traffic 1,000 feet away, wind rustling trees, and industrial activity create a background noise level where no particular source can be readily identified. The level slowly changes with the daily cycle of human activities. Within this background noise are a succession of nearby noise events that are of short duration (aircraft flyovers, local trucks, loud noises), and these events cause more rapid increases in the overall noise level. Research evaluating human sensitivity to increases in noise has shown that a 3 dB increase in the sound level is barely noticeable, a 5 dB increase would be a noticeable change, and a 10 dB increase would be perceived as twice as loud.

For noise, generally, an exterior location on a property which is considered to contain a noise sensitive land use such as picnic areas, recreation areas, playgrounds, active sports areas, residences, guest lodges, schools, churches, libraries and hospitals. Office buildings, commercial business and industrial land uses are typically not considered to be noise sensitive.

According to FHWA and NJDOT guidance documents, a project is defined as having a traffic noise impact and noise abatement measures must be considered if either of the following conditions occur:

1. Predicted noise levels that approach or exceed the Noise Abatement Criteria (67 dBA for residences, with 66 dBA being the approach criteria) or;
2. A substantial increase in predicted noise levels over the existing noise levels even though the noise abatement criteria has not been reached. The substantial increase is considered to be 10 dBA or greater over the existing level. The 10 dBA level roughly represents a doubling of the perceived sound levels.

A noise analysis was performed in January 2011 to establish the existing conditions of the project area and identify potential impacts from the proposed improvements. The noise analysis was performed in

accordance with the Federal Highways Administration's procedures established for residential areas in 23 CFR Part 772 and the document titled Highway Traffic Noise Analysis and Abatement: Policy and Guidance.

Input sources and information required for the noise level predictions typically include:

1. Design plans, profiles and cross sections;
2. Projected traffic volumes, truck percentages, directional split and speeds, and;
3. Land use information based on review of plans and field observations.

The 23 CFR Part 772 regulations specify that $L_{eq}$ (the equivalent constant noise level containing the same amount of acoustical energy as the varying noise level) noise levels can be calculated for developed land uses and approved land use developments. These calculations were performed using the Traffic Noise Model Version 2.5 (TNM 2.5). The modeling accounted for traffic speed and design hour volumes for autos, medium trucks, and heavy trucks, and ground, tree, and building zones, as applicable.

### 3.13.2 Sound Level Environmental Change

The preliminary analysis performed for the study includes a discussion of existing conditions near the proposed IPA, Design Year No-Build conditions and assesses the potential changes to the sound level environment as a result of the proposed Design Year No-Build and IPA.

*Existing Condition*
The nearest noise sensitive receptors that may be affected by the proposed action are primarily located along Westons Mill Road, Naricon Place and Manor Place. Six of these residential receptors currently have modeled sound levels that equal or exceed 66 dBA because of their proximity to NJ Route 18, the ramps to and from the Turnpike and/or the more distant Turnpike mainline.

### 3.13.3 No-Build Alternative

There are nine (9) residential receptors where modeled sound levels will meet or exceed the NJTA criteria in the Design Year No-Build Alternative. These receptors are located on Westons Mill Road, Myron Place, Manor Place and Laurel Lane in the immediate vicinity of NJ Route 18, Ramp TE, and Ramp WT. The sound levels are predicted to increase by less than or equal to 1 dBA over the existing condition as a result of the forecasted regional traffic growth. Please note that a doubling of the traffic volumes (a 100% increase) would generally need to occur to change the sound levels by a minimally perceptible 3 dBA.

### 3.13.4 Proposed Project Improvements

Under the Design Year Build Conditions scenario, there are seven residential receptors that have modeled sound levels that exceed the NJTA criteria. These residences are located on Westons Mill Road, Myron Place, Manor Place and Laurel Lane, located near the NJ Route 18 mainline and Ramps TE and WT. The primary noise source is NJ Route18 traffic.

The sound levels are predicted to change by approximately 0 to 1 dBA over the existing condition as a result of the proposed action. Additionally, the sound levels are predicted to change by approximately -1 to 1 dBA over the design year no-build condition.

The reasons for the minor changes and/or sound level decreases are as follows:

- The mainline of NJ Route 18 is shifted farther away from several receptors, offsetting the shift of Ramps TE and WT closer to some residences.

- Peak hour increases to the local road system are no higher than 27% according to the traffic volumes provided by Jacobs. As mentioned previously, please note that it would take a doubling of the traffic volumes (a 100% increase) to change the sound levels by 3 dBA.
- There is an existing noise barrier, approximately 1800+ feet in length, located north of Naricon Road.
- Mainline NJTA traffic is too far away to genuinely influence the sound level environment during the peak hour.

## TABLE 4
## EXISTING AND PREDICTED SOUND LEVELS (dBA Leq)

| RECEPTOR NUMBER | LAND USE & LOCATION | MODELED SOUND LEVELS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Existing | 2033 No-Build | 2033 Build | 2033 Build w/Barrier | | | | |
| | | | | | 10' | 12' | 14' | 16' | 18' |
| 1 | Residence-Myron Pl. | 72 | 73 | 73 | 65 | 65 | 64 | 64 | 64 |
| 2 | Residence-Myron Pl. | 65 | 66 | 66 | 64 | 64 | 64 | 64 | 64 |
| 3 | Residence-Westons Mill Rd. | 71 | 72 | 72 | 63 | 63 | 62 | 62 | 61 |
| 4 | Residence-Myron Pl. | 64 | 64 | 65 | 61 | 61 | 61 | 60 | 60 |
| 5 | Residence-Westons Mill Rd. | 70 | 71 | 71 | 63 | 62 | 61 | 61 | 60 |
| 6 | Residence-Myron Pl. | 63 | 64 | 64 | 61 | 60 | 59 | 59 | 59 |
| 7 | Residence-Myron Pl. | 63 | 64 | 64 | 60 | 59 | 59 | 58 | 58 |
| 8 | Residence-Westons Mill Rd. | 69 | 70 | 70 | 62 | 61 | 60 | 60 | 59 |
| 9 | Residence-Manor Pl. | 63 | 64 | 64 | 60 | 59 | 58 | 58 | 58 |
| 10 | Residence-Manor Pl. | 62 | 62 | 62 | 59 | 58 | 57 | 57 | 57 |
| 11 | Residence-Manor Pl. | 68 | 68 | 67 | 62 | 61 | 61 | 60 | 60 |
| 12 | Residence-Manor Pl. | 64 | 64 | 64 | 60 | 59 | 59 | 58 | 58 |
| 13 | Residence-Manor Pl. | 60 | 61 | 61 | 58 | 57 | 57 | 57 | 57 |
| 14 | Residence-Westons Mill Rd. | 67 | 67 | 67 | 63 | 62 | 61 | 61 | 61 |
| 15 | Residence-Patton Dr. | 57 | 58 | 58 | 56 | 55 | 55 | 54 | 54 |
| 16 | Residence-Westons Mill Rd. | 66 | 67 | 66 | 61 | 60 | 60 | 60 | 59 |
| 17 | Residence-Patton Dr. | 57 | 58 | 58 | 56 | 55 | 55 | 54 | 54 |
| 18 | Residence-Westons Mill Rd. | 66 | 67 | 66 | 61 | 60 | 60 | 59 | 59 |
| 19 | Residence-Patton Dr. | 58 | 58 | 59 | 56 | 55 | 54 | 54 | 54 |
| 20 | Residence-Patton Dr. | 57 | 57 | 58 | 55 | 54 | 54 | 53 | 53 |
| 21 | Residence-Patton Dr. | 59 | 60 | 60 | 56 | 55 | 55 | 54 | 54 |
| 22 | Residence-Laurel Lane | 63 | 63 | 63 | 59 | 58 | 57 | 57 | 57 |
| 23 | Residence-Laurel Lane | 66 | 67 | 67 | 62 | 61 | 61 | 60 | 60 |
| 24 | Residence-Westons Mill Rd. | 66 | 66 | 66 | 63 | 62 | 61 | 60 | 60 |
| 25 | Residence-Patton Dr. | 61 | 61 | 61 | 58 | 57 | 56 | 56 | 56 |
| 26 | Residence-Patton Dr. | 61 | 61 | 61 | 58 | 58 | 58 | 57 | 57 |
| 27 | Residence-Naricon Pl. | 62 | 63 | 62 | 60 | 60 | 60 | 60 | 60 |
| 28 | Residence-Naricon Pl. | 65 | 66 | 65 | 63 | 63 | 63 | 63 | 63 |
| 29 | Residence-Naricon Pl. | 65 | 65 | 65 | N/A | | | | |
| 30 | Residence-Naricon Pl. | 62 | 62 | 62 | N/A | | | | |
| 31 | Residence-Westons Mill Rd. | 62 | 62 | 61 | N/A | | | | |
| 32 | Residence-Westons Mill Rd. | 60 | 60 | 60 | N/A | | | | |
| 33 | Residence-Westons Mill Rd. | 59 | 60 | 59 | N/A | | | | |
| 34 | Residence-Westons Mill Rd. | 59 | 59 | 59 | N/A | | | | |

## TABLE 4 (cont.)
## EXISTING AND PREDICTED SOUND LEVELS (dBA Leq)

| RECEPTOR NUMBER | LAND USE & LOCATION | MODELED SOUND LEVELS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Existing | 2033 No-Build | 2033 Build | 2033 Build w/Barrier | | | | |
| | | | | | 10’ | 12’ | 14’ | 16’ | 18’ |
| 35 | Residence-Westons Mill Rd. | 60 | 60 | 60 | N/A | | | | |
| 36 | Residence-Westons Mill Rd. | 60 | 60 | 60 | N/A | | | | |
| 37 | Residence-Westons Mill Rd. | 61 | 61 | 61 | N/A | | | | |
| 38 | Residence-Westons Mill Rd. | 65 | 65 | 65 | N/A | | | | |
| 39 | Residence-Naricon Pl. | 60 | 60 | 60 | N/A | | | | |
| 40 | Residence-Patton Dr. | 59 | 59 | 59 | N/A | | | | |
| 41 | Residence-Patton Dr. | 59 | 59 | 59 | N/A | | | | |
| 42 | Residence-Patton Dr. | 58 | 58 | 58 | N/A | | | | |
| 43 | Residence-Patton Dr. | 57 | 57 | 57 | N/A | | | | |
| 44 | Residence-Patton Dr. | 56 | 56 | 56 | N/A | | | | |
| 45 | Residence-Patton Dr. | 56 | 56 | 56 | N/A | | | | |
| 46 | Residence-Patton Dr. | 57 | 57 | 57 | N/A | | | | |
| 47 | Residence-Patton Dr. | 59 | 59 | 59 | N/A | | | | |
| 48 | Residence-Patton Dr. | 60 | 60 | 60 | N/A | | | | |
| 49 | Residence-Patton Dr. | 55 | 56 | 56 | N/A | | | | |

Note1: Sound levels are rounded off.
Note2: Shaded areas represent impacted receptors according to NJTA policy.
Note3: N/A = Not Applicable. These receptors are currently behind the existing barrier to the north and are not likely to receive sound level reductions from the preliminary new noise barrier analysis.
Source: Michael Baker Jr., Inc.

Temporary increases in noise levels will occur during the time period that construction takes place. Noise levels due to construction, although temporary, can impact areas adjacent to the project. The major noise sources from construction will be the heavy equipment operated at the site. However, other construction site noise sources would include hand tools and trucks supplying and removing materials. Standard specifications suggested for consideration for inclusion in the Proposed Project's construction documents may consist of the following:

- All construction equipment powered by an internal combustion engine shall be equipped with a properly maintained muffler.
- Air compressors shall meet current USEPA noise emission exhaust standards.
- Air powered equipment shall be fitted with pneumatic exhaust silencers.
- Stationary equipment powered by an internal combustion engine shall not be operated within 150 feet of noise sensitive areas without portable noise barriers placed between the equipment and noise sensitive sites. Noise sensitive sites shall include: residential buildings, motels, hotels, schools, churches, hospitals, nursing homes, libraries and public recreation areas.
- Portable noise barriers shall be constructed of plywood or tongue and groove boards with a noise absorbent treatment on the interior surface (facing the equipment).
- Powered construction equipment shall not be operated before 8:00 AM or after 8:00 PM within 150 feet of a noise sensitive site.

## 3.14 Traffic and Transportation

### 3.14.1 Introduction

The purpose of the project is to improve the safety of Interchange 9 on the New Jersey Turnpike. URS Corporation evaluated 15 interchanges at the NJTA's request as part of OPS No. T3040. Of the 15 interchanges that were studied, Interchange 9 had the fifth highest volume and was in the top three in need of operational and safety improvements. In response to OPS No. T3254, Jacobs conducted a traffic study to evaluate the existing and future deficiencies and issues.

### 3.14.2 Data Sources and Methodology

Jacobs conducted a traffic study on NJ Route 18 between the bridge over the Turnpike mainline and the nose of the ramp to US Route 1 northbound from NJ Route 18 northbound, the ramps to and from the toll plaza, and the arrangement of cash and EZ-Pass lanes. Jacobs reviewed a previous study conducted by GPI titled *Route 18, Route 1 to Edgeboro Road, Concept Development Report*. The GPI report focused on NJ Route 18 traffic so Jacobs supplemented this information with additional data collection.

Automatic Traffic Recorders (ATRs) were installed for a one week period in March 2010 at various locations along the NJ Turnpike ramps and NJ Route 18 ramps. Jacobs also collected manual turning movement counts at the intersection of NJ Route 18 and Naricon Place on March 10, 2010 between the AM peak (6:30 – 9:30) and PM peak (3:30 – 6:30 PM) periods. The AM and PM peak hour volumes at each location were calculated and used to develop network volumes for the Interchange and NJ Route 18. The counts from GPI were utilized along segments of NJ Route 18 where additional counts were not collected.

Origin and destination points were defined and a study was performed to determine the proportion of trips from each point of origin to each destination. The proportions were derived from aerial imagery obtained by SkyComp, Inc in October 2009. Images were taken every two seconds and digital tracking methods were employed to obtain sufficient sample groups of vehicles, tracking their movements from origin to destination. Additional information was collected by SkyComp, Inc. at the toll plazas to obtain data on weaving movements and toll lane utilization by approaches and departures.

Paramics microsimulation models were used to evaluate the physical road network within the vicinity of Interchange 9. The growth of volume into the future was calculated using the NJTPA's North Jersey Regional Transportation Model – Enhanced (NJRTM-E). For details on both models please refer to the traffic report prepared by Jacobs included in Appendix H.

### 3.14.3 Existing Conditions

The operational and geometric deficiencies within the project area are described in detail in Section 2.0 above. During the traffic study, it was determined that the operations of the roadways hinge on a number of important roadway segments including Ramp WT, traffic signal at NJ Route 18 and Naricon Place, Ramp TW, and the entrance and exit to the toll plaza.

*Ramp WT*
This loop ramp takes vehicles from southbound NJ Route 18 and feeds them into the Turnpike toll plaza at Interchange 9. It is currently a single lane ramp with a radius of approximately 125 feet. Given the increase of future volumes on this ramp to 1598/1889 (AM/PM), a second lane is necessary for efficient operation of the ramp, especially when coordinating with the signal upstream at Naricon Place.

*Traffic Signal at NJ 18 and Naricon Place*
This traffic signal is an important function of the Interchange and surrounding roadways. Although this signal appears to present a bottleneck and may be the cause of most of the congestion in the study area, it is critical to the operation of the Interchange.

In the existing and future models of the area, the signal serves to hold northbound and southbound traffic along NJ Route 18, causing queuing in both directions. This queuing results in a "metering" effect on the traffic in the area which allows critical components of the Interchange to operate more smoothly.

In the southbound direction on NJ Route 18, there are 1598/1889 (AM/PM) vehicles that wish to use Ramp WT to access the Turnpike in the future year. These vehicles have priority over vehicles approaching the toll facility from northbound Route 18. If this volume of vehicles were allowed to flow freely (via elimination of the NJ Route 18/Naricon Place signal in the southbound direction) to this point, there would be few remaining gaps for northbound NJ Route 18 vehicles to safely enter the toll facility. This was observed in the Paramics model, causing queues to form on Ramp ET that extended back onto northbound Route 18. Therefore, the signal plays an important role in allowing northbound NJ Route 18 traffic to access the Turnpike by metering southbound flows along NJ Route 18.

The signal also acts as an effective meter for northbound traffic along NJ Route 18. The confluence of the three northbound lanes of NJ Route 18 with two-lane Ramp TW carries significant volumes. These two roadways merge into a short five-lane section before losing the rightmost lane as the roadway approaches the NJ Route 18/US Route 1 interchange. At the NJ Route 18/US Route 1 interchange, northbound NJ Route 18 and southbound US Route 1 traffic must keep to the left two lanes, while northbound US Route 1 traffic must keep to the right two lanes.

Considerable weaving of traffic at this confluence occurs as vehicles approach the NJ Route 18/US Route 1 interchange. In the future condition, approximately 90% of vehicles on Ramp TW from the New Jersey Turnpike attempt to weave to the left two lanes to access northbound NJ Route 18 or southbound US Route 1. The Ramp TW traffic volume making this movement is 2689/1834 (AM/PM) over the 3276/2960 (AM/PM) hourly vehicles in the northbound NJ Route 18 lanes. Given the heavy movement of vehicles from the right lanes (from Ramp TW) to the left two lanes, and the subsequent drop from five

lanes to four, the signal serves as an effective meter, allowing more opportunities for vehicles from Ramp TW to merge left.

When the Naricon Place signal is removed for the northbound direction in the Paramics model, vehicles on northbound NJ Route 18 are allowed to free-flow through the intersection. This significantly reduces the queuing on NJ Route 18, but causes queuing on Ramp TW that extends back through the toll plaza. This is caused by the high volumes on both approaches, as well as the heavy bias of vehicles destined to northbound NJ Route 18 and southbound US Route 1. The Naricon Place signal acts as an essential meter for northbound NJ Route 18 traffic, causing significant breaks in the northbound traffic flow and allowing traffic from Ramp TW to weave to the left lanes.

As identified in the points discussed above, the signal at NJ Route 18 and Naricon Place is an important tool for allowing the safe and efficient operation of Interchange 9.

Some modifications of the signalized intersection will be required for its continued function in future years. The cycle length and phasing should be optimized and fully actuated to allow for the most efficient use of the cycle. The most effective signal cycle tested in the Paramics model had a cycle length of 100 seconds, with 50 seconds of green time for the north-south phase. A fifth southbound lane of approximately 500 feet in length will be added to provide more capacity at the intersection approach. The additional lane will create sufficient throughput to saturate the two Ramp WT lanes destined for the Turnpike. The southbound leg of the intersection can be striped as two lanes destined for the Turnpike and three lanes for southbound NJ Route 18 to allow for optimum flow of vehicles as they leave the intersection. The northbound approach to the intersection can remain unmodified.

*Inbound Toll Plaza*
The operations of the inbound toll plaza at Interchange 9 show no operational issues in the future scenarios when volume from southbound NJ Route 18 is metered through the Naricon Place signal. The existing lane layout is sufficient to accommodate the future volumes.

*Northbound confluence of NJ Route 18 and Ramp TW*
As discussed above, the confluence of northbound NJ Route 18 and Ramp TW from the New Jersey Turnpike is significant because of the heavy volumes, lane drop, and subsequent weaving movements associated with the NJ Route 18 and US Route 1 interchange.

Additional factors beyond the Paramics model limits also contribute to the degradation of operations at this location. These include signal operations on NJ Route 18 at Paulus Boulevard, the general capacity of the NJ Route 18/US Route 1 interchange, and traffic flow from NJ Route 18 to Rutgers University. For the purposes of this study, the model assumes that future improvements on the Route 18/US Route 1 interchange and further north on Route 18 will be made to address these factors.

The queuing caused at the merge/lane drop point where Ramp TW enters northbound NJ Route 18 was observed to be reduced with the introduction of a merge of the right lane on NJ Route 18. The northbound approach to the intersection will consist of three through lanes and an auxiliary right turn lane for Naricon Place. Three lanes of traffic on northbound NJ Route 18 will pass through the Naricon Place intersection. Similar to the southbound direction, beyond the intersection the right lane will merge to create two northbound lanes prior to the entrance of Ramp TW. Ramp TW will be realigned slightly to accommodate the shift of NJ Route 18. The ramp will remain two lanes and will utilize the existing bridge under Naricon Place. Ramp TW will enter northbound NJ Route 18 after the intersection, increasing Route 18 to four lanes. An auxiliary right turn lane will be provided from Ramp TW for vehicles from the Turnpike destined for Tower Center Boulevard.

### 3.14.4 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. As a result, the operational and geometric deficiencies would remain and travel conditions would deteriorate as volumes increase.

### 3.14.5 Proposed Project Impacts

The purpose of the project is to make necessary geometric and operational changes to improve safety and travel conditions at the interchange. The proposed increased radius and the additional lane on Ramp WT will increase the capacity and safety of the ramp. The proposed improvements of the lane configurations on Ramps ST and NT and the northbound Route 1 ramp from northbound NJ Route 18 and proposed changes of the weaving movements on NJ Route 18 will improve the flow of traffic through the toll plaza and along the highway.

# 4.0 ALTERNATIVES ANALYSIS

## 4.1 Introduction

An alternatives analysis was performed to evaluate the ability of each developed alternate to meet the project purpose and need while minimizing impacts to right-of-way, environmental resources, and existing infrastructure. As stated in Section 2.0, the purpose of the project is to improve safety and travel conditions at Interchange 9 by incorporating necessary geometric and operational improvements.

Alternates were developed by first analyzing the flow of traffic throughout the project area to identify problem areas. Several problem areas were identified within the limits of the project including the following:

- NJ Route 18 southbound approach to Ramp WT;
- The capacity of Ramp WT;
- Weaving of traffic from Ramp TW onto Route 18 northbound;
- Traffic impacts that US Route 1 interchange has on NJ Route 18 northbound in the vicinity of Interchange 9; and
- Weaving within the toll plaza.

Each problem area was analyzed using Paramics traffic modeling software independently and again in combination of other proposed improvements to derive the best combination to incorporate into the Initially Preferred Alternative (IPA). From the analysis, the No-Build alternative and six build alternatives were advanced for further evaluation. For a depiction of each alternate, please refer to Appendix B.

## 4.2 No-Build Alternative

Under the No-Build Alternative, the roadways would continue to be maintained, but no operational or geometric improvements would be constructed. As discussed in Section 2.0, of the fifteen interchanges included in the 2006 Toll Plaza Improvement Study prepared by URS for the NJTA, Interchange 9 was identified as one of the top three interchanges in need of operational and safety improvements. Contributing factors to the problems at the interchange are the high traffic volumes, the short weaving distances within the toll plaza, and the traffic congestion on NJ Route 18. Analysis using the NJTA's North Jersey Regional Transportation Model – Enhanced (NJRTM-E) and the Paramics model indicates that volume will continue to increase. To meet current and future demands, the interchange and its approach roadways need to be upgraded and expanded.

Based on the existing operational and geometric issues with the existing condition as described in Section 2.0 above and the anticipated increase in traffic volumes, the No-Build Alternative does not meet the purpose and need and is, therefore, not practicable.

## 4.3 Build Alternatives

### *4.3.1 Alternate A*

Please refer to Appendix B for a figure depicting Alternate A.

Description
Alternate A replaces the currently substandard Ramp WT with a two lane ramp with shoulders using the NJTA's minimum desirable ramp radius of 235 feet. The existing alignment of NJ Route 18 is maintained and the additional lane required on NJ Route 18 southbound at the approach to the Naricon

Place intersection is provided by widening the roadway to the west. Route18 southbound traffic will enter Ramp WT approximately 400 feet after the Naricon Place traffic signal via two auxiliary lanes. Ramp WT has a radius of 235 feet and super elevation of 6% to accommodate a design speed of 30 MPH. The ramp will take traffic under NJ Route 18 and to the existing toll plaza. Traffic exiting the toll plaza destined for NJ Route 18 southbound will travel via Ramp TE under the same NJ Route 18 bridge as Ramp WT. Ramp TE traffic will enter onto NJ Route 18 southbound as a lane that will become the third lane of NJ Route 18 southbound.

The respective entrance and exit on NJ Route 18 for Ramps WT and TE will conform to NJDOT Standards. Within the limits of the ramps, Ramp WT and Ramp TE will meet or exceed Turnpike minimum radii and shoulder width standards.

To conform to current highway access standards, the exit from Ramp TE to Westons Mill Road and the entrance from Westons Mill Road to NJ Route 18 southbound via the Ramp TE will be removed. The larger radius of Ramp WT and Ramp TE will bisect Westons Mill Road between Naricon Place and Manor Place. Traffic that currently uses this road will be rerouted further west into the neighborhood onto Patton Place.

Utilities

Widening NJ Route 18 southbound under this alternative will result in the relocation of approximately 1,370 feet of aerial electric facilities currently adjacent to the right shoulder of the roadway. The proposed widening in this area also affects aerial cables crossing NJ Route 18. These transverse aerial crossings include 290 feet of telephone cable and 260 feet of aerial electric crossing NJ Route 18 between Westons Mill Road and Tower Center Boulevard, and 420 feet (270 feet and 150 feet) of electric lines crossing NJ Route 18 at the intersection of Naricon Place.

The re-alignment of Ramps TE and WT along with the increase in ramp radius results in the relocation of approximately 800 feet of aerial electric and cable facilities along Westons Mill Road.

The re-alignment of Ramps TE and WT along with the increase in ramp radius results in the relocation of approximately 800 feet of 24 inch gas main, 800 feet of 16 inch water main, and the abandonment of about 100 feet of 6 inch water main at Laurel Lane.

The widening of NJ Route 18 southbound will likely require two (2) sanitary manholes located at the northerly end of the project to be reset. In addition, there are two (2) telephone manholes at the intersection of NJ Route 18 southbound and Naricon Place, and three (3) telephone manholes located along NJ Route 18 southbound at the entrance to Ramp WT that will require reconstruction.

The widening of NJ Route 18 and reconstruction of Ramp ET will likely result in the relocation 150 feet of telephone duct crossing NJ Route 18 at the southern end of the project. In addition, approximately 450 feet of 3 inch gas main will need to be relocated along the outside shoulder of Ramp ET.

The reconstruction of the existing bridge carrying NJ Route 18 over Ramps TE and WT will necessitate the temporary support and reinstallation of the existing Verizon duct banks currently supported in the first two western bays.

Environmental Considerations

Due to the encroachment of Ramps WT and TE into the adjacent neighborhood, adverse impacts to sensitive receptors to air quality and noise are anticipated from Alternate A. Mitigation requirements for these impacts would require detailed air quality and noise studies. The improvements proposed in

Alternate A are also in close proximity to the Edward Kearny House, which is listed on the State and Federal Registers of Historic Places. Although it is not anticipated that the project will encroach upon the property, coordination with the State Historic Preservation Office (HPO) would be required. No additional regulated resources were identified within the immediate vicinity of Alternate A.

Alternate A would result in the construction of approximately 0.62 acre of new impervious cover and greater than one acre of ground disturbance. This alternate would be considered a major development pursuant to NJAC 7:8.

Right-of-Way

The significant increase in the radius of Ramps WT and TE will require the demolition of 7 houses in the residential neighborhood to the west of Westons Mill Road. Based on the East Brunswick Township Tax Map 1.01 last dated December 20, 2004, these houses are all located on Block 5.01 and are on Lots 29.02, 29.03, 11.01,10, 12.01, 14, and 13.03. In addition, partial right-of-way acquisitions will be necessary on Lots 28, 1, 2, 3, and 13.01. The ramps also will impact the existing cul-de-sac of Laurel Lane. The replacement of the cul-de-sac could require additional acquisitions on Lots 9 and 14.

Stage Construction

Replacement of the NJ Route 18 bridge over Ramps WT and ET will require staging to maintain traffic. The additional width of NJ Route 18 over the bridge that is required to provide the proposed additional southbound lane, limits the width of roadway that will be available to use in subsequent stages. Considering the current congestion through the project area, reducing the number of lanes for a prolonged duration would significantly aggravate the existing traffic problems. The proximity of the Naricon Place traffic signal to the bridge also adds to the problem. It is likely that a temporary bridge constructed to the east of the current NJ Route 18 northbound lanes would be necessary to facilitate the replacement of the bridge. Temporary pavement, temporary sheeting and/or retaining walls, embankment and modifications to the traffic signal would also be necessary to accommodate the replacement of the bridge without severely impacting the flow of traffic through the project.

Advantages

This alternate provides the NJTA's minimum desirable radius of 235 feet for Ramp WT. The existing alignment of NJ Route 18 is maintained and widening areas are confined to the west side of the highway. No changes are required for Ramp TW.

Disadvantages

Alternate A will require the demolition of seven houses and partial acquisitions from six other residential properties. Westons Mill Road will be dead ended near the new ramps and through traffic will be rerouted further westward into the residential neighborhood. The cul-de-sac on Laurel Lane will also need to be moved further to the west. A temporary bridge will likely be necessary to stage the replacement of the NJ Route 18 bridge over Ramps WT and TE. The installation and removal of the temporary bridge and approaches will require time and significant additional cost to construct. A temporary signal system will be necessary to maintain traffic at the Naricon Place intersection when traffic is shifted onto the temporary bridge.

### *4.3.2 Alternate B*

Please refer to Appendix B for a figure depicting Alternate B.

Description

Alternate B replaces the currently substandard Ramp WT with a two lane ramp with shoulders using the NJTA's absolute minimum ramp radius of 150 feet. The existing alignment of NJ Route 18 is maintained and the additional lane required on NJ Route 18 southbound at the approach to the Naricon Place intersection is provided by widening the roadway to the west. NJ Route 18 southbound traffic will enter Ramp WT approximately 400 feet after the Naricon Place traffic light via two auxiliary lanes. Ramp WT has a radius of 150 feet and super elevation of 6% to accommodate a design speed of 25 MPH. The ramp will take traffic under NJ Route 18 and to the existing toll plaza. Traffic exiting the toll plaza destined for NJ Route 18 southbound will travel via Ramp TE under the same NJ Route 18 bridge as Ramp WT. Ramp TE traffic will enter onto NJ Route 18 southbound as a lane that will become the third lane of NJ Route 18 southbound.

The respective entrance and exit on NJ Route 18 for Ramps WT and TE will conform to NJDOT Standards. Within the limits of the ramps, Ramp WT and Ramp TE will conform to Turnpike absolute minimum radii and shoulder width standards.

To conform to current highway access standards, the exit from Ramp TE to Westons Mill Road and the entrance from Westons Mill Road to NJ Route 18 southbound via the Ramp TE will be removed. The larger radius of Ramp WT and Ramp TE will bisect Westons Mill Road between Naricon Place and Manor Place. Traffic that currently uses this road will be rerouted further west into the neighborhood onto Patton Place.

Utilities

Widening NJ Route 18 Southbound under this alternate will result in the relocation of approximately 1,800 feet of aerial electric facilities currently along the right shoulder of the roadway. The proposed widening in this area also affects aerial cables crossing NJ Route 18. These transverse aerial crossings include 290 feet of telephone cable and 260 feet of aerial electric crossing NJ Route 18 between Westons Mill Road and Tower Center Boulevard. At the intersection of NJ Route 18, Naricon Place, and Tower Center Boulevard, approximately 420 feet (270 feet and 150 fet) of electric cable will require relocation.

The re-alignment of Ramps TE and WT along with the increase in ramp radius results in the relocation of approximately 600 feet of aerial electric and cable facilities along Westons Mill Road.

The widening of NJ Route 18 and reconstruction of Ramp ET will likely result in the relocation of 150 feet of telephone duct crossing NJ Route 18 at the southern end of the project. In addition, approximately 450 feet of 3 inch gas main will need to be relocated along the outside shoulder of Ramp ET.

The re-alignment of Ramps TE and WT along with the increase in ramp radius results in the relocation of approximately 600 feet of 24 inch gas main and 600 feet of 16 inch water main along Westons Mill Road.

The widening of NJ Route 18 southbound will likely require two (2) sanitary manholes located at the northerly end of the project to be reconstructed. In addition, three (3) telephone manholes south of the entrance of Ramp WT will likely require the castings to be reset.

The reconstruction of the existing bridge carrying NJ Route 18 over Ramps TE and WT will necessitate the temporary support and reinstallation of the existing Verizon duct banks currently supported in the first two western bays.

Environmental Considerations

Due to the encroachment of Ramps WT and TE into the adjacent neighborhood, adverse impacts to sensitive receptors to air quality and noise are anticipated from Alternate B. Mitigation requirements for these impacts would require detailed air quality and noise studies. The improvements proposed in Alternate B are also in close proximity to the Edward Kearny House, which is listed on the State and Federal Registers of Historic Places. Although it is not anticipated that the project will encroach upon the property, coordination with the State Historic Preservation Office (HPO) would be required. No additional regulated resources were identified within the immediate vicinity of Alternate B.

Alternate B would result in the construction of approximately 0.25 acre of new impervious cover and greater than one acre of ground disturbance. This alternate would be considered a major development pursuant to NJAC 7:8.

Right-of-Way

The increase in the radius of Ramps WT and TE and the widening of Ramp WT to two lanes will require the demolition of 2 houses in the residential neighborhood to the west of Westons Mill Road. Based on the East Brunswick Township Tax Map 1.01 last dated December 20, 2004, these houses are all located on Block 5.01 and are on Lots 12.01, and 13.03. Additionally, partial right-of-way acquisitions will be necessary on Lots 29.02 and 11.01.

Stage Construction

Replacement of the NJ Route 18 bridge over Ramps WT and ET will require staging to maintain traffic. The additional width of NJ Route 18 over the bridge that would be required to provide the proposed additional southbound lane, limits the width of roadway that will be available to use in subsequent stages. Considering the current congestion through the project, reducing the number of lanes for a prolonged duration would significantly aggravate the existing problems. The proximity of the Naricon Place traffic signal to the bridge also adds to the problem. It is likely that a temporary bridge constructed to the east of the current NJ Route 18 northbound lanes will be used to facilitate the replacement of the bridge. Temporary pavement, temporary sheeting and/or retaining walls, embankment and modifications to the traffic signal will also be necessary to accommodate the replacement of the bridge without severely impacting the flow of traffic through the project.

Advantages

This alternate provides the NJTA's absolute minimum desirable radius of 150 feet for Ramp WT. The existing alignment of NJ Route 18 is maintained and widening areas are confined to the west side of the highway. No changes are required for Ramp TW.

Disadvantages

Alternate B will require the demolition of two houses and partial acquisitions from two other residential properties. Westons Mill Road will be dead ended near the new ramps and through traffic from this will be rerouted further westward into the residential neighborhood. A temporary bridge will likely be necessary to stage the replacement of the NJ Route 18 bridge over Ramps WT and TE. The installation and removal of the temporary bridge and approaches will require time to construct. A temporary signal system will be necessary to maintain traffic at the Naricon Place intersection when traffic is shifted onto the temporary bridge.

### *4.3.3 Alternate C*

Please refer to Appendix B for a figure depicting Alternate C.

Description

This alternate proposes to reconfigure Ramps WT and TE with new ramps positioned to the north of the Naricon Place intersection on NJ Route 18. The new set of ramps will reverse the current trumpet interchange with Ramp WT becoming the outer ramp of the interchange. This configuration eliminates the signalized intersection at Naricon Place and creates a free flow of traffic from NJ Route 18 southbound to the toll plaza. The new Ramp WT will accommodate two lanes of traffic and both Ramp WT and TE lane and shoulder widths will conform to current NJTA standards. The NJ Route 18 bridge over Ramps WT and TE will be removed and replaced with a wider bridge to accommodate the new wider Ramps.

The alignment of NJ Route 18 will remain the same. NJ Route 18 southbound will be widened prior to Ramp WT to accommodate the additional auxiliary lane for the ramp. The exit geometry of Ramp WT from Route 18 will conform to NJDOT standards with the typical horizontal radii exit from a state highway. The radius of the primary curve for Ramp WT will be 180 feet. Due to limited transition length, the ramp will be superelevated at 4.7%. This superelevation is less than the NJTA's minimum of 6%. The minimum radius of the curve will be 170 feet near the exit from NJ Route 18.

Ramp TE will have the NJTA absolute minimum radius of 150 feet with a superelevation of 6%. The ramp will enter NJ Route 18 southbound and become the third lane. A right-in / right-out to the southern half of Westons Mill Road will be located on NJ Route 18 southbound approximately 600 feet from end of Ramp TE.

Utilities

Widening NJ Route 18 southbound under this alternative will result in the relocation of approximately 1,180 feet of aerial electric facilities currently along the right shoulder of the roadway. The proposed widening in this area also affects aerial cables crossing NJ Route 18. These transverse aerial crossings include 290 feet of telephone cable and 260 feet of aerial electric crossing NJ Route 18 between Westons Mill Road and Tower Center Boulevard. At the intersection of NJ Route 18 and Naricon Place, approximately 150 feet of electric cable will require relocation.

The re-alignment of Ramps TE and WT along with the increase in ramp radius results in the relocation of approximately 600 feet of aerial electric cable, 600 feet of cable TV facilities, and 360 feet of aerial telephone cable along Westons Mill Road.

The widening of NJ Route 18 and reconstruction of Ramp ET will likely result in the relocation of 150 feet of telephone duct crossing NJ Route 18 at the southern end of the project. In addition, approximately 450 feet of 3 inch gas main will need to be relocated along the outside shoulder of Ramp ET.

The re-alignment of Ramps TE and WT along with the increase in ramp radius results in the relocation of approximately 600 feet of 24 inch gas main and 600 feet of 16 inch water main along Westons Mill Road. In addition, approximately 260 feet of 8 inch water main will require relocation along Naricon Place.

The widening of NJ Route 18 southbound will likely require two (2) sanitary manholes located at the northerly end of the project to be reconstructed. In addition, the reset of one (1) telephone manhole and reconstruction one (1) telephone manhole will likely be required along NJ Route 18 Southbound.

The reconstruction of the existing bridge carrying NJ Route 18 over Ramps TE and WT will necessitate the temporary support and reinstallation of the existing Verizon duct banks currently supported in the first two western bays.

Environmental Considerations

Due to the encroachment of Ramps WT and TE into the adjacent neighborhood, adverse impacts to sensitive receptors to air quality and noise are anticipated from Alternate C. Mitigation requirements for these impacts would require detailed air quality and noise studies. The improvements proposed in Alternate C are also in close proximity to the Edward Kearny House, which is listed on the State and Federal Registers of Historic Places. Although it is not anticipated that the project will encroach upon the property, coordination with the State Historic Preservation Office (HPO) would be required. No additional regulated resources were identified within the immediate vicinity of Alternate C.

Alternate C would result in the construction of approximately 0.76 acre of new impervious cover and greater than one acre of ground disturbance. This alternate would be considered a major development pursuant to NJAC 7:8.

Right-of-Way

The shift in the interchange ramps will require the acquisition of additional right-of-way. The new trumpet alignment will require the southern portion of Westons Mill Road to terminate approximately 300 feet south of its current intersection with Naricon Place. The western half of the Naricon Place intersection with NJ Route 18 will be removed as a result of the shifted ramps. The northern side of Westons Mill Road will require a new road to provide access from the western portion of Naricon Place due to the removal of the Westons Mill Road and Naricon Place intersection. The demolition of four houses will be necessary to construct the ramps and access road for Westons Mill Road. Based on the East Brunswick Township Tax Map 1.01 last dated December 20, 2004, these houses are all located on Block 5.01, Lot 30.01 and Block 5.02, Lots 3, 4, and 5. Partial property acquisitions will also be necessary on Block 5.01, Lot 13.03 and Block 5.02, Lot 2.

Removal of the Naricon Place intersection eliminates easy access to the Turnpike and NJ Route 18 southbound from Tower Center Boulevard. Access to the Turnpike would require vehicles to use an extremely circuitous route or the construction of a new U-Turn, possibly between the Westons Mill Pond and US Route 1.

Stage Construction

Replacement of the NJ Route 18 bridge over Ramps WT and ET will require staging to maintain traffic. The removal of the traffic signal at Naricon Place allows the bridge to remain the same width. Considering the current congestion through the project are, reducing the number of lanes for sustained durations would significantly aggravate the existing problems. Even if the signalized intersection at Naricon Place was closed at the beginning of construction, it is likely that a temporary bridge constructed to the east of the current NJ Route 18 northbound lanes will be used to facilitate the replacement of the bridge. Temporary pavement, temporary sheeting and/or retaining walls, and embankment will also be necessary to accommodate the replacement of the bridge without severely impacting the flow of traffic through the project.

Advantages

This alternate provides the NJTA's absolute minimum desirable radius of 150 feet for Ramp WT. The existing alignment of NJ Route 18 is maintained and widening areas are confined to the west side of the highway. No changes are required for Ramp TW.

Disadvantages

Alternate C will require the demolition of four houses and partial acquisitions from two other residential properties. Westons Mill Road will be dead ended near the new ramps and through traffic from this will be rerouted further westward into the residential neighborhood. A temporary bridge will likely be necessary to stage the replacement of the NJ Route 18 bridge over Ramps WT and TE. The installation and removal of the temporary bridge and approaches will require time to construct. The removal of the intersection severely impacts the access to NJ Route 18 northbound for traffic from the residential neighborhood and to NJ Route 18 southbound and the Turnpike for traffic from Tower Center Boulevard.

### *4.3.4 Alternate D*

Description

Alternate D replaces Ramp WT with a two lane ramp with shoulders using the NJTA's absolute minimum desirable design radius of 150 feet. This alternate shifts both directions of Route 18 east to accommodate the larger radii of Ramps WT and TE without requiring additional right-of-way west of Route 18. A retaining wall will be constructed between Ramp TE and Westons Mill Road to avoid grading impacts on this local road provides circulation through the residential development. Ramp WT will remain the inside ramp with lane widths of 16.5 feet and superelevation of 6% to accommodate a design speed of 25 MPH in accordance with the NJTA's design standards. NJ Route 18 southbound traffic will enter Ramp WT approximately 400 feet after the Naricon Place traffic signal via two auxiliary lanes. The ramp will take traffic under NJ Route 18 and to the existing toll plaza. Traffic exiting the toll plaza destined for NJ Route 18 southbound will travel via Ramp TE under the same NJ Route 18 bridge as Ramp WT. Ramp TE will remain the outside ramp. The ramp will have a minimum lane width of 18 feet and shoulders in accordance with NJTA's standards. Ramp TE traffic will enter onto NJ Route 18 southbound as a lane that will become the third lane of NJ Route 18 southbound beginning prior to the bridge over the Turnpike mainline.

The southern limit of the shift of NJ Route 18 will begin north of the bridge over the Turnpike mainline and end to the south of the bridges over Westons Mill Pond to the north. An additional 500 feet auxiliary lane will be added on NJ Route 18 southbound prior to the Naricon Place signalized intersection to provide additional storage space for Ramp WT. This auxiliary lane falls within the pavement area of the current highway that will now be located to the west of the through lanes of the shifted alignment of NJ Route 18.

Route 18 southbound will have three lanes of traffic passing through the Naricon Place Intersection. The right lane will merge to reduce the highway to two lanes after Ramp WT. Ramp TE will enter NJ Route 18 southbound as the third lane of traffic prior to the bridge over the Turnpike.

NJ Route 18 northbound will have three lanes of traffic passing through the Naricon Place intersection with an additional auxiliary lane for right turns into Tower Center Boulevard. Similar to the southbound direction, beyond the intersection the right lane will merge creating two northbound lanes prior to the entrance of Ramp TW (from the toll plaza to NJ Route 18 northbound). Ramp TW will be realigned slightly to accommodate the shift of NJ Route 18. To minimize the acquisition of right-of-way to the east of NJ Route 18, a retaining wall will be constructed between NJ Route 18 and Ramp TW. The ramp will remain two lanes and will utilize the existing bridge under Naricon Place. Ramp TW will enter NJ Route 18 northbound after the intersection increasing NJ Route 18 northbound to four lanes. An auxiliary right turn lane will be provided to accommodate vehicles from the Turnpike to the exit onto Tower Center Boulevard.

Ramp ET will be realigned to accommodate the shift in Route 18. The ramp will flare out to two lanes near the Toll Plaza. The ramp will have one driveway connecting to the adjacent former Turnpike Authority Headquarters site.

Utilities

Aerial utility impacts under this alternative will likely result from the re-alignment of NJ Route 18 to the east. The proposed edge of pavement for NJ Route 18 appears to create conflicts with utility poles which will require the relocation of aerial cables crossing NJ Route 18. These transverse aerial crossings between Tower Center Boulevard and Westons Mill Road over NJ Route 18 include 150 feet of telephone cable, 375 feet of electric cable, and 270 feet of electric cable north of Naricon Place. As a result of the relocation of telephone cable crossing NJ Route 18, an additional 140 feet of aerial telephone cable along Westons Mill Road will likely require relocation. Further aerial impacts can be expected as a result of the adjustments to radii and alignment of Ramps TE and WT. The impacts along Ramps TE and WT include the relocation of 1,000 feet of electric cable along NJ Route 18 southbound.

The re-alignment of NJ Route 18 to the east and widening and reconstruction of Ramp ET will likely result in the relocation of 200 feet of underground electric and 500 feet of underground telephone duct crossing NJ Route 18 at the southern end of the project. In addition, approximately 450 feet of 3 inch gas main will need to be relocated along the outside shoulder of Ramp ET.

Although dependent upon profile adjustments, the proposed limit of paving along NJ Route 18 southbound will likely require one (1) sanitary manhole reset and one (1) sanitary manhole reconstruction at the northerly end of the project. In addition, two (2) telephone manholes along NJ Route 18 southbound will have to be reset and three (3) telephone manholes located at the entrance to Ramp WT will need to be reconstructed.

The reconstruction and re-alignment of the existing bridge carrying NJ Route 18 over Ramps TE and WT will require temporary support of and ultimate direct burial of the telephone ductbanks currently supported in the first two western bays of the bridge. In addition, to facilitate the design of Ramps TE and WT, the profile of the ductbanks within the ramp limits will likely require adjustments (500 feet each).

Environmental Considerations

The improvements proposed in Alternate D are also in close proximity to the Edward Kearny House, which is listed on the State and Federal Registers of Historic Places. Although it is not anticipated that the project will encroach upon the property, coordination with the State Historic Preservation Office (HPO) would be required. No additional regulated resources were identified within the immediate vicinity of Alternate D.

Alternate D would result in the construction of approximately 1.06 acres of new impervious cover and greater than one acre of ground disturbance. This alternate would be considered a major development pursuant to NJAC 7:8.

Right-of-Way

The shift of NJ Route 18 to the east is intended to accommodate replacing the currently substandard single lane Ramp TW with a two lane ramp that meets the NJTA's absolute minimum design standards without the need to acquire additional right-of-way in the residential area located to the west of NJ Route 18. The shift of NJ Route 18 will result in some impact on Ramp TW. A retaining wall is proposed between NJ Route 18 northbound and Ramp TW to minimize right-of-way impacts on the east side of NJ Route 18. Depending on final grading, wall type and the computed alignment of the highway and Ramp

TW, the right-of-way for the new ramp may require a small sliver of right-of-way from the grass area in the current Right-of-way for Tower Center Boulevard.

Stage Construction
The alignment shift of NJ Route 18 to the east greatly simplifies the replacement of the NJ Route 18 bridge over Ramps WT and TE. The realigned highway will allow the proposed northbound side of the new bridge to be constructed to the east of the current structure. This will facilitate replacement of the bridge and decrease the overall duration of construction for the project. Once the northbound direction of the new bridge is constructed, northbound traffic can be shifted onto the new bridge. The southbound traffic can remain on the current southbound roadway and the new southbound bridge can be constructed in the area of the former northbound portion of the bridge. The construction of the retaining wall along NJ Route 18 northbound adjacent to Ramp TW requires shifting traffic onto the shoulder and possibly some temporary pavement. Staging traffic at the Naricon Place intersection will require a temporary signal system.

Advantages
This alternate provides the NJTA's absolute minimum desirable radius of 150 feet for Ramp WT. The shifted alignment of NJ Route 18 avoids right-of-way acquisition, displacement of residences along Westons Mill Road, and changes in the local roadways in the residential areas to the west of NJ Route 18. The proposed alignment also simplifies the replacement and reduces the construction duration for the replacement of the NJ Route 18 bridge over Ramps WT and TE. A temporary bridge and approaches will not be necessary so there will be no costs related to their installation and removal. Ramp TW can remain under the current bridge carrying Naricon Place.

Disadvantages
Alternate D has minimal right-of-way impacts that potentially only requires some right-of-way for Ramp TW in the grass of the Township's right-of-way for Tower Center Boulevard. The shifting of the alignment of NJ Route 18 will require two existing overhead sign structures to be relocated and the construction of a retaining wall will be necessary to minimize right-of-way and grading easements on the east side of NJ Route 18 in the vicinity of Tower Center Boulevard. A temporary signal system will be necessary to shift the alignment of NJ Route 18 while maintaining traffic at the Naricon Place intersection.

### *4.3.5 Alternate E*

Description
Similar to Alternate D, this alternate proposes shifting both directions of NJ Route 18 to the east to accommodate the larger radii of Ramps WT and TE to avoid acquiring right-of-way in the residential area to the west of NJ Route 18. The traffic analysis shows that the majority of vehicles on Ramp TW weave to the left lanes of NJ Route 18 northbound to continue on NJ Route 18 towards New Brunswick. To eliminate the need for this traffic to weave, this alternate splits Ramp TW near the current gore area in the toll plaza providing access to Route 18 northbound on both sides of the highway. The ramp entering NJ Route 18 northbound on the right side will be a single lane that will pass under a new bridge carrying Naricon Place located to the east of the current structure. This ramp will become the auxiliary lane for the Tower Center Blvd exit from NJ Route 18 northbound and will also be used by vehicles destined for the US Route 1 northbound exit. The second ramp will have a single lane and will pass under the NJ Route 18 northbound and the Naricon Place intersection using a new bridge located to the west of the current structure. The ramp on the left will create the left lane of NJ Route 18 northbound that will continue through the Route 1 interchange area. Tower Center Boulevard will be shifted to the east in the vicinity

of the intersection with Naricon Place due to the shift of NJ Route 18 and the additional pavement widths needed for the split ramp configuration of Ramp TW.

Ramp WT will remain the inside ramp with the absolute minimum desirable radius of 150 feet, lane widths of 16.5 feet and super elevation of 6% to accommodate a design speed of 25 MPH in accordance with the NJTA's design standards. NJ Route 18 southbound traffic will enter Ramp WT approximately 400 feet after the Naricon Place traffic signal via two auxiliary lanes. The ramp will take traffic under NJ Route 18 and to the existing toll plaza. Traffic exiting the toll plaza destined for NJ Route 18 southbound will travel via Ramp TE under the same NJ Route 18 bridge as Ramp WT. Ramp TE will remain the outside ramp. The ramp will have a lane width of 18 feet and shoulders in accordance with NJTA's standards. Ramp TE traffic will enter onto NJ Route 18 southbound as a lane that will become the third lane of NJ Route 18 southbound beginning prior to the bridge over the Turnpike mainline. To conform to current highway access standards, the exit from Ramp TE to Westons Mill Road and the entrance from Westons Mill Road to NJ Route 18 southbound via the Ramp TE will be removed.

The southern limit of the shift of NJ Route 18 will begin north of the bridge over the Turnpike mainline and end to the south of the bridges over Westons Mills Pond to the north. An additional 600 feet auxiliary lane will be added on NJ Route 18 southbound prior to the Naricon Place signalized intersection to provide additional storage space for Ramp WT. This auxiliary lane falls within the pavement area of the current highway that will now be located to the west of proposed through lanes of the shifted alignment of NJ Route 18. To minimize the acquisition of additional right-of-way to the east of NJ Route 18, retaining walls will be constructed on both sides of the two ramps that will replace Ramp TW.

NJ Route 18 southbound will have three lanes of traffic passing through the Naricon Place intersection. The right lane will merge to reduce the highway to two lanes after Ramp WT. Ramp TE will enter NJ Route 18 southbound as the third lane of traffic prior to the bridge over the Turnpike.

NJ Route 18 northbound will have three lanes of traffic passing though the Naricon Place intersection with an additional auxiliary lane for right turns into Tower Center Boulevard. Similar to the southbound direction, beyond the intersection the right lane will merge to create two northbound lanes prior to the entrance of Ramp TW on the right. The entrance of both ramps on each side of NJ Route 18 will form additional lanes on NJ Route 18 northbound. This will create a four lane section that will meet the existing bridge over the Westons Mill Pond.

Ramp ET will be realigned to accommodate the shift in NJ Route 18. The ramp will flare out to two lanes near the Toll Plaza.

Utilities

Aerial utility impacts under this alternate will likely result from the re-alignment of NJ Route 18 to the east and the reconfiguration of Ramp TW. The proposed edge of pavement for NJ Route 18 appears to create conflicts with utility poles which will require the relocation of aerial cables crossing NJ Route 18 and along Tower Center Boulevard. These transverse aerial crossings between Tower Center Boulevard and Westons Mill Road over NJ Route 18 include 450 feet of telephone cable, 260 feet of electric cable, and 270 feet of electric cable north of Naricon Place. Along Tower Center Boulevard, 200 feet of aerial telephone and 315 feet of electric cable will likely require relocation. Further aerial impacts can be expected as a result of the adjustments to radii and alignment of Ramps TE and WT. The impacts along Ramps TE and WT include the relocation of 1,000 feet of electric cable along NJ Route 18 southbound.

The re-alignment of NJ Route 18 to the east and widening and reconstruction of Ramp ET will likely result in the relocation of 200 feet of electric and 500 feet of telephone duct crossing NJ Route 18 at the

southern end of the project. In addition, approximately 450 feet of 3 inch gas main will need to be relocated along the outside shoulder of Ramp ET.

Further underground utility impacts can be expected as a result of the proposed design of Ramp TW1, Ramp TW2, Tower Center Boulevard, and the intersection of NJ Route 18 with Naricon Place. In this location, design features such as grade alterations, retaining walls, and bridges will likely require the relocation of 800 feet of 6 inch gas main, 600 feet of 10 inch water main, 150 feet of 6 inch water main, and approximately 1,650 feet of telephone ducts.

The proposed pavement limits of NJ Route 18 southbound will likely require one (1) sanitary manhole reset at the northerly end of the project and the reconstruction of three (3) telephone manholes located at the entrance to Ramp WT.

The reconstruction and re-alignment of the existing bridge carrying NJ Route 18 over Ramps TE and WT will necessitate the burial of the telephone ductbanks currently supported in the first two western bays of the bridge. In addition, to facilitate the design of Ramps TE and WT, the profile of the ductbanks within the ramp limits will likely require adjustments (500 feet each).

Environmental Considerations

The improvements proposed in Alternate E are also in close proximity to the Edward Kearny House, which is listed on the State and Federal Registers of Historic Places. Although it is not anticipated that the project will encroach upon the property, coordination with the State Historic Preservation Office (HPO) would be required. No additional regulated resources were identified within the immediate vicinity of Alternate E.

Alternate E would result in the construction of approximately 1.93 acres of new impervious cover and greater than one acre of ground disturbance. This alternate would be considered a major development pursuant to NJAC 7:8.

Right-of-Way

Due to limited space available at the interchange, acquisition of additional right-of-way to the east of NJ Route 18 in the vicinity of Tower Center Boulevard will be required. The acquisition is necessary to accommodate the realignment of NJ Route 18 and the additional pavement widths needed to split Ramp TW to enter on both sides of NJ Route 18 northbound. Easements or acquisitions will also be necessary to shift the alignment of Tower Center Boulevard to the east and to modify some of the circulatory roadway on the Tower Center site.

Stage Construction

The construction of the split ramp configuration for Ramp TW will require numerous stages. The realigned ramps and highway fall within the existing footprint of Ramp TW. To maintain traffic on Naricon Place each new bridge for the ramps will need to be constructed in at least two stages, assuming that some of the exiting lanes on Naricon Place can be closed during construction. The proposed ramp that enters NJ Route 18 on the right can be constructed first after Tower Center Boulevard is shifted to accommodate the construction of the new ramps. Once this ramp is opened to traffic the existing Ramp TW can be closed and the new ramp that will enter NJ Route 18 on the left and the new alignment of NJ Route 18 northbound can be constructed. At this time the proposed northbound side of the new bridge over Ramps WT and TE can be constructed to the east of the current structure. Once the northbound direction of the new bridge is constructed, northbound traffic can be shifted onto the new bridge. The southbound traffic can remain on the current southbound roadway and the new southbound bridge can be constructed in the area of the former northbound portion of the bridge. The sequencing of the bridge

construction for the split TW ramps will require numerous temporary signal configurations for the Naricon Place intersection.

Advantages
This alternate provides the NJTA's absolute minimum desirable radius of 150' for Ramp WT. The shifted alignment of NJ Route 18 avoids right-of-way acquisition and changes in the local roadways in the residential areas to the west of NJ Route 18. The proposed alignment also simplifies the replacement of the bridge over Ramps WT and TE. The split ramps for Ramp TW eliminate the need for traffic to weave on NJ Route 18 northbound.

Disadvantages
The shift of NJ Route 18 for Alternate E combined with the additional width of the split ramps and additional retaining walls has the largest right-of-way impact on the east side. Tower Center Boulevard near the intersection of Naricon Place will need to be shifted to the east and portions of the interior roads on the site will also need to be relocated. Splitting Ramp TW will require two new bridges to be constructed: one to carry NJ Route 18 and Naricon Place over the ramp on the left and the other will carry Naricon Place over the ramp to the right. The ramp construction will require multiple stages and temporary signal systems to maintain traffic on Naricon Place. Signing for the split ramps as vehicles exit the toll plaza will be difficult and will not conform to the current signing conventions used by the NJTA. The substandard half-length of the plaza combined with the creation of three decision points within these tight confines will create a confusing condition for drivers. The ramp entering on the left side of NJ Route 18 is not the normal location for entrances on NJDOT highway and this unorthodox condition will cause some driver confusion.

### *4.3.6 Alternate F*

Description
Similar to Alternate D, this alternate proposes shifting both directions of NJ Route 18 to the east to accommodate the larger radii of Ramps WT and TE to avoid acquiring right-of-way in the residential area to the west of NJ Route 18. The traffic analysis shows that the majority of vehicles on Ramp TW weave to the left lanes of NJ Route 18 northbound to continue on NJ Route 18 towards New Brunswick. To eliminate the need for this traffic to weave, this alternate repositions Ramp TW to enter on the left side of the highway. The relocated Ramp TW will be a two lane ramp that will pass under NJ Route 18 northbound and the Naricon Place intersection using a new bridge located to the west of the current structure. The ramp on the left will create the left lane of NJ Route 18 that will continue northward. Tower Center Boulevard will be shifted to the east in the vicinity of the intersection with Naricon Place due to the shift of NJ Route 18 and the additional widths needed for the construction of retaining walls necessary for the reconfiguration of Ramp TW.

Ramp WT will remain the inside ramp with the absolute minimum desirable radius of 150 feet, lane widths of 16.5 feet and super elevation of 6% to accommodate a design speed of 25 MPH in accordance with the NJTA's design standards. Traffic traveling from NJ Route18 southbound will enter Ramp WT approximately 400 feet after the Naricon Place traffic signal via the two auxiliary lanes. The ramp will take traffic under NJ Route 18 and to the existing toll plaza. Traffic exiting the toll plaza destine for NJ Route 18 southbound will travel via Ramp TE under the same bridge carrying NJ Route 18 as Ramp WT. Ramp TE will remain the outside ramp. The ramp will have a minimum lane width of 18' and shoulders in accordance with NJTA's standards. Ramp TE traffic will enter onto NJ Route 18 southbound as a lane that will become the third lane of NJ Route 18 southbound beginning prior to the bridge over the Turnpike mainline. To conform to current highway access standards, the exit from Ramp TE to Westons

Mill Road and the entrance from Westons Mill Road to NJ Route 18 southbound via the Ramp TE will be removed.

The southern limit of the shift of NJ Route 18 will begin north of the bridge over the Turnpike mainline and end to the south of the bridges over Westons Mills Pond to the north. An additional 600 feet auxiliary lane will be added on NJ Route 18 southbound prior to the Naricon Place signalized intersection to provide additional storage space for Ramp WT. This auxiliary lane falls within the pavement area of the current highway that will now be located to the west of the proposed through lanes of the shifted alignment of NJ Route 18. To minimize the acquisition of additional right-of-way to the east of NJ Route 18, retaining walls will be constructed on both sides of Ramp TW.

NJ Route 18 southbound will have three lanes of traffic passing through the Naricon Place Intersection. The right lane will merge to reduce the highway to two lanes after Ramp WT. Ramp TE will enter NJ Route 18 southbound as the third lane of traffic prior to the bridge over the Turnpike.

NJ Route 18 northbound will have three lanes of traffic passing though the Naricon Place intersection with an additional auxiliary lane for right turns into Tower Center Boulevard. The entrance Ramp TW on the left side of NJ Route 18 will form the left lane on NJ Route 18 northbound. This will create a four lane section that will meet the existing bridge over the Westons Mill Pond.

Ramp ET will be realigned to accommodate the shift in NJ Route 18. The ramp will flare out to two lanes near the Toll Plaza. The ramp will have no access to the adjacent former Turnpike Authority Headquarters site.

Utilities

Aerial utility impacts under this alternate will likely result from the re-alignment of NJ Route 18 to the east and the reconfiguration of Ramp TW. The proposed edge of pavement for NJ Route 18 appears to create conflicts with utility poles which will require the relocation of aerial cables crossing NJ Route 18. These transverse aerial crossings between Tower Center Boulevard and Westons Mill Road over NJ Route 18 include 450 feet of telephone cable, 260 feet of electric cable, and 270 feet of electric cable north of Naricon Place. As a result of the relocation of aerial cables crossing NJ Route 18, an additional 200 feet of aerial telephone cable along Tower Center Boulevard and 300’ of aerial electric cable along Westons Mill Road will likely require relocation. Further aerial impacts can be expected as a result of the adjustments to radii and alignment of Ramps TE and WT. The impacts along Ramps TE and WT include the adjustment of pole spacing and transfer of 800 feet of electric cable along NJ Route 18 southbound.

The re-alignment of NJ Route 18 to the east and widening and reconstruction of Ramp ET will likely result in the relocation of 200 feet of electric and 500 feet of telephone duct crossing NJ Route 18 at the southern end of the project. In addition, approximately 450 feet of 3 inch gas main will need to be relocated along the outside shoulder of Ramp ET.

Further underground utility impacts can be expected as a result of the proposed design of Ramp TW, Tower Center Boulevard, and the intersection of NJ Route 18 with Naricon Place. In this location, design features such as a bridge, grade alterations, and retaining walls will likely require the relocation of 650 feet of 6 inch gas main along Tower Center Boulevard and 250 feet of 8 inch water main across NJ Route 18.

The proposed pavement limits of NJ Route 18 southbound will likely require two (2) sanitary manholes to be reset at the northerly end of the project and the reconstruction of three (3) telephone manholes located at the entrance to Ramp WT.

The reconstruction and re-alignment of the existing bridge carrying NJ Route 18 over Ramps TE and WT will necessitate the burial of the telephone ductbanks currently supported in the first two western bays of the bridge. In addition, to facilitate the design of Ramps TE and WT, the profile of the ductbanks within the ramp limits will likely require adjustments (500 feet each).

Environmental Considerations

The improvements proposed in Alternate F are also in close proximity to the Edward Kearny House, which is listed on the State and Federal Registers of Historic Places. Although it is not anticipated that the project will encroach upon the property, coordination with the State Historic Preservation Office (HPO) would be required. No additional regulated resources were identified within the immediate vicinity of Alternate F.

Alternate F would result in the construction of approximately 1.31 acres of new impervious cover and greater than one acre of ground disturbance. This alternate would be considered a major development pursuant to NJAC 7:8.

Right-of-Way

Due to limited space available at the Interchange, acquisition of additional right-of-way to the east of NJ Route 18 in the vicinity of Tower Center Boulevard will be required. The acquisition is necessary to accommodate the realignment of NJ Route 18 and the additional widths needed for the construction of the retaining walls adjacent to Ramp TW that will allow it to enter on the left of NJ Route 18 northbound. Easements or acquisitions will also be necessary to shift the alignment of Tower Center Boulevard to the east closer to the Tower Center site.

Stage Construction

The construction of the repositioned Ramp TW will require numerous stages. The realigned ramp and highway fall within the existing footprint of Ramp TW. To maintain traffic on Naricon Place the new bridge for the ramp will need to be constructed in at least two stages, assuming that some of the exiting lanes on Naricon Place can be closed during construction and Ramp TW can be reduced to one lane. During the staging of the realignment of Ramp TW the northbound side of the new bridge over Ramps WT and TE can be constructed to the east of the current structure. Once the realigned portion of NJ Route 18 northbound and the northbound direction of the new bridge portion of Ramp TW are constructed, northbound traffic can be shifted onto the new bridge. The southbound traffic can remain on the current southbound roadway and the new southbound bridge and median work can be constructed in the area of the former northbound lane areas. The sequencing of the bridge construction for Ramp TW will require numerous temporary signal configurations at the Naricon Place intersection.

Advantages

This alternate provides the NJTA's absolute minimum desirable radius of 150 feet for Ramp WT. The shifted alignment of NJ Route 18 avoids right-of-way acquisitions and changes in the local roadways in the residential areas to the west of NJ Route 18. The proposed alignment also simplifies the replacement of the bridge over Ramps WT and TE. Ramp TW entrance onto the left side of NJ Route 18 northbound significantly reduces the volumes of traffic that will need to weave to the left.

Disadvantages

The shift of NJ Route 18 for Alternate F combined with the additional width needed for the retaining walls will require acquisition of right-of-way on the east side of NJ Route 18. Tower Center Boulevard near the intersection of Naricon Place will need to be shifted to the east. The ramp construction will require multiple stages and temporary signal systems to maintain traffic on Naricon Place due to the fact

that the realigned highway and ramp are located in a portion of the same footprint as the existing ramp. Ramps entering on the left side are not desirable on NJDOT highway and will cause some driver confusion. Placing all of the traffic from Ramp TW on the left will require some traffic to weave to the right to use the US Route 1 northbound exit ramp and will not allow traffic from the Turnpike to access the current exit for Tower Center Boulevard.

## 4.4 Selection of the IPA

After evaluating each alternate across several parameters including utilities, environmental resources, right-of-way, constructability and cost, Alternate D was selected as the IPA. Since impacts to utilities and environmental resources were relatively similar among all six alternates, right-of-way impacts, constructability, schedule and cost were the major attributes assessed in selecting the IPA. Please refer to Table 5 for a matrix comparing each alternate.

Alternates A, B, and C would require the acquisition and demolition of residential properties. Since alternates were developed that avoid right-of-way impacts to residences, Alternates A, B, and C were eliminated. Additionally, Alternates A, B, and C would require temporary bridges during construction to maintain traffic. Alternates D, E, and F avoid the increased costs and schedule delays caused by the construction staging associated with the temporary bridges while still meeting the project purpose and need of improving traffic flow and increasing safety throughout the project.

Alternate D was selected over Alternates E and F primarily because of construction staging and construction cost. Alternate E proposes to split Ramp TW, which will require two new bridges to be constructed, one to carry NJ Route 18 and Naricon Place over the ramp on the left and the other to carry Naricon Place over the ramp to the right. Alternate F requires that the proposed ramp construction occur in multiple stages due to the fact that the realigned highway and ramp are located in a portion of the same footprint as the existing ramp. Additionally, both Alternates E and F propose ramps entering on the left side of NJ Route 18, which is not a standard ramp orientation on NJDOT highways and as a result, may cause safety related issues due to potential driver confusion.

The IPA also includes the reconfiguration of Ramps NT and ST (Turnpike northbound exit ramp and Turnpike southbound exit ramp) into the toll plaza to address the weaving related accidents within the toll plaza.

The existing nose of Ramps NT and ST will be moved further away from the toll lanes to provide an approximate half-length of 500 feet and the terminus of Ramp ST (Turnpike northbound exit ramp) will be widened to 3 lanes that will allow traffic to access more toll lanes on the north side of the plaza. Ramp NT (Turnpike southbound exit ramp) will be modified to provide 5 lanes at the revised ramp terminus. This arrangement will improve weaving and flow of traffic through the toll plaza and the interchange.

Since the initial selection of the IPA, the design has been further refined in response to comments received by the public. The initial Alternate D design eliminated existing access from Ramp TE (Ramp from the toll plaza to NJ Route 18 southbound) to Westons Mill Road and from Westons Mill Road onto NJ Route 18 northbound. The design has been revised to maintain this existing access in addition to providing access to the NJTA Administration Building from Ramp ET.

**TABLE 5**
**CONCEPTUAL DEVELOPMENT ALTERNATIVE SUMMARY**

| ALT. | CONSTRUCTION COST (Million) | PROPERTY ACQUISITION COST (Million) | UTILITY COST (Million) | TOTAL COST (Million) | ADVANTAGES | DISADVANTAGES |
|---|---|---|---|---|---|---|
| **A** | $21.73 | $2.86 | $1.69 | **$26.28** | • New Ramps WT & TE are designed to Turnpike minimum standards, R= 235'<br>• Ramp TW remains unchanged<br>• Rt. 18 alignment remains unchanged | • Acquisition of additional ROW needed for Ramps WT and TE ~seven houses demolished and partial acquisitions from six other properties<br>• Westons Mill Rd. dead ended near new ramps.<br>• Laurel Lane Cul-De-Sac removed<br>• Temporary structure needed to replace Route 18 bridge over Ramps WT and TE<br>• A temporary signal system will be needed to shift Route 18 onto the temporary structure and maintain traffic on Naricon Place. |
| **B** | $19.27 | $0.80 | $1.40 | **$21.47** | • Ramps WT & TE radii are increased to Turnpike absolute minimum standards, R=150'<br>• Ramp TW remains unchanged<br>• Rt. 18 alignment remains unchanged<br>• Least expensive | • Acquisition of additional ROW needed for Ramps WT and TE ~two houses demolished and partial acquisitions from two other properties<br>• Westons Mill Rd. dead ended near new ramps.<br>• Temporary structure needed to replace Route 18 bridge over Ramps WT and TE<br>• A temporary signal system will be needed to shift Route 18 onto the temporary structure and maintain traffic on Naricon Place |
| **C** | $18.74 | $1.64 | $1.38 | **$22.76** | • Ramps WT & TE radii are increased to Turnpike absolute minimum standards, R=150'<br>• Ramp TW remains unchanged<br>• Rt. 18 alignment remains unchanged<br>• Revised geometry of Westons Mill Rd. & Rt. 18 accommodates access at eastern end of project.<br>• Removal of Naricon Place traffic signal creates free flow condition on Route 18 | • Acquisition of additional ROW needed for Ramps WT and TE ~four houses demolished and partial acquisitions from two other properties<br>• Westons Mill Rd. dead ended near new ramps.<br>• A new access road will be needed to connect Naricon Place to the Westons Mill Road to the north..<br>• Easy access to Turnpike from Tower Center eliminated by removal of traffic signal<br>• Free flow of Ramp WT does not provide gaps for Ramp ET entry into plaza<br>• Temporary structure needed to replace Route 18 bridge over Ramps WT and TE |
| **D** | $20.10 | $0 | $0.63 | **$20.73** | • Ramps WT & TE radii are increased to Turnpike absolute minimum standards, R=150'<br>• Ramp TW remains under the current Naricon Place bridge.<br>• No new acquisition of ROW required in residential neighborhood.<br>• The existing roadways in the residential neighborhood are not impacted and traffic noise from Route 18 is moved further away.<br>• Shifted alignment of Route 18 simplifies replacement of the bridge over Ramps WT and TE resulting in the shortest construction duration. | • Rt. 18 alignment shifted eastward may require some Right of Way from Township Right of Way for Tower Center Boulevard on the east side of Route 18<br>• Retaining walls in a narrow construction area will be required to minimize Right of Way impacts on the east side of Route 18.<br>• Two existing overhead sign structures will require relocation<br>• A temporary signal system will be needed to shift Route 18 and maintain traffic on Naricon Place.<br>• The south fascia of the Naricon Place bridge over Ramp TW will require modification to accommodate the right turn from Route 18 northbound. |
| **E** | $34.35 | $0.37 | $1.55 | **36.27** | • Ramps WT & TE radii are increased to Turnpike absolute minimum standards, R=150'<br>• No new acquisition of ROW required west of Rt. 18<br>• Splitting Ramp TW eliminates the need for traffic to weave on Route 18 northbound and simplifies movement of traffic on Route 18 to the exit for Tower Center Boulevard. | • Acquisition of ROW east of Route 18 for Ramp TW and to accommodate the shift in Rt. 18<br>• Tower Center Blvd. alignment shifted east into Tower Center property to accommodate Rt. 18 shift and new Ramps.<br>• Interior road in Tower Center property shifted to accommodate the new Tower Center Blvd alignment<br>• Two new bridges need to be constructed to accommodate Ramps TW split ramps<br>• Multiple stages and temporary signal systems will be needed to construct the new bridges and ramps<br>• Signing for the split ramp within the toll plaza will be difficult and inconsistent with the Authority's normal signing conventions.<br>• Ramps entering on the left on NJDOT highways are unusual |
| **F** | $32.02 | $.06 | $0.96 | **$33.07** | • Ramps WT & TE radii are increased to Turnpike absolute minimum standards, R=150'<br>• No new acquisition of ROW required west of Rt. 18<br>• Significantly reduces the volume of traffic that will need to weave to the left on Route 18 northbound. | • Acquisition of ROW east of Rt. 18 needed to accommodate the shift in Rt. 18<br>• Tower Center Blvd. alignment shifted east, into Tower Center property, to accommodate Rt. 18 shift<br>• New bridge over Ramp TW to carry Naricon Place and Route 18 northbound will be needed<br>• Multiple stages and temporary signal systems will be needed to construct the new bridges and ramps<br>• Some traffic from the repositioned ramp will now need to weave to the right for the Route 1 NB exit<br>• Access to the current driveway for Tower Center Blvd for traffic on Ramp TW traffic will be prohibited.<br>• Ramps entering on the left on NJDOT highways are unusual |

## 5.0 PUBLIC OUTREACH AND AGENCY COORDINATION

During the concept development, the alternatives analysis and traffic models were presented and discussed with the NJDOT. The IPA was well received. The project was also presented to the Middlesex County Transportation Coordinating Committee on March 4, 2011. A meeting was held to discuss the project with local officials from the Township of East Brunswick on March 14, 2011 prior to the Public Information Center held on March 16, 2011. As discussed in Section 4.4 above, comments pertaining to maintaining existing access to the Westons Mill Road neighborhood were received and incorporated into the project.

A Public Hearing, in accordance with the requirements of E.O. 172, will be held once the required level of detail is developed in the final design process.

## 6.0 PERMITS AND APPROVALS

Certain permits and approvals will be required from the regulatory agencies for the proposed project. These permits, approvals, and certification are summarized below:

- Soil Erosion and Sediment Control approval from the Freehold Soil Conservation District
- NJDEP Stormwater Construction General Permit Request for Authorization (RFA) including compliance with NJDEP Stormwater Management Rules (N.J.A.C. 7:8).
- Concurrence from the State Historic Preservation Office that the project does not encroach on any resources listed on the State or National Register of Historic Places.

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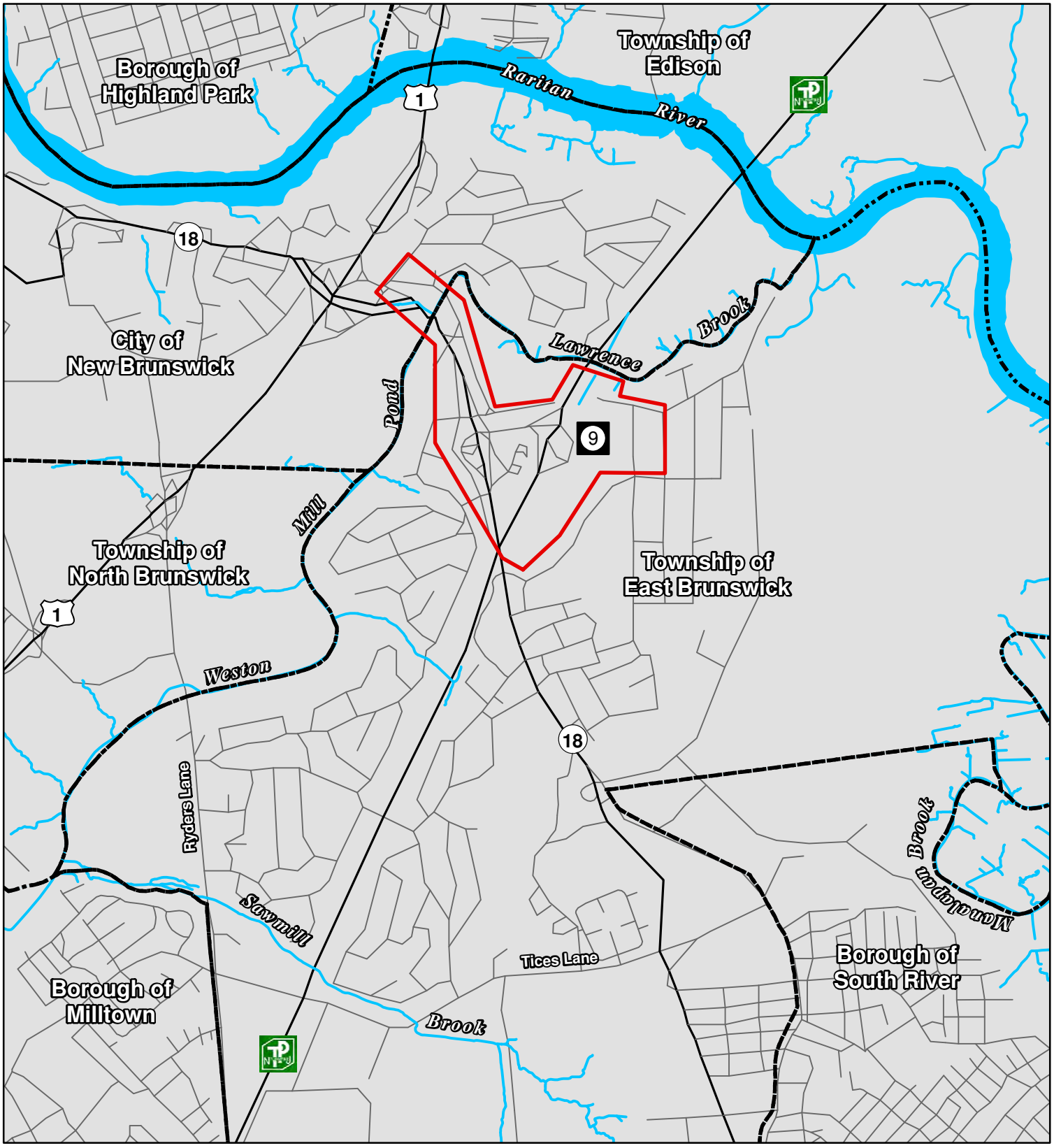
# Appendix A
# Figures

- **Figure 1: Location Map**
- **Figure 2: USGS 7.5' Topographic Map**
- **Figure 3: Bedrock Geology**
- **Figure 4: Surficial Geology**
- **Figure 5: Aquifers**
- **Figure 6: Sole Source Aquifers**
- **Figure 7: NRCS Soils Map**
- **Figure 8: Surface Water Resources**
- **Figure 9: FEMA FIRM No. 340260 0001C**
- **Figure 10: FEMA FIRM No. 340270 0002B**
- **Figure 11: State Study Lawrence Brook sta. 570 to sta. 650**
- **Figure 12: State Study Lawrence Brook sta. 510 to sta. 570**
- **Figure 13: NJDEP Freshwater Wetlands**
- **Figure 14: USFWS National Wetland Inventory**
- **Figure 15: Cultural Resources**
- **Figure 16: East Brunswick Zoning Map**
- **Figure 17: New Brunswick Zoning Map**
- **Figure 18: Open Space**
- **Figure 19: Sensitive Receptors**
- **Figure 20: Environmental Constraints Map**




Legend

- Study Area
- Primary Road
- Secondary Road
- Municipal Boundary
- Stream

Data Source: US Department of Commerce, Bureau of the Census, Geography DivisionTiger/Line FIles, Middlesex County Roads (2000).
NJDEP, Office of Information Resources Management, Bureau of Geographic Information Systems. Municipalities of New Jersey (Clipped to Coast), Version 10090116 (2009).
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2,000 1,000 0 2,000 Feet

New Jersey Turnpike Authority

Figure 1
Project Location

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS


Study Area

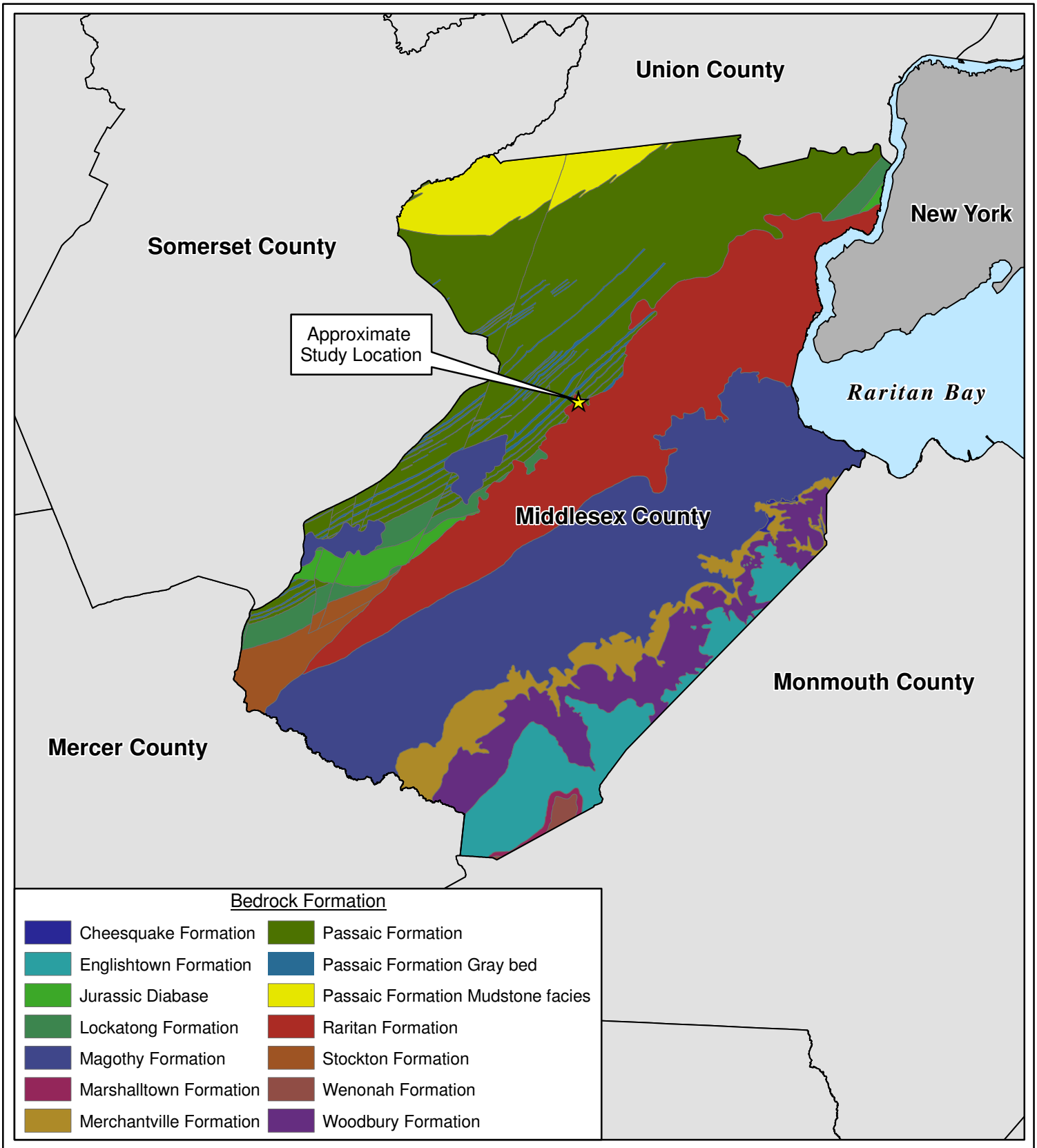
2,000 1,000 0 2,000 Feet

New Jersey Turnpike Authority

Figure 2
USGS 7.5 Minute Topographic Map
New Brunswick Quadrangle

Design and Environmental Permitting for
Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS




**Data Source:** NJDEP Bureau of Geographic Information and Analysis, Counties of NJ, NJ State Plane NAD83 (2008).
NJDEP, New Jersey Geological Survey, Bedrock Geology for New Jersey (1:100,000 Scale) (1999).

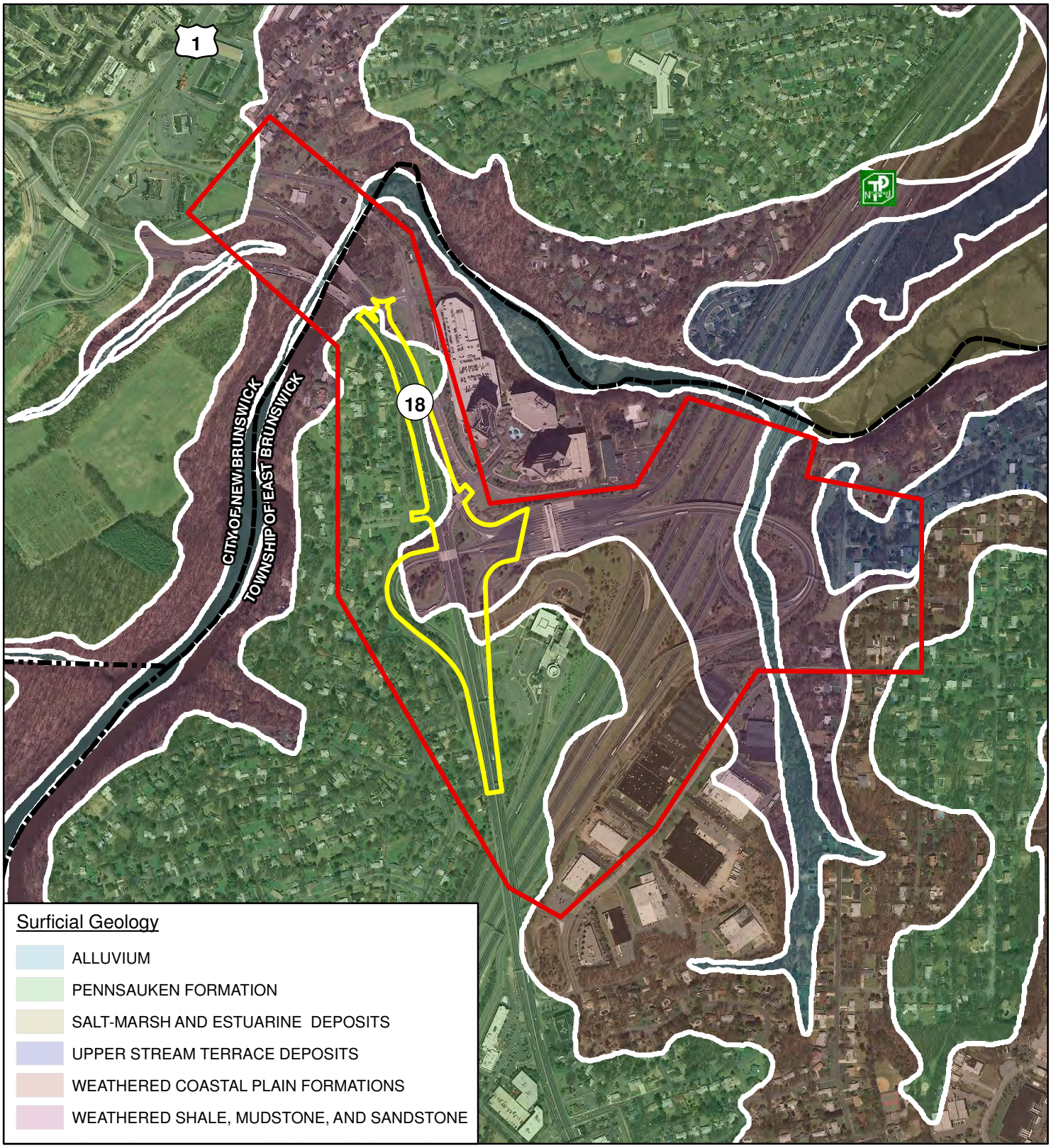
3.5 1.75 0 3.5 Miles

New Jersey Turnpike Authority

Figure 3
Bedrock Geology

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS




Data Source: NJDEP, NJGS, Surficial Geology of New Jersey (2006).

Base Layer: NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007-2008 High Resoluation Orthophotograph (2008).

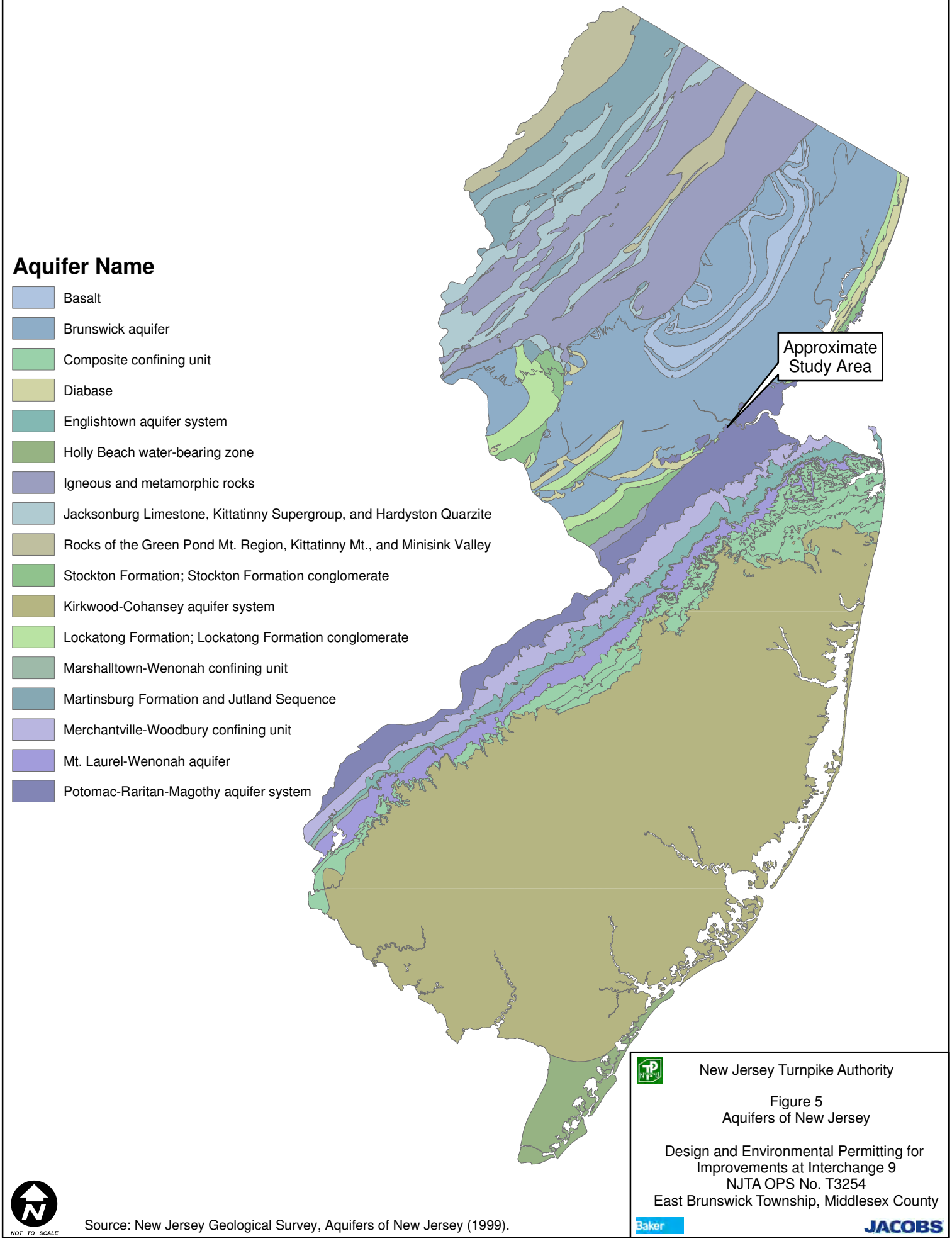
800 400 0 800 Feet

New Jersey Turnpike Authority

Figure 4
Surficial Geology

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS

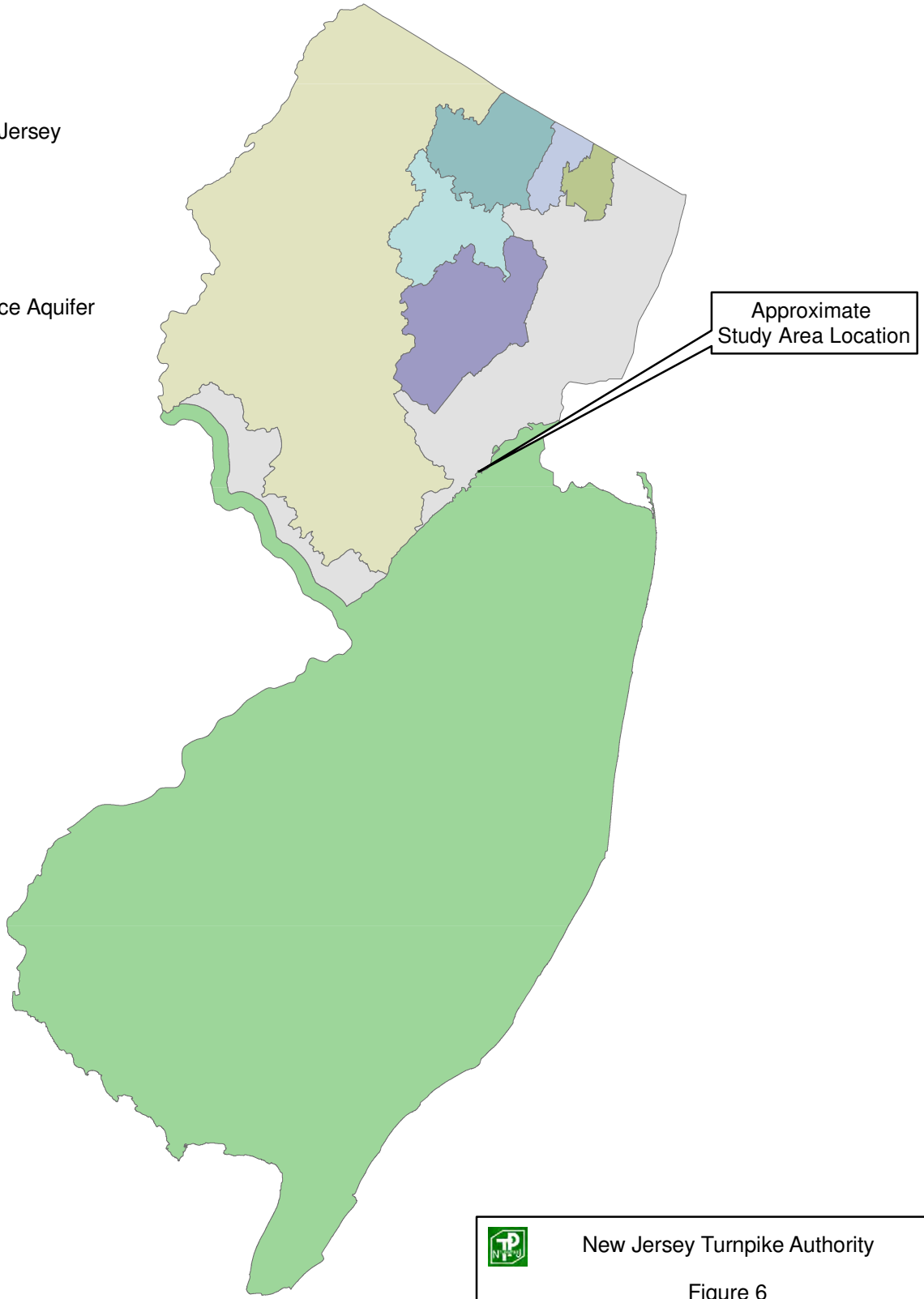



Source: New Jersey Geological Survey, Aquifers of New Jersey (1999).

## Legend

**Sole Source Aquifer**

- Buried Valley
- Coastal Plain
- Highlands
- Northwest New Jersey
- Ramapo
- Ridgewood
- Rockaway
- Not a Sole Source Aquifer




0 10 20 Miles

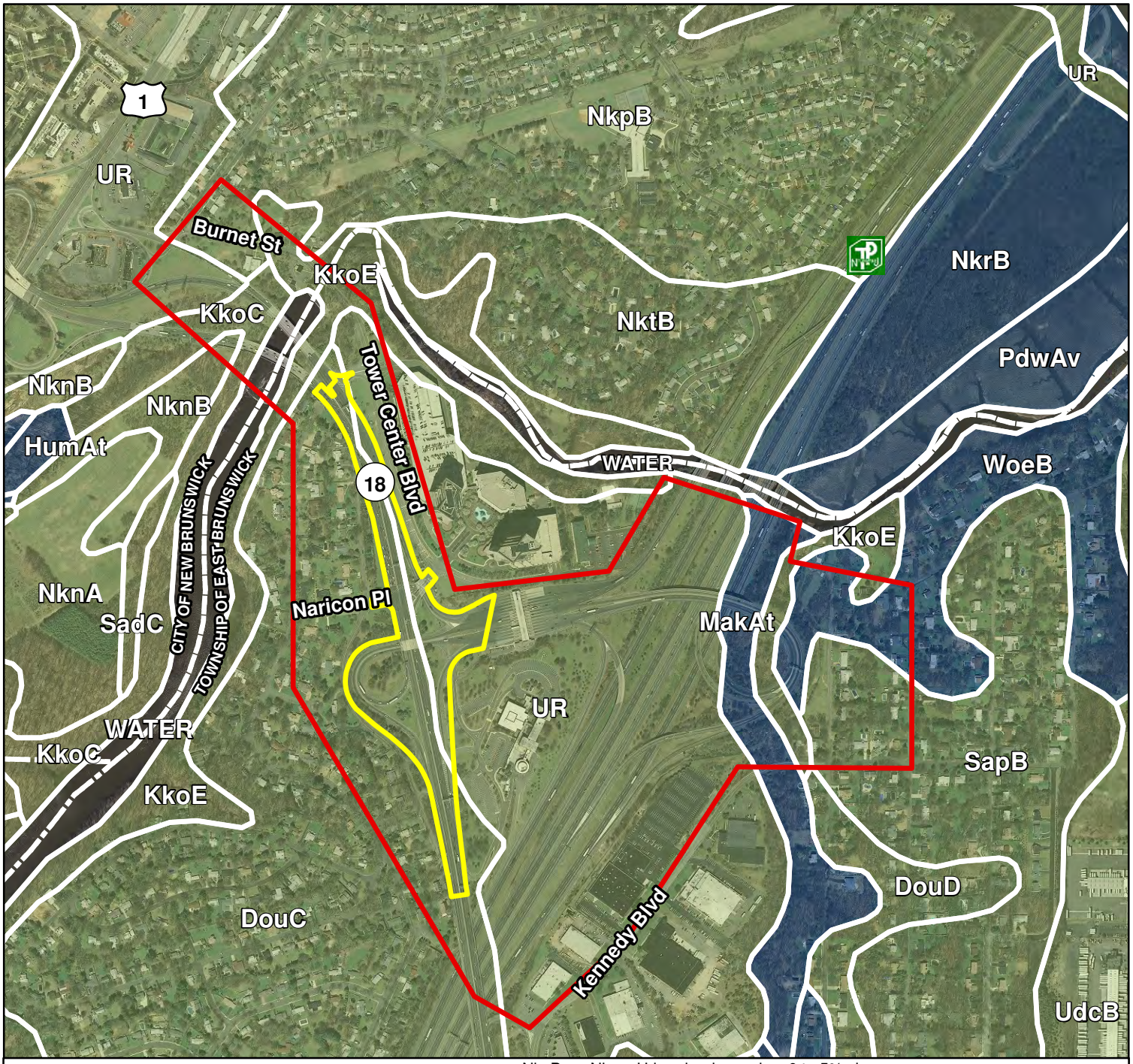
**Data Source:** New Jersey Geological Survey, Sole Source Aquifers in New Jersey (1998).

New Jersey Turnpike Authority

Figure 6
Sole Source Aquifers

Design and Environmental Permitting for
Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS




| | | | |
|---|---|---|---|
| DouD | Downer-Urban land complex, 10 to 15% slopes | NkpB | Nixon-Urban land complex, 0 to 5% slopes |
| HboA | Hammonton sandy loam, 0 to 2% slopes | NkrB | Nixon moderately well drained variant loam, 2 to 5% slopes |
| HumAt | Humaquepts, 0 to 3% slopes, frequently flooded | NktB | Nixon moderately well drained variant-Urban land complex, 0 to 5% slopes |
| KkoC | Klinesville channery loam, 6 to 12% slopes | PdwAv | Pawcatuck-Transquaking complex, 0 to 2% slopes, very frequently flooded |
| KkoE | Klinesville channery loam, 18 to 35% slopes | SadC | Sassafras gravelly sandy loam, 5 to 10% slopes |
| MakAt | Manahawkin muck, 0 to 2% slopes, frequently flooded | SapB | Sassafras-Urban land complex, 0 to 5% slopes |
| NknA | Nixon loam, 0 to 2% slopes | UdcB | Udorthents, clayey substratum, 0 to 8% slopes |
| NknB | Nixon loam, 2 to 5% slopes | UR | Urban Land |
| | | WoeB | Woodstown sandy loam, 2 to 5% slopes |

**Data Source:** US Department of Agriculture, Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) database for MIddlesex County, NJ (2006).

**Base Layer:** NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007-2008 High Resoluation Orthophotograph (2008).

Study Area

Limits of IPA

Soil Unit

Hydric Soil

Municipal Boundary

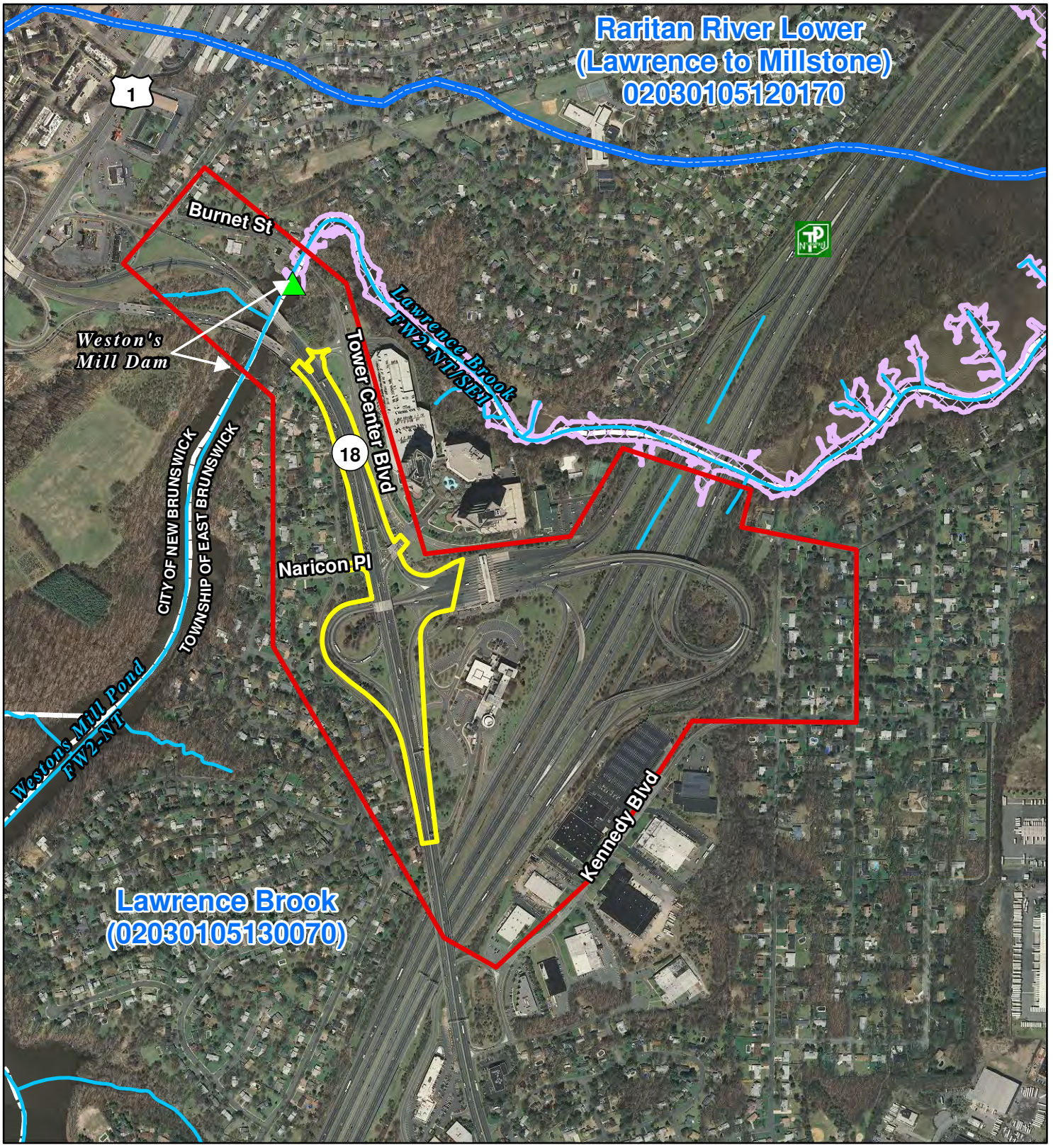
800 400 0 800 Feet

New Jersey Turnpike Authority

Figure 7
NRCS Soils Map

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS




Study Area

Limits of IPA

HUC-14 Boundary

Stream

Tidelands Claim

Municipal Boundary

Head of Tide

Data Source: NJDEP, New Jersey Geological Survey, NJDEP 14 Digit Hydrologic Unit Code delineations for NJ (DEPHUC14) (2006). NJDEP, Water Monitoring & Standards, Bureau of Freshwater and Biological Monitoring. NJDEP Surface Water Quality Standards of New Jersey Edition 200905 (2009).
NJDEP, Office of Information Resources Management (OIRM), Bureau of Geographic Informaiton and Analysis. NJDEP Riparian TIdelands Grid for the Atlantic Coast of New Jersey (1988).

Base Layer: NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007-2008 High Resoluation Orthophotograph (2008).

800 400 0 800 Feet

New Jersey Turnpike Authority

Figure 8
Surface Water Resources

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS

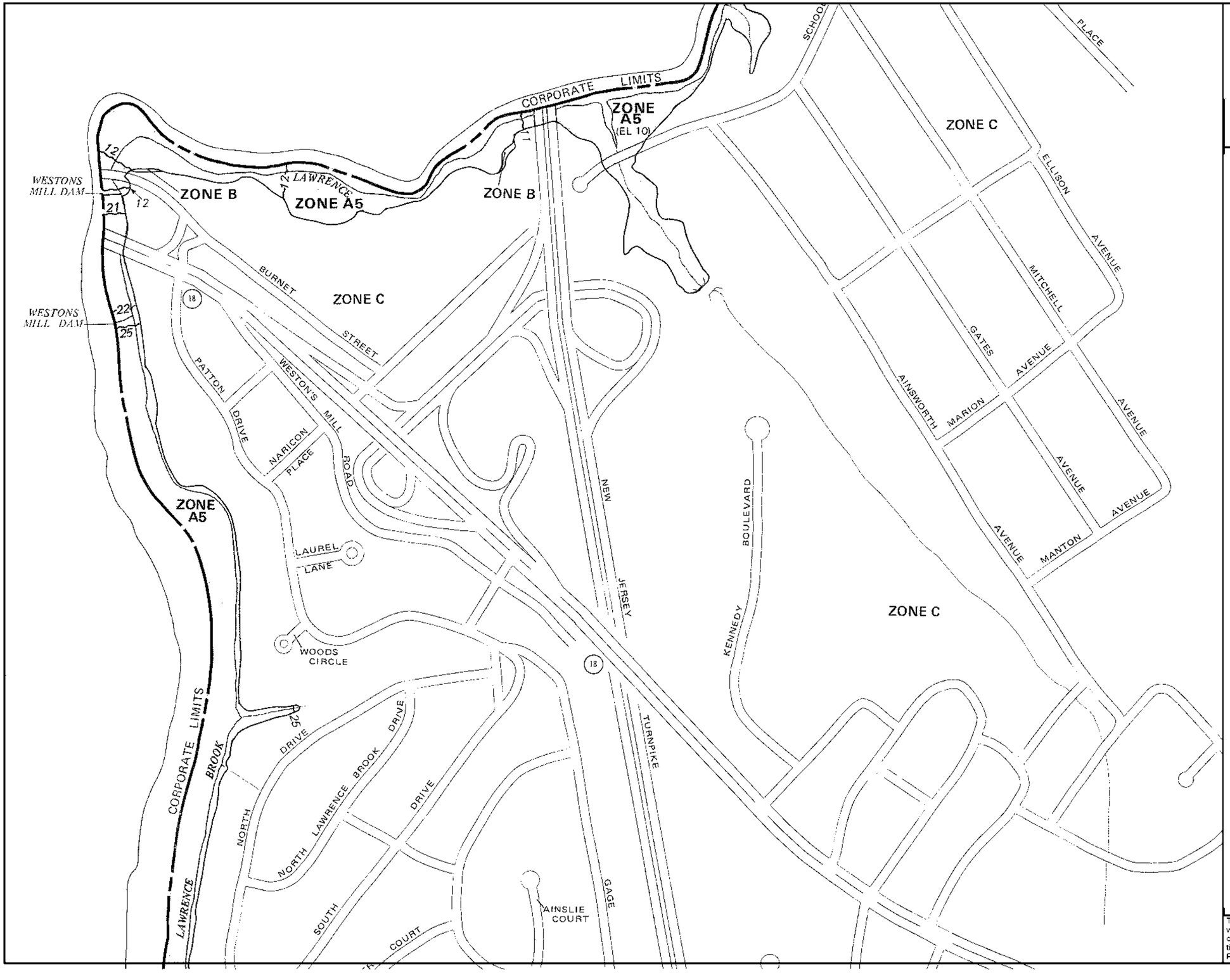
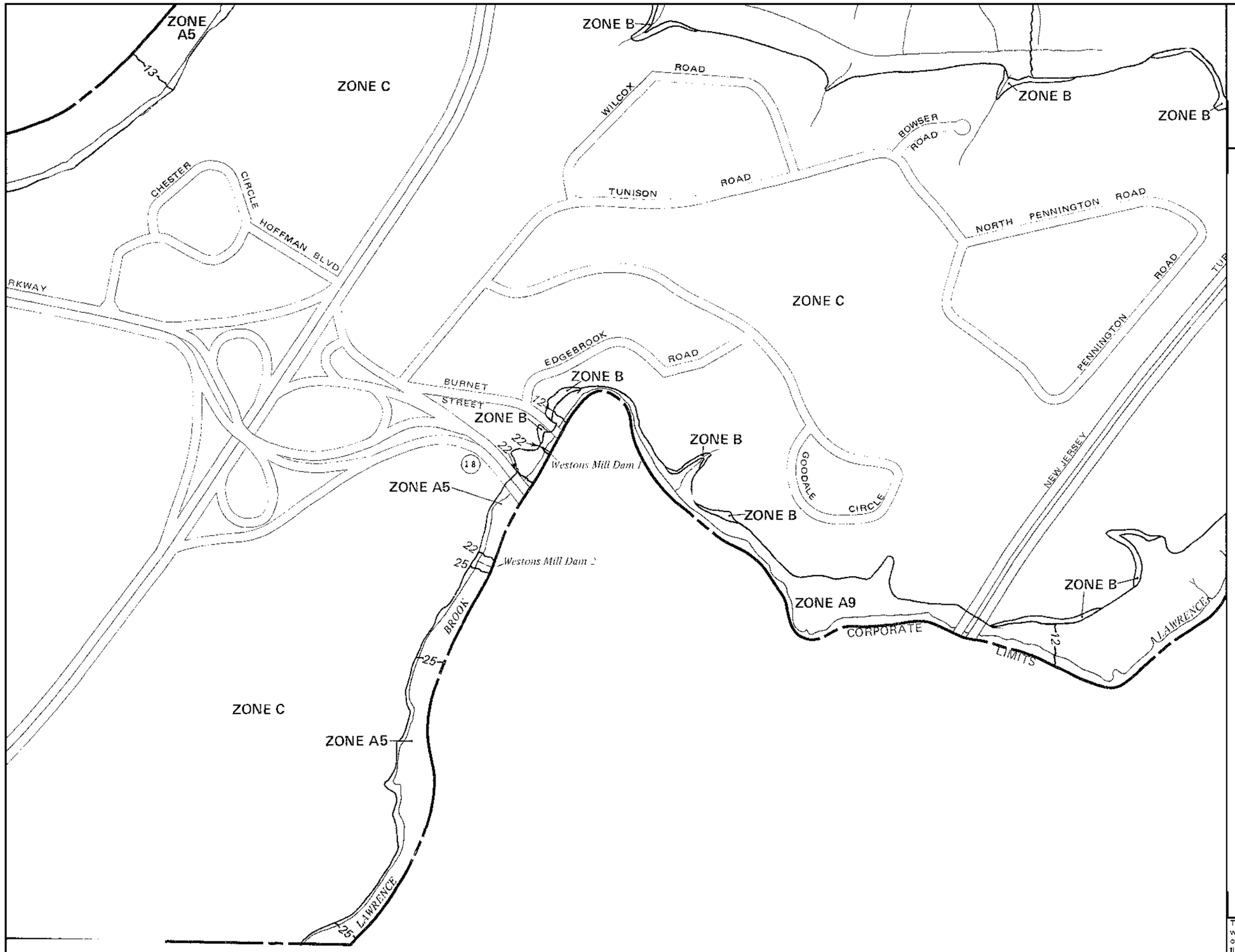



Figure 9
Elevations in NGVD29




APPROXIMATE SCALE

500 0 500 FEE

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM

FLOOD INSURANCE RATE MAP

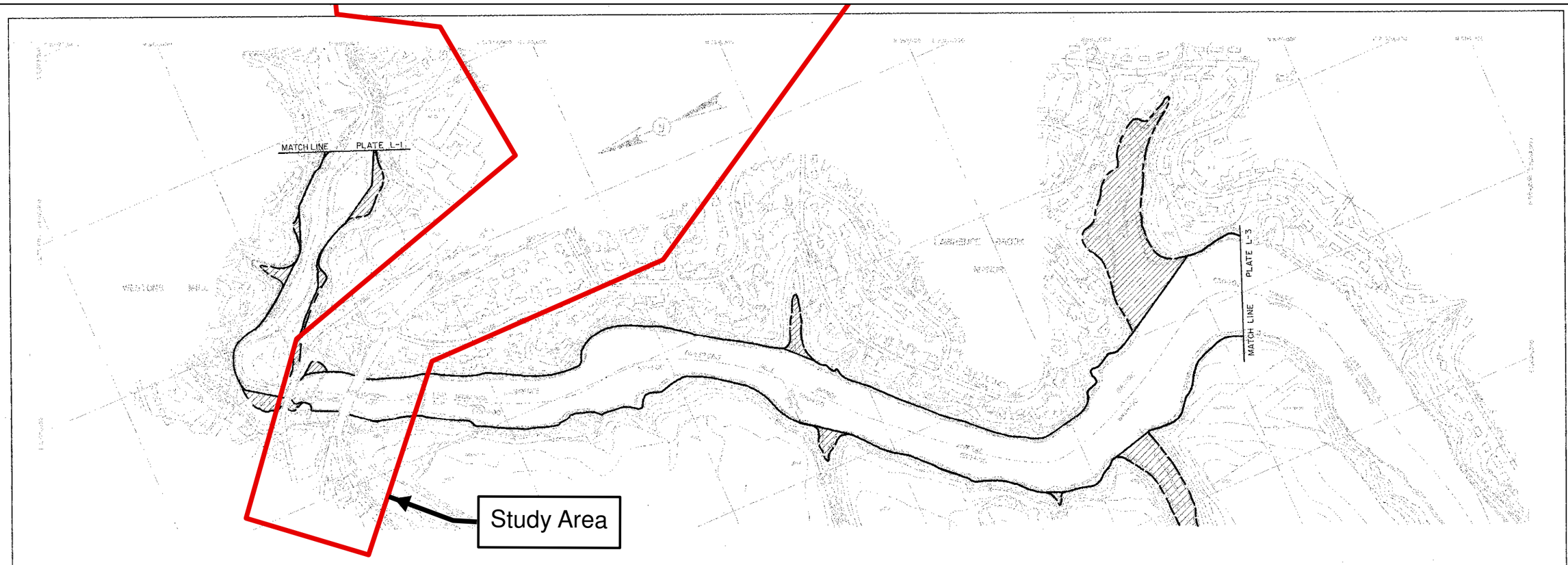
CITY OF
**NEW BRUNSWICK, NEW JERSEY**
MIDDLESEX COUNTY

PANEL 2 OF 2

COMMUNITY PANEL NUMBER
340270 0002 B

EFFECTIVE DATE
DECEMBER 4, 1979

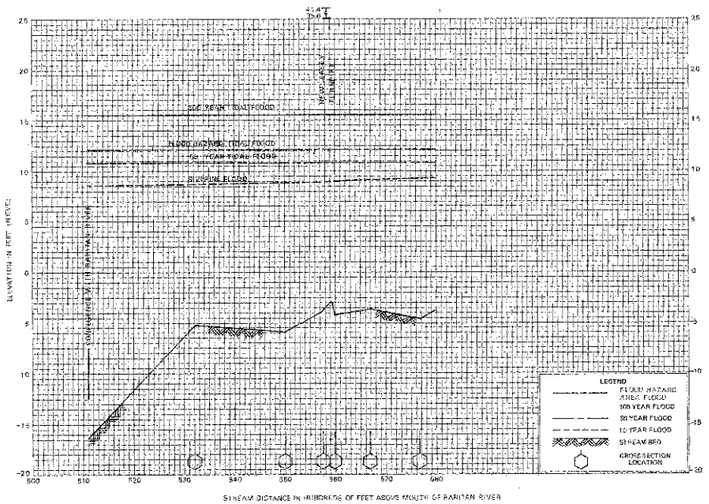
Figure 10
Elevations in NGVD29

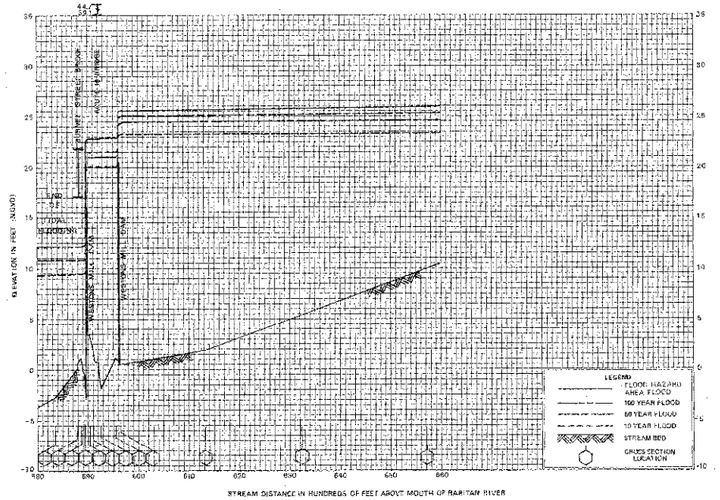



PLAN

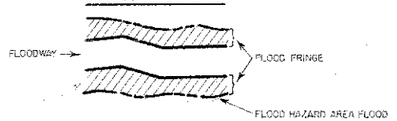
200 0 200 400 600

SCALE IN FEET




PLAN LEGEND




NOTES:

1. Flood elevations were determined using the U.S. Army Corps of Engineers HEC-2 Water Surface Profile Program (1976).
2. The Flood Hazard Area flood elevations were determined using discharges equal to 125 % of the HUD Flood Insurance Study 100 year discharges.
3. The 10, 50, and 100 year flood elevations were determined using HUD Flood Insurance Study Guidelines dated 1975.
4. Tidal flood elevations for the Raritan Bay area were recommended by HUD (Oct 1977)

STATE OF NEW JERSEY
DEPARTMENT of ENVIRONMENTAL PROTECTION
DIVISION of WATER RESOURCES
BUREAU of FLOOD PLAIN MANAGEMENT

Delineation of Floodway
and
Flood Hazard Area

*LAWRENCE BROOK*

sta. 570 to sta. 650

NORTH BRUNSWICK TWP, EAST BRUNSWICK TWP,
NEW BRUNSWICK CITY
Middlesex County, New Jersey

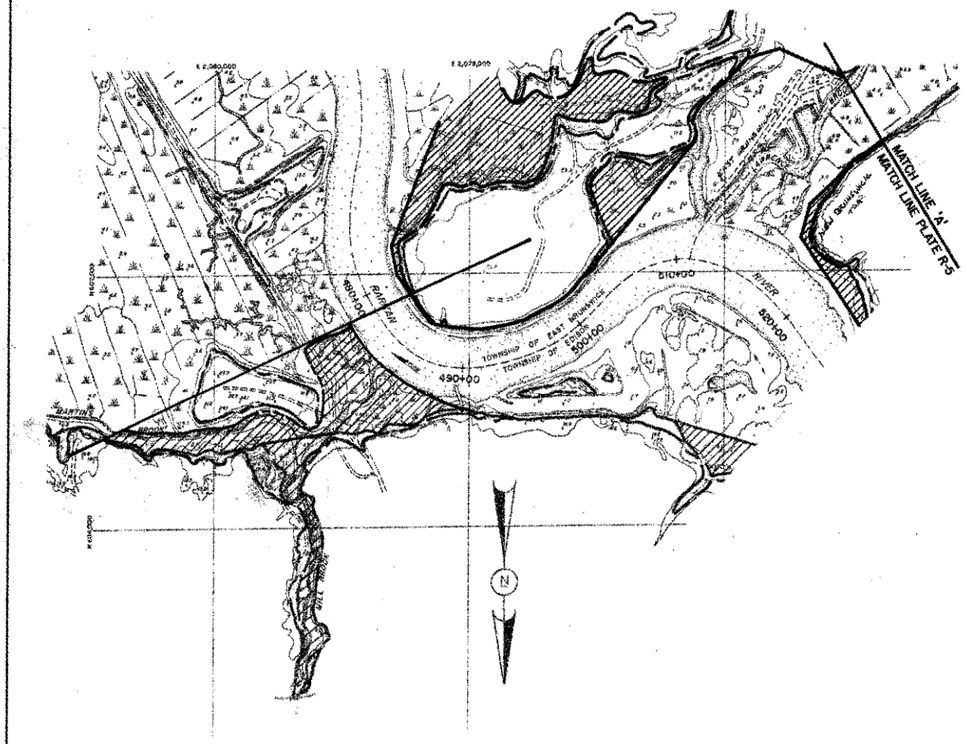
JANUARY 1978

anderson-nichols & co., inc.
boston, ma.

plate L-2

PHOTOGRAMMETRIC MAPPING BY QUINN AND ASSOCIATES, WYNCOTE, PA.

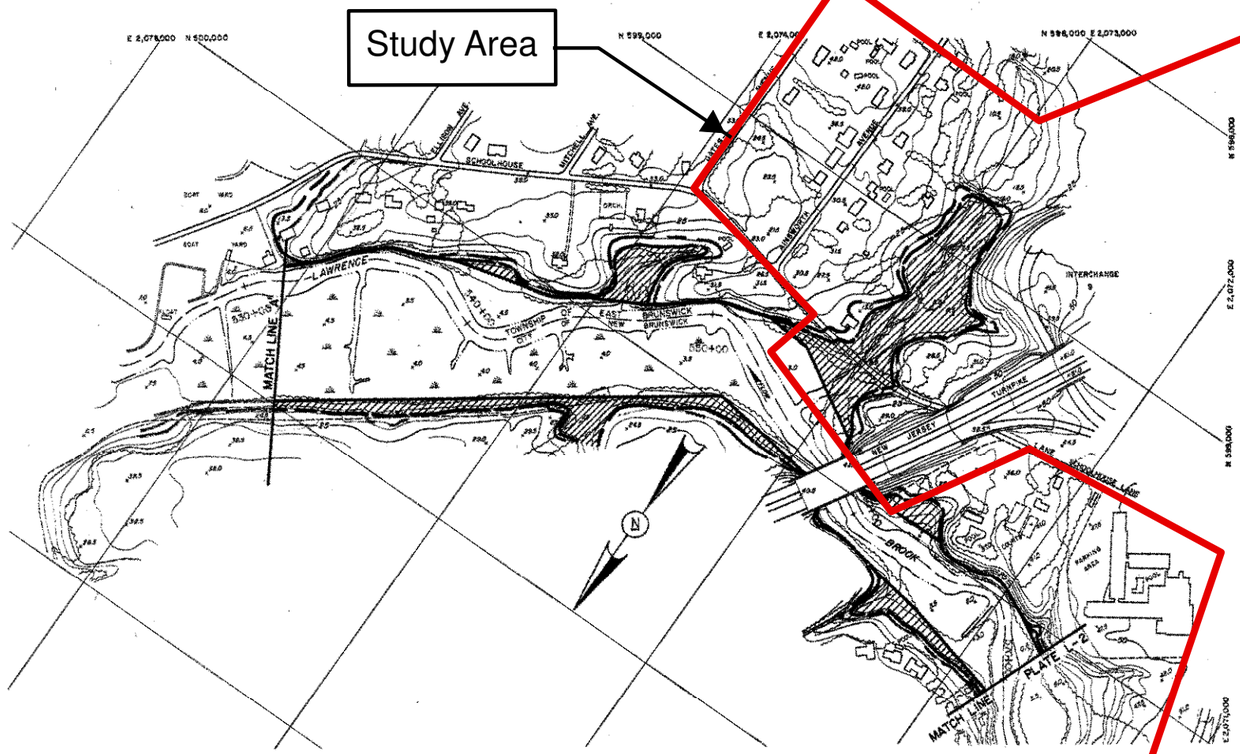
Figure 11




PLAN

400 0 400 800 1200

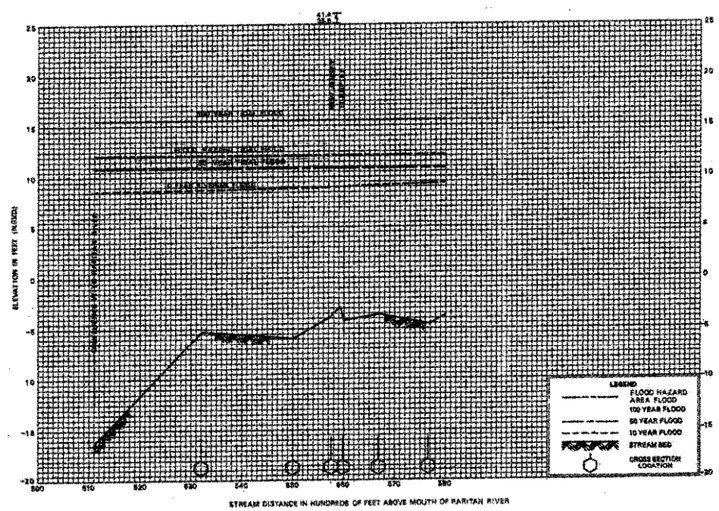
SCALE IN FEET




PLAN

200 0 200 400 600

SCALE IN FEET




PLAN LEGEND


NOTES:

1. Flood elevations were determined using the U.S Army Corps of Engineers HEC-2 Water Surface Profile Program (1976).
2. The Flood Hazard Area Flood elevations were determined using discharges equal to 125 % of the HUD Flood Insurance Study 100 year discharges.
3. The 10, 50, and 100 year flood elevations were determined using HUD Flood Insurance Study Guidelines dated 1975.
4. Tidal flood elevations for the Raritan Bay area were recommended by HUD (Oct. 197

STATE OF NEW JERSEY
DEPARTMENT of ENVIRONMENTAL PROTECTION
DIVISION of WATER RESOURCES
BUREAU of FLOOD PLAIN MANAGEMENT

Delineation of Floodway
and
Flood Hazard Area

*LAWRENCE BROOK*
sta. 510 to sta. 570

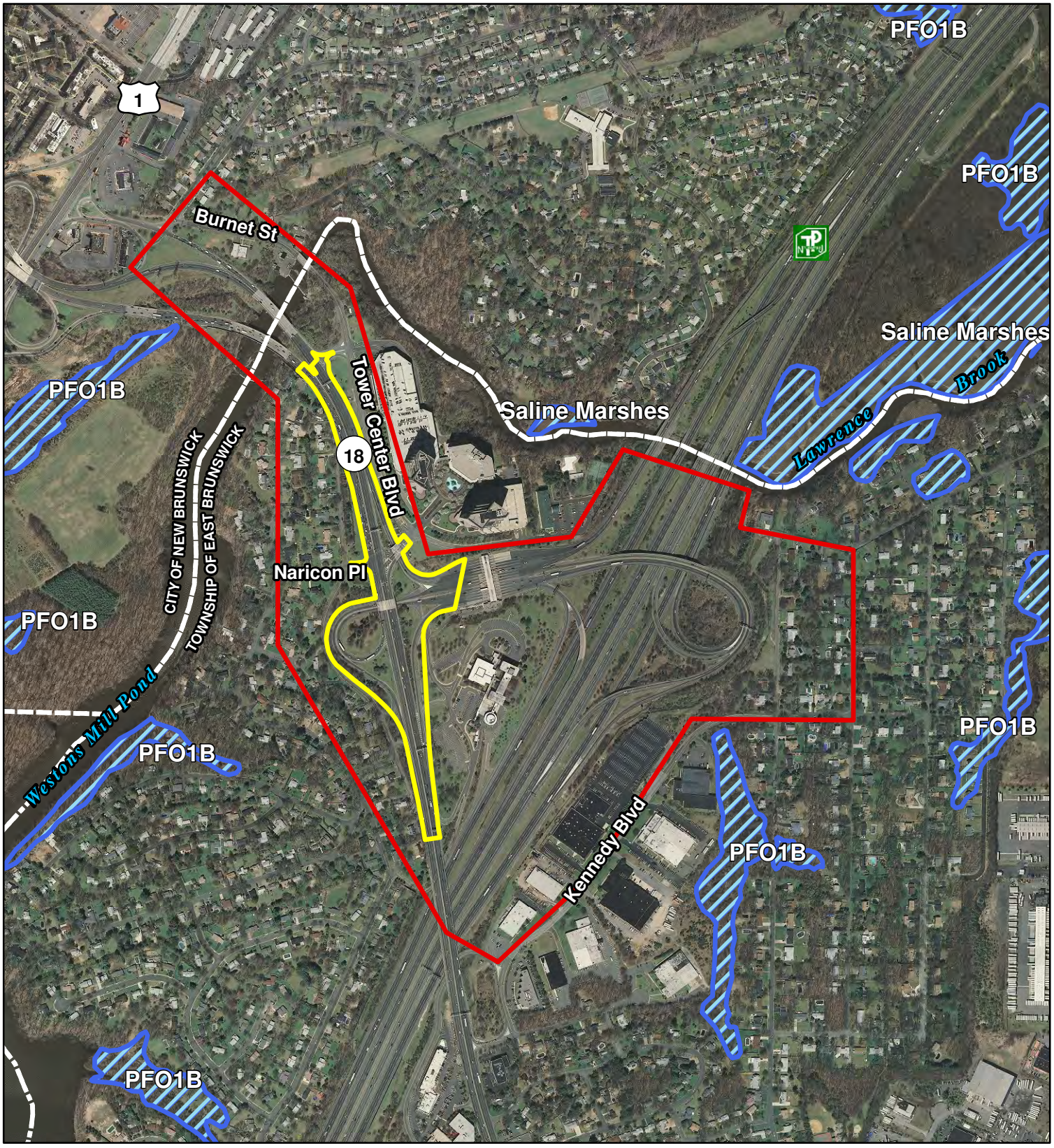
NEW BRUNSWICK CITY, EAST BRUNSWICK TWP
Middlesex County, New Jersey
JANUARY 1978

anderson-nichols & co., inc.
boston, ma.

plate L-1

PHOTOGRAMMETRIC MAPPING BY QUINN AND ASSOCIATES, WYNCOTE, PA.

Figure 12




Study Area

Limits of IPA

NJDEP Wetland

Municipal Boundary

**Data Source:** NJDEP, Office of Information Resources Management, Bureau of Geographic Information and Analysis, NJDEP Wetlands of Middlesex County, New Jersey 1986 (1999).

**Base Layer:** NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007-2008 High Resoluation Orthophotograph (2008).

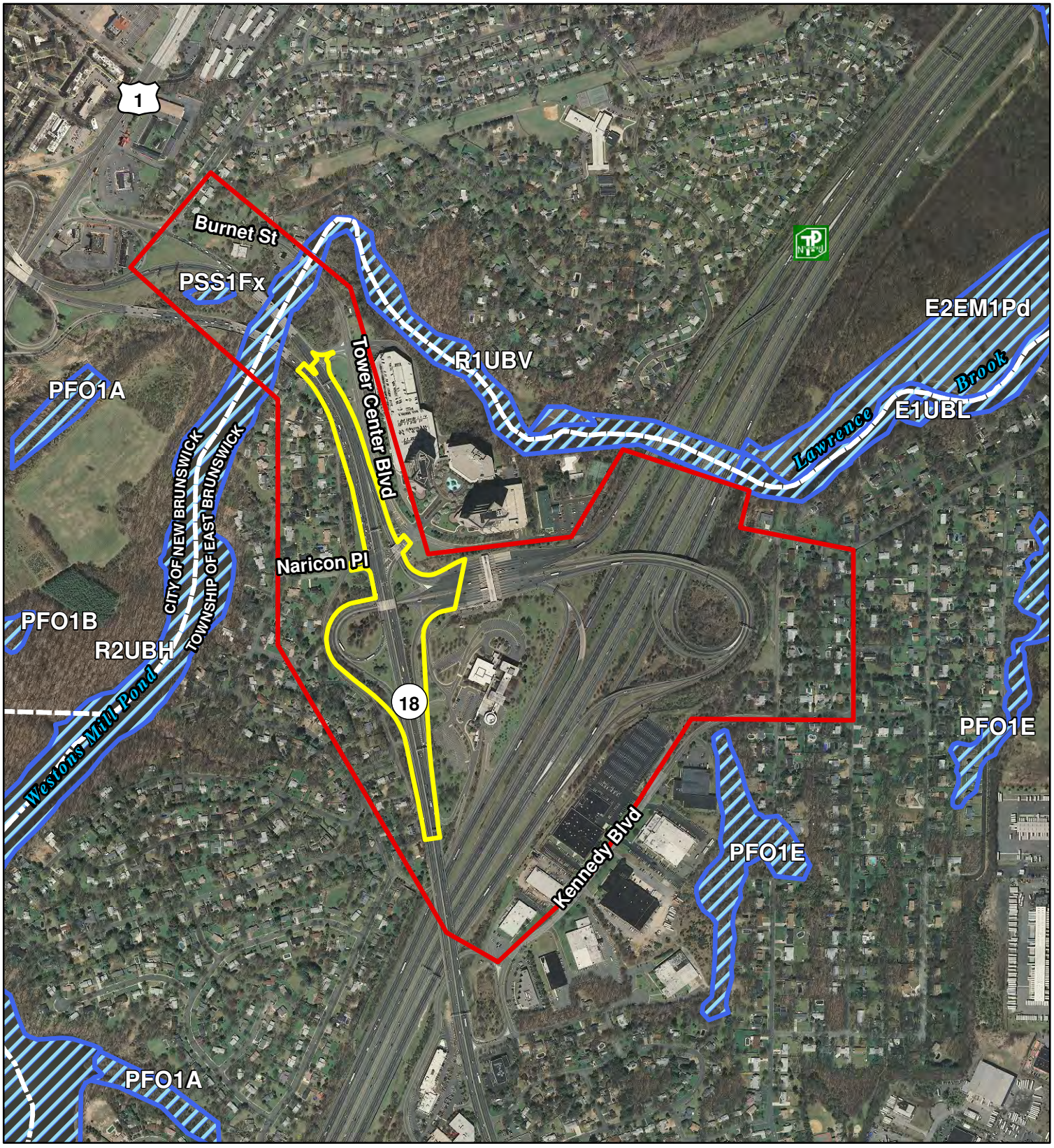
800 400 0 800 Feet

New Jersey Turnpike Authority

Figure 13
NJDEP Freshwater Wetlands

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS




Study Area

Limits of IPA

NWI Wetland

Municipal Boundary

**Data Source:** United States Fish and Wildlife Service, National Wetlands Inventory, New Brunswick Quadrangle (2008).

**Base Layer:** NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007-2008 High Resoluation Orthophotograph (2008).

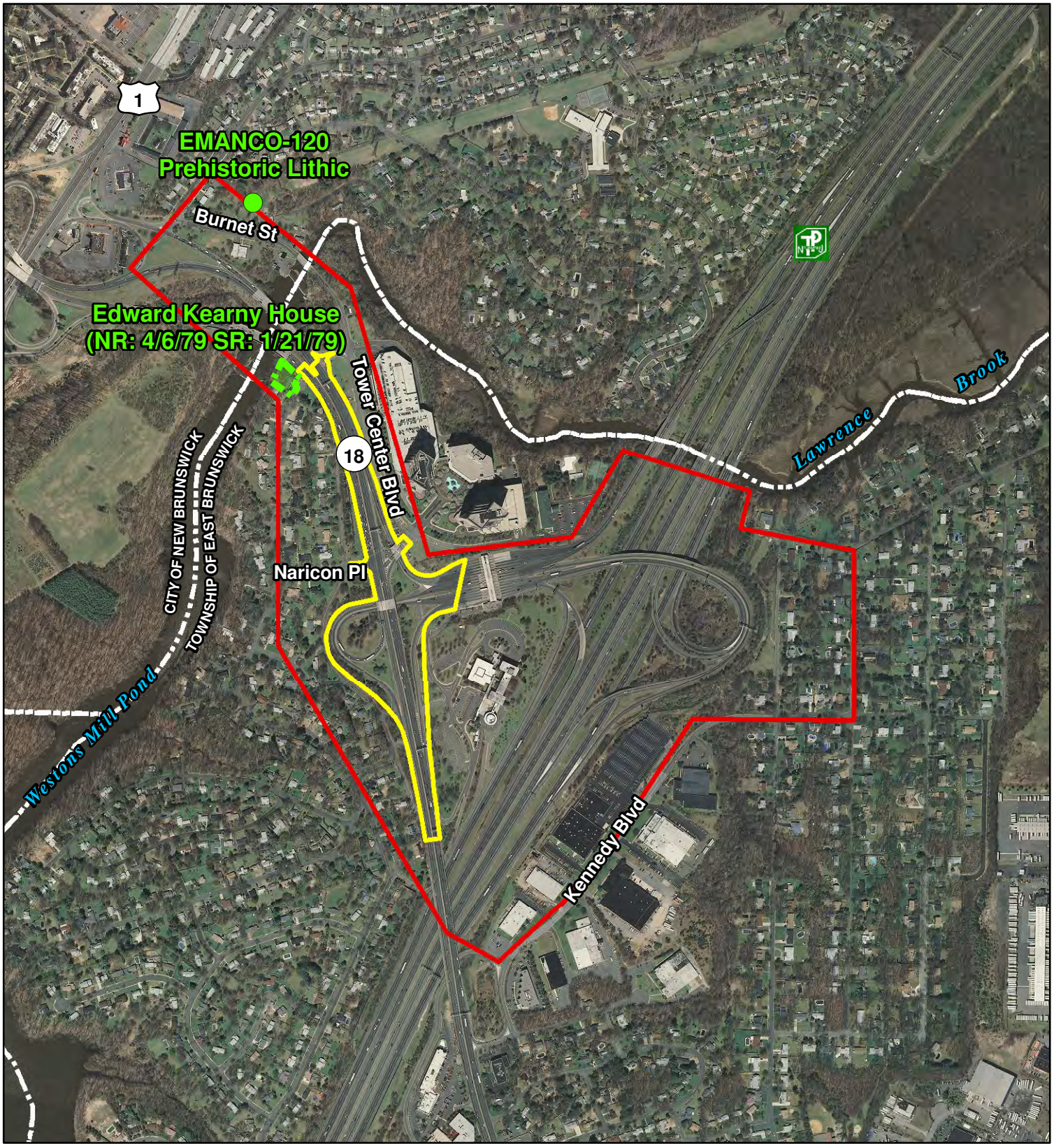
800 400 0 800 Feet

New Jersey Turnpike Authority

Figure 14
USFWS National Wetland Inventory

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS




Study Area

Limits of IPA

Known Archaeological Site

Cultural Resource

Municipal Boundary

800 400 0 800 Feet

**Data Source:** NJDEP Bureau of Geographic Information and Analysis, Municipalities of NJ, NJ State Plane NAD83 (2008)

**Base Layer:** NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007-2008 High Resoluation Orthophotograph (2008).

New Jersey Turnpike Authority

Figure 15
Known Cultural Resources

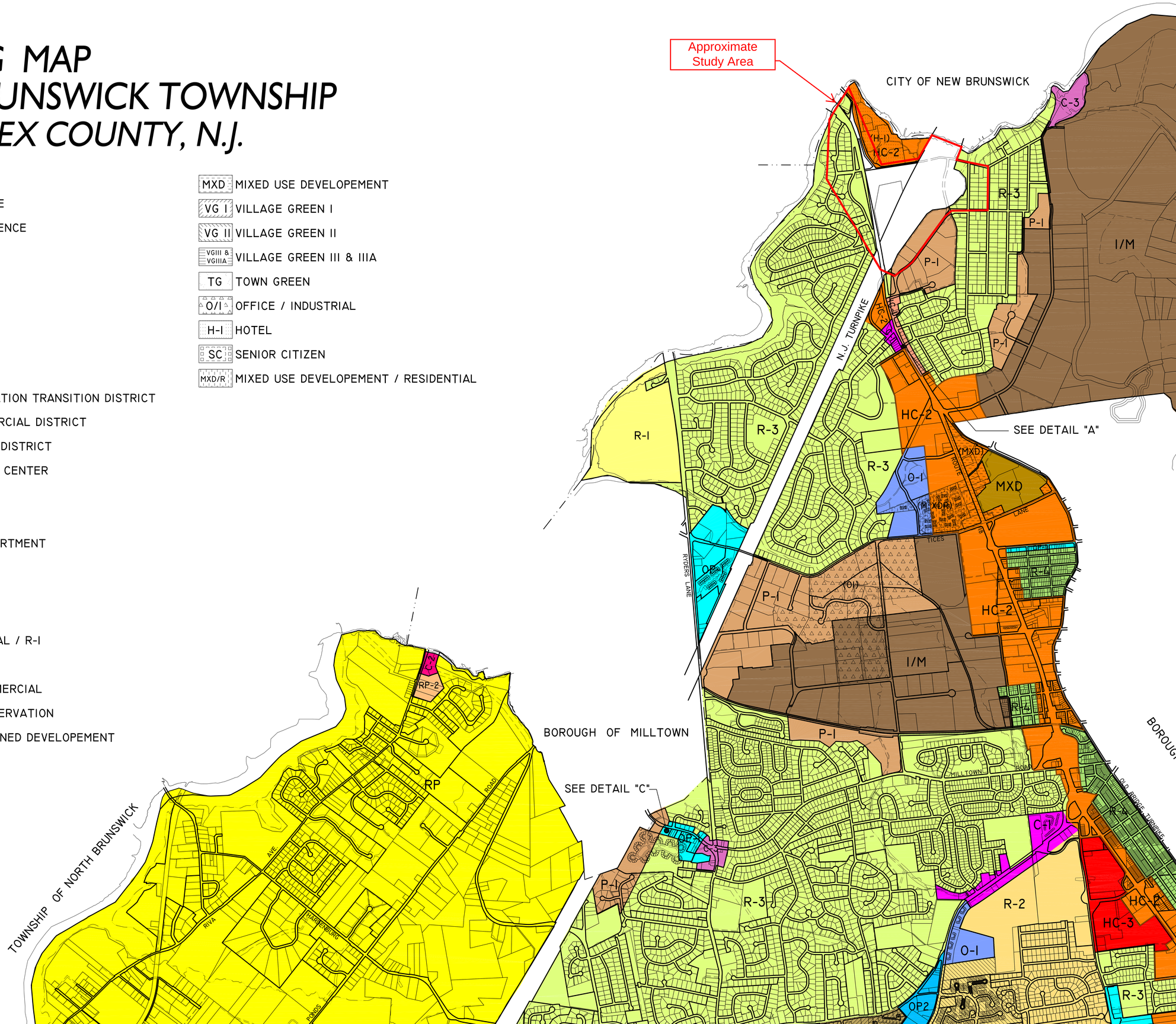
Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS

Figure 16

# ZONING MAP
# EAST BRUNSWICK TOWNSHIP
# MIDDLESEX COUNTY, N.J.

- RP RURAL PRESERVATION DISTRICT
- R-1 SINGLE FAMILY RURAL RESIDENCE
- R-2 SINGLE FAMILY SUBURBAN RESIDENCE
- R-3 SINGLE FAMILY RESIDENCE
- R-4 GENERAL RESIDENCE
- R-5 RESIDENCE DISTRICT
- C-1 PROFESSIONAL AND OFFICE
- C-2 NEIGHBORHOOD BUSINESS
- C-3 GENERAL COMMERCIAL
- RP-2 SINGLE FAMILY RURAL PRESERVATION TRANSITION DISTRICT
- HC-1 NEIGHBORHOOD HIGHWAY COMMERCIAL DISTRICT
- HC-2 GENERAL HIGHWAY COMMERCIAL DISTRICT
- HC-3 HIGHWAY COMMERCIAL SHOPPING CENTER
- OP-1 OFFICE / PROFESSIONAL
- OP-2 OFFICE / PROFESSIONAL
- O-1 OFFICE, PROFESSIONAL, AND APARTMENT
- P-1 PLANNED INDUSTRIAL PARK
- I/M INDUSTRIAL/ MANUFACTURING
- HC HISTORICAL COMMERCIAL
- HCR/R-1 HISTORICAL CLUSTER RESIDENTIAL / R-1
- HR HISTORICAL RESIDENTIAL
- HRC HISTORICAL RESIDENTIAL / COMMERCIAL
- HRP HISTORICAL RESIDENTIAL / PRESERVATION
- SCMXD SENIOR CITIZEN MIXED USE PLANNED DEVELOPEMENT
- MXD MIXED USE DEVELOPEMENT
- MXD MIXED USE DEVELOPEMENT
- VG I VILLAGE GREEN I
- VG II VILLAGE GREEN II
- VGIII & VGIIIA VILLAGE GREEN III & IIIA
- TG TOWN GREEN
- O/I OFFICE / INDUSTRIAL
- H-1 HOTEL
- SC SENIOR CITIZEN
- MXD/R MIXED USE DEVELOPEMENT / RESIDENTIAL



# Zoning Districts

**Zoning Districts 2008**

- C-1 Community Commercial
- C-2A Community Commercial
- C-2B Community Commercial
- C-3A Community Prof Office
- C-3B Comm Prof Office/Commercial
- C-4 Downtown Commecial
- C-5 Highway Commercial
- C-6 Highway Commercial
- D-HI Downtown Hosp/Inst
- HI Hospital Institutional
- I-1 Light Industrial
- I-2 General Industrial
- I-2E Industrial/Entertainment
- IN-1 Educational Institutional
- IN-2 Educational Institutional
- O-1 Office
- R-1A Single Fam
- R-1B Single Fam
- R-2 Single Fam
- R-3 Single Fam
- R-4 Single Fam
- R-5A Single/Two Fam
- R-5B Single/Two Fam
- R-5C Single/Two Fam
- R-6 Multifamily
- R-7 Apt. Residential
- WC Waterfront Conserv

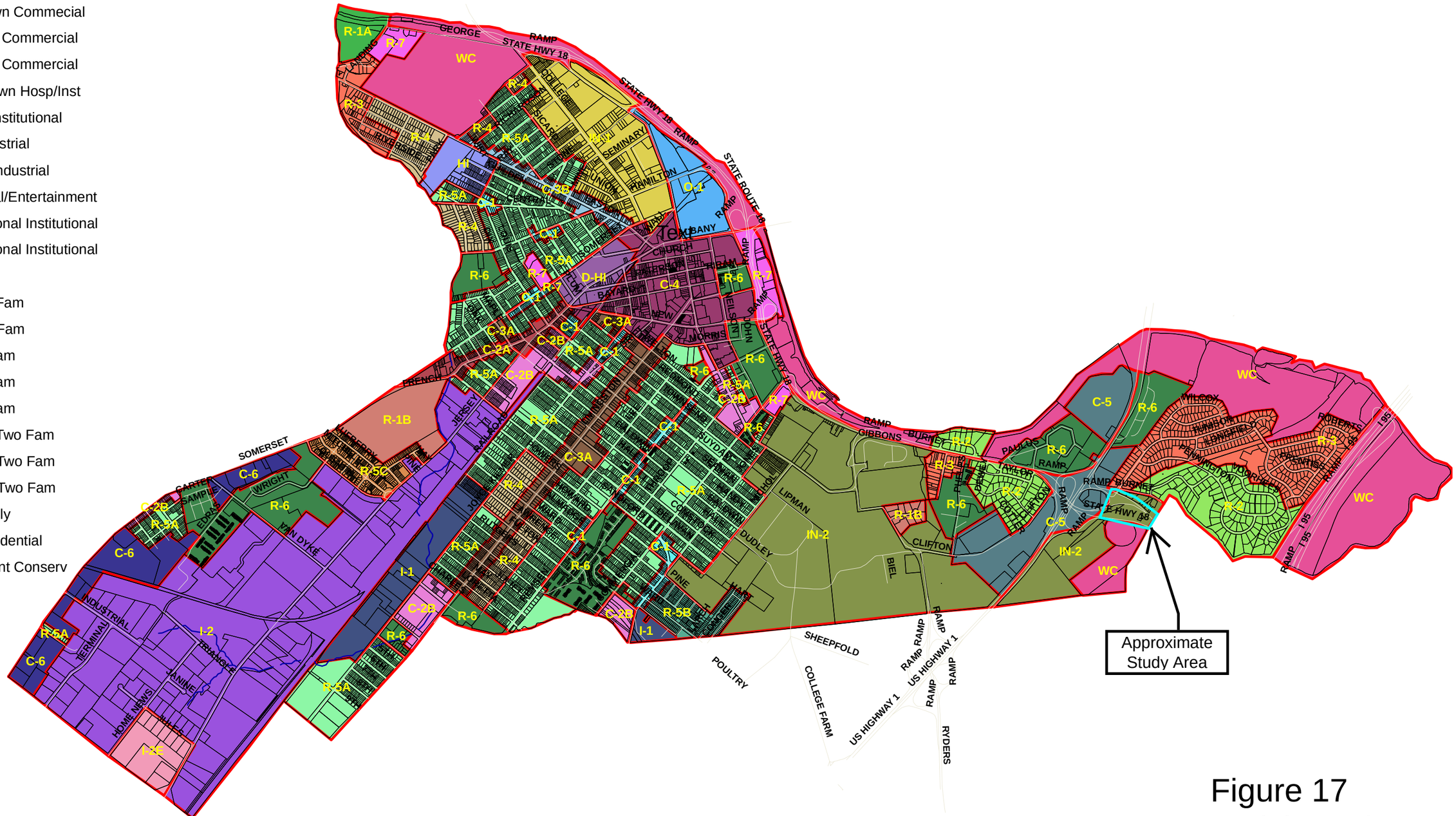
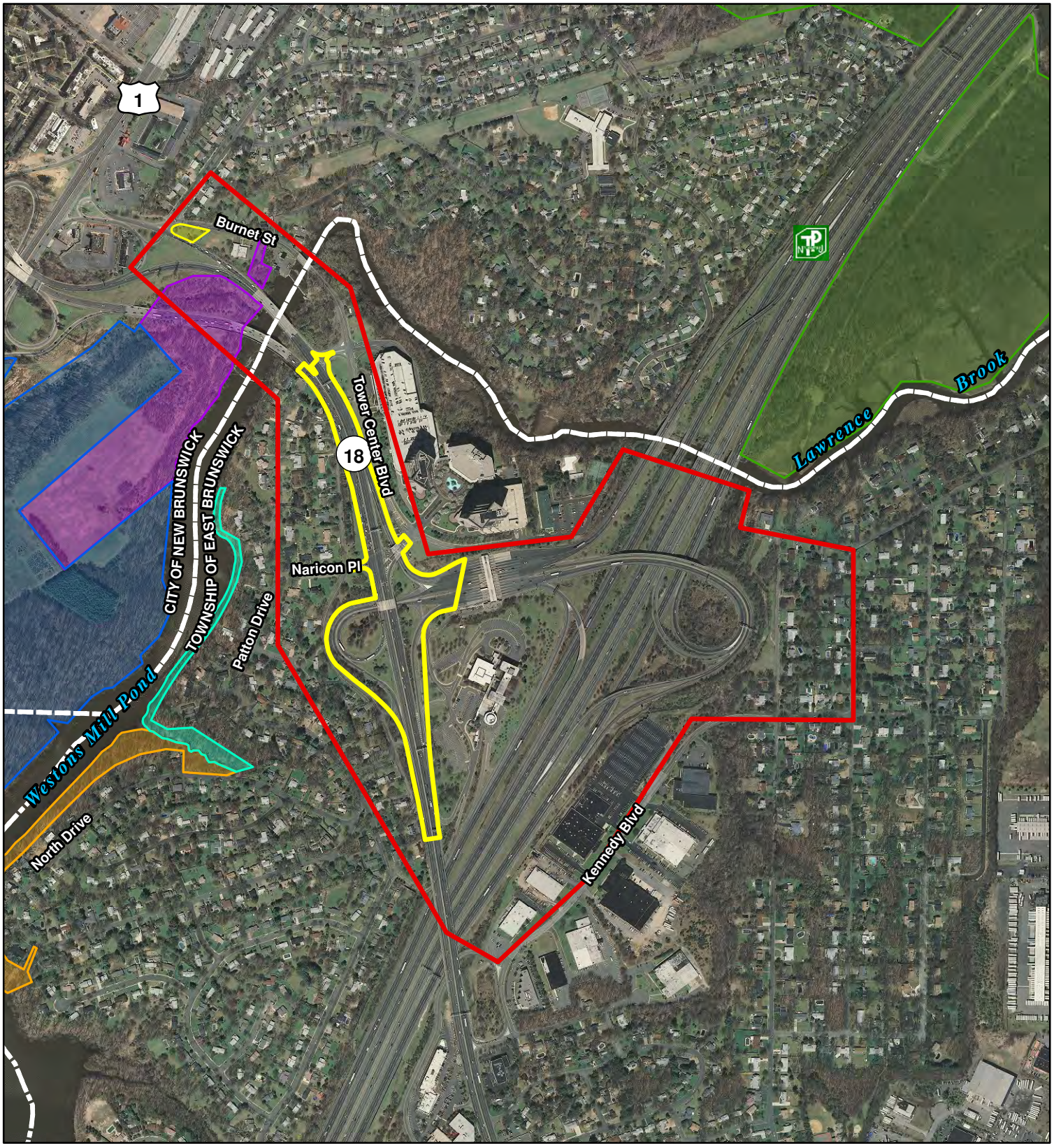



Figure 17
New Brunswick Zoning Map




Raritan River Conservation Area
Rutgers Helyar Woods
Rutgers Mini Park
Weston's Mill Watershed Properties
East Brunswick Township Owned (Block 13, Lot 23)
East Brunswick Township Easement
Study Area
Limits of IPA
Municipal Boundary

**Base Layer:** NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007-2008 High Resoluation Orthophotograph (2008).

800 400 0 800 Feet

New Jersey Turnpike Authority

Figure 18
Open Space

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS


Parkland | Study Area | Limits of IPA | Municipal Boundary

1 Residential Development
2 Bus Stop
3 Bus Stop/Park & Ride Facility
4 Hilton East Brunswick
5 Holiday Inn Express
6 Village Swim Club

**Base Layer:** NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007-2008 High Resoluation Orthophotograph (2008).

800 400 0 800 Feet

New Jersey Turnpike Authority

Figure 19
Sensitive Receptors

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS

EMANCO-120
Edgebrook Road
Burnet Street
Rutgers Mini Park
Fire Department Engine Company #2
Weston's Mill Conservation Area
Area G
Weston's Mill Dams
Head of Tide
Area H
Area F
Raritan River Conservation Area
Edward Kearny House (SR: 1/21/79 NR: 4/6/79)
Burnet Street
Patton Drive
Weston's Mill Road
Lawrence Brook FW2-NT(TM1/E-1
Area E
Area D
Area C
Schoolhouse Lane
Weston's Mill Conservation Area
CITY OF NEW BRUNSWICK
TOWNSHIP OF NORTH BRUNSWICK
East Brunswick Township Easement
Naricon Place
Area A
Area B
Ainsworth Avenue
Gates Avenue
Rutgers Helyar Woods
TOWNSHIP OF NORTH BRUNSWICK
TOWNSHIP OF EAST BRUNSWICK
Weston Mill Pond FW2-NT(TM1/E-1
East Brunswick Township Owned
Manor Place
Kennedy Boulevard

## Legend

- Field Delineated Wetlands/ State Open Waters
- Potential Wetlands
- 1% Annual Chance Floodplain
- NJDEP Tidelands Claim
- Cultural Resource
- Known Archaeological Site
- Open Space
- Head of Tide
- NJDEP Historic Fill
- Potential Contamination
- Sensitive Receptor
- Project Area
- Limits of IPA
- Municipal Boundary

## Sensitive Receptors

1. Residential Development
2. Bus Stop
3. Bus Stop/Park & Ride Facility
4. Hilton East Brunswick
5. Holiday Inn Express
6. Village Swim Club

## Sites with Potential Contamination

1. 37 Westons Mill Road
2. AT&T Communication Inc.
3. NJTA Administration Building
4. 19 Ainsworth Avenue
5. The Home News Tribune
6. Insurance Restoration Specialists
7. McGuire St & Kennedy Blvd

200 100 0 200 400 Feet

Data Source:NJDEP Bureau of Geographic Information and Analysis, Municipalities of NJ, NJ State Plane NAD83 (2008). NJDEP, Bureau of Tidelands Managment, NJDEP Tidelands (Raritan-Hudson) (2004). NJDEP, Natural & Historic Resources, Historic Preservation Office, NJDEP Historic Properties of New Jersey (2008). NJDEP, Office of Enviromental Analysis, Coast Survey Limited, NJDEP Head of Tide Points for Watersources in New Jersey (1986). NJDEP, New Jersey Geolgoical Survey, Historic FIll for New Jersey As Of February 2009 (2009).

Base Layer: NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007- 2008 High Resoluation Orthophotograph (2008).

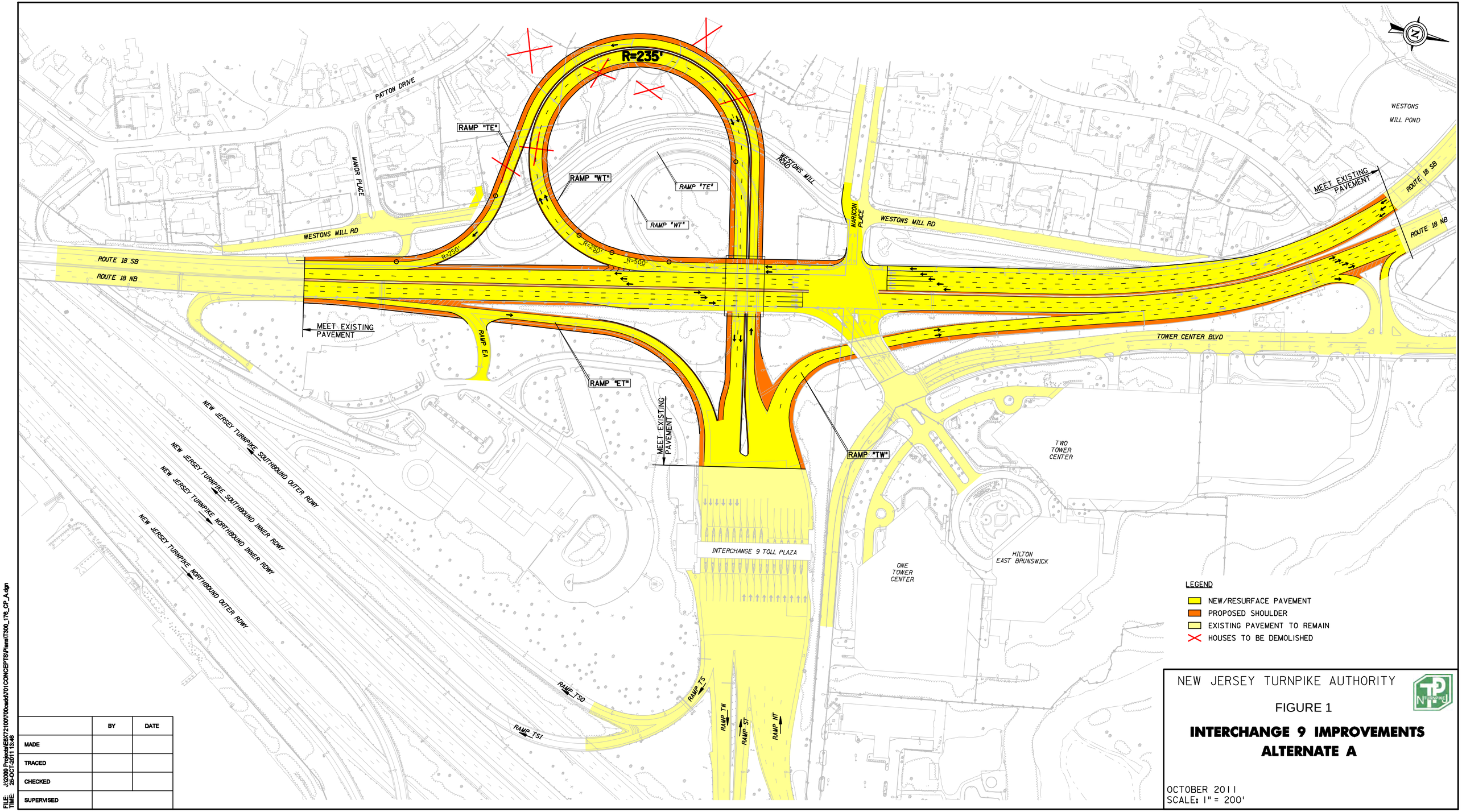
New Jersey Turnpike Authority

Figure 20
Environmental Constraints Map

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS

# Appendix B
# Evaluated Alternatives




| | BY | DATE |
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| TRACED | | |
| CHECKED | | |
| SUPERVISED | | |

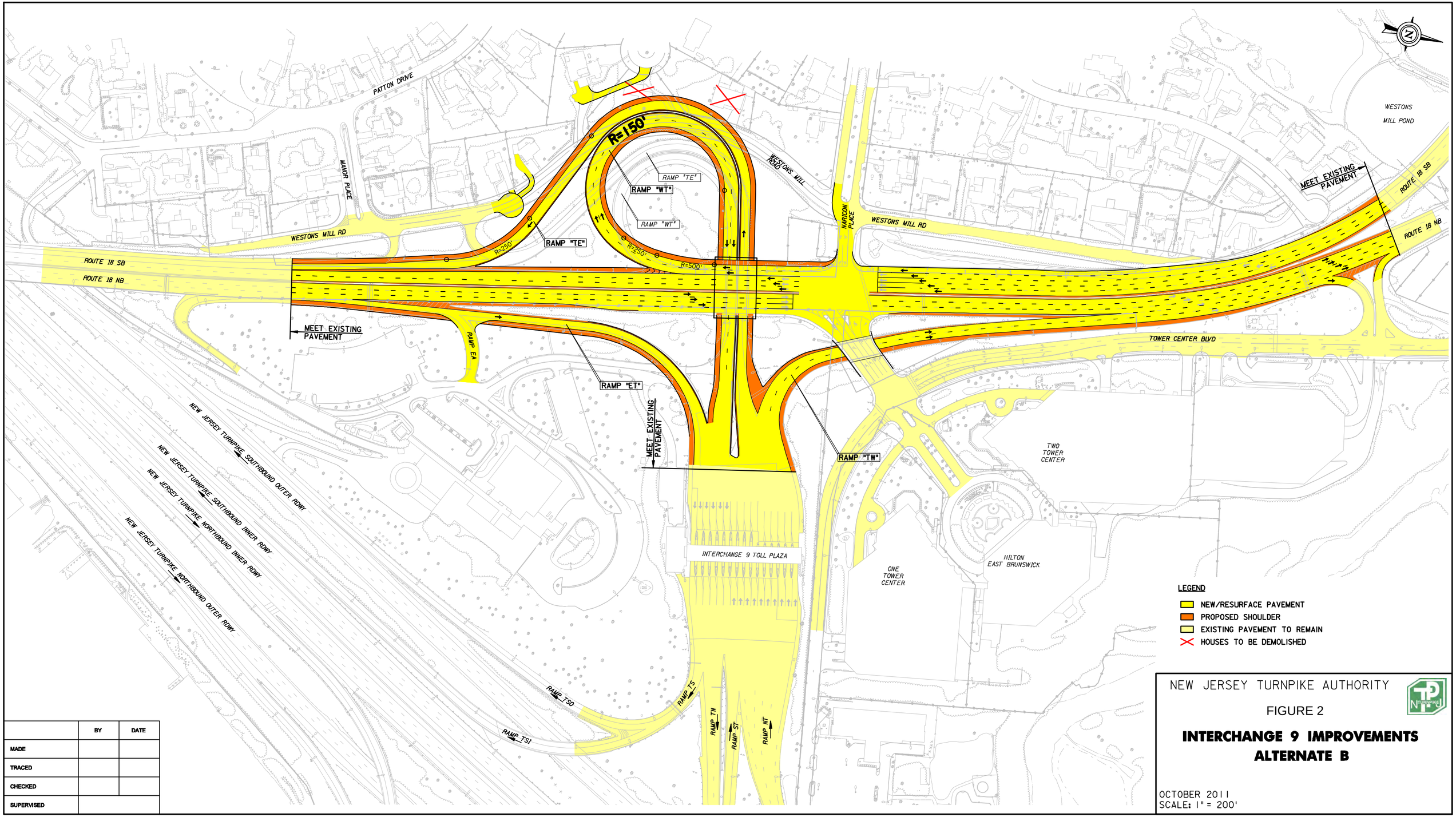
FILE: J:\2009 Projects\EXIT 210\700\dock\701CON\CEPTS\Plans\T300_176_CP_A.dgn
TIME: 25-OCT-2011 13:49

NEW JERSEY TURNPIKE AUTHORITY

FIGURE 1

# INTERCHANGE 9 IMPROVEMENTS ALTERNATE A

OCTOBER 2011
SCALE: 1" = 200'

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| MADE | | |
| TRACED | | |
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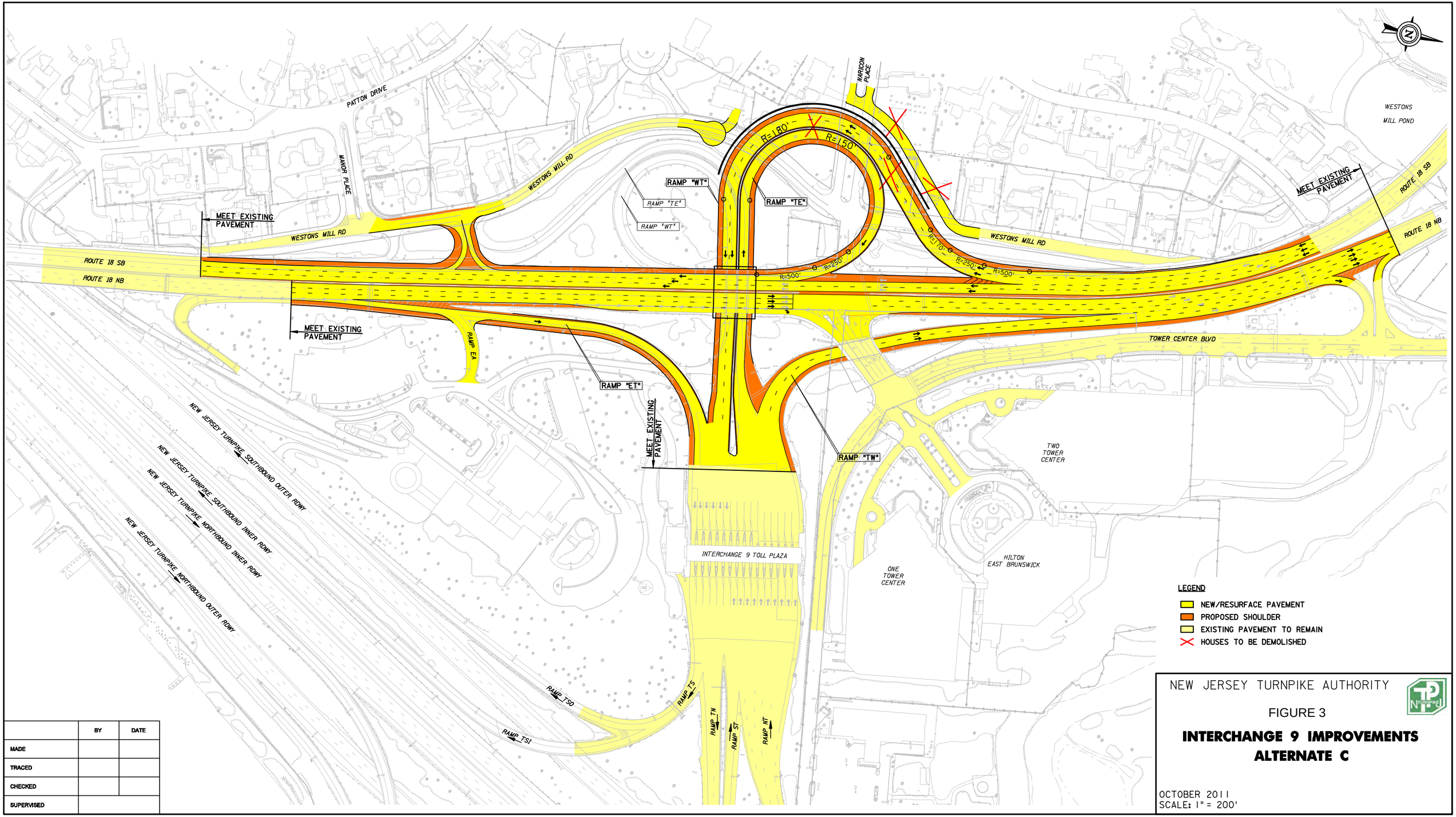
TIME: 26-OCT-2011 13:47

NEW JERSEY TURNPIKE AUTHORITY

FIGURE 2

# INTERCHANGE 9 IMPROVEMENTS ALTERNATE B

OCTOBER 2011
SCALE: 1" = 200'

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|---|---|---|
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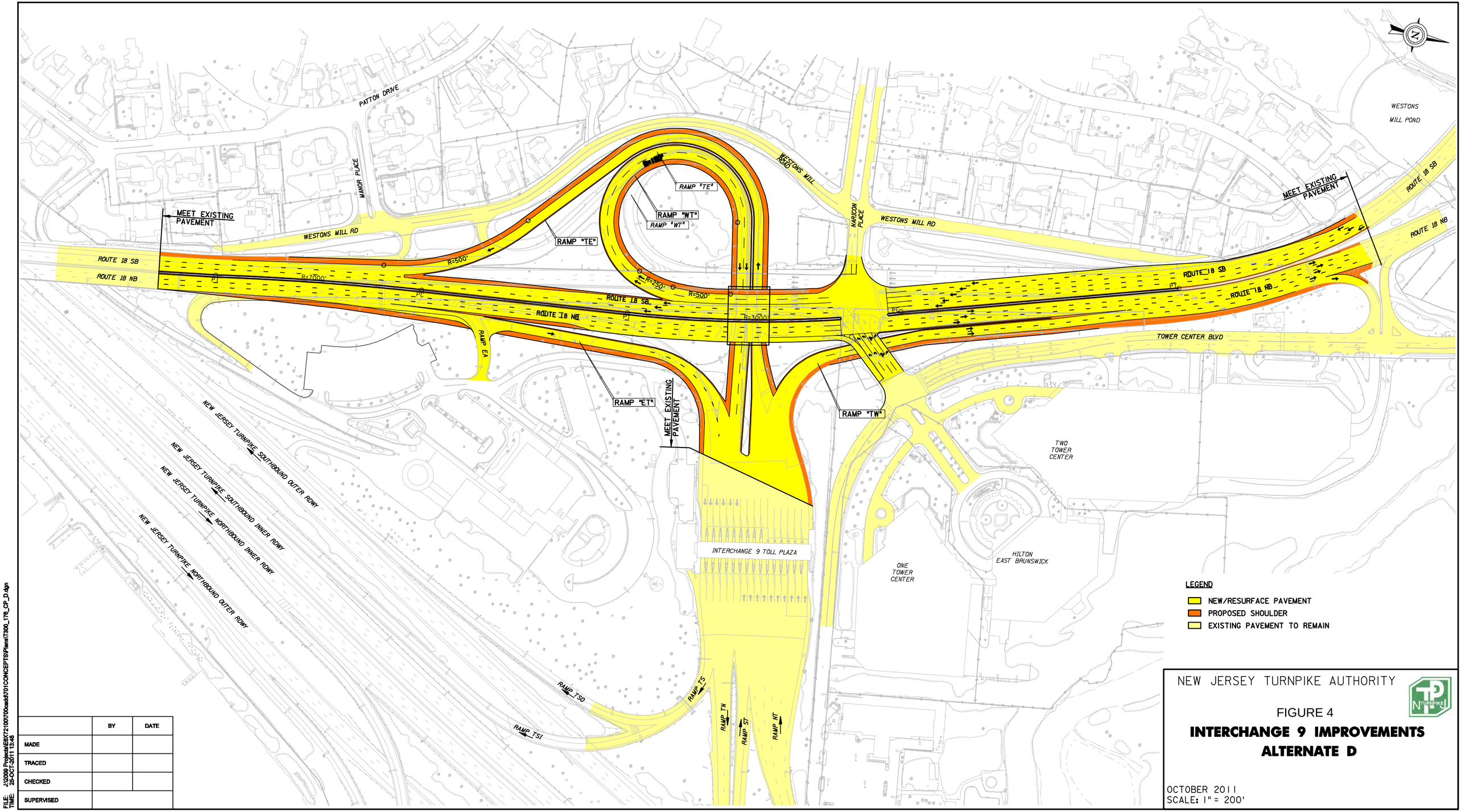
TIME: 26-OCT-2011 13:47

NEW JERSEY TURNPIKE AUTHORITY

FIGURE 3

# INTERCHANGE 9 IMPROVEMENTS ALTERNATE C

OCTOBER 2011
SCALE: 1" = 200'




| | BY | DATE |
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| MADE | | |
| TRACED | | |
| CHECKED | | |
| SUPERVISED | | |

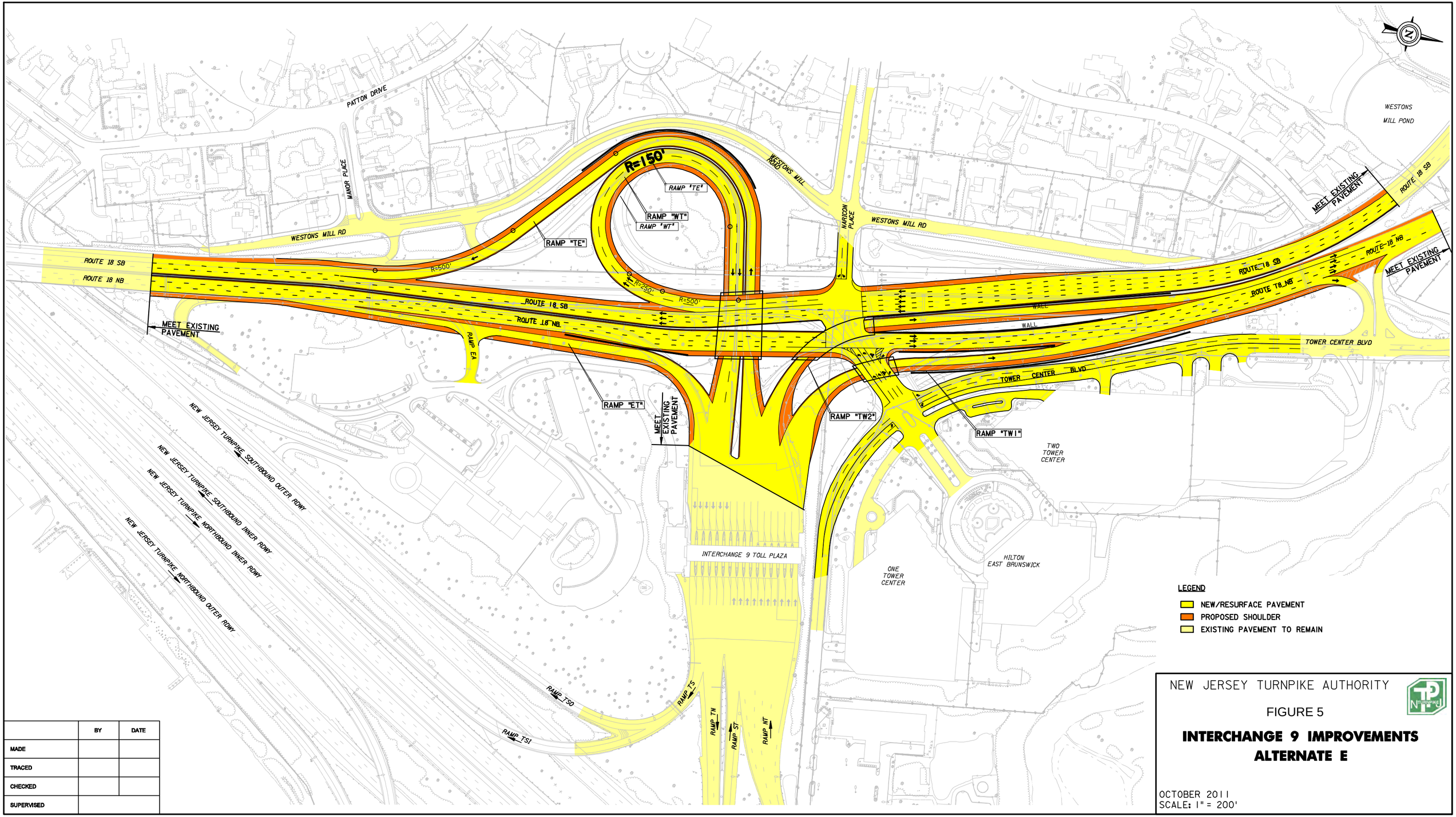
FILE: J:\2000 Projects\EXIT 2100\700ead\d701\CON\CEPTS\Plans\T300_178_CP_D.dgn
TIME: 25-OCT-2011 13:49

NEW JERSEY TURNPIKE AUTHORITY

FIGURE 4

# INTERCHANGE 9 IMPROVEMENTS ALTERNATE D

OCTOBER 2011
SCALE: 1" = 200'




| | BY | DATE |
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| MADE | | |
| TRACED | | |
| CHECKED | | |
| SUPERVISED | | |

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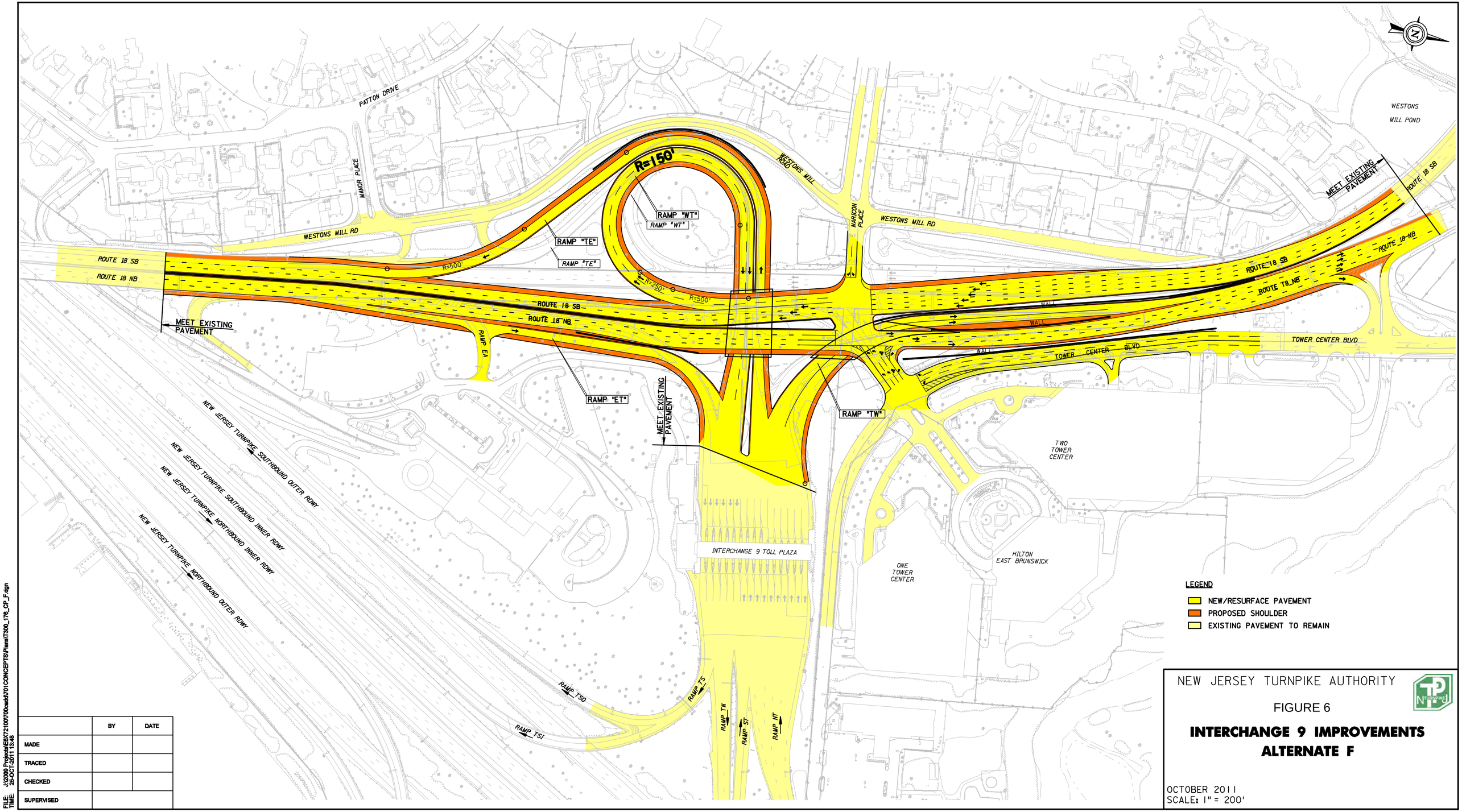
TIME: 26-OCT-2011 13:49

NEW JERSEY TURNPIKE AUTHORITY

FIGURE 5

# INTERCHANGE 9 IMPROVEMENTS ALTERNATE E

OCTOBER 2011
SCALE: 1" = 200'




| | BY | DATE |
|---|---|---|
| MADE | | |
| TRACED | | |
| CHECKED | | |
| SUPERVISED | | |

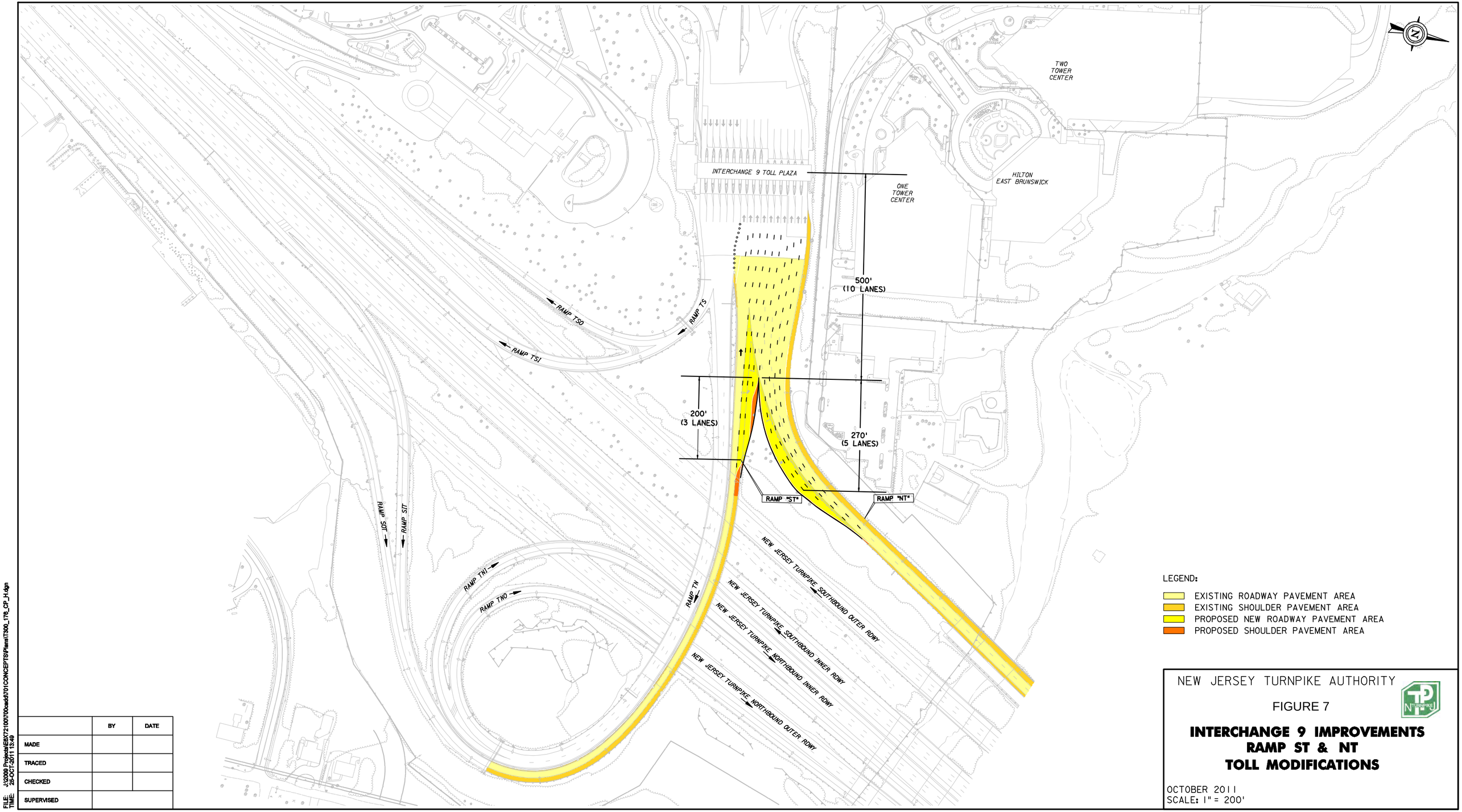
FILE: J:\2000 Projects\EXIT 210\0700sdd\0701CON\CEPTS\Plans\T300_176_CP_F.dgn
TIME: 26-OCT-2011 13:49

NEW JERSEY TURNPIKE AUTHORITY

FIGURE 6

# INTERCHANGE 9 IMPROVEMENTS
# ALTERNATE F

OCTOBER 2011
SCALE: 1" = 200'

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| MADE | | |
| TRACED | | |
| CHECKED | | |
| SUPERVISED | | |

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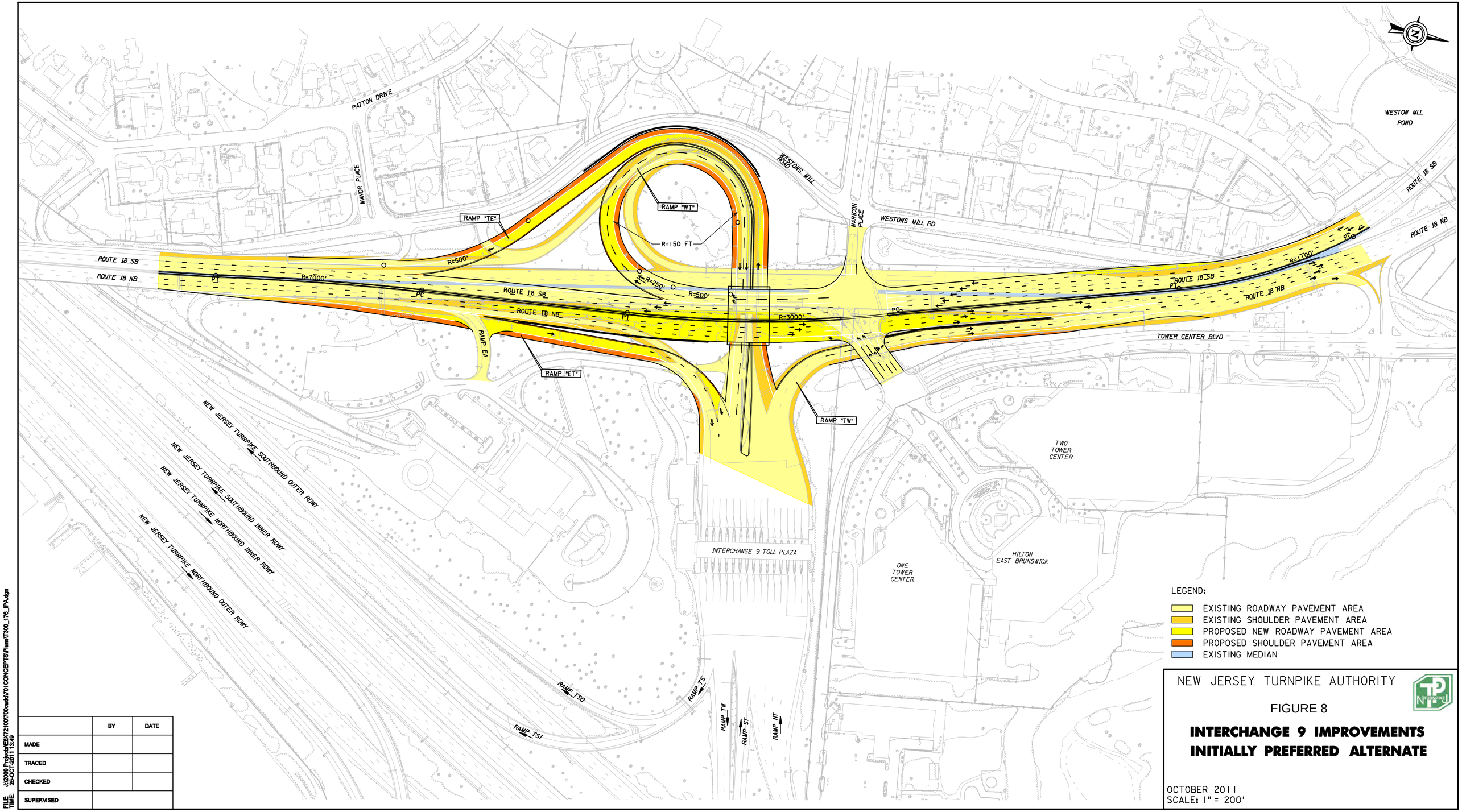
TIME: 25-OCT-2011 13:49

NEW JERSEY TURNPIKE AUTHORITY

FIGURE 7

# INTERCHANGE 9 IMPROVEMENTS
# RAMP ST & NT
# TOLL MODIFICATIONS

OCTOBER 2011
SCALE: 1" = 200'




| | BY | DATE |
|---|---|---|
| MADE | | |
| TRACED | | |
| CHECKED | | |
| SUPERVISED | | |

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TIME: 25-OCT-2011 13:49

NEW JERSEY TURNPIKE AUTHORITY

FIGURE 8

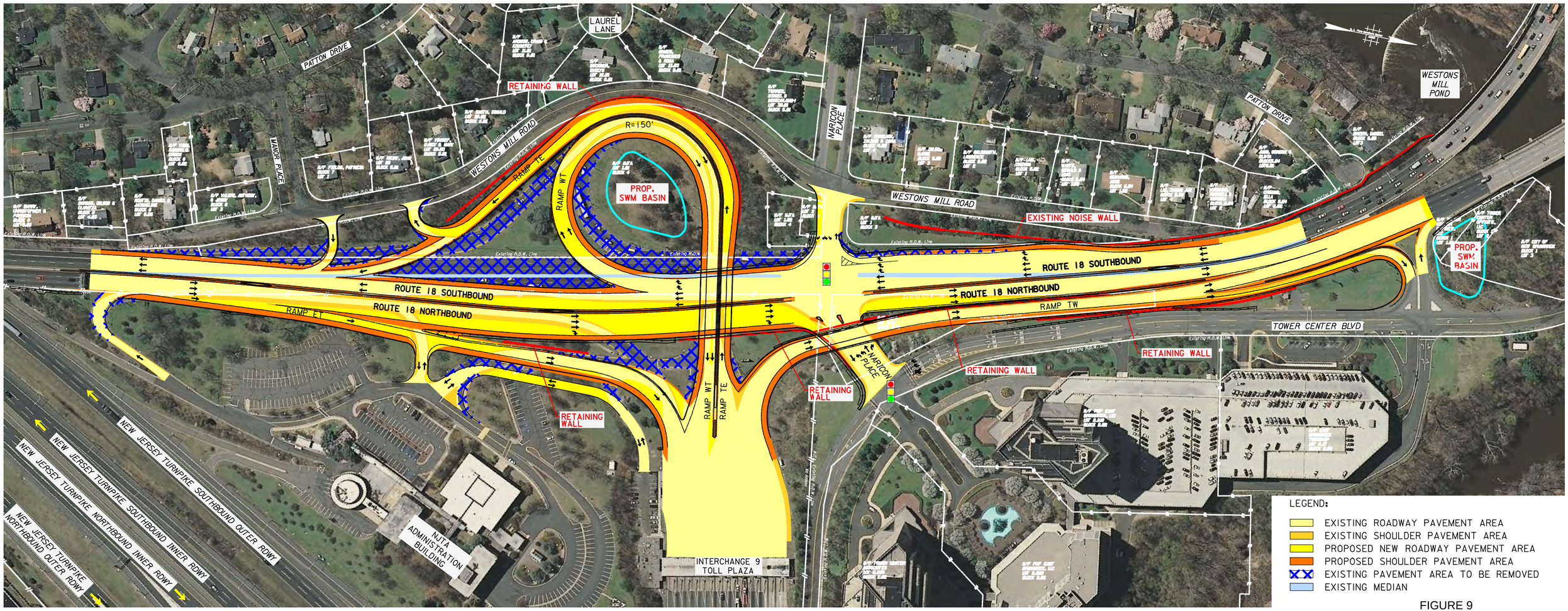
# INTERCHANGE 9 IMPROVEMENTS
# INITIALLY PREFERRED ALTERNATE

OCTOBER 2011
SCALE: 1" = 200'

**TOWNSHIP OF EAST BRUNSWICK**

# NEW JERSEY TURNPIKE
# INTERCHANGE 9 IMPROVEMENTS PROJECT

**MIDDLESEX COUNTY**




INITIALLY PREFERRED ALTERNATIVE

FIGURE 9

PREPARED BY:
JACOBS
SEPT 2011

# Appendix C
# Photograph Log


Study Area

Municipal Boundary

# Photograph Location

**Base Layer:** NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007-2008 High Resoluation Orthophotograph (2008).

600 300 0 600 Feet

New Jersey Turnpike Authority

Photograph Location Map

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS

Photograph 1
View northeast of Rutgers Village Edgebrook housing development.

Photograph 2
View northeast within vicinity of identified NJSM archaeological site.


Photograph 3
View west of Rutgers Village Mini Park and bus stop.

Photograph 4
View northwest of bus stop.

Photograph 5
View south of Westons Mill Dam.

Photograph 6
View west of Westons Mill Dam and lined drainage ditch.

Photograph 7
View north of Westons Mill Dam

Photograph 8
View east of the Edward Kearny House.


Photograph 9
View northwest of street crossing for bus stop at the park and ride facility.


Photograph 10
View south of Tower Center Boulevard

Photograph 11
View west of Route 18.

Photograph 12
View south of noise wall along Westons Mill Road.


Photograph 13
View south of "Welcome to East Brunswick" sign.


Photograph 14
View northwest of the Hilton East Brunswick.

Photograph 15
View west of the Holiday Inn Express.

Photograph 16
View north of the Valley Swim Club basketball courts.

Photograph 17
View northeast of the New Jersey Turnpike NS Interchange 9 exit ramp.

Photograph 18
View southeast of the New Jersey Turnpike NS Interchange 9 exit ramp.

Photograph 19
View northeast of Lawrence Brook and NJ Turnpike bridge.

Photograph 20
View east of Lawrence Brook and NJ Turnpike bridge.

Photograph 21
View south of State open water Area C.

Photograph 22
View north of State open water Area C.


Photograph 23
View northeast of NJ Turnpike SNI.

Photograph 24
View south of State open waters A and Wetland Area B.

Photograph 25
View northeast of the culvert connecting Areas A and C.

Photograph 26
View north of disturbed area within Wetland Area B.

Photograph 27
View south of State open water Area A.

Photograph 28
View south of New Jersey Turnpike northbound.

Photograph 29
View northeast of Westons Mill Pond Road.

Photograph 30
View southeast of Route 18 southbound ramp to the New Jersey Turnpike toll plaza.


Photograph 31
View east of access to the Lawrence Brook Manor housing development.


Photograph 32
View east of access from the Lawrence Brook Manor housing developed to Route 18 southbound.

# Appendix D
# Correspondence

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Parks and Forestry
Office of Natural Lands Management
Natural Heritage Program
P.O. Box 404
Trenton, NJ 08625-0404
Tel. #609-984-1339
Fax. #609-984-1427

CHRIS CHRISTIE
*Governor*

KIM GUADAGNO
*Lt. Governor*

BOB MARTIN
*Acting Commissioner*

February 17, 2010

Rebecca Lyne
Michael Baker Jr., Inc.
300 American Metro Boulevard
Hamilton, NJ 08619

Re: Design & Environmental Permitting for Improvements at Interchange 9

Dear Ms. Lyne:

Thank you for your data request regarding rare species information for the above referenced project site in East Brunswick Township, Middlesex County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3 in the highlands region, Version 2.1 elsewhere) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat on the referenced site. Please see Table 1 for species list and conservation status.

Table 1 (on referenced site).

| Common Name | Scientific Name | Federal Status | State Status | Grank | Srank |
|---|---|---|---|---|---|
| great blue heron | *Ardea herodias* | | SC/S | G5 | S3B,S4N |

We have also checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat within one mile of the referenced site. Please see Table 2 for species list and conservation status. This table excludes any species listed in Table 1.

Table 2 (additional species within one mile of referenced site).

| Common Name | *Scientific Name* | Federal Status | State Status | Grank | Srank |
|---|---|---|---|---|---|
| eastern box turtle | *Terrapene carolina carolina* | | SC | G5T5 | S3 |
| northern harrier | *Circus cyaneus* | | E/U | G5 | S1B,S3N |

We have also checked the Natural Heritage Database for occurrences of rare plant species or ecological communities. The Natural Heritage Database does not have any records for rare plants or ecological communities on the site or for rare plant species covered by the Flood Hazard Area Control Act rule within one mile of the site.

A list of rare plant species and ecological communities that have been documented from Middlesex County can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2008.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive I-Map-NJ website at the following URL, http://www.state.nj.us/dep/gis/depsplash.htm or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292 9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Herbert A. Lord

Herbert A. Lord
Data Request Specialist

cc: Robert J. Cartica
NHP File No. 10-4007444-4336

(by Patricia Sziber)

CITY OF NEW BRUNSWICK

EAST BRUNSWICK TOWNSHIP

MIDDLESEX COUNTY

ONE FEE LICENSE TO N.J. DEPT. OF TRANS., 7/10/90, FEE $1,000.00, FILE-89-0039-T

PORTION OF GRANT AND QUITCLAIM GRANT TO TTEC INC. 9/18/85, LIBER M-6, PG. 125, CONSIDERATION $16,382.45, FILE: 66-48, FOUR TRACTS

PORTION OF GRANT TO THE NEW JERSEY TURNPIKE AUTHORITY, 6/27/55, LIBER M-3, PG.459, CONSIDERATION $91,251.50

EDGEBROOK RD.
UNISON LA.
BURNET ST.
LANSING PL.
PENNINGTON RD.
GOODALE CIRCLE
SO. PENNINGTON RD.
LAWRENCE BROOK
N. J. S. H. ROUTE 18
BURNET ST.
NARICON PL.
NEW JERSEY TURNPIKE
SCHOOL HOUSE AVE.
WESTON LA.
SAWMILL PL.
AINSWORTH AVE.
GATES AVE.
MITCHELL AVE.
ELLISON AVE.
MILTON AVE.
EDGEBORO RD.
RARITAN R

| CONVEYANCE INDEX | |
|---|---|
| 1 | GRANT TO WILLIAM F. AND ANNA K. BECKER, 5/5/50, LIBER I-3, PG. 35, CONSIDERATION $200.00 |
| 2 | PORTION OF LEASE TO WILLIAM F. AND ANNA K. BECKER, 5/5/50, LIBER I-3, PG.60, ANNUAL RENTAL $93.08, CONSIDERATION $1,329.66 |
| 3 | PORTION OF LEASE TO OWEN J. DEVLIN, ET. ALS., 10/17/32, LIBER U-1, PG. 21, ANNUAL RENTAL $86.80, CONSIDERATION $1,240.00, FORECLOSED 10/14/41 |
| 4 | PORTION OF CESSION TO THE UNITED STATES OF AMERICA, 8/3/31, LIBER Y-1, PG. 189, CONSIDERATION $100.00 |
| 5 | File #81-0653. 7 Yr. License to Tower Marine Inc., January 1, 1999, Ann. Fee $1,092.00 |
| 6 | FILE: 02-0346-T, 7YR. LICENSE, 1/14/04, TO ECHG II, L.L.C., FEE $108.00/YR. |

# STATE OF NEW JERSEY
# DEPARTMENT OF ENVIRONMENTAL PROTECTION
# BUREAU OF TIDELANDS MANAGEMENT
# MAP SHOWING CONVEYANCES ON LAWRENCE BROOK - RARITAN RIVER
# EAST BRUNSWICK TOWNSHIP AND CITY OF NEW BRUNSWICK - MIDDLESEX COUNTY

The areas, boundaries and dimensions shown on this plan are derived from record tideland grants, quitclaim deeds, leases, licenses, easements and judgments quieting title. This map should be used for reference purposes only. The individual instrument should be consulted to ascertain

# Appendix E
# Routine Wetland Delineation Forms

DATA FORM
ROUTINE ONSITE DETERMINATION

Baker

| | | | |
|---|---|---|---|
| Field Investigator(s): | R. Lyne, K. Kinsella | Date: | March 31, 2010 |
| Project/Site: | Interchange 9 | County: | Middlesex |
| Applicant/Owner: | NJTA | State: | NJ |

| | | | | |
|---|---|---|---|---|
| Do normal conditions exist on the site? | Yes[ ] | No[ x ] | Community ID: | B |
| Is the site Atypical (significantly disturbed)? | Yes[ x ] | No[ ] | Transect ID: | 1 |
| Is the area a potential Problem Area? | Yes[ ] | No[ x ] | Plot ID: | SP-1 |

**VEGETATION**

| Dominant Plant Species | Stratum | Indicator | Common Plant species | Stratum | Indicator |
|---|---|---|---|---|---|
| 1. *Phragmites australis* | Herb | FACW | 1. | | |
| 2. | | | 2. | | |
| 3. | | | 3. | | |
| 4. | | | 4. | | |
| 5. | | | 5. | | |
| 6. | | | 6. | | |
| Percent dominant OBL, FACW and/or FAC: 100% | | | | | |
| Hydrophytic Vegetation criterion met: Yes[ x ] No[ ] | | | | | |
| Remarks: Meets the requirements for hydrophytic vegetation | | | | | |

**SOILS**

| Series/Phase: Manahawkin muck, frequently flooded | | | | | | |
|---|---|---|---|---|---|---|
| On Hydric Soils list? Yes[ x ] No[ ] | | | Undetermined[ ] | Hydric soil: | Yes[ x ] | No[ ] |
| Depth (inches) | Horizon | Matrix | Redox Features | | Texture | |
| 0-5 | A | 10YR 4/1 | 7.5 YR 4/4, 2% fine | | Clay with Gavel | |
| 5-18+ | A | 10 YR 4/1 | None | | Clay | |
| | | | | | | |
| | | | | | | |
| Rationale: Soil sample meets F6 criteria. | | | Remarks: | | | |

**HYDROLOGY**

| **Field Observations** | **Wetland Hydrology Indicators** |
|---|---|
| Depth of Surface Water: None in | **Primary (1 Required)**<br>[ ] Inundation<br>[ x ] Upper 12 in Saturated<br>[ ] Water Marks<br>[ ] Drift Lines<br>[ ] Sediment Deposition<br>[ x ] Drainage Patterns |
| Depth to Free Water in Pit: 6 in | |
| Depth to Saturated Soil: 6 in | |
| Wetland Hydrology Criterion Met? Yes[ x ] No[ ] | **Secondary (2 or More Required)**<br>[ ] Oxidized Root Channels in Upper 12 in<br>[ x ] Water-stained Leaves<br>[ x ] Local Soil Survey Data<br>[ x ] FAC-Neutral Test<br>[ ] Other (Explain in Remarks) |
| Remarks: Meets wetland hydrology criteria | |

**WETLAND DETERMINATION**

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation? | Yes[ x ] | No[ ] | Is this Community/Sampling Point w/in a Wetland? |
| Hydric Soils? | Yes[ x ] | No[ ] | Yes[ x ] No[ ] |
| Wetland Hydrology? | Yes[ x ] | No[ ] | |

DATA FORM
ROUTINE ONSITE DETERMINATION

Baker

| | | | |
|---|---|---|---|
| Field Investigator(s): | R. Lyne, K. Kinsella | Date: | March 31, 2010 |
| Project/Site: | Interchange 9 | County: | Middlesex |
| Applicant/Owner: | NJTA | State: | NJ |

| | | | | |
|---|---|---|---|---|
| Do normal conditions exist on the site? | Yes[ ] | No[ x ] | Community ID: | B |
| Is the site Atypical (significantly disturbed)? | Yes[ x ] | No[ ] | Transect ID: | 1 |
| Is the area a potential Problem Area? | Yes[ ] | No[ x ] | Plot ID: | SP-2 |

**VEGETATION**

| Dominant Plant Species | Stratum | Indicator | Common Plant species | Stratum | Indicator |
|---|---|---|---|---|---|
| 1. *Acer rubrum* | Tree | FAC | 1. *Quercus palustris* | Tree | FACW |
| 2. *Quercus alba* | Tree | FACU | 2. *Poe* sp. | Herb | NL |
| 3. *Prunus serotina* | Tree | FACU | 3. | | |
| 4. *Lonicera japonica* | Herb | FAC | 4. | | |
| 5. *Toxicodendron radicans* | Herb | FAC- | 5. | | |
| 6. | | | 6. | | |

Percent dominant OBL, FACW and/or FAC: 25%

Hydrophytic Vegetation criterion met: Yes[ ] No[ x ]

Remarks: Does not meet requirements for hydrophytic vegetation

**SOILS**

Series/Phase: Urban land, Dunellen substratum

On Hydric Soils list? Yes[ ] No[ x ] Undetermined[ ] Hydric soil: Yes[ ] No[ x ]

| Depth (inches) | Horizon | Matrix | Redox Features | Texture |
|---|---|---|---|---|
| 0-5 | A | 7.5 YR 3/2 | None | Loamy Clay |
| 5-12 | A | 7.5 YR 4/2 | None | Clay |
| 12-18+ | B | 7.5 YR 4/1 | None | Clay with Gravel |
| | | | | |

Rationale: Soil sample does not meet criteria

Remarks:

**HYDROLOGY**

| **Field Observations** | **Wetland Hydrology Indicators** |
|---|---|
| Depth of Surface Water: None in | **Primary (1 Required)**<br>[ ] Inundation<br>[ ] Upper 12 in Saturated<br>[ ] Water Marks<br>[ ] Drift Lines<br>[ ] Sediment Deposition<br>[ ] Drainage Patterns |
| Depth to Free Water in Pit: None in | |
| Depth to Saturated Soil: None in | |
| Wetland Hydrology Criterion Met? Yes[ ] No[ x ] | **Secondary (2 or More Required)**<br>[ ] Oxidized Root Channels in Upper 12 in<br>[ ] Water-stained Leaves<br>[ ] Local Soil Survey Data<br>[ ] FAC-Neutral Test<br>[ ] Other (Explain in Remarks) |

Remarks: Does not meet wetland hydrology criteria

**WETLAND DETERMINATION**

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation? | Yes[ ] | No[ x ] | Is this Community/Sampling Point w/in a Wetland? Yes[ ] No[ x ] |
| Hydric Soils? | Yes[ ] | No[ x ] | |
| Wetland Hydrology? | Yes[ ] | No[ x ] | |

DATA FORM
ROUTINE ONSITE DETERMINATION

Baker

| | | | |
|---|---|---|---|
| Field Investigator(s): | R. Lyne, K. Kinsella | Date: | March 31, 2010 |
| Project/Site: | Interchange 9 | County: | Middlesex |
| Applicant/Owner: | NJTA | State: | NJ |

| | | | | |
|---|---|---|---|---|
| Do normal conditions exist on the site? | Yes[ ] | No[ x ] | Community ID: | B |
| Is the site Atypical (significantly disturbed)? | Yes[ x ] | No[ ] | Transect ID: | 2 |
| Is the area a potential Problem Area? | Yes[ ] | No[ x ] | Plot ID: | SP-3 |

**VEGETATION**

| Dominant Plant Species | Stratum | Indicator | Common Plant species | Stratum | Indicator |
|---|---|---|---|---|---|
| 1. *Acer rubrum* | Tree | FAC | 1. | | |
| 2. *Liquidambar styraciflua* | Tree | FAC | 2. | | |
| 3. *Hamamelis virginiana* | Shrub | FAC- | 3. | | |
| 4. | | | 4. | | |
| 5. | | | 5. | | |
| 6. | | | 6. | | |
| Percent dominant OBL, FACW and/or FAC: 100% | | | | | |
| Hydrophytic Vegetation criterion met: Yes[ x ] No[ ] | | | | | |
| Remarks: Meets requirements for hydrophytic vegetation | | | | | |

**SOILS**

| Series/Phase: Manahawkin muck, frequently flooded | | | | | |
|---|---|---|---|---|---|
| On Hydric Soils list? Yes[ x ] No[ ] | | | Undetermined[ ] | Hydric soil: Yes[ x ] | No[ ] |
| Depth (inches) | Horizon | Matrix | Redox Features | Texture | |
| 0-2 | A | 10YR 2/1 | None | Organic | |
| 2-3 | B | 10 YR 5/6 | None | Sand | |
| 3-5 | B | 10 YR 6/6 | None | Sand | |
| 5-18+ | B | 10 YR 3/1 | 7.5 YR 4/4, 1% fine | Clay | |
| Rationale: Soil sample meets F6 criteria | | | Remarks: | | |

**HYDROLOGY**

| **Field Observations** | **Wetland Hydrology Indicators** |
|---|---|
| Depth of Surface Water: None in | **Primary (1 Required)**<br>[ ] Inundation<br>[ x ] Upper 12 in Saturated<br>[ ] Water Marks<br>[ ] Drift Lines<br>[ ] Sediment Deposition<br>[ ] Drainage Patterns |
| Depth to Free Water in Pit: 2 in | |
| Depth to Saturated Soil: 3 in | |
| Wetland Hydrology Criterion Met? Yes[ x ] No[ ] | **Secondary (2 or More Required)**<br>[ x ] Oxidized Root Channels in Upper 12 in<br>[ x ] Water-stained Leaves<br>[ x ] Local Soil Survey Data<br>[ ] FAC-Neutral Test<br>[ ] Other (Explain in Remarks) |
| Remarks: Fringe wetland of drainage feature; channelized drainage ditch through center of wetland | |

**WETLAND DETERMINATION**

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation? | Yes[ x ] | No[ ] | Is this Community/Sampling Point w/in a Wetland? |
| Hydric Soils? | Yes[ x ] | No[ ] | Yes[ x ] No[ ] |
| Wetland Hydrology? | Yes[ x ] | No[ ] | |

# Appendix F
# Contaminated Materials Screening Report

# Contaminated Materials Screening Report

for

# NJTA Interchange 9 Improvements

OPS No. T3254

July 19, 2011


Prepared for:
New Jersey Turnpike Authority
PO Box 5042
Woodbridge, NJ 07095

In Cooperation with:
Jacobs Engineering Group, Inc.
299 Madison Avenue
Morristown, NJ 07960

Prepared by:
Rowbear Consulting, P.C.
957 Route 33, PMB 341
Trenton, NJ 08690

ROWBEAR CONSULTING, P.C.
PERSUASIVE SOLUTIONS

# TABLE OF CONTENTS



# APPENDICIES

# 1. Introduction

The purpose of this Contaminated Materials Screening Study is to review the available contaminated materials database information and perform a pedestrian reconnaissance to determine if there is a reasonable concern of finding contaminated materials in the Project Area and to determine the potential likely need for future study.

The General Study Limits were provided by Jacobs Engineering Group, Inc. (Jacobs) and are described as the area in the vicinity of New Jersey Turnpike Interchange 9 in East Brunswick and New Brunswick, New Jersey. The study limits are generally bounded on the southeast by Kennedy Boulevard and Gates Avenue; along the northeast by Tower Center Boulevard and Lawrence Brook; and along the west by Patton Drive. The Project Area is found within the General Study Limits and is consists of the footprint of a range of alternatives studied by Jacobs. The Project Area includes Alternatives A, B, C, D, E, F, F-1 and F-2. Areas of Concern were identified within the Project Area. See Project Area map in Appendix A. Please not that the Project Area that is within the Mapped Historic Fill areas is also considered an Area of Concern but is not shaded on the Project Area map for clarity.

This Screening Study is based on information made available to Rowbear Consulting, P.C. through a database search performed by Environmental Data Resources, Inc. (EDR) historic mapping from NJDEP, a file review of existing remedial actions at the Turnpike Administration Building and the pedestrian reconnaissance. Such a review cannot be expected to reveal all hazardous materials or conditions that might be present within the Project Area; the possibility exists that some hazardous materials or conditions might exist and not be detected because they are beyond the scope of this study. The Photo Location Plan and photographs from the pedestrian reconnaissance are attached in Appendix B.

# 2. Methodology

Rowbear reviewed historical mapping, historical aerial photographs, and regulatory agency databases in the General Study Limits. The reconnaissance was performed from outdoor areas readily available to the public and focused primarily on inventorying current land use. No historical fire insurance maps (a.k.a. Sanborn Maps) were available for the General Study Limits. Properties of interest have been shown on the Environmental Screening Report Maps based upon this review.

## *2.1. Historical Topographic Maps*

Historical Topographic maps from 1902, 1954, 1970, 1981, and 1995 were reviewed. The maps are in Appendix C.

## *2.2. Historic Aerial Photographs*

Rowbear reviewed Historical Aerial Photographs provided by EDR dated 1954, 1963, 1972, 1978, 1995 and 2006. We also reviewed the 1930 aerial map available on the NJDEP –iMap database. The photographs are in Appendix D.

## *2.3. New Jersey Geological Survey Mapped Historic Fill*

Rowbear reviewed the Historic Fill maps prepared by the Geological Survey to identify locations where fill has been placed in the past. According to *Technical Requirements For Site Remediation*, NJAC 7:26E- 1.8 "Historic fill material" means non-indigenous material, deposited to raise the topographic elevation of the site, which was contaminated prior to emplacement, and is in no way connected with the operations at the location of emplacement and which includes, without limitation, construction debris, dredge spoils, incinerator residue, demolition debris, fly ash, or nonhazardous solid waste. Historic fill material does not include any material which is substantially chromate chemical production waste or any other chemical production waste or waste from processing of metal or mineral ores, residues, slag or tailings. In addition, historic fill material does not include a municipal solid waste landfill site. The Mapped Historic Fill, Soils Map and Geology Map are in Appendix E.

## *2.4. Contaminated Materials Database*

Rowbear contracted with Environmental Data Resources, Inc. to perform a radius search of available state and federal records. A CD with the complete search is attached in Appendix G. The databases searched include:

- **Federal NPL site list**
  - NPL National Priority List
  - Proposed NPL Proposed National Priority List Sites
  - NPL LIENS Federal Superfund Liens
- **Federal Delisted NPL site list**
- **Federal CERCLIS list**
  - CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System
  - FEDERAL FACILITY Federal Facility Site Information listing
- **Federal CERCLIS NFRAP site List**
  - CERC-NFRAP CERCLIS No Further Remedial Action Planned
- **Federal RCRA CORRACTS facilities list**
  - CORRACTS Corrective Action Report
- **Federal RCRA non-CORRACTS TSD facilities list**
  - RCRA-TSDF RCRA - Treatment, Storage and Disposal
- **Federal RCRA generators list**
  - RCRA-LQG RCRA - Large Quantity Generators
  - RCRA-CESQG RCRA - Conditionally Exempt Small Quantity Generator
- **Federal institutional controls / engineering controls registries**
  - US ENG CONTROLS Engineering Controls Sites List

- US INST CONTROL Sites with Institutional Controls

- **Federal ERNS list**
  - ERNS Emergency Response Notification System
- **State- and tribal - equivalent CERCLIS**
  - HWS RE-EVAL Site Re-Evaluation Report
  - HIST HWS Known Contaminated Sites Listing
- **State and tribal landfill and/or solid waste disposal site lists**
  - SWF/LF Solid Waste Facility Directory
- **State and tribal leaking storage tank lists**
  - LUST UST Active Remediation Sites Listing
  - INDIAN LUST Leaking Underground Storage Tanks on Indian Land
- **State and tribal registered storage tank lists**
  - MAJOR FACILITIES List of Major Facilities
  - INDIAN UST Underground Storage Tanks on Indian Land
  - FEMA UST Underground Storage Tank Listing
- **State and tribal institutional control / engineering control registries**
  - ENG CONTROLS Declaration Environmental Restriction/Deed Notice Sites
- **State and tribal voluntary cleanup sites**
  - NJ PF Publicly Funded Cleanups Site Status Report
  - INDIAN VCP Voluntary Cleanup Priority Listing

**ADDITIONAL ENVIRONMENTAL RECORDS**

- **Local Brownfield lists**
  - US BROWNFIELDS A Listing of Brownfield Sites
- **Local Lists of Landfill / Solid Waste Disposal Sites**
  - ODI Open Dump Inventory
  - DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
  - SWRCY Approved Class B Recycling Facilities
  - HIST LF Solid Waste Facility Directory
  - INDIAN ODI Report on the Status of Open Dumps on Indian Lands
- **Local Lists of Hazardous waste / Contaminated Sites**
  - US CDL Clandestine Drug Labs
  - US HIST CDL National Clandestine Laboratory Register
- **Local Land Records**
  - LIENS 2 CERCLA Lien Information
  - LUCIS Land Use Control Information System
  - LIENS Environmental LIENS

**Records of Emergency Release Reports**

- HMIRS Hazardous Materials Information Reporting System

**File Review of NJTA Administration Building remedial action.**

Rowbear performed a file review for the Former New Jersey Turnpike Administration Building, NJDEP Case # 80-10-07-0600, PI # 013168. OPRA request 98605 on December 8, 2010. The file includes information of an ongoing cleanup of a discharge from a leaking underground storage tank located along the east side of the building. No other actions on the property were found.

### *2.5. Visual Inspection/Windshield Survey*

Rowbear conducted a windshield survey of the General Study Limits during the week of April 4 to 11, 2010 to validate database and historical mapping related to land use patterns.

# 3. Findings

### *3.1. Historical Topographic Maps*

Historical Topographic maps from 1902, 1954, 1970, 1981, and 1995 were reviewed. The maps label the general area to be near Weston's Mill.

- 1902 map – This map shows little development in the General Study Limits with an existing road crossing Lawrence Brook in the footprint of the existing Tower Road. This road connected New Brunswick with South River.
- 1954 map – This map shows the New Jersey Turnpike and Interchange were built and the residential subdivisions built in the area west and south of the interchange had been constructed. The official NJTA website notes that construction of the original Turnpike occurred between 1950 and 1952.
- 1970 map -The light industrial /warehouse buildings along Kennedy Boulevard and Tower Center area were developed.
- 1981 map – This map shows Turnpike was widened to include car and truck lanes and the interchange was expanded. The residential and warehousing areas had expanded. The NJTPA website indicates that the Turnpike was widened and Interchange 9 expanded around 1973.
- 1995 map - The Tower center had been expanded.

### *3.2. Historic Aerial Photographs*

Rowbear reviewed Historical Aerial Photographs provided by EDR dated 1954, 1963, 1972, 1978, 1995 and 2006. We also reviewed the 1930 aerial map available on the NJDEP –iMap database. Overall the development patterns observable from the historic Topographic Maps is consistent with the development patterns observable from aerial photographs.

- 1930 photo - The Project Area was mostly farmland except forested areas along the steep banks of Lawrence Brook. No orchards are visible. US Route 1 had been constructed and Route 18 bridge over Lawrence Brook was under construction.
- 1954 photo - The original NJTA Administration Building and Interchange 9 are visible. The Tower Center area is just being cleared. The residential areas to the

west of Route 18 are primarily constructed and the residential areas to the east of the interchange are beginning to be developed.

- 1963 photo - Low-level office buildings with surface parking lots are visible on the Tower Center lots. The residential area to the east continues to develop.
- 1972 photo- A park and ride lot was built north of the Tower Center office buildings and the warehouse area to the east of the interchange were under construction. A swim club was constructed to the north of the Tower Center area. The residential area to the east is heavily developed.
- 1978 photo – The Turnpike has been widened and Interchange 9 has been expanded.
- 1995 photo - The current Tower Center was expanded and it incorporated the Park and Ride into the parking decks for the tower center.
- 2006 photo - The observable 2006 developments patterns were consistent with the 1995 photo.

The original land uses in the project area included farming activities and there may be residual pesticides, lead and arsenic contamination. Long-term use of lead arsenate was particularly common in orchards. Fruit trees can persist for many years leading to repeated use of pesticides close to the trees. There are no apparent significant orchards shown on any of the photos within the General Study Limits. No significant industrial activity in the project area is discernable from any of the photos.

## *3.3. Mapped Historic Fill*

Historic fill Maps demonstrate that large areas have been filled over time in the Project Area. Since the source of the fill is not always known, there is a potential that the fill was contaminated before it was placed. Due to this uncertainty, testing of the fill is needed prior to construction in accordance with N.J.A.C. 7:26E Technical Requirements For Site Remediation. NJAC 7:26E-3.12 (b) requires:

> If historic fill material may be present at the site, the person responsible for conducting the remediation shall conduct a site investigation as follows:
> 1. Confirm whether historic fill material is present;
> 2. If historic fill material is confirmed, either:
>
> i. Assume that the fill material is contaminated above the residential soil remediation standards and conduct a remedial investigation of historic fill material pursuant to N.J.A.C. 7:26E-4.6(b); or

ii. Demonstrate that the historic fill material is not contaminated above the residential soil remediation standards by sampling pursuant to N.J.A.C. 7:26E-3.4, 3.6 and 3.9, as applicable; Enhanced testing and delineation of the historic fill is required prior to excavation, reuse or disposal of fill in the areas delineated as historic fill.

Interchange 9 is located south of Lawrence Brook a tributary of the Raritan River. According to the, *Historic Fill of the New Brunswick Quadrangle*, NJ Geological Survey historic fill has been placed in the Project Area especially in the northern limit of the interchange and on approaches to Turnpike bridges crossing Lawrence Brook. The historic aerial photo for 1954 discussed above demonstrates a portion of the historic fill was placed prior to 1954 for building the original Turnpike. The historic aerial photo dated 1978 demonstrates additional fill was placed prior to 1978 to construct the car and truck lane configuration.

## *3.4. Regulatory Agency Database Review*

There were no sites in the Project Area on the EPA Superfund Sites, landfills or locations of historic fill (with known contamination) were noted in the Project Area. The following sites were listed in database the general project limits.

The following sites are found on the State Superfund Site list (SHWS)

| Site Name | Street Number | EDR Site ID | Comment |
|---|---|---|---|
| BRISTOL MEYER SQUIB | 25 KENNEDY BLVD | B4 | CLOSED |
| | 37 WESTONS MILL RD | 14 | CLOSED |
| | 19 AINSWORTH AVENUE | D19 | CLOSED |
| | 38 PATTON DRIVE | 20 | CLOSED |
| | 21 PATTON DRIVE | E22 | CLOSED |
| | 28 PATTON DRIVE | E23 | CLOSED |
| MIDDLESEX GYMNASTICS ACADEMY | 33 MCGUIRE ST | F26 | CLOSED |
| | 51 PENNINGTON ROAD | 32 | CLOSED |

The following sites were noted to have leaking underground storage tanks

| Site Name | Street Number | EDR Site ID | Comment |
|---|---|---|---|
| BRISTOL MEYER SQUIB | 25 KENNEDY BLVD | B4 | NFA Issued, |
| ADM BLDG; NJ TPK AUTH (NJTA) EXIT 9 0 | MILE POST 83.4 | C8 | NFA Issued for prior discharge, Ongoing remediation activities observed. |
| DOERING EQUIPMENT INC | 17 KENNEDY BLVD | B12 | NFA Issued |
| MIDDLESEX GYMNASTICS ACADEMY | 33 MCGUIRE ST | F26 | NFA Issued |

The following is a list of sites with registered Underground Storage Tanks

| Site Name | Street Number | EDR Site ID | Comment |
|---|---|---|---|
| EXXON R/S 3-1996 | 34 HWY 1 | G29 | UST |
| BRISTOL MEYER SQUIB | 25 KENNEDY BLVD | B4 | UST |
| ADM BLDG; NJ TPK AUTH (NJTA) EXIT 9 0 | MILE POST 83.4 | C8 | UST |
| DOERING EQUIPMENT INC | 17 KENNEDY BLVD | B12 | UST |
| MIDDLESEX GYMNASTICS ACADEMY | 33 MCGUIRE ST | F26 | UST |

The following property is on the engineering/ institutional control registry

| Site Name | Street Number | EDR Site ID |
|---|---|---|
| BRISTOL MEYER SQUIB | 25 KENNEDY BLVD | 48 |

The following is a list of properties listed as having voluntary clean-ups

| Site Name | Street Number | EDR Site ID | Comment |
|---|---|---|---|
| | 19 AINSWORTH AVENUE | D19 | CLOSED |
| | 21 PATTON DRIVE | E22 | CLOSED |
| | 28 PATTON DRIVE | E23 | CLOSED |

The following is a list of RCRA–Non-Generator sites.

| Site Name | Street Number | EDR Site ID |
|---|---|---|
| BRISTOL MEYER SQUIB | 25 KENNEDY BLVD | B6 |
| AMERICAN BAKERIES | 28 KENNEDY BLVD | B7 |
| DOERING EQUIPMENT INC | 17 KENNEDY BLVD | B12 |
| AT&T COMMUNICATIONS INC | 100 NARICON PL | 13 |
| FINE LINE AUTO BODY | 20 GATES AVE | 15 |
| TOWER CENTER II | 2 TOWER CENTER BLVD | 16 |
| WINTHROP PRODUCTS | 33 MCGUIRE ST | F25 |
| NEWMEYER JAMES | 30 N WOODLAND AVE | 28 |

Printouts from the database for the above listed properties are attached in Appendix F.

There was a leaking underground storage tank in the warehouse area at 25 and 19 Kennedy Boulevard, 33 McGuire St. The tanks have been removed and Letters of No Further Action Issued. These sites are down gradient from the Project Area.

The Former Administration Building is located upgradient of the Project Area. A file review was performed on this site. The most recent report in the file was the *Remedial Action Progress Report*, (RAPR) prepared in early 2010 by Hatch Mott McDonald. According to the file, several fuel tanks and one waste oil tank were installed at the Administration Building. One or more of these tanks leaked and contaminated the groundwater with the plume migrating toward the mainline of the Turnpike and away from

the Toll Plaza Area. All the underground tanks were removed in the late 1980's. An active remediation was performed to remove free product. The pump and treat remediation ended in 1996. In 1998, the NJDEP approved an on-going natural attenuation remediation and monitoring program. Since the natural attenuation was approved, annual monitoring reports show a trend that contamination plume is getting smaller. The most recent RAPR demonstrated that benzene contamination exceeds cleanup standards in a small area adjacent to the shoulder of the southbound roadway and a larger area having VO+10 above cleanup standards extending across the northbound outer roadway. The report indicates another monitoring will be performed in 2011. See Project Area Map in Appendix A.

## *3.5. Visual Inspection/Windshield Survey*

A visual windshield inspection was performed during the week of April 4 to 11, 2010. The land use in the General Study Limits area can be broken down in to five basic consistent land-use patterns: 1) the interchange area including Route 18 and the Turnpike, 2) a light industrial/warehousing area to the east of the interchange along Kennedy Boulevard, 3) a residential area north of the warehousing area, 4) a residential area to the west of Route 18, and 5) the office towers to the northeast of the interchange.

The Turnpike interchange consists of highways, bridges, a toll plaza and the vacated Administration Building. There are existing above ground tanks at the administration building. A sign has been placed that there is currently an on-going site remediation in progress. No excavations or wells were noted.

There is a communication tower and other buildings that have external diesel fueled generators that are related to telecommunications and/ or former remediation activities. However, some of the parking lots have been fenced off and distressed vegetation was noted near the administration building on the inside edge of the ramp leading from the toll plaza to the southbound truck lanes. The administration building is up gradient of the interchange. Oil staining is noted in the pavement approaching the toll plaza. It is possible that there have been accidents in the toll plaza area causing spills of oils, fuels and cooling fluids. Lead and asbestos may be contained in the soils adjacent to the roadway especially in the vicinity of the toll plaza where braking and traffic queuing is common. Lead was once included as a gasoline additive and asbestos was used in brake pads.

The warehousing area structures are used for light industry or warehousing. Most of these buildings include loading areas. Almost all are occupied to some extent. Several of the buildings have outdoor storage of flammable compressed gas cylinders. The building at 26 Kennedy Boulevard had poor housekeeping of the grounds. There were numerous abandoned trucks, steel drums, storage tanks and dirt piles located in the rear of the building. The Home New Tribune publishers of a newspaper occupy 25 Kennedy

Boulevard. Two possible observation wells were located in the northwest quadrant of the intersection of McGuire Street and Kennedy Boulevard. A petroleum products transmission line runs parallel to the east side of the Turnpike along the rear of the warehousing buildings on the west side of Kennedy Boulevard. These buildings are down gradient of the Project Area.

The residential subdivision to the north of the warehousing area appears to have building of various ages and conditions. Some of the buildings had fuel oil tank filler spouts visible from the street indicating historic use of oil for heating in the homes. There is a the potential of any of these residences having above ground storage tanks in the basement or underground fuel storage tanks adjacent to the homes. The database search indicated there was at least one clean up of a residential leaking underground fuel storage tank on Ainsworth Ave. Furthermore, there is a potential that some of the buildings will have asbestos siding and lead based paint. There were no obvious signs of distressed vegetation. This area is down gradient and hydraulically separated from the Project Area by a tributary to Lawrence Brook. This stream is carried under the Turnpike through a culvert constructed in a portion of the mapped historic fill.

The residential subdivision to the south of Route 18 appears to be constructed in the 1940's or 1950's. The buildings are typically brick construction. There is a potential that some of the buildings will have asbestos siding and lead based paint. There are fuel oil filler spouts visible from the street in some of the residences in this neighborhood. The data base search indicated that there had been voluntary cleanups of two leaking residential fuel storage tanks on Patton Drive. These two cleanups are in the General Study Limits but outside of the Project Area.

The office area includes two modern multi-story towers with multi-story parking garage on the lower levels. The area also is a bus park and ride facility. There were no visible outdoor fuel storage facilities. There were loading and dumpster area is the rear of the buildings. To the east of the towers is a modern motel and further north is a swim club constructed in the 1950's. It is expected that pool chemicals are stored on that site.

To the north of the towers is a small out building owned by AT&T enclosed by a fence that is listed as a RCRA handler of small quantities of hazardous materials. The NJDOT owns a small outbuilding along Route 18 across from the towers that has an outdoor diesel generator. Most of this area is down gradient from the interchange except for small areas along Tower Boulevard adjacent to the toll plaza. Further to the north, there is the former Weston's Mill Dam. There are two large water treatment buildings located on the north shore of Lawrence Brook. These sites likely contain diesel-fueled generators and water treatment chemicals. This area is hydraulically isolated from the interchange by Lawrence Brook.

# 4. Areas of Potential Concern

Most of the Project Area is contained within the existing rights of way for the Turnpike except for ramp connections to Route 18. Three Areas of Concern were identified: 1) Residential Area west of Route 18, 2) Turnpike Administration Building Remediation Area, 3) Mapped Historic Fill Areas.

Residential Area West of Route 18 There are no known discharges in the Project Area. However, the aerial photographs indicate that most of the structures were constructed prior to 1978 at a time that lead-based paints and asbestos was allowed in residential structures. The pedestrian reconnaissance demonstrates evidence that some of these properties were served with heating oil and there may be unregulated fuel oil storage tanks and some of the fuel oil tanks in the neighborhood have leaked.

Turnpike Administration Building Remediation Area. The existing remedial action stems from a leaking underground storage tank. This action is located outside the project area. The next scheduled reporting is for first quarter 2011.

Historic Fill Areas. Historic Fill for regulatory purposes is fill that was contaminated elsewhere then brought to the site. The portion of the Project Area located in Mapped Historic Fill is an Area of Concern since there is the potential that some of this fill was contaminated prior to being placed. However, simply because there is Mapped Historic Fill does not mean there is contamination.

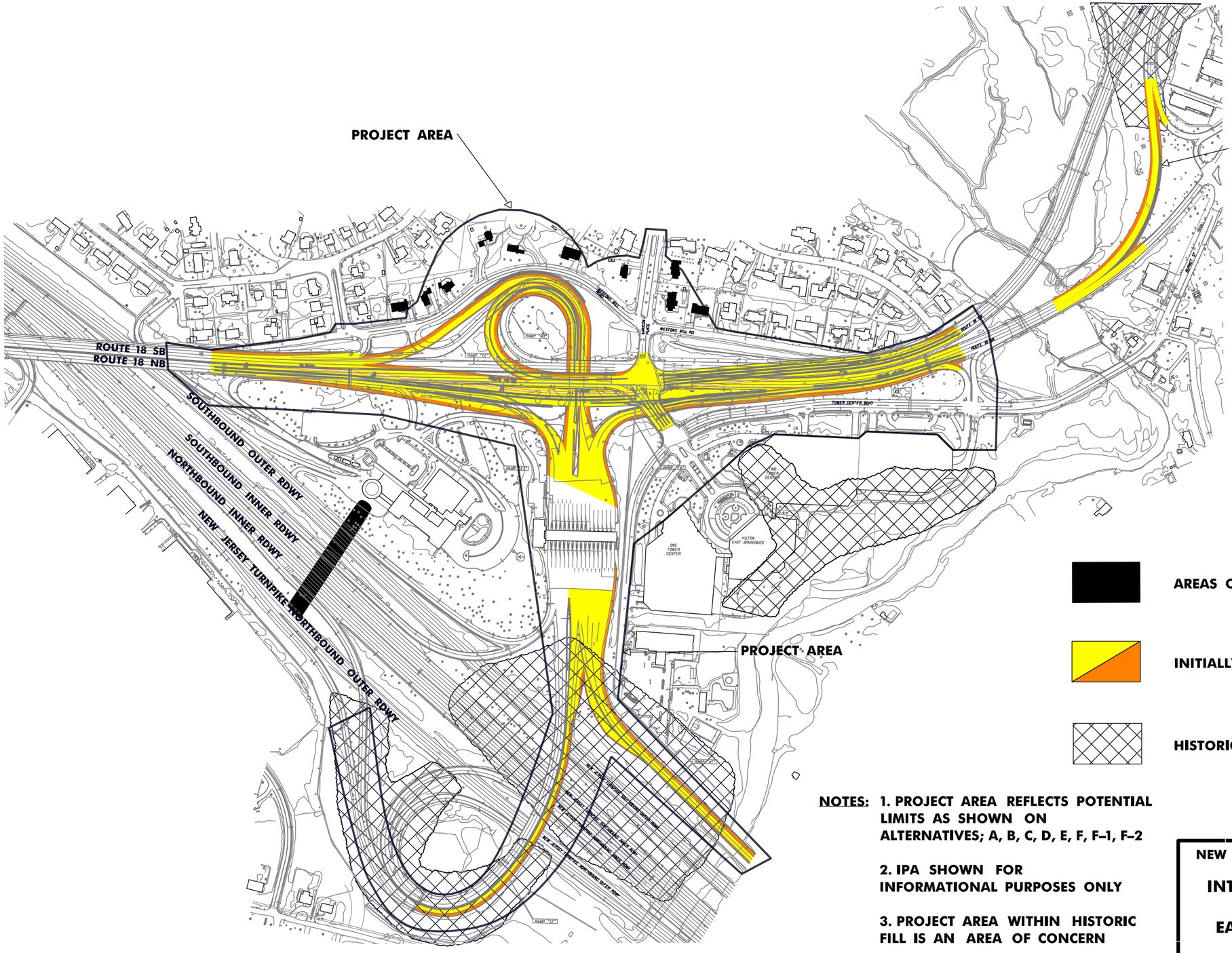
# 5. Recommendations

Additional study is required if any of the residences in the Residential Area of Concern are to be acquired to determine presence of regulated materials such as lead paint and asbestos. The sites should be investigated to determine if there are unregulated fuel tanks on the property and additional testing to determine if they have leaked.

Additional study of the Administration Building Area of concern is needed only if the Project Area is expanded.

Additional study of the Mapped Historic Fill Area is required. The soil testing and characterization program should be scheduled as early as possible to minimize project delays. If the overall amount of potentially contaminated historic fills is very small, it may be more cost effective to avoid the testing program, presume the material is contaminated and dispose of it as a regulated waste.

# Appendix A - Project Area




AREAS OF CONCERN (NON HISTORIC FILL)

INITIALLY PREFERRED ALTERNATIVE (IPA)

HISTORIC FILL

**NOTES:**

1. PROJECT AREA REFLECTS POTENTIAL LIMITS AS SHOWN ON ALTERNATIVES; A, B, C, D, E, F, F–1, F–2
2. IPA SHOWN FOR INFORMATIONAL PURPOSES ONLY
3. PROJECT AREA WITHIN HISTORIC FILL IS AN AREA OF CONCERN

0 40 200 400 600 1200

NEW JERSEY TURNPIKE AUTHORITY

# INTERCHANGE 9 IMPROVEMENTS
# PROJECT AREA
# EAST BRUNSWICK, MIDDLESEX COUNTY, NJ

DECEMBER 2010
SCALE: 1" = 400'

# Appendix B - Site Photographs


ROWBEAR CONSULTING, P.C.
PERSUASIVE SOLUTIONS

Legend: ← (X) Photo number/direction

New Jersey Turnpike Authority
Interchange 9

Picture Location Map


Picture #1 – Looking north, petroleum pipeline that runs parallel to the NJ Turnpike on the northbound side


Picture #2 – Looking south, Home News Tribune located adjacent to the offramp for Exit 9 on northbound side of the NJ Turnpike


Photo #3 – Looking southeast, installation in the petroleum pipeline at the intersection of Schoolhouse Ln. and Ainsworth Ave.

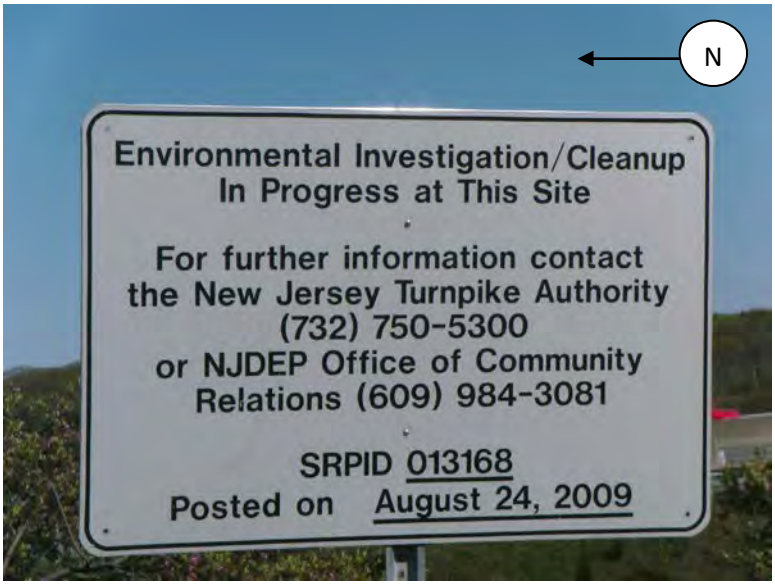



Photo #4 – Looking east, notice of active remediation around vancant NJTA Administration Building


Photo #5 – Looking north, barrel of unknown origins or contents at the NJTA Administartion Building


Photo #6 – Looking northwest, above ground fuel storage tank at the NJTA Administartion Building


Photo #7 – Looking west, external generator and above ground fuel storage at the NJTA Administartion Building


Photo #8 – Looking southwest, above ground generator fuel storage at outdoor struture across from Tower Center

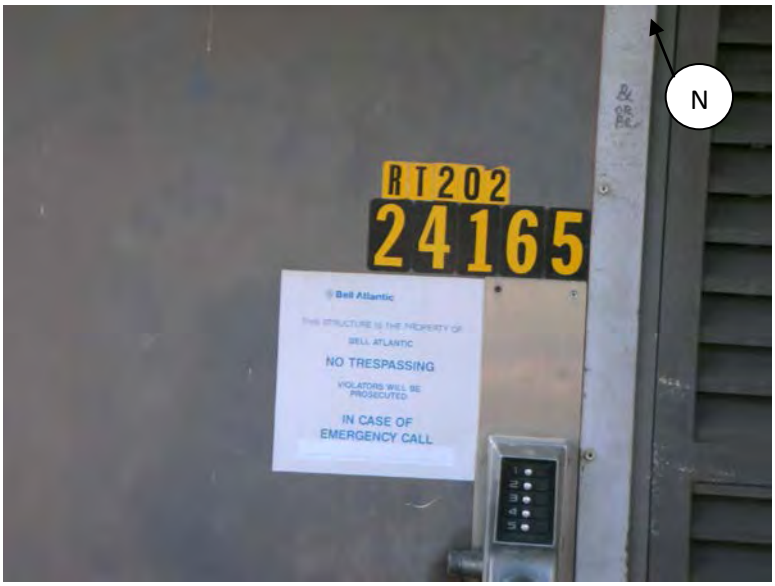



Photo #9 – Looking northeast, isolated AT&T struture near the top of bank on Lawrence Brook  along north side of Tower Center Blvd.


Photo #10 –Looking north, distressed vegetation along ramp leading from toll plaza to southbound Turnpike


Photo #11 – Looking north at typical 1950's style residence along Ainsworth Ave west of Turnpike.
*Note fuel oil tank fill pipes and potential for asbestos siding.

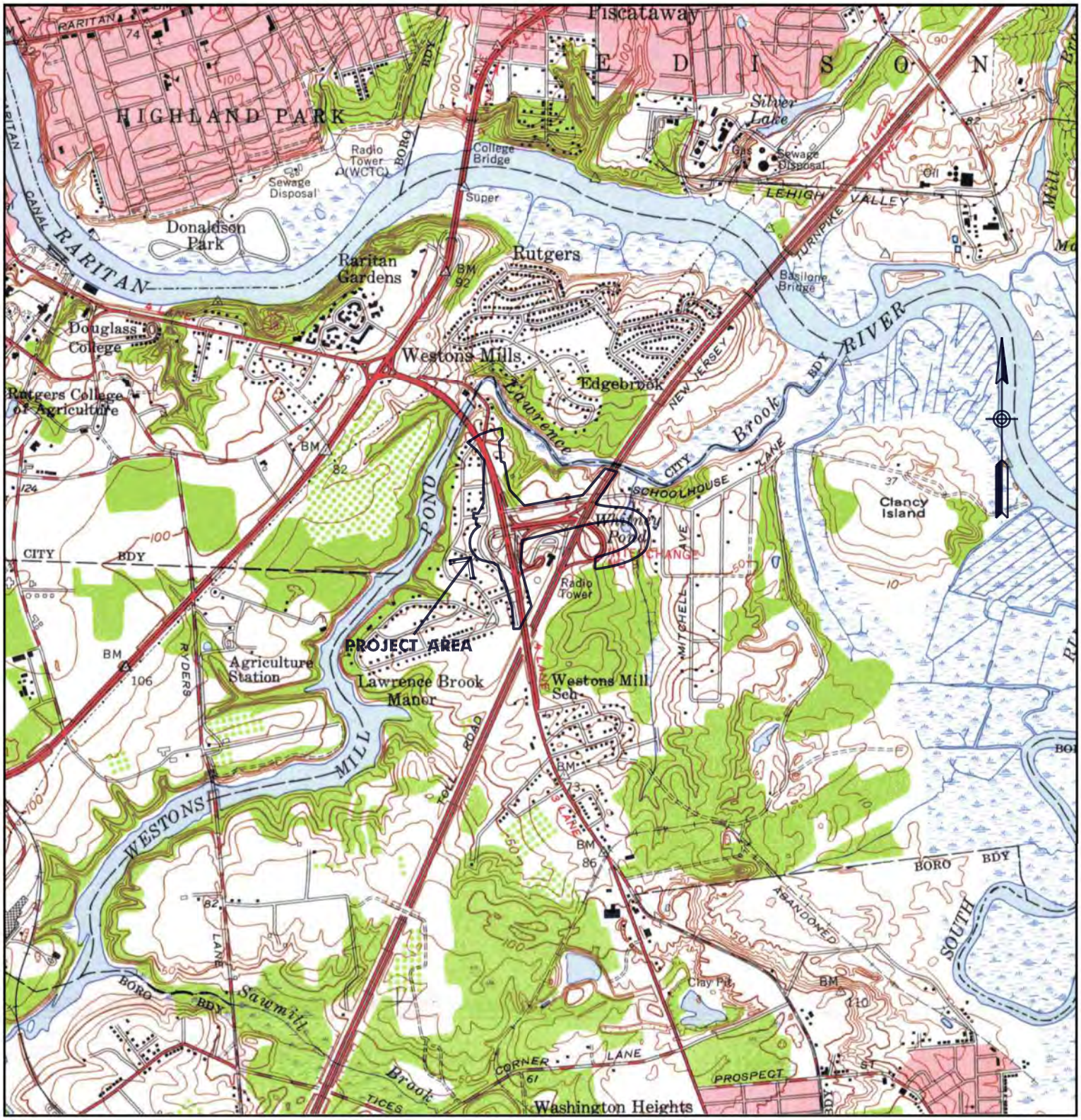

Photo #12- Looking north at typical 1950's style residence in neighborhood located south of Route 18.
*Note fuel oil fill pipes.

# Appendix C - Historic Topographic Maps

# Historical Topographic Map

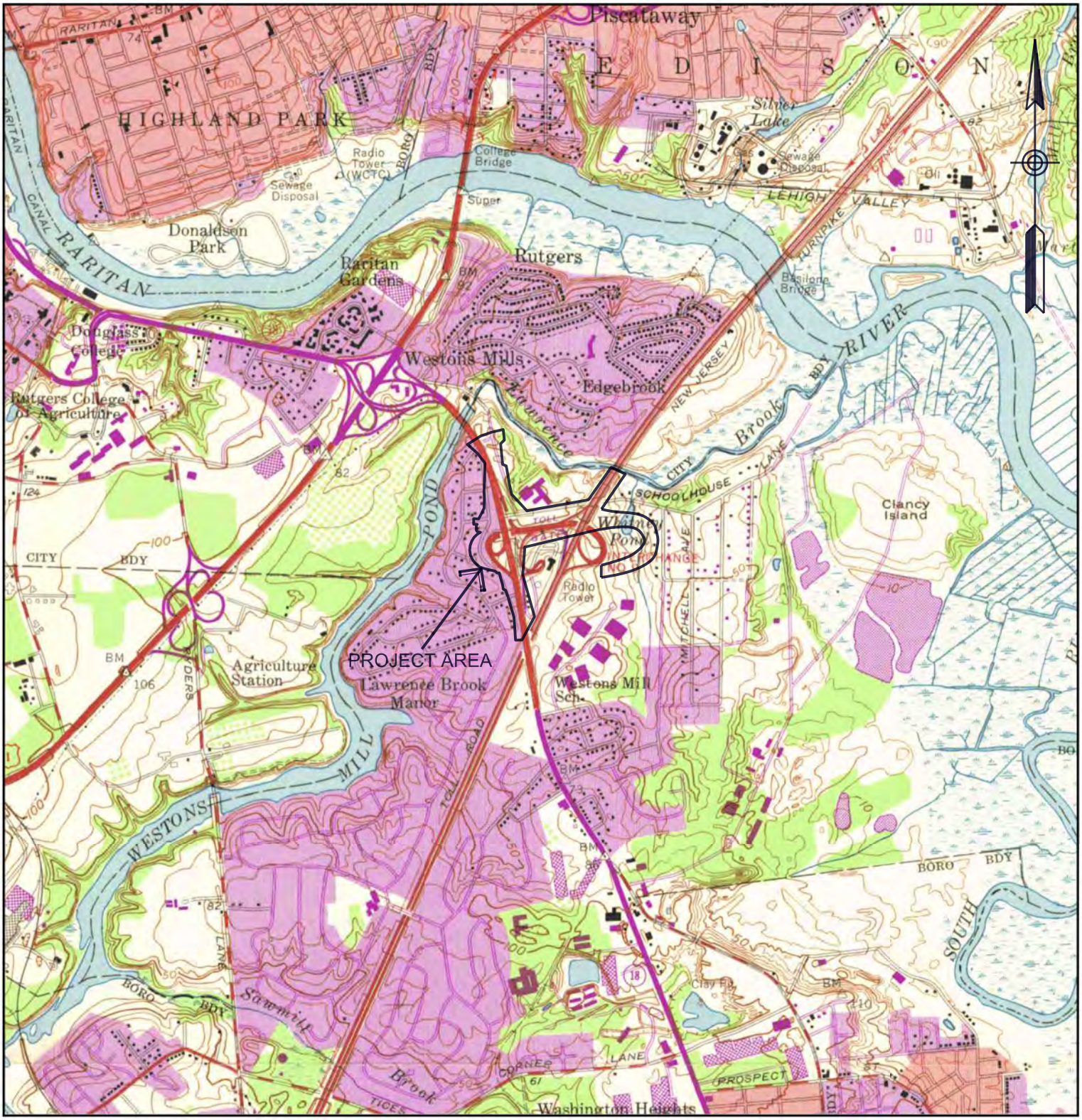

| N | TARGET QUAD<br>NAME: NAVESINK<br>MAP YEAR: 1902<br><br>SERIES: 30<br>SCALE: 1:125000 | SITE NAME: Interchange 9 NJ Turnpike<br>ADDRESS: Interchange 9 NJ Turnpike<br>East Brunswick, NJ 08816<br>LAT/LONG: 40.4763 / 74.4085 | USGS QUAD<br>INTERCHANGE 9 IMPROVEMENTS<br>ROWBEAR CONSULTING, PC<br>NOT TO SCALE |
|---|---|---|---|

# Historical Topographic Map



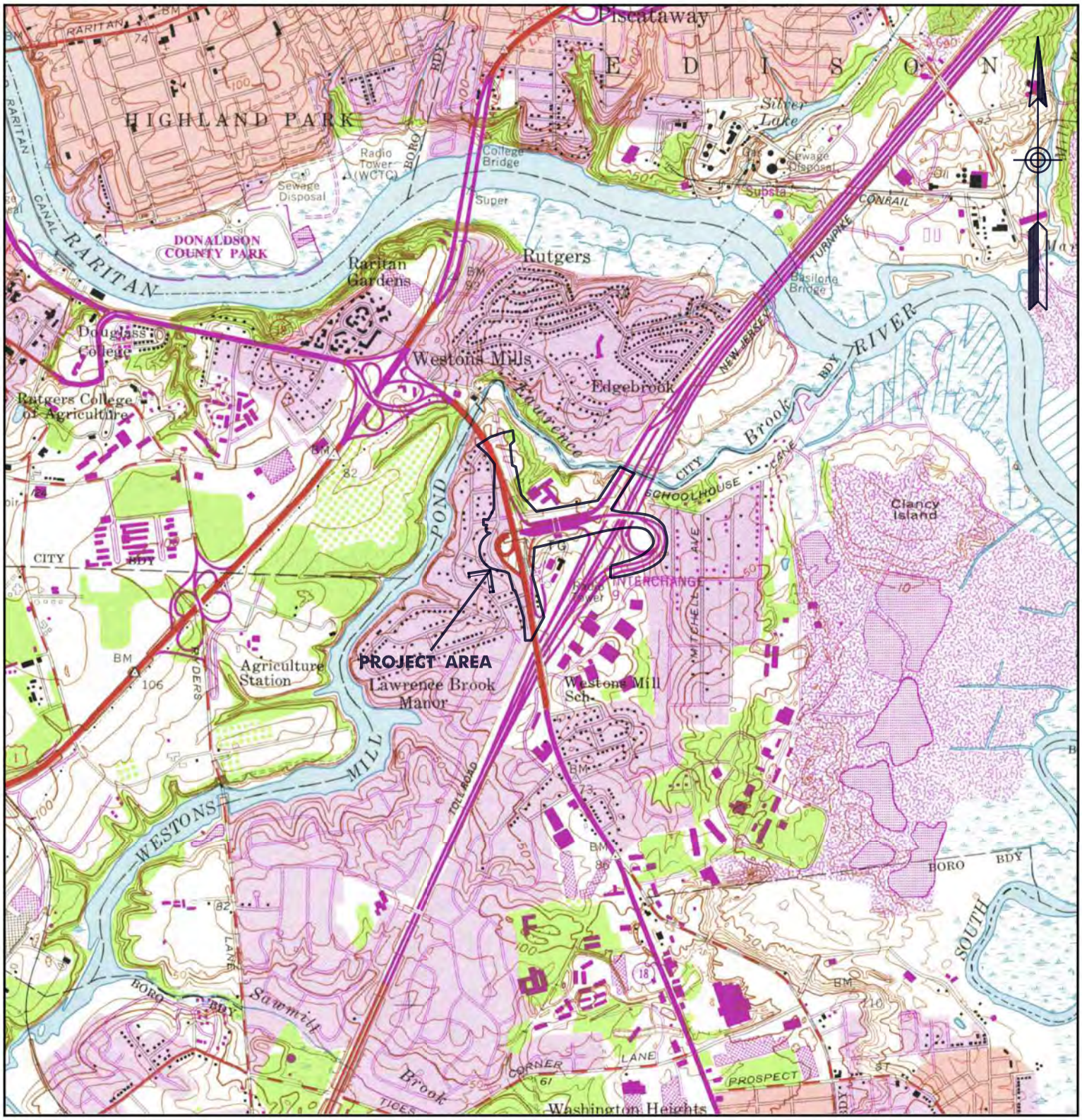

| N | TARGET QUAD<br>NAME: NEW BRUNSWICK<br>MAP YEAR: 1954<br>PHOTOREVISED FROM:1954<br>SERIES: 7.5<br>SCALE: 1:24000 | SITE NAME: Interchange 9 NJ Turnpike<br>ADDRESS: Interchange 9 NJ Turnpike<br>East Brunswick, NJ 08816<br>LAT/LONG: 40.4763 / 74.4085 | USGS QUAD<br>INTERCHANGE 9 IMPROVEMENTS<br>ROWBEAR CONSULTING, PC<br>NOT TO SCALE |
|---|---|---|---|

# Historical Topographic Map



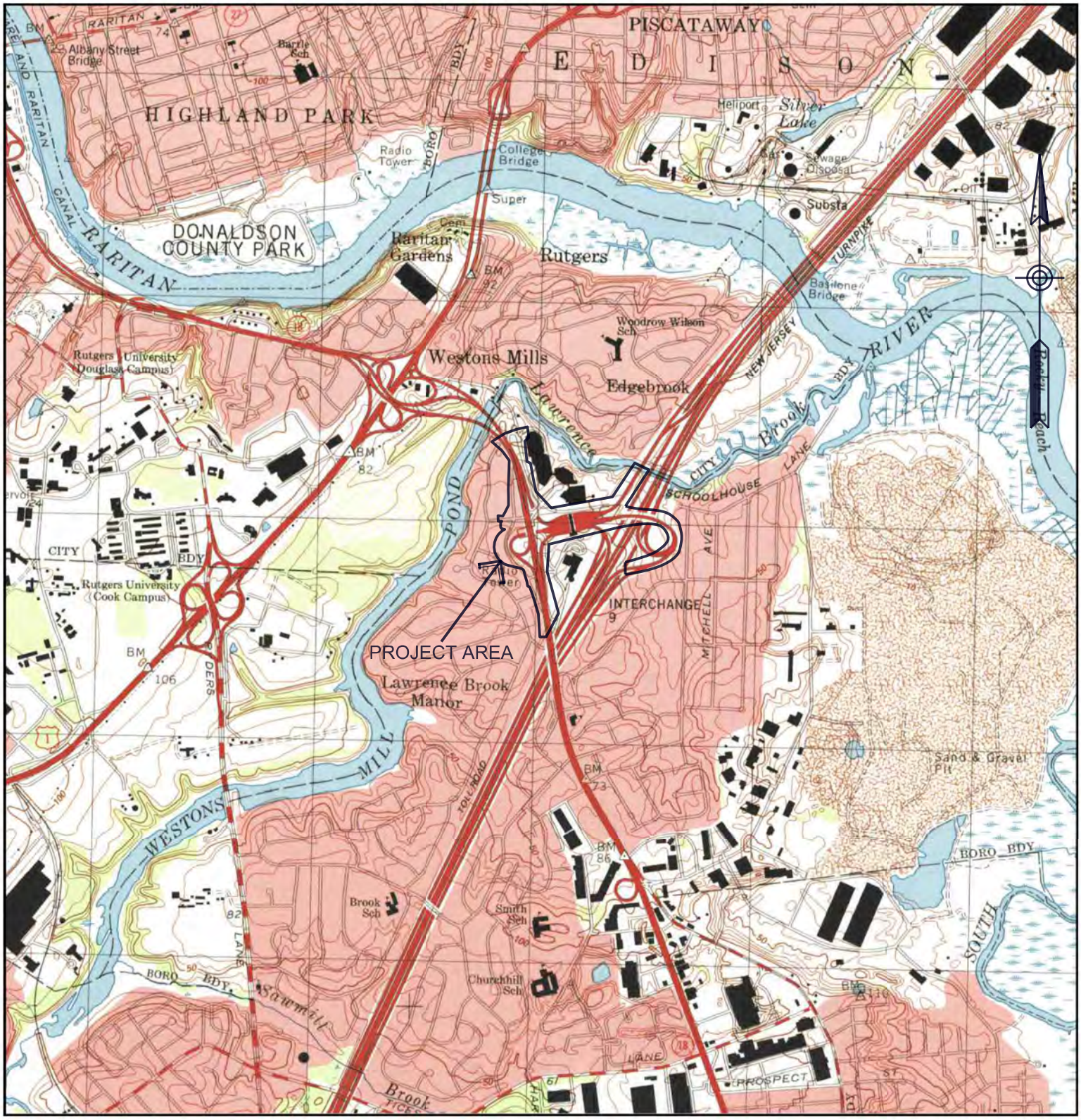

| | | | |
|---|---|---|---|
| N<br>● | TARGET QUAD<br>NAME: NEW BRUNSWICK<br>MAP YEAR: 1970<br>PHOTOREVISED FROM:1954<br>SERIES: 7.5<br>SCALE: 1:24000 | SITE NAME: Interchange 9 NJ Turnpike<br>ADDRESS: Interchange 9 NJ Turnpike<br>East Brunswick, NJ 08816<br>LAT/LONG: 40.4763 / 74.4085 | USGS QUAD<br>INTERCHANGE 9 IMPROVEMENTS<br>ROWBEAR CONSULTING, PC<br>NOT TO SCALE |

# Historical Topographic Map




| | | | |
|---|---|---|---|
| N<br>● | TARGET QUAD<br>NAME: NEW BRUNSWICK<br>MAP YEAR: 1981<br>PHOTOREVISED FROM:1954<br>SERIES: 7.5<br>SCALE: 1:24000 | SITE NAME: Interchange 9 NJ Turnpike<br>ADDRESS: Interchange 9 NJ Turnpike<br>East Brunswick, NJ 08816<br>LAT/LONG: 40.4763 / 74.4085 | USGS QUAD<br>INTERCHANGE 9 IMPROVEMENTS<br>ROWBEAR CONSULTING, PC<br>NOT TO SCALE |

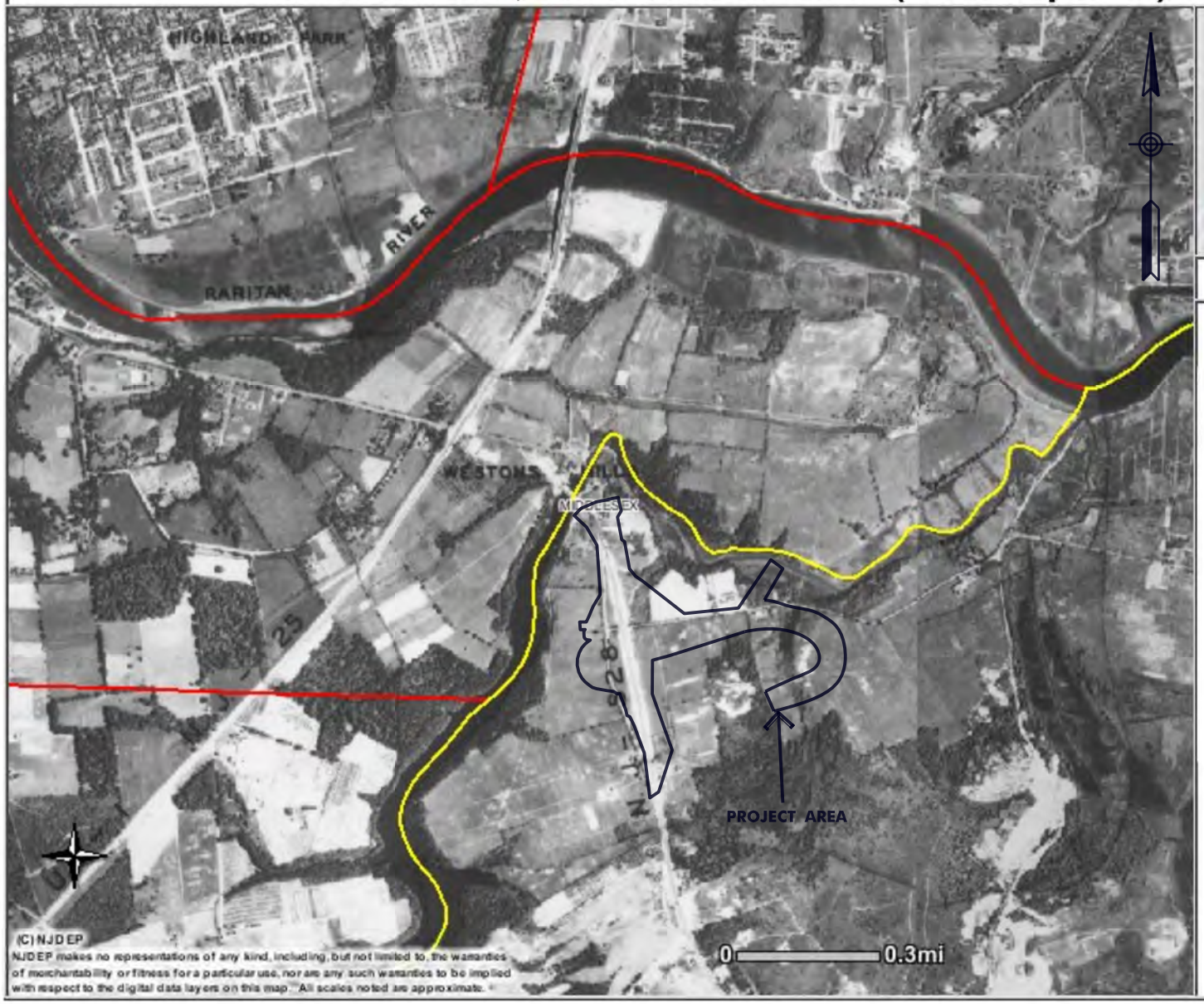
# Historical Topographic Map




| N | TARGET QUAD<br>NAME: NEW BRUNSWICK<br>MAP YEAR: 1995<br>PHOTOREVISED FROM:1968<br>SERIES: 7.5<br>SCALE: 1:24000 | SITE NAME: Interchange 9 NJ Turnpike<br>ADDRESS: Interchange 9 NJ Turnpike<br>East Brunswick, NJ 08816<br>LAT/LONG: 40.4763 / 74.4085 | USGS QUAD<br>INTERCHANGE 9 IMPROVEMENTS<br>ROWBEAR CONSULTING, PC<br>NOT TO SCALE |
|---|---|---|---|

# Appendix D - Historic Aerial Photographs

# Westons Mill, NJ area circa 1930 (NJDEP photo)




Scale 1:15538

- Selected Features
- Municipalities
- Counties
- Aerial Photos 1930



HISTORIC AERIAL PHOTO
TAKEN: 1930
INTERCHANGE 9 IMPROVEMENTS
ROWBEAR CONSULTING, PC


INQUIRY #: 2729705.5

YEAR: 1954

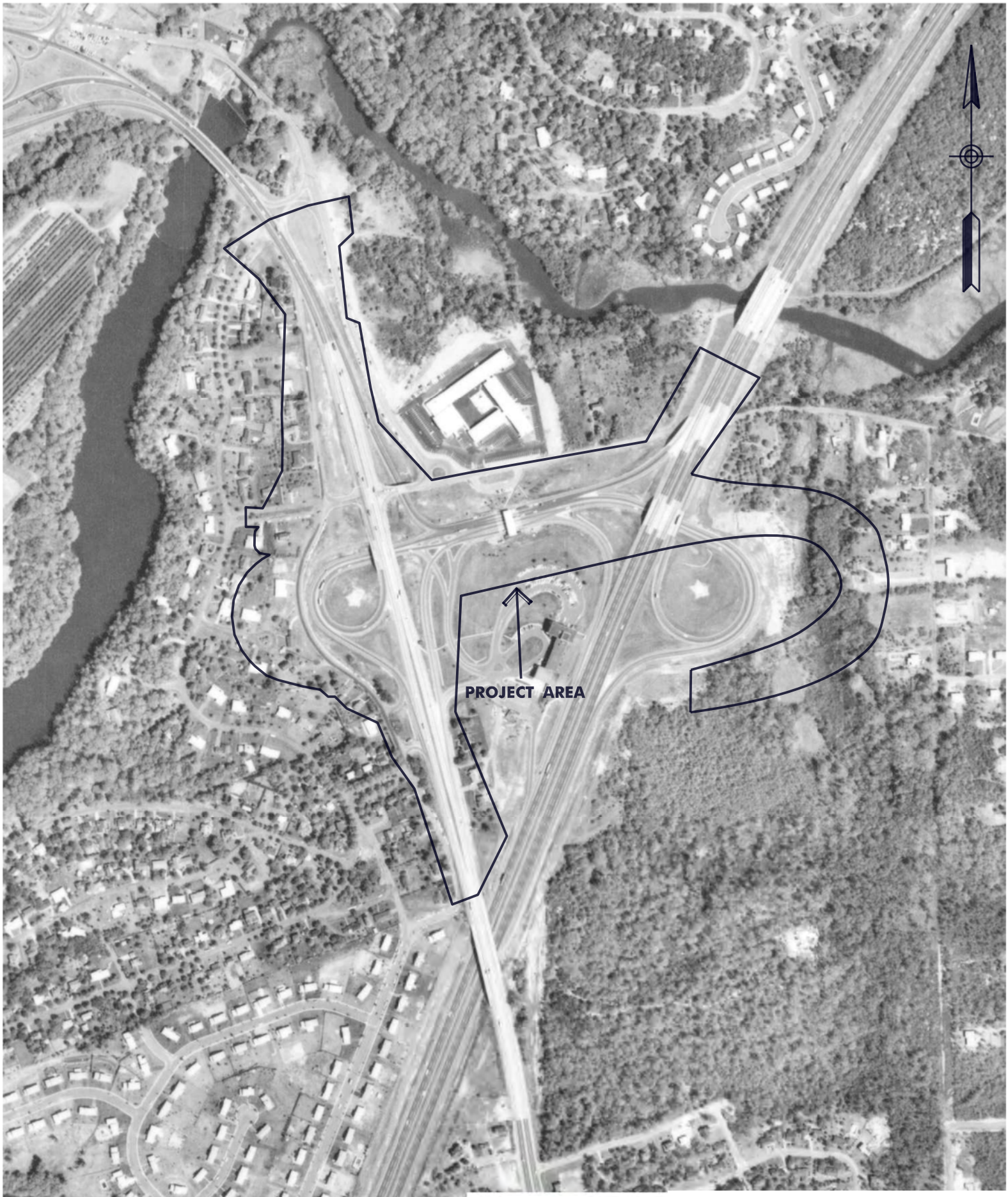
N

= 750'

ROWBEAR CONSULTING, P.C.

PERSUASIVE SOLUTIONS

HISTORIC AERIAL PHOTO
TAKEN: 1954
INTERCHANGE 9 IMPROVEMENTS
ROWBEAR CONSULTING, PC
NOT TO SCALE




INQUIRY #: 2729705.5

YEAR: 1963

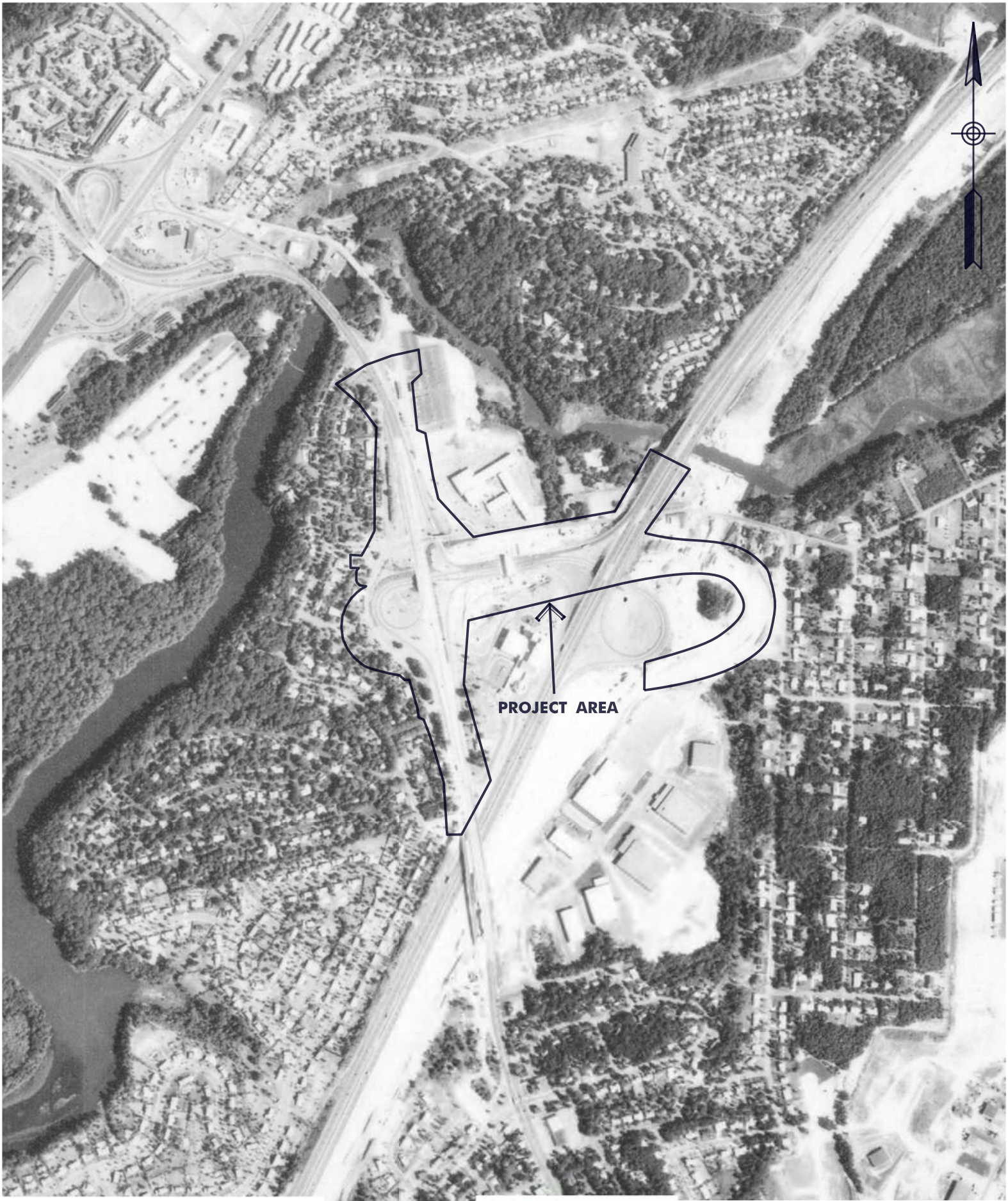
= 500'

N

ROWBEAR CONSULTING, P.C.

PERSUASIVE SOLUTIONS

**HISTORIC AERIAL PHOTO**
**TAKEN: 1963**
**INTERCHANGE 9 IMPROVEMENTS**
**ROWBEAR CONSULTING, PC**
**NOT TO SCALE**




INQUIRY #: 2729705.5

YEAR: 1972

= 750'

N

ROWBEAR CONSULTING, P.C.

PERSUASIVE SOLUTIONS

**HISTORIC AERIAL PHOTO**
**TAKEN: 1972**
**INTERCHANGE 9 IMPROVEMENTS**
**ROWBEAR CONSULTING, PC**
**NOT TO SCALE**


INQUIRY #: 2729705.5

YEAR: 1978

= 750'

N

ROWBEAR CONSULTING, P.C.

PERSUASIVE SOLUTIONS

HISTORIC AERIAL PHOTO
TAKEN: 1978
INTERCHANGE 9 IMPROVEMENTS
ROWBEAR CONSULTING, PC
NOT TO SCALE


INQUIRY #: 2729705.5

YEAR: 1995

= 750'

N

ROWBEAR CONSULTING, P.C.

PERSUASIVE SOLUTIONS

**HISTORIC AERIAL PHOTO**
**TAKEN: 1995**
**INTERCHANGE 9 IMPROVEMENTS**
**ROWBEAR CONSULTING, PC**
**NOT TO SCALE**


INQUIRY #: 2729705.5

YEAR: 2006

= 604'

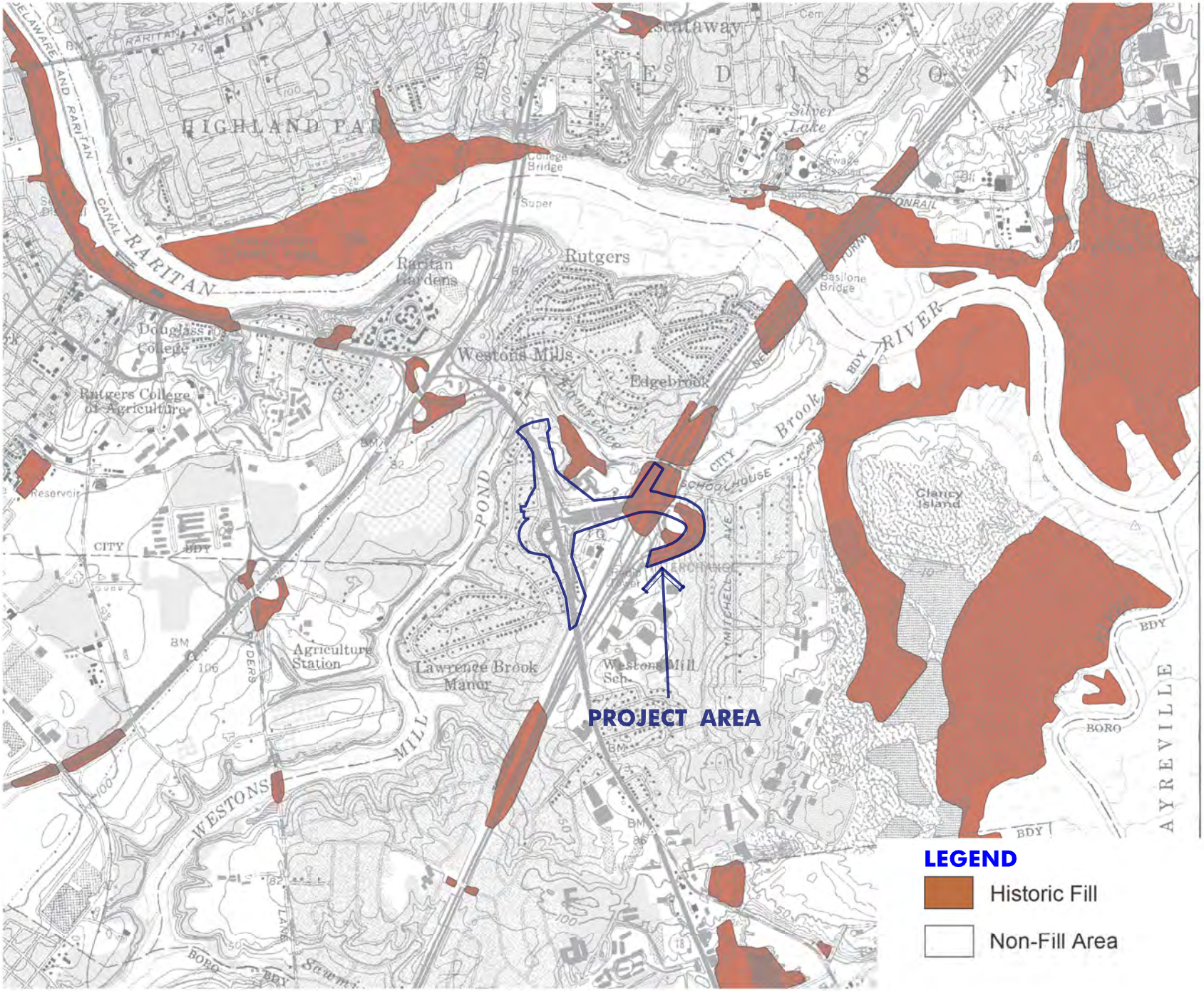
N

ROWBEAR CONSULTING, P.C.

PERSUASIVE SOLUTIONS

**HISTORIC AERIAL PHOTO**
**TAKEN: 2006**
**INTERCHANGE 9 IMPROVEMENTS**
**ROWBEAR CONSULTING, PC**

# Appendix E -Mapped Historic Fill




**SOURCE: NJDEP LANDUSE MANAGEMENT GEOLOGICAL SURVEY**

**HISTORIC FILL MAP HFM–71 NEW BRUNSWICK**

**MAP DATE: 2004**

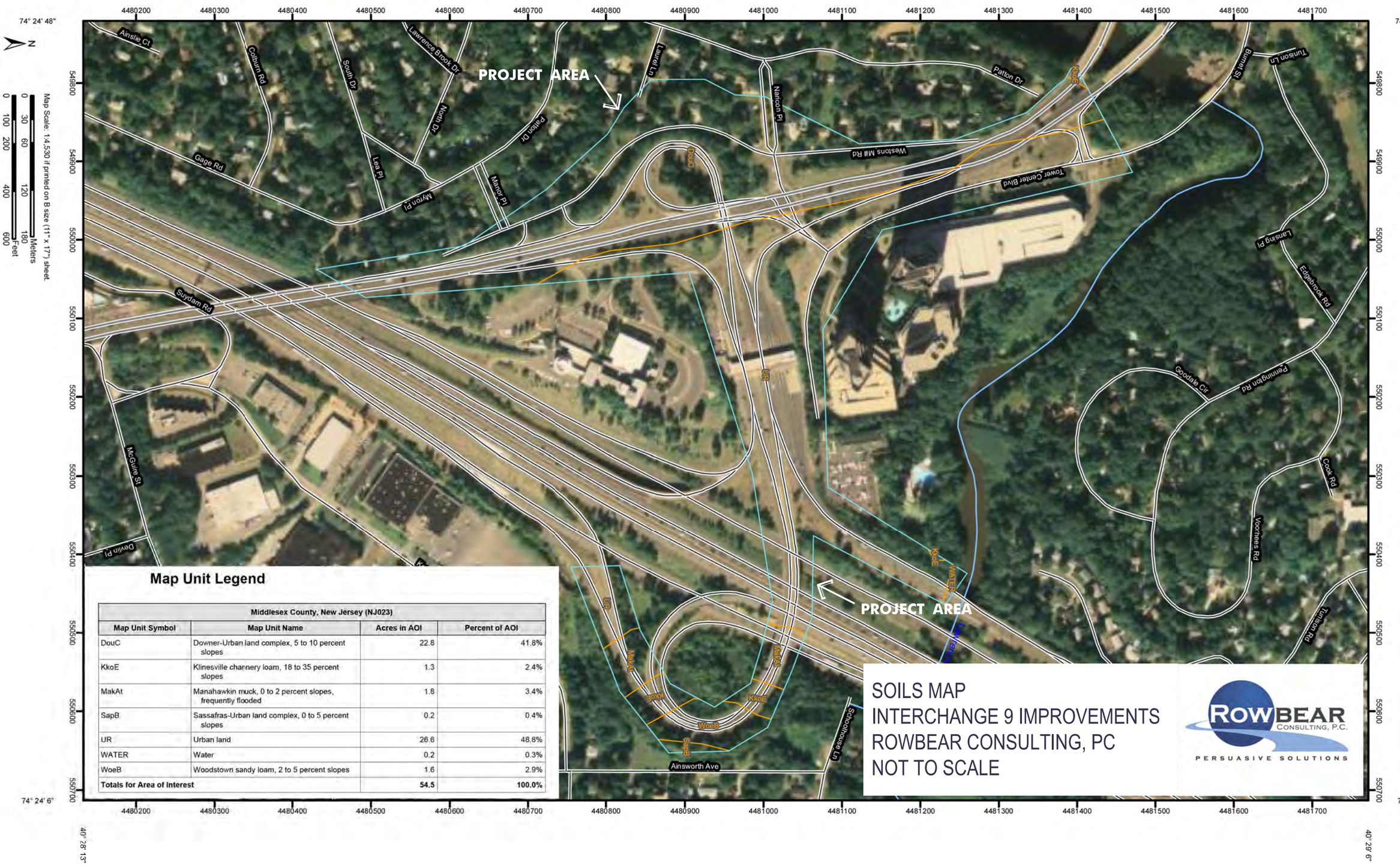
ROWBEAR CONSULTING, P.C.
PERSUASIVE SOLUTIONS

**INTERCHANGE 9 IMPROVEMENTS**

**HISTORIC FILL OF THE NEW BRUNSWICK QUADRANGLE**

**ROWBEAR CONSULTING, PC**

Soil Map—Middlesex County, New Jersey
(Interchange 9 Improvements)




## Map Unit Legend

| Middlesex County, New Jersey (NJ023) | | | |
|---|---|---|---|
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
| DouC | Downer-Urban land complex, 5 to 10 percent slopes | 22.8 | 41.8% |
| KkoE | Klinesville channery loam, 18 to 35 percent slopes | 1.3 | 2.4% |
| MakAt | Manahawkin muck, 0 to 2 percent slopes, frequently flooded | 1.8 | 3.4% |
| SapB | Sassafras-Urban land complex, 0 to 5 percent slopes | 0.2 | 0.4% |
| UR | Urban land | 26.6 | 48.8% |
| WATER | Water | 0.2 | 0.3% |
| WoeB | Woodstown sandy loam, 2 to 5 percent slopes | 1.6 | 2.9% |
| Totals for Area of Interest | | 54.5 | 100.0% |

Map Scale: 1:4,530 if printed on B size (11" x 17") sheet.

0 30 60 120 180 Meters
0 100 200 400 600 Feet

SOILS MAP
INTERCHANGE 9 IMPROVEMENTS
ROWBEAR CONSULTING, PC
NOT TO SCALE

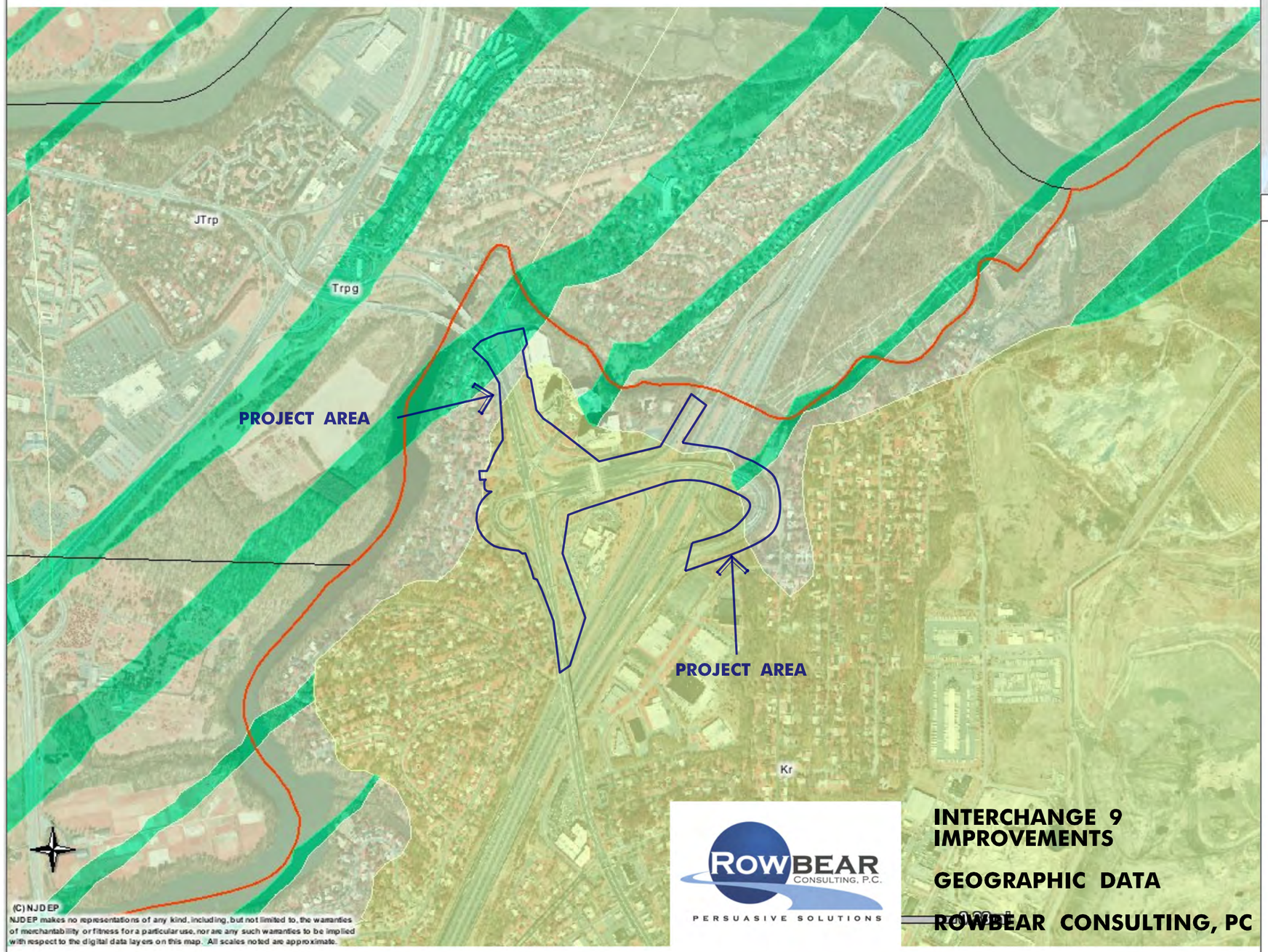
ROWBEAR CONSULTING, P.C.
PERSUASIVE SOLUTIONS

USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

12/12/2010
Page 1 of 3

# Interchange 9 i-Map NJ Geology




Scale 1:12304

Selected Features
Municipalities
Bedrock Geology

- Kr Raritan Formation
- Kp Potomac Formation
- Jb Boonton Formation
- Jc Basalt-clast Conglomerate
- Jbcq Quartz-pebble Conglomerate
- Jh Hook Mt. Basalt
- Jt Towaco Formation
- Jtc Towaco Formation Conglomerate and Sandstone facies
- Jp Preakness Basalt
- Jps Feltville Formation
- Jfc Feltville Formation Conglomerate and Sandstone facies
- Jo Orange Mountain Basalt
- Jd Jurassic Diabase
- Jg Granophyre
- JTrp Passaic Formation
- Trpg Passaic Formation Gray bed
- JTrpcq Passaic Formation Quatzite-clast Conglomerate facies
- JTrpcl Passaic Formation Limestone-clast Conglomerate facies
- JTrpsc Passaic Formation Conglomerate and Sandstone facies
- JTrps Passaic Formation Sandstone and Siltstone facies
- JTrpms Passaic Formation Mudstone facies
- Trl Lockatong Formation
- TRlr Lockatong Formation Red bed
- Trla Lockatong Formation Arkosic Sandstone facies
- Trls Lockatong Formation Sandstone and Conglomerate Sandstone facies
- Trlcq Sandstone and Conglomerate Sandstone facies
- Trs Stockton Formation
- Trss Stockton Formation Cobble Conglomerate and Sandstone facies
- Dsk Skunnemunk Conglomerate

ROWBEAR CONSULTING, P.C.
PERSUASIVE SOLUTIONS

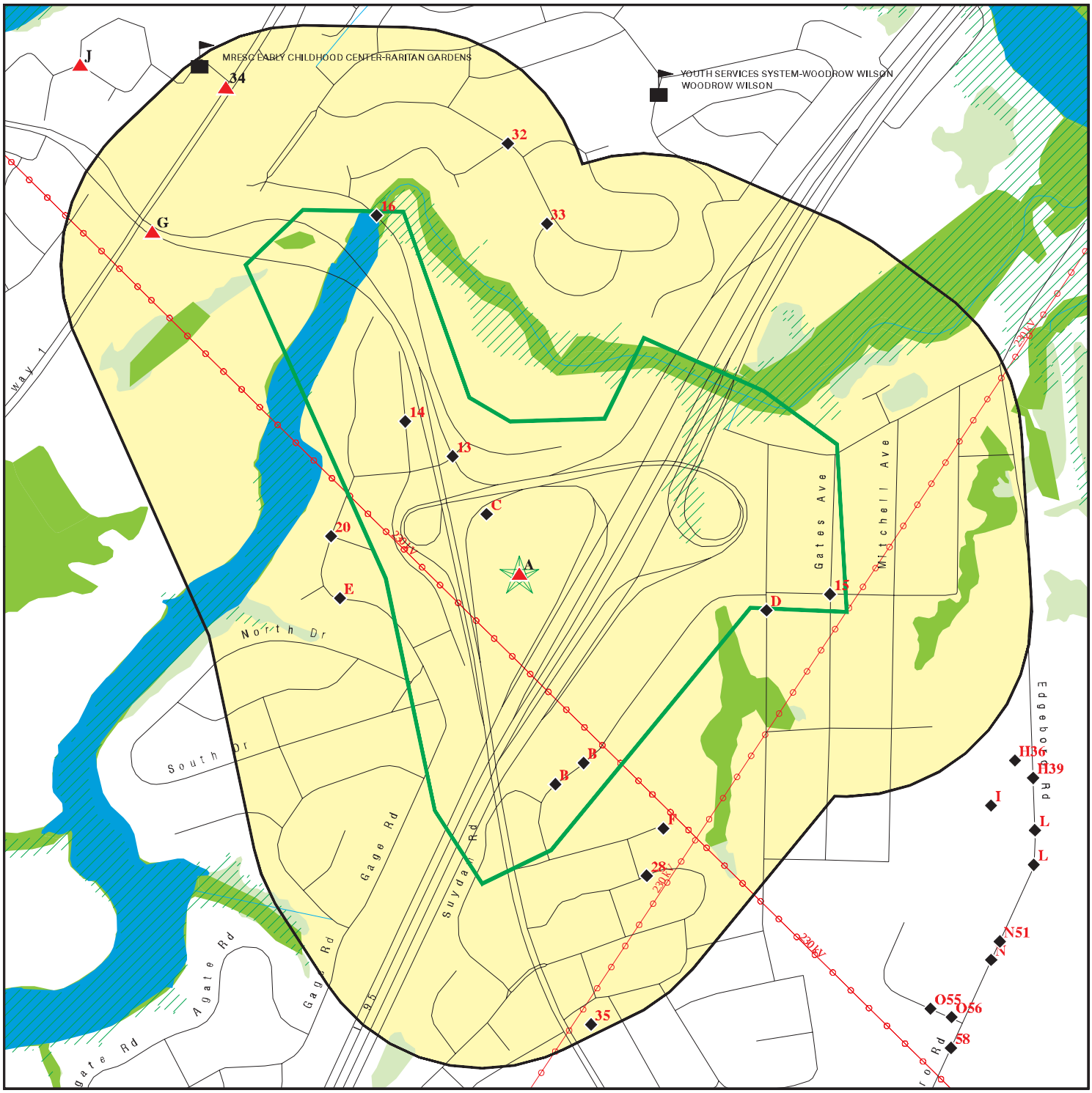
**INTERCHANGE 9 IMPROVEMENTS**

**GEOGRAPHIC DATA**

**ROWBEAR CONSULTING, PC**

# Appendix F - Select EDR Database Printouts

# DETAIL MAP - 2729705.2s




0 1/8 1/4 1/2 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

| | | | |
|---|---|---|---|
| SITE NAME: | Interchange 9 NJ Turnpike | CLIENT: | Rowbear Consulting, P.C. |
| ADDRESS: | Interchange 9 NJ Turnpike<br>East Brunswick NJ 08816 | CONTACT: | Marshall Robert |
| | | INQUIRY #: | 2729705.2s |
| LAT/LONG: | 40.4763 / 74.4085 | DATE: | March 26, 2010 7:56 am |

**A1** **INTERCHANGE #9 -NJTP** **HIST LUST** **S104588615**
**Target** **MM 83.3** **N/A**
**Property** **EAST BRUNSWICK, NJ**

**Site 1 of 3 in cluster A**

**Actual:**
**78 ft.**

LUST HIST:

| | |
|---|---|
| Case ID: | 91-05-31-1533 |
| Lead Program Assigned: | Bureau of Underground Storage Tanks |
| **Facility Status:** | **Site Issued Letter of No Further Action for Area(s) Of Concern** |
| UST ID: | 0131672 |
| TMS Number: | C91-0592; C91-1438 |
| Remedial Level: | Site has more than 1 area of concern or more than 1 media of concern. |
| Case Manager: | Not reported |
| Facility Phone: | Not reported |
| No Further Action: | 9/16/1993 0:00:00 |
| RAW Approved: | Not reported |
| CEA: | Not reported |
| Date CEA Lifted: | Not reported |
| Dead Notice: | Not reported |

---

**A2** **INTERCHANGE 9 TOLL PLAZA** **UST** **U000362462**
**Target** **NEW JERSEY TPKE MP 83.4** **NJ Release** **N/A**
**Property** **NEW BRUNSWICK CITY, NJ 08903**

**Site 2 of 3 in cluster A**

**Actual:**
**78 ft.**

UST:

| | |
|---|---|
| Facility ID: | 013167 |
| Owner Name: | BRIAN F CAMPBELL |
| Organization: | NJ TURNPIKE AUTHORITY |
| Contact Type(UST Reg): | Tank Owner |
| Contact Address (UST Reg): | PO BOX 335 |
| Contact Address 2 (UST Reg): | ATTN: JUDITH GRANT |
| Conact City,St,Zip (UST Reg): | Hightstown, NJ 08520 |
| Owner Name: | Not Identified Not Identified |
| Organization: | Not Identified |
| Contact Type(UST Reg): | Facility Operator |
| Contact Address (UST Reg): | Not reported |
| Contact Address 2 (UST Reg): | Not reported |
| Conact City,St,Zip (UST Reg): | Not reported |
| | |
| Tank Id: | TANK-1 |
| Tank Number: | E1 |
| Tank Contents: | Heating Oil (No. 2) |
| Tank Size: | 5000 |
| Install Date: | 1/1/1974 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 5/28/1991 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Tank |

**INTERCHANGE 9 TOLL PLAZA (Continued)** **U000362462**

Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Bare steel
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Bare steel

Tank Id: TANK-2
Tank Number: E2
Tank Contents: Medium Diesel Fuel (No. 2-D)
Tank Size: 550
Install Date: 1/1/1974
Tank Compliance: No
**Tank Status: Removed**
Overfill: No
Tank Status Date: 5/6/1991
Compliance Monitoring?: No
Overfill Protection: No
Spill Containment: No
Tank Wellhead Protection: Not reported

TANK MONITOR DATA:
Monitor Tank / Pipe: Pipe
Monitor Type: None
Monitor Tank / Pipe: Tank
Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Bare steel
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Bare steel

NJ Release:

| | | | |
|---|---|---|---|
| Facility ID: | 9516 | Case Number: | 91-7-1-1100-30 |
| Date Received: | 7/1/1991 | Nature of Incident: | Other |
| Operator: | RICH | | |
| Incident Type: | Not reported | Incident Location: | Not reported |
| Location: | Other | | |
| Other Location: | Not reported | | |
| Contact Name: | Not reported | | |
| Caller Name: | REDACTED | | |
| Caller Title: | Not reported | | |
| Caller Address: | Not reported | | |
| Caller City,St,Zip: | Not reported | | |
| Caller Telephone: | Not reported | | |
| Facility Phone: | Not reported | | |
| Incident Date: | 7/1/1991 | Incident Time: | 1040 |
| Substance(s): | ODORS SEWAGE | | |
| Substance Type: | Gas | Substance Identity: | Known |
| CAS Number: | Not reported | A310 Letter: | No |
| TCPA Chemical: | No | Hazrds Material: | No |
| COMU: | 1214 | Ref. Code: | 005 |
| Amnt Released: | UNKNOWN | Contained: | No |
| Release Type: | Intermittent | Release VE: | Not reported |
| Injuries: | No | | |
| Public Exposure: | Yes | Facility Evacuation: | No |

**INTERCHANGE 9 TOLL PLAZA (Continued)** **U000362462**

| | | | |
|---|---|---|---|
| Police at Scene: | No | Firemen at Scene: | No |
| Contamination of: | Air | Receiving Water: | NONE |
| Status at Spill: | GARBAGE TRUCKS EXITING AT 9 -DEFINO AND SELECTIVE TRUCKING COMPANYS-SMELL LIKE THEY ARE FULL OF HUMAN WASTE | | |
| NJ Spill Date: | Not reported | NJ Spill Time: | Not reported |
| NJ Spill Name: | Not reported | NJ Spill Title: | Not reported |
| NJ Spill Phone: | Not reported | | |
| Other Date: | Not reported | Other Time: | Not reported |
| Other Name: | Not reported | Other Title: | Not reported |

| | |
|---|---|
| Other Telephone: | Not reported |
| Public Evacuation: | No |
| Assistance Requested: | No |
| Wind Direction/Speed: | Not reported |
| Local Municipality Notified: | Not reported |
| Local Municipality Name: | Not reported |
| Local Municipality Title: | Not reported |
| Local Municipality Telephone: | Not reported |
| Local Municipality Date: | Not reported |
| Local Municipality Time: | Not reported |
| Incident Description: | Odors\\ |
| Incident Name: | Not reported |
| Incident Referred To: | DEQ |
| Incident Region: | Central |
| Incident Telephone: | Faxed |
| Incident Date: | 7/1/1991 |
| Incident time: | 1107 |
| Incident ITM: | B |
| Comments: | Not reported |
| Date A310 Letter Printed: | Not reported |
| Date Local Authority Was Notified: | Not reported |
| Date Updated: | Not reported |
| Date Report Faxed to Local Authority: | Not reported |
| Local Authority Notification Date: | Not reported |
| Rep Receive Date: | Not reported |
| Reporter Type: | Not reported |
| Reporter Name: | Not reported |
| Reporter Title: | Not reported |
| Reporter Org: | Not reported |
| Reporter Address: | Not reported |
| Reporter City,St,Zip: | Not reported |
| Reporter County: | Not reported |
| Incident Status: | Not reported |
| Incident Category: | Not reported |
| Incident Source: | Not reported |
| Incident Address: | Not reported |
| Incident Address 2: | Not reported |
| Incident City,St,Zip: | Not reported |
| Incident County: | Not reported |
| DEP Requested: | Not reported |
| Confidential: | Not reported |
| Notify Type: | Not reported |
| Road Closed: | Not reported |
| Direction: | Not reported |
| Responsible Party: | UnKnown |
| Responsible Party Name: | Not reported |
| Responsible Party Contact: | Not reported |
| Responsible Party Title: | Not reported |

**INTERCHANGE 9 TOLL PLAZA (Continued)** **U000362462**

| | |
|---|---|
| Responsible Party Phone: | Not reported |
| Responsible Party Street: | Not reported |
| Responsible Party County: | Not reported |
| Responsible Party City,St,Zip: | Not reported |
| Memo. Of Understanding: | Not reported |
| Drill/trng Exercise: | Not reported |
| Hazardous: | Not reported |

---

**A3** **INTERCHANGE 9** **SPILLS** **S102202999**
**Target** **TURNPIKE** **N/A**
**Property** **EAST BRUNSWICK, NJ**

**Site 3 of 3 in cluster A**

**Actual:**
**78 ft.**

NJ SPILL:

| | |
|---|---|
| Facility ID: | 4668 |
| Case Number: | 94-3-22-2120-00 |
| Notify Type: | Not reported |
| Date Received: | 3/22/1994 |
| Location: | Other |
| Other Location: | Not reported |
| Incident Date: | 3/22/1994 |
| Incident Time: | 1933 |
| A310 Letter: | Yes |
| Ref. Code: | 101 |
| COMU: | 1204 |
| CAS Number: | Not reported |
| Hazardous: | Not reported |
| Incident Location: | Not reported |
| Facility Phone: | Not reported |
| Substance(s): | DIESEL FUEL |
| Substance Type: | Liquid |
| Substance Identity: | Known |
| TCPA Chemical: | No |
| Hazrds Material: | Yes |
| Amnt Released: | 50 GALLON |
| Release VE: | Estimate |
| Contained: | Yes |
| Release Type: | Terminated |
| Incident Desc: | Spill |
| Status at Spill: | SPILL ON ROADWAY. S&D ENVIROMENTAL DOING CLEANUP |
| NJ Spill Date: | Not reported |
| NJ Spill Time: | Not reported |
| NJ Spill Name: | Not reported |
| NJ Spill Title: | Not reported |
| NJ Spill Phone: | Not reported |
| Other Date: | Not reported |
| Other Time: | Not reported |
| Other Name: | Not reported |
| Other Title: | Not reported |
| Other Phone: | Not reported |
| Injuries: | No |
| Public Exposure: | No |
| Road Closed: | Not reported |
| Facility Evacuation: | No |
| Receiving Water: | Not reported |
| Public Evacuation: | No |
| Police at Scene: | Yes |

**INTERCHANGE 9 (Continued)** **S102202999**

Firemen at Scene:No
Contamination of: Land
Nature of Incident:Other

| | |
|---|---|
| Wind Direction/Speed: | Not reported |
| Assistance Requested: | Yes |
| Memo. Of Understanding: | Not reported |
| Drill/trng Exercise: | Not reported |
| Operator: | JIMH |
| Contact Name: | Not reported |
| Caller Name: | REDACTED |
| Caller Title: | Not reported |
| Caller Address: | Not reported |
| Caller City,St,Zip: | Not reported |
| Caller Phone: | Not reported |
| Responsible Party: | Known |
| Responsible Party Name: | AMI LEASING CO |
| Responsible Party Contact: | Not reported |
| Responsible Party Title: | Not reported |
| Responsible Party Telphone: | 800-468-9993 |
| Responsible Party Street: | Not reported |
| Responsible Party Municipality: | WORCESTER |
| Responsible Party State: | MA |
| Responsible Party Zip: | Not reported |
| Responsible City,St,Zip: | WORCESTER, MA |
| Responsible Party County: | Not reported |
| Local Municipality: | Not reported |
| Local Municipality Name: | EAST BRUNSWICK TWP |
| Local Municipality Title: | OPER 1 |
| Local Municipality Phone: | 908-390-6900 |
| Local Municipality Date: | 3/22/1994 |
| Local Municipality Time: | 2122 |
| Incident Name: | Not reported |
| Incident Referred To: | DRPSR |
| Incident Region: | BFO-CAS |
| Incident Phone: | Faxed,Mailed |
| Incident Date: | 3/22/1994 |

Comments: Not reported

| | |
|---|---|
| Date A310 Letter Printed: | Not reported |
| Date Local Authority Was Notified: | Not reported |
| Date Update: | Not reported |
| Date Report Faxed to Local Authority: | Not reported |
| Local Authority Notification Date: | Not reported |
| Reporter Name: | Not reported |
| Reporter Type: | Not reported |
| Rep Received Date: | Not reported |
| Reporter Title: | Not reported |
| Reporter Orgzn: | Not reported |
| Reporter Address: | Not reported |
| Reporter City,St,Zip: | Not reported |
| Reporter County: | Not reported |
| Incident Type: | Not reported |
| Incident Status: | Not reported |
| Incident Category: | Not reported |
| Incident Source: | Not reported |
| Incident Address: | Not reported |
| Incident Address 2: | Not reported |
| Incident City,St,Zip: | Not reported |

**INTERCHANGE 9 (Continued)** **S102202999**

Incident County: Not reported
DEP Requested: Not reported
Confidential: Not reported

---

**B4** **BRISTOL MEYER SQUIB** **SHWS U002156895**
**25 KENNEDY BLVD** **HIST LUST N/A**
**< 1/8** **EAST BRUNSWICK TWP, NJ 08816** **UST**
**1 ft.**

**Site 1 of 7 in cluster B**

**Relative: Lower**

**Actual: 57 ft.**

SHWS:
Site ID: 54979
Status: CLOSED
Home Owner: No
PI Number: 024840
X Coord Site: Not reported
X Coord PI: Not reported
Y Coord Site: Not reported
Y Coord PI: Not reported

LUST HIST:
Case ID: 93-12-09-0923
Lead Program Assigned: Bureau of Underground Storage Tanks
**Facility Status:** **Site Issued Letter of No Further Action for Area(s) Of Concern**
UST ID: 0248402
TMS Number: C93-3934
Remedial Level: Site has more than 1 area of concern or more than 1 media of concern.
Case Manager: Not reported
Facility Phone: Not reported
No Further Action: 9/30/1994 0:00:00
RAW Approved: Not reported
CEA: Not reported
Date CEA Lifted: Not reported
Dead Notice: Not reported

UST:
Facility ID: 024840
Owner Name: MIKE ANDERSON
Organization: TRUST FBO BEN SHALIT
Contact Type(UST Reg): Tank Owner
Contact Address (UST Reg): 28 KENNEDY BLVD
Contact Address 2 (UST Reg): Not reported
Conact City,St,Zip (UST Reg): East Brunswick Twp, NJ 08816
Owner Name: Not Identified Not Identified
Organization: Not Identified
Contact Type(UST Reg): Facility Operator
Contact Address (UST Reg): Not reported
Contact Address 2 (UST Reg): Not reported
Conact City,St,Zip (UST Reg): Not reported

Tank Id: TANK-1
Tank Number: 0001
Tank Contents: Medium Diesel Fuel (No. 2-D)
Tank Size: 4000
Install Date: 1/1/1966
Tank Compliance: No
**Tank Status:** **Removed**

**BRISTOL MEYER SQUIB (Continued)** **U002156895**

| | |
|---|---|
| Overfill: | No |
| Tank Status Date: | 12/8/1993 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | None |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Bare steel |
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Bare steel |

| | |
|---|---|
| Tank Id: | TANK-2 |
| Tank Number: | 0002 |
| Tank Contents: | Medium Diesel Fuel (No. 2-D) |
| Tank Size: | 4000 |
| Install Date: | 1/1/1966 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 12/8/1993 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Bare steel |
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Bare steel |

| | |
|---|---|
| Tank Id: | TANK-3 |
| Tank Number: | 0003 |
| Tank Contents: | Heating Oil (No. 2) |
| Tank Size: | 5000 |
| Install Date: | 1/1/1966 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 12/8/1993 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

**BRISTOL MEYER SQUIB (Continued)** **U002156895**

TANK MONITOR DATA:
Monitor Tank / Pipe: Tank
Monitor Type: None
Monitor Tank / Pipe: Pipe
Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Bare steel
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Bare steel

---

**C5** **ADM BLDG; NJ TPK AUTH (NJTA)** **HIST LUST** **S104387268**
**EXIT 9** **N/A**
**< 1/8** **EAST BRUNSWICK, NJ**
**1 ft.**

**Site 1 of 3 in cluster C**

**Relative:**
**Lower**

**Actual:**
**48 ft.**

LUST HIST:
Case ID: 80-10-07-0600
Lead Program Assigned: Bureau of Underground Storage Tanks
**Facility Status:** **Assigned to a Program**
UST ID: 0131681
TMS Number: Not reported
Remedial Level: Site has confirmed soil and ground water contamination.
Case Manager: Joe Eaker
Facility Phone: (609) 633-1406
No Further Action: Not reported
RAW Approved: Y
CEA: Y
Date CEA Lifted: Not reported
Dead Notice: Not reported

---

**B6** **E R SQUIBB & SONS EDP CENTER** **RCRA-NonGen** **1000132248**
**25 KENNEDY BLVD** **NJD049876477**
**< 1/8** **EAST BRUNSWICK, NJ 08816**
**1 ft.**

**Site 2 of 7 in cluster B**

**Relative:**
**Lower**

**Actual:**
**57 ft.**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: E R SQUIBB & SONS EDP CENTER
Facility address: 25 KENNEDY BLVD
EAST BRUNSWICK, NJ 08816
EPA ID: NJD049876477
Mailing address: PO BOX 70
EAST BRUNSWICK, NJ 08816
Contact: Not reported
Contact address: PO BOX 70
EAST BRUNSWICK, NJ 08816
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

**E R SQUIBB & SONS EDP CENTER (Continued)** **1000132248**

Owner/Operator Summary:
Owner/operator name: Not reported
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: Not reported
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: Unknown
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: E R SQUIBB & SONS EDP CENTER
Classification: Not a generator, verified

Date form received by agency: 02/24/1984
Facility name: E R SQUIBB & SONS EDP CENTER
Classification: Large Quantity Generator

Violation Status: No violations found

**B7** **AMERICAN BAKERIES** **RCRA-NonGen** **1000543455**
**28 KENNEDY BLVD** **FINDS** **NJD986619898**
**< 1/8** **EAST BRUNSWICK, NJ 08816**
**1 ft.**

**Site 3 of 7 in cluster B**

**Relative:**
**Lower**

**Actual:**
**55 ft.**

RCRA-NonGen:

| | |
|---|---|
| Date form received by agency: | 01/01/2007 |
| Facility name: | AMERICAN BAKERIES |
| Facility address: | 28 KENNEDY BLVD<br>EAST BRUNSWICK, NJ 08816 |
| EPA ID: | NJD986619898 |
| Mailing address: | KENNEDY BLVD<br>EAST BRUNSWICK, NJ 08816 |
| Contact: | Not reported |
| Contact address: | KENNEDY BLVD<br>EAST BRUNSWICK, NJ 08816 |
| Contact country: | US |
| Contact telephone: | Not reported |
| Contact email: | Not reported |
| EPA Region: | 02 |
| Classification: | Non-Generator |
| Description: | Handler: Non-Generators do not presently generate hazardous waste |

Owner/Operator Summary:

| | |
|---|---|
| Owner/operator name: | TAYSTEE BAKING CO |
| Owner/operator address: | 28 KENNEDY BLVD<br>EAST BRUNSWICK, NJ 08816 |
| Owner/operator country: | US |
| Owner/operator telephone: | (732) 246-6886 |
| Legal status: | Private |
| Owner/Operator Type: | Owner |
| Owner/Op start date: | Not reported |
| Owner/Op end date: | Not reported |

| | |
|---|---|
| Owner/operator name: | TAYSTEE BAKING CO |
| Owner/operator address: | 28 KENNEDY BLVD<br>EAST BRUNSWICK, NJ 08816 |
| Owner/operator country: | US |
| Owner/operator telephone: | (732) 246-6886 |
| Legal status: | Private |
| Owner/Operator Type: | Operator |
| Owner/Op start date: | Not reported |
| Owner/Op end date: | Not reported |

Handler Activities Summary:

| | |
|---|---|
| U.S. importer of hazardous waste: | Unknown |
| Mixed waste (haz. and radioactive): | Unknown |
| Recycler of hazardous waste: | No |
| Transporter of hazardous waste: | Unknown |
| Treater, storer or disposer of HW: | No |
| Underground injection activity: | No |
| On-site burner exemption: | Unknown |
| Furnace exemption: | Unknown |
| Used oil fuel burner: | No |
| Used oil processor: | No |
| User oil refiner: | No |
| Used oil fuel marketer to burner: | No |

**AMERICAN BAKERIES (Continued)** **1000543455**

Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: AMERICAN BAKERIES
Classification: Not a generator, verified

Date form received by agency: 12/02/1994
Facility name: AMERICAN BAKERIES
Classification: Large Quantity Generator

Date form received by agency: 11/19/1991
Facility name: AMERICAN BAKERIES
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110004229889

Environmental Interest/Information System
NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

---

**C8** **NJ TURNPIKE AUTHORITY ADMINISTRATION BLDG** **HIST LUST** **S104588454**
**MILE POST 83.4** **N/A**
**< 1/8** **EAST BRUNSWICK, NJ**
**1 ft.**

**Site 2 of 3 in cluster C**

**Relative: Lower**
**Actual: 48 ft.**

LUST HIST:
Case ID: 90-08-31-1629
Lead Program Assigned: Bureau of Underground Storage Tanks
**Facility Status:** **Site Issued Letter of No Further Action for Area(s) Of Concern**
UST ID: 0131681
TMS Number: C92-2911; C92-2912; C92-2913; C92-2914; C92-2915
Remedial Level: Site has confirmed soil and ground water contamination.
Case Manager: Joe Eaker
Facility Phone: (609) 633-1406
No Further Action: 7/15/1993 0:00:00
RAW Approved: Not reported
CEA: Not reported
Date CEA Lifted: Not reported
Dead Notice: Not reported

**B9** **SQUIBB** **HIST LUST** **S104442317**
**25 KENNEDY BLVD** **NJ Release** **N/A**
**< 1/8** **EAST BRUNSWICK, NJ**
**1 ft.**

**Site 4 of 7 in cluster B**

**Relative:**
**Lower**

**Actual:**
**57 ft.**

LUST HIST:

| | |
|---|---|
| Case ID: | 92-12-16-1101 |
| Lead Program Assigned: | Bureau of Underground Storage Tanks |
| **Facility Status:** | **Site Issued Letter of No Further Action for Area(s) Of Concern** |
| UST ID: | 0248402 |
| TMS Number: | Not reported |
| Remedial Level: | Not reported |
| Case Manager: | Not reported |
| Facility Phone: | Not reported |
| No Further Action: | 4/19/1993 0:00:00 |
| RAW Approved: | Not reported |
| CEA: | Not reported |
| Date CEA Lifted: | Not reported |
| Dead Notice: | Not reported |

NJ Release:

| | | | |
|---|---|---|---|
| Facility ID: | 20249 | Case Number: | 92-12-16-1101-02 |
| Date Received: | 12/16/1992 | Nature of Incident: | Facility |
| Operator: | JIMH | | |
| Incident Type: | Not reported | Incident Location: | Not reported |
| Location: | Facility | | |
| Other Location: | Not reported | | |
| Contact Name: | Not reported | | |
| Caller Name: | REDACTED | | |
| Caller Title: | Not reported | | |
| Caller Address: | Not reported | | |
| Caller City,St,Zip: | Not reported | | |
| Caller Telephone: | Not reported | | |
| Facility Phone: | N/A | | |
| Incident Date: | 12/16/1992 | Incident Time: | 1000 |
| Substance(s): | OIL HEATING #2, OIL HEATING #2 | | |
| Substance Type: | Liquid | Substance Identity: | Known |
| CAS Number: | Not reported | A310 Letter: | Yes |
| TCPA Chemical: | No | Hazrds Material: | Yes |
| COMU: | 1204 | Ref. Code: | 046 |
| Amnt Released: | UNK | Contained: | Yes |
| Release Type: | TERMINATED | Release VE: | Not reported |
| Injuries: | No | | |
| Public Exposure: | No | Facility Evacuation: | No |
| Police at Scene: | No | Firemen at Scene: | No |
| Contamination of: | Land | Receiving Water: | NONE |
| Status at Spill: | FOUND SOIL CONTAMINATION DURING TEST OF TANK. TANK WILL BE REMOVED AT LATER DATE. TANK IS 1-8000 GAL. | | |
| NJ Spill Date: | Not reported | NJ Spill Time: | Not reported |
| NJ Spill Name: | Not reported | NJ Spill Title: | Not reported |
| NJ Spill Phone: | Not reported | | |
| Other Date: | Not reported | Other Time: | Not reported |
| Other Name: | Not reported | Other Title: | Not reported |

| | |
|---|---|
| Other Telephone: | Not reported |
| Public Evacuation: | No |
| Assistance Requested: | No |
| Wind Direction/Speed: | Not reported |
| Local Municipality Notified: | Not reported |

**SQUIBB (Continued)** **S104442317**

| | |
|---|---|
| Local Municipality Name: | EAST BRUNSWICK TWP |
| Local Municipality Title: | OPER 5 |
| Local Municipality Telephone: | 908-390-6900 |
| Local Municipality Date: | 12/15/1992 |
| Local Municipality Time: | 1106 |
| Incident Description: | L.U.S.T. |
| Incident Name: | Not reported |
| Incident Referred To: | DRPSR |
| Incident Region: | BAC |
| Incident Telephone: | FAXED, MAIL |
| Incident Date: | 12/16/1992 |
| Incident time: | Not reported |
| Incident ITM: | B |
| Comments: Not reported | |
| Date A310 Letter Printed: | Not reported |
| Date Local Authority Was Notified: | Not reported |
| Date Updated: | Not reported |
| Date Report Faxed to Local Authority: | Not reported |
| Local Authority Notification Date: | Not reported |
| Rep Receive Date: | Not reported |
| Reporter Type: | Not reported |
| Reporter Name: | Not reported |
| Reporter Title: | Not reported |
| Reporter Org: | Not reported |
| Reporter Address: | Not reported |
| Reporter City,St,Zip: | Not reported |
| Reporter County: | Not reported |
| Incident Status: | Not reported |
| Incident Category: | Not reported |
| Incident Source: | Not reported |
| Incident Address: | Not reported |
| Incident Address 2: | Not reported |
| Incident City,St,Zip: | Not reported |
| Incident County: | Not reported |
| DEP Requested: | Not reported |
| Confidential: | Not reported |
| Notify Type: | Not reported |
| Road Closed: | Not reported |
| Direction: | Not reported |
| Responsible Party: | Known |
| Responsible Party Name: | SHALIT TRUST |
| Responsible Party Contact: | DAVE MATHEWS |
| Responsible Party Title: | MGR |
| Responsible Party Phone: | N/A |
| Responsible Party Street: | 25 KENNEDY BLVD |
| Responsible Party County: | MIDDLESEX |
| Responsible Party City,St,Zip: | EAST BRUNSWICK, NJ |
| Memo. Of Understanding: | Not reported |
| Drill/trng Exercise: | Not reported |
| Hazardous: | Not reported |

**C10** **NEW JERSEY TURNPIKE ADMINISTRATION BUILDING** **HIST HWS U000362463**
**NEW JERSEY TPKE MP 83.4** **UST N/A**
**< 1/8** **EAST BRUNSWICK TWP, NJ 08903**
**1 ft.**

**Site 3 of 3 in cluster C**

**Relative:**
**Lower**

**Actual:**
**48 ft.**

HIST SHWS:

| | |
|---|---|
| **Case Status:** | **Active** |
| Status Date: | 7/29/1993 |
| Case ID: | 013168 |
| Contact: | BOMM |
| Sub Section Label: | A: Sites with On-Site Sources of Contamination |
| Site Municipality: | 1204 |
| Remedial Level Code: | C2 |
| Classification exception area dt: | Ongoing |
| Classification exception area dt: | 2/16/1996 |
| Deed Notice Status: | None |
| Deed Notice Date: | Not reported |
| Engineering Control Status: | None |
| Engineering Control Date: | Not reported |
| National Priorities List Status: | Not reported |
| National Priorities List Date: | Not reported |
| X Coordinate: | 517413 |
| Y Coordinate: | 598215 |
| Coordinate System: | NJ State Plane (NAD83) - USFEET |

UST:

| | |
|---|---|
| Facility ID: | 013168 |
| Owner Name: | Not Identified Not Identified |
| Organization: | Not Identified |
| Contact Type(UST Reg): | Facility Operator |
| Contact Address (UST Reg): | Not reported |
| Contact Address 2 (UST Reg): | Not reported |
| Conact City,St,Zip (UST Reg): | Not reported |
| Owner Name: | BRIAN F CAMPBELL |
| Organization: | NJ TURNPIKE AUTHORITY |
| Contact Type(UST Reg): | Tank Owner |
| Contact Address (UST Reg): | PO BOX 335 |
| Contact Address 2 (UST Reg): | ATTN: JUDITH GRANT |
| Conact City,St,Zip (UST Reg): | Hightstown, NJ 08520 |
| | |
| Tank Id: | TANK-155625 |
| Tank Number: | A-O |
| Tank Contents: | Heating Oil (No. 4) |
| Tank Size: | 7500 |
| Install Date: | 1/1/1951 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | Yes |
| Tank Status Date: | 11/12/1992 |
| Compliance Monitoring?: | No |
| Overfill Protection: | Yes |
| Spill Containment: | Yes |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Tank |

**NEW JERSEY TURNPIKE ADMINISTRATION BUILDING (Continued)** **U000362463**

Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Bare steel
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Bare steel

Tank Id: TANK-155626
Tank Number: A5
Tank Contents: Heating Oil (No. 4)
Tank Size: 5000
Install Date: 1/1/1952
Tank Compliance: No
**Tank Status: Removed**
Overfill: No
Tank Status Date: 7/19/1990
Compliance Monitoring?: No
Overfill Protection: No
Spill Containment: No
Tank Wellhead Protection: Not reported

TANK MONITOR DATA:
Monitor Tank / Pipe: Pipe
Monitor Type: None
Monitor Tank / Pipe: Tank
Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Bare steel
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Bare steel

Tank Id: TANK-3
Tank Number: A6
Tank Contents: Heating Oil (No. 4)
Tank Size: 5000
Install Date: 1/1/1952
Tank Compliance: No
**Tank Status: Removed**
Overfill: No
Tank Status Date: 7/19/1990
Compliance Monitoring?: No
Overfill Protection: No
Spill Containment: No
Tank Wellhead Protection: Not reported

TANK MONITOR DATA:
Monitor Tank / Pipe: Tank
Monitor Type: None
Monitor Tank / Pipe: Pipe
Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Bare steel
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Bare steel

**NEW JERSEY TURNPIKE ADMINISTRATION BUILDING (Continued)** **U000362463**

| | |
|---|---|
| Tank Id: | TANK-4 |
| Tank Number: | E1 |
| Tank Contents: | Unleaded Gasoline |
| Tank Size: | 5000 |
| Install Date: | 1/1/1972 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 11/10/1992 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Bare steel |
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Bare steel |

| | |
|---|---|
| Tank Id: | TANK-5 |
| Tank Number: | E2 |
| Tank Contents: | Unleaded Gasoline |
| Tank Size: | 10000 |
| Install Date: | 1/1/1972 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 11/10/1992 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | None |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Bare steel |
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Bare steel |

| | |
|---|---|
| Tank Id: | TANK-6 |
| Tank Number: | E3 |
| Tank Contents: | Waste Oil |
| Tank Size: | 550 |
| Install Date: | 1/1/1972 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |

**NEW JERSEY TURNPIKE ADMINISTRATION BUILDING (Continued)** **U000362463**

| | |
|---|---|
| Overfill: | No |
| Tank Status Date: | 11/9/1992 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Bare steel |
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Bare steel |

| | |
|---|---|
| Tank Id: | TANK-7 |
| Tank Number: | E4 |
| Tank Contents: | Medium Diesel Fuel (No. 2-D) |
| Tank Size: | 550 |
| Install Date: | 1/1/1972 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 11/9/1992 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | None |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Bare steel |
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Bare steel |

---

**B11** **BRISTOL MEYER SQUIB** **ISRA S108087478**
**25 KENNEDY BOULEVARD** **N/A**
**< 1/8** **EAST BRUNSWICK TWP, NJ 08816**
**1 ft.**

**Site 5 of 7 in cluster B**

**Relative: Lower**

**Actual: 57 ft.**

NJ ISRA:

| | |
|---|---|
| Pi Number: | 024840 |
| Action Number: | ISR940002 |
| Title: | E94172 Bristol-Myers-squibb Co |
| Isra Trg: Finalized Date | Not reported |
| Start Date: | 1996-05-23 00:00:00 |
| Facility Status: | Exempt from ECRA/ISRA |
| Case No: | E94172 |
| Case Name: | Bristol-Myers-squibb Company |

**BRISTOL MEYER SQUIB (Continued)** **S108087478**

Case Type: ISRA
Trigger Type: Cessation
Trigger Date: 1994-04-28 00:00:00

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**B12** **DOERING EQUIPMENT INC** **RCRA-NonGen** **1000989706**
**17 KENNEDY BLVD** **FINDS** **NJR000002410**
**< 1/8** **EAST BRUNSWICK, NJ 08816** **HIST LUST**
**1 ft.**

**Site 6 of 7 in cluster B**

**Relative: Lower**

**Actual: 67 ft.**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: DOERING EQUIPMENT INC
Facility address: 17 KENNEDY BLVD
EAST BRUNSWICK, NJ 088161250
EPA ID: NJR000002410
Mailing address: KENNEDY BLVD
EAST BRUNSWICK, NJ 08816
Contact: Not reported
Contact address: KENNEDY BLVD
EAST BRUNSWICK, NJ 08816
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: HAROLD DOERING
Owner/operator address: 17 KENNEDY BLVD
EAST BRUNSWICK, NJ 08816
Owner/operator country: US
Owner/operator telephone: (732) 247-7776
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: HAROLD DOERING
Owner/operator address: 17 KENNEDY BLVD
EAST BRUNSWICK, NJ 08816
Owner/operator country: US
Owner/operator telephone: (732) 247-7776
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: Unknown
Treater, storer or disposer of HW: No
Underground injection activity: No

**DOERING EQUIPMENT INC (Continued)** **1000989706**

On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: DOERING EQUIPMENT INC
Classification: Not a generator, verified

Date form received by agency: 03/31/1995
Facility name: DOERING EQUIPMENT INC
Classification: Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 02/12/1998
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

FINDS:

Registry ID: 110004248092

Environmental Interest/Information System
NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

LUST HIST:
Case ID: Not reported
Lead Program Assigned: Bureau of Field Operations - Initial Notice Section
**Facility Status:** **Site Issued Letter of No Further Action for Area(s) Of Concern**
UST ID: 0049999
TMS Number: C95-0182
Remedial Level: Site has 1 area of concern with 1 media of concern.
Case Manager: Sheila Migliarino
Facility Phone: Not reported
No Further Action: 6/27/1995 0:00:00

**DOERING EQUIPMENT INC (Continued)** **1000989706**

RAW Approved: Not reported
CEA: Not reported
Date CEA Lifted: Not reported
Dead Notice: Not reported

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**13** **AT&T COMMUNICATIONS INC** **RCRA-NonGen** **1000390637**
**100 NARICON PL** **FINDS** **NJD982528978**
**< 1/8** **EAST BRUNSWICK, NJ 08816** **MANIFEST**
**1 ft.**

**Relative: Lower**

**Actual: 57 ft.**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: A T & T
Facility address: 100 NARICON PL
EAST BRUNSWICK, NJ 088161153
EPA ID: NJD982528978
Mailing address: NARICON PL
EAST BRUNSWICK, NJ 08816
Contact: Not reported
Contact address: NARICON PL
EAST BRUNSWICK, NJ 08816
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: TOWER CENTER ASSN
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: TOWER CENTER ASSN
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: Unknown
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown

**AT&T COMMUNICATIONS INC (Continued)** **1000390637**

| | |
|---|---|
| Furnace exemption: | Unknown |
| Used oil fuel burner: | No |
| Used oil processor: | No |
| User oil refiner: | No |
| Used oil fuel marketer to burner: | No |
| Used oil Specification marketer: | No |
| Used oil transfer facility: | No |
| Used oil transporter: | No |
| Off-site waste receiver: | Commercial status unknown |

Historical Generators:

| | |
|---|---|
| Date form received by agency: | 01/01/2006 |
| Facility name: | A T & T |
| Classification: | Not a generator, verified |

| | |
|---|---|
| Date form received by agency: | 02/10/1988 |
| Facility name: | A T & T |
| Classification: | Small Quantity Generator |

Violation Status: No violations found

FINDS:

Registry ID: 110004200846

Environmental Interest/Information System

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

| | |
|---|---|
| EPA ID: | NJD982528978 |
| Country: | USA |
| Mailing Name: | AMERICAN TELEPHONE & TELEGRAPH |
| Mailing Contact: | AMERICAN TELEPHONE & TELEGRAPH |
| Mailing Address: | 100 NORMAN PLACE |
| Mailing Address 2: | Not reported |
| Mailing City: | EAST BRUNSWICK |
| Mailing State: | NJ |
| Mailing Zip: | 08816 |
| Mailing Zip4: | Not reported |
| Mailing Country: | USA |
| Mailing Phone: | 201-519-5218 |

| | |
|---|---|
| Document ID: | NYA5142924 |
| Manifest Status: | Completed copy |
| Trans1 State ID: | GAHK4626 |
| Trans2 State ID: | Not reported |

**AT&T COMMUNICATIONS INC (Continued)** **1000390637**

| | |
|---|---|
| Generator Ship Date: | 880309 |
| Trans1 Recv Date: | 880309 |
| Trans2 Recv Date: | Not reported |
| TSD Site Recv Date: | 880310 |
| Part A Recv Date: | 880315 |
| Part B Recv Date: | 880315 |
| Generator EPA ID: | NJD982528978 |
| Trans1 EPA ID: | GAD042097261 |
| Trans2 EPA ID: | Not reported |
| TSDF ID: | NYD086225596 |
| Waste Code: | D002 - NON-LISTED CORROSIVE WASTES |
| Quantity: | 00038 |
| Units: | G - Gallons (liquids only)* (8.3 pounds) |
| Number of Containers: | 015 |
| Container Type: | DF - Fiberboard or plastic drums (glass) |
| Handling Method: | T Chemical, physical, or biological treatment. |
| Specific Gravity: | 100 |
| Year: | 88 |
| Manifest Tracking Num: | Not reported |
| Import Ind: | Not reported |
| Export Ind: | Not reported |
| Discr Quantity Ind: | Not reported |
| Discr Type Ind: | Not reported |
| Discr Residue Ind: | Not reported |
| Discr Partial Reject Ind: | Not reported |
| Discr Full Reject Ind: | Not reported |
| Manifest Ref Num: | Not reported |
| Alt Fac RCRA Id: | Not reported |
| Alt Fac Sign Date: | Not reported |
| Mgmt Method Type Code: | Not reported |

| | |
|---|---|
| Document ID: | NYA5142951 |
| Manifest Status: | Completed after the designated time period for a TSDF to get a copy to the DEC |
| Trans1 State ID: | 033677 |
| Trans2 State ID: | Not reported |
| Generator Ship Date: | 880729 |
| Trans1 Recv Date: | 880729 |
| Trans2 Recv Date: | Not reported |
| TSD Site Recv Date: | 880729 |
| Part A Recv Date: | 880808 |
| Part B Recv Date: | 880909 |
| Generator EPA ID: | NJD982528978 |
| Trans1 EPA ID: | GAD042097261 |
| Trans2 EPA ID: | Not reported |
| TSDF ID: | NYD086225596 |
| Waste Code: | D011 - SILVER 5.0 MG/L TCLP |
| Quantity: | 00035 |
| Units: | G - Gallons (liquids only)* (8.3 pounds) |
| Number of Containers: | 013 |
| Container Type: | DF - Fiberboard or plastic drums (glass) |
| Handling Method: | T Chemical, physical, or biological treatment. |
| Specific Gravity: | 100 |
| Year: | 88 |
| Manifest Tracking Num: | Not reported |
| Import Ind: | Not reported |
| Export Ind: | Not reported |

**AT&T COMMUNICATIONS INC (Continued)** **1000390637**

| | |
|---|---|
| Discr Quantity Ind: | Not reported |
| Discr Type Ind: | Not reported |
| Discr Residue Ind: | Not reported |
| Discr Partial Reject Ind: | Not reported |
| Discr Full Reject Ind: | Not reported |
| Manifest Ref Num: | Not reported |
| Alt Fac RCRA Id: | Not reported |
| Alt Fac Sign Date: | Not reported |
| Mgmt Method Type Code: | Not reported |

| | |
|---|---|
| Document ID: | NYA5142978 |
| Manifest Status: | Completed copy |
| Trans1 State ID: | Not reported |
| Trans2 State ID: | Not reported |
| Generator Ship Date: | 881010 |
| Trans1 Recv Date: | 881010 |
| Trans2 Recv Date: | Not reported |
| TSD Site Recv Date: | 881012 |
| Part A Recv Date: | 881020 |
| Part B Recv Date: | 881021 |
| Generator EPA ID: | NJD982528978 |
| Trans1 EPA ID: | GAD042097261 |
| Trans2 EPA ID: | Not reported |
| TSDF ID: | NYD086225596 |
| Waste Code: | D011 - SILVER 5.0 MG/L TCLP |
| Quantity: | 00010 |
| Units: | G - Gallons (liquids only)* (8.3 pounds) |
| Number of Containers: | 003 |
| Container Type: | DF - Fiberboard or plastic drums (glass) |
| Handling Method: | T Chemical, physical, or biological treatment. |
| Specific Gravity: | 100 |
| Year: | 88 |
| Manifest Tracking Num: | Not reported |
| Import Ind: | Not reported |
| Export Ind: | Not reported |
| Discr Quantity Ind: | Not reported |
| Discr Type Ind: | Not reported |
| Discr Residue Ind: | Not reported |
| Discr Partial Reject Ind: | Not reported |
| Discr Full Reject Ind: | Not reported |
| Manifest Ref Num: | Not reported |
| Alt Fac RCRA Id: | Not reported |
| Alt Fac Sign Date: | Not reported |
| Mgmt Method Type Code: | Not reported |

| | |
|---|---|
| Document ID: | NYA5831622 |
| Manifest Status: | Completed copy |
| Trans1 State ID: | 27758MA |
| Trans2 State ID: | Not reported |
| Generator Ship Date: | 890525 |
| Trans1 Recv Date: | 890525 |
| Trans2 Recv Date: | Not reported |
| TSD Site Recv Date: | 890525 |
| Part A Recv Date: | 890616 |
| Part B Recv Date: | 890601 |

**AT&T COMMUNICATIONS INC (Continued)** **1000390637**

| | |
|---|---|
| Generator EPA ID: | NJD982528978 |
| Trans1 EPA ID: | MAD084814136 |
| Trans2 EPA ID: | Not reported |
| TSDF ID: | NYD086225596 |
| Waste Code: | D011 - SILVER 5.0 MG/L TCLP |
| Quantity: | 00015 |
| Units: | G - Gallons (liquids only)* (8.3 pounds) |
| Number of Containers: | 003 |
| Container Type: | DF - Fiberboard or plastic drums (glass) |
| Handling Method: | T Chemical, physical, or biological treatment. |
| Specific Gravity: | 100 |
| Year: | 89 |
| Manifest Tracking Num: | Not reported |
| Import Ind: | Not reported |
| Export Ind: | Not reported |
| Discr Quantity Ind: | Not reported |
| Discr Type Ind: | Not reported |
| Discr Residue Ind: | Not reported |
| Discr Partial Reject Ind: | Not reported |
| Discr Full Reject Ind: | Not reported |
| Manifest Ref Num: | Not reported |
| Alt Fac RCRA Id: | Not reported |
| Alt Fac Sign Date: | Not reported |
| Mgmt Method Type Code: | Not reported |

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**14** **SHWS S109222468**

**37 WESTONS MILL RD** **NJ Release N/A**

**< 1/8** **EAST BRUNSWICK TWP, NJ**

**1 ft.**

**Relative: Lower**

**Actual: 61 ft.**

SHWS:

| | |
|---|---|
| Site ID: | 390000 |
| Status: | CLOSED |
| Home Owner: | Yes |
| PI Number: | 487419 |
| X Coord Site: | Not reported |
| X Coord PI: | Not reported |
| Y Coord Site: | Not reported |
| Y Coord PI: | Not reported |

NJ Release:

| | | | |
|---|---|---|---|
| Facility ID: | 279000 | Case Number: | 08-06-27-1003-46 |
| Date Received: | 6/27/2008 | Nature of Incident: | Not reported |
| Operator: | Not reported | | |
| Incident Type: | Underground Storage Tank | Incident Location: | RESID |
| Location: | Not reported | | |
| Other Location: | Not reported | | |
| Contact Name: | Not reported | | |
| Caller Name: | Not reported | | |
| Caller Title: | Not reported | | |
| Caller Address: | Not reported | | |
| Caller City,St,Zip: | Not reported | | |
| Caller Telephone: | Not reported | | |
| Facility Phone: | Not reported | | |
| Incident Date: | 6/27/2008 | Incident Time: | Not reported |
| Substance(s): | Not reported | | |
| Substance Type: | Not reported | Substance Identity: | Not reported |

**(Continued)** **S109222468**

| | | | |
|---|---|---|---|
| CAS Number: | Not reported | A310 Letter: | Not reported |
| TCPA Chemical: | Not reported | Hazrds Material: | Not reported |
| COMU: | Not reported | Ref. Code: | Not reported |
| Amnt Released: | Not reported | Contained: | Not reported |
| Release Type: | Not reported | Release VE: | Not reported |
| Injuries: | No | | |
| Public Exposure: | No | Facility Evacuation: | No |
| Police at Scene: | No | Firemen at Scene: | No |
| Contamination of: | Not reported | Receiving Water: | Not reported |
| Status at Spill: | Not reported | | |
| NJ Spill Date: | Not reported | NJ Spill Time: | Not reported |
| NJ Spill Name: | Not reported | NJ Spill Title: | Not reported |
| NJ Spill Phone: | Not reported | | |
| Other Date: | Not reported | Other Time: | Not reported |
| Other Name: | Not reported | Other Title: | Not reported |

| | |
|---|---|
| Other Telephone: | Not reported |
| Public Evacuation: | No |
| Assistance Requested: | Not reported |
| Wind Direction/Speed: | Not reported |
| Local Municipality Notified: | Not reported |
| Local Municipality Name: | Not reported |
| Local Municipality Title: | Not reported |
| Local Municipality Telephone: | Not reported |
| Local Municipality Date: | Not reported |
| Local Municipality Time: | Not reported |
| Incident Description: | Not reported |
| Incident Name: | Not reported |
| Incident Referred To: | Not reported |
| Incident Region: | Not reported |
| Incident Telephone: | Not reported |
| Incident Date: | Not reported |
| Incident time: | Not reported |
| Incident ITM: | Not reported |
| Comments: Not reported | |
| Date A310 Letter Printed: | Not reported |
| Date Local Authority Was Notified: | Not reported |
| Date Updated: | Not reported |
| Date Report Faxed to Local Authority: | Not reported |
| Local Authority Notification Date: | Not reported |
| Rep Receive Date: | 6/27/2008 |
| Reporter Type: | Other |
| Reporter Name: | REDACTED |
| Reporter Title: | REDACTED |
| Reporter Org: | REDATED |
| Reporter Address: | Not reported |
| Reporter City,St,Zip: | Not reported |
| Reporter County: | Not reported |
| Incident Status: | Terminated |
| Incident Category: | Other |
| Incident Source: | ALEXANDER PAWLOWSKI |
| Incident Address: | 37 WESTONS MILL RD |
| Incident Address 2: | Not reported |
| Incident City,St,Zip: | East Brunswick Twp, NJ |
| Incident County: | Middlesex |
| DEP Requested: | No |
| Confidential: | Not reported |
| Notify Type: | Not reported |

**(Continued)** **S109222468**

| | |
|---|---|
| Road Closed: | No |
| Direction: | Not reported |
| Responsible Party: | Not reported |
| Responsible Party Name: | Not reported |
| Responsible Party Contact: | Not reported |
| Responsible Party Title: | Not reported |
| Responsible Party Phone: | Not reported |
| Responsible Party Street: | Not reported |
| Responsible Party County: | Not reported |
| Responsible Party City,St,Zip: | Not reported |
| Memo. Of Understanding: | Not reported |
| Drill/trng Exercise: | Not reported |
| Hazardous: | Not reported |

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**15** **FINE LINE AUTO BODY** **RCRA-NonGen** **1000197379**
**20 GATES AVE** **FINDS** **NJD986577724**
**< 1/8** **SOUTH RIVER, NJ 08882**
**1 ft.**

**Relative:**
**Lower**

**Actual:**
**49 ft.**

RCRA-NonGen:

| | |
|---|---|
| Date form received by agency: | 01/01/2007 |
| Facility name: | FINE LINE AUTO BODY |
| Facility address: | 20 GATES AVE<br>SOUTH RIVER, NJ 088821093 |
| EPA ID: | NJD986577724 |
| Mailing address: | GATES AVE<br>SOUTH RIVER, NJ 08882 |
| Contact: | Not reported |
| Contact address: | GATES AVE<br>SOUTH RIVER, NJ 08882 |
| Contact country: | US |
| Contact telephone: | Not reported |
| Contact email: | Not reported |
| EPA Region: | 02 |
| Classification: | Non-Generator |
| Description: | Handler: Non-Generators do not presently generate hazardous waste |

Owner/Operator Summary:

| | |
|---|---|
| Owner/operator name: | DANIEL GADZIALA |
| Owner/operator address: | NOT REQUIRED<br>NOT REQUIRED, WY 99999 |
| Owner/operator country: | US |
| Owner/operator telephone: | (212) 555-1212 |
| Legal status: | Private |
| Owner/Operator Type: | Operator |
| Owner/Op start date: | Not reported |
| Owner/Op end date: | Not reported |

| | |
|---|---|
| Owner/operator name: | DANIEL GADZIALA |
| Owner/operator address: | NOT REQUIRED<br>NOT REQUIRED, WY 99999 |
| Owner/operator country: | US |
| Owner/operator telephone: | (212) 555-1212 |
| Legal status: | Private |
| Owner/Operator Type: | Owner |
| Owner/Op start date: | Not reported |
| Owner/Op end date: | Not reported |

**FINE LINE AUTO BODY (Continued)** **1000197379**

Handler Activities Summary:
- U.S. importer of hazardous waste: Unknown
- Mixed waste (haz. and radioactive): Unknown
- Recycler of hazardous waste: No
- Transporter of hazardous waste: Unknown
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: Unknown
- Furnace exemption: Unknown
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No
- Off-site waste receiver: Commercial status unknown

Historical Generators:
- Date form received by agency: 01/01/2006
- Facility name: FINE LINE AUTO BODY
- Classification: Not a generator, verified

- Date form received by agency: 03/13/1990
- Facility name: FINE LINE AUTO BODY
- Classification: Small Quantity Generator

- Violation Status: No violations found

FINDS:

- Registry ID: 110004213609

Environmental Interest/Information System

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

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**16** **TOWER CENTER II** **RCRA-NonGen** **1001405055**
**2 TOWER CENTER BLVD 10TH FLOOR** **FINDS** **NJR000027730**
**< 1/8** **EAST BRUNSWICK, NJ 08816**
**1 ft.**

**Relative:**
**Lower**

**Actual:**
**10 ft.**

RCRA-NonGen:
- Date form received by agency: 01/01/2007
- Facility name: TOWER CENTER II
- Facility address: 2 TOWER CENTER BLVD 10TH FLOOR
  EAST BRUNSWICK, NJ 08816
- EPA ID: NJR000027730

**TOWER CENTER II (Continued)** **1001405055**

Mailing address: TOWER CENTER BLVD 10TH FLOOR
EAST BRUNSWICK, NJ 08816
Contact: EDWARD MCDONALD
Contact address: TOWER CENTER BLVD 10TH FLOOR
EAST BRUNSWICK, NJ 08816
Contact country: US
Contact telephone: (732) 545-8846
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: BOSTON PROPERTIES
Owner/operator address: 8 ARLINGTON ST
BOSTON, MA 02116
Owner/operator country: US
Owner/operator telephone: (617) 859-2600
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: BOSTON PROPERTIES
Owner/operator address: 8 ARLINGTON ST
BOSTON, MA 02116
Owner/operator country: US
Owner/operator telephone: (617) 859-2600
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: Unknown
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: TOWER CENTER II
Classification: Not a generator, verified

**TOWER CENTER II (Continued)** **1001405055**

Date form received by agency: 02/01/1999
Facility name: TOWER CENTER II
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110004263564

Environmental Interest/Information System
NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

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**B17** **DOERING EQUIPMENT INC** **UST** **U000356113**
**17 KENNEDY BLVD** **SPILLS** **N/A**
**< 1/8** **EAST BRUNSWICK TWP, NJ 08816**
**1 ft.**

**Site 7 of 7 in cluster B**

**Relative: Lower**

**Actual: 67 ft.**

UST:
Facility ID: 004999
Owner Name: Not Identified Not Identified
Organization: Not Identified
Contact Type(UST Reg): Facility Operator
Contact Address (UST Reg): Not reported
Contact Address 2 (UST Reg): Not reported
Conact City,St,Zip (UST Reg): Not reported
Owner Name: HAROLD D DOERING PRE
Organization: MICHELE LTD
Contact Type(UST Reg): Tank Owner
Contact Address (UST Reg): 28 KENNEDY BLVD
Contact Address 2 (UST Reg): Not reported
Conact City,St,Zip (UST Reg): East Brunswick Twp, NJ 08816

Tank Id: TANK-1
Tank Number: E1
Tank Contents: Unleaded Gasoline
Tank Size: 1000
Install Date: 1/1/1971
Tank Compliance: No
**Tank Status: Removed**
Overfill: Yes
Tank Status Date: 3/21/1995
Compliance Monitoring?: No
Overfill Protection: Yes
Spill Containment: Yes
Tank Wellhead Protection: Not reported

**DOERING EQUIPMENT INC (Continued)** **U000356113**

TANK MONITOR DATA:
Monitor Tank / Pipe: Pipe
Monitor Type: None
Monitor Tank / Pipe: Tank
Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Bare steel
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Bare steel

Tank Id: TANK-2
Tank Number: E2
Tank Contents: Unleaded Gasoline
Tank Size: 1000
Install Date: 1/1/1971
Tank Compliance: No
**Tank Status: Removed**
Overfill: Yes
Tank Status Date: 3/21/1995
Compliance Monitoring?: No
Overfill Protection: Yes
Spill Containment: Yes
Tank Wellhead Protection: Not reported

TANK MONITOR DATA:
Monitor Tank / Pipe: Pipe
Monitor Type: None
Monitor Tank / Pipe: Tank
Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Bare steel
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Bare steel

Tank Id: TANK-3
Tank Number: E3
Tank Contents: Waste Oil
Tank Size: 500
Install Date: 1/1/1971
Tank Compliance: No
**Tank Status: Removed**
Overfill: Yes
Tank Status Date: 3/21/1995
Compliance Monitoring?: No
Overfill Protection: Yes
Spill Containment: No
Tank Wellhead Protection: Not reported

TANK MONITOR DATA:
Monitor Tank / Pipe: Tank
Monitor Type: None
Monitor Tank / Pipe: Pipe
Monitor Type: None

TANK DETAIL:

**DOERING EQUIPMENT INC (Continued)** **U000356113**

Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Bare steel
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Bare steel

NJ SPILL:
Facility ID: 28161
Case Number: 98-07-11-1848-24
Notify Type: Municipality
Date Received: 7/11/1998
Location: Facility
Other Location: Not reported
Incident Date: 7/11/1998
Incident Time: 1755
A310 Letter: False
Ref. Code: 002
COMU: 1204
CAS Number: Not reported
Hazardous: Not reported
Incident Location: Not reported
Facility Phone: Not reported
Substance(s): Not reported
Substance Type: Not reported
Substance Identity: Not reported
TCPA Chemical: Not reported
Hazrds Material: Not reported
Amnt Released: Not reported
Release VE: Not reported
Contained: Not reported
Release Type: Not reported
Incident Desc: Not reported
Status at Spill: TRUCK FIRE IN BLDG CAUSED RELEASE. FIRE IS OUT. CLEAN UP COMPLETE.
NJ Spill Date: Not reported
NJ Spill Time: Not reported
NJ Spill Name: Not reported
NJ Spill Title: Not reported
NJ Spill Phone: Not reported
Other Date: Not reported
Other Time: Not reported
Other Name: Not reported
Other Title: Not reported
Other Phone: Not reported
Injuries: No
Public Exposure: No
Road Closed: No
Facility Evacuation: No
Receiving Water: Not reported
Public Evacuation: No
Police at Scene: Yes
Firemen at Scene: Yes
Contamination of: Land
Nature of Incident: Not reported
Wind Direction/Speed: 0
Assistance Requested: No
Memo. Of Understanding: No
Drill/trng Exercise: No
Operator: JON

**DOERING EQUIPMENT INC (Continued)** **U000356113**

| | |
|---|---|
| Contact Name: | Not reported |
| Caller Name: | REDACTED |
| Caller Title: | Not reported |
| Caller Address: | Not reported |
| Caller City,St,Zip: | Not reported |
| Caller Phone: | Not reported |
| Responsible Party: | Known |
| Responsible Party Name: | DOERING EQUIP INC |
| Responsible Party Contact: | BEVERLY DORING |
| Responsible Party Title: | OWNER |
| Responsible Party Telphone: | 732-247-7776 |
| Responsible Party Street: | 17 KENNEDY BL |
| Responsible Party Municipality: | EAST BRUNSWICK |
| Responsible Party State: | NJ |
| Responsible Party Zip: | Not reported |
| Responsible City,St,Zip: | EAST BRUNSWICK, NJ |
| Responsible Party County: | MIDDLESEX |
| Local Municipality: | No |
| Local Municipality Name: | Not reported |
| Local Municipality Title: | Not reported |
| Local Municipality Phone: | Not reported |
| Local Municipality Date: | Not reported |
| Local Municipality Time: | Not reported |
| Incident Name: | Not reported |
| Incident Referred To: | Not reported |
| Incident Region: | Not reported |
| Incident Phone: | Not reported |
| Incident Date: | Not reported |
| Comments: Not reported | |
| Date A310 Letter Printed: | Not reported |
| Date Local Authority Was Notified: | Not reported |
| Date Update: | Not reported |
| Date Report Faxed to Local Authority: | Not reported |
| Local Authority Notification Date: | Not reported |
| Reporter Name: | Not reported |
| Reporter Type: | Not reported |
| Rep Received Date: | Not reported |
| Reporter Title: | Not reported |
| Reporter Orgzn: | Not reported |
| Reporter Address: | Not reported |
| Reporter City,St,Zip: | Not reported |
| Reporter County: | Not reported |
| Incident Type: | Not reported |
| Incident Status: | Not reported |
| Incident Category: | Not reported |
| Incident Source: | Not reported |
| Incident Address: | Not reported |
| Incident Address 2: | Not reported |
| Incident City,St,Zip: | Not reported |
| Incident County: | Not reported |
| DEP Requested: | Not reported |
| Confidential: | Not reported |

**D18** **19 AINSWORTH AVENUE** **VCP** **S106576395**
**South** **19 AINSWORTH AVE** **N/A**
**< 1/8** **EAST BRUNSWICK, NJ 07461**
**0.002 mi.**
**13 ft.** **Site 1 of 2 in cluster D**

**Relative:**
**Lower**

**Actual:**
**29 ft.**

VCP:

| | |
|---|---|
| Incident Number: | 03-07-01-0848-18 |
| MOA Execution Date: | 9/23/2003 |
| Type Of Vcp File: | HISTORICAL |
| Pi Number: | Not reported |
| Case Type(Case Type): | Not reported |
| Case Contact: Department | Not reported |
| Case Contact Name: | Not reported |
| Case Contact: Organization | Marie V Jocobson Estate |
| Case Contact: Address: Line1 | Not reported |
| Case Contact: Address: Line2 | Not reported |
| Case Contact: Address: Line3 | Not reported |
| Case Contact City,St,Zip: | Not reported |

---

**D19** **19 AINSWORTH AVENUE** **SHWS** **1008947216**
**South** **19 AINSWORTH AVE** **HIST HWS** **N/A**
**< 1/8** **EAST BRUNSWICK TWP, NJ 08816**
**0.002 mi.**
**13 ft.** **Site 2 of 2 in cluster D**

**Relative:**
**Lower**

**Actual:**
**29 ft.**

SHWS:

| | |
|---|---|
| Site ID: | 158545 |
| Status: | CLOSED |
| Home Owner: | Yes |
| PI Number: | 208607 |
| X Coord Site: | Not reported |
| X Coord PI: | Not reported |
| Y Coord Site: | Not reported |
| Y Coord PI: | Not reported |

HIST SHWS:

| | |
|---|---|
| **Case Status:** | **Active** |
| Status Date: | 9/23/2003 |
| Case ID: | 208607 |
| Contact: | Bureau of Field Operations - Southern |
| Sub Section Label: | A: Sites with On-Site Sources of Contamination |
| Site Municipality: | 1204 |
| Remedial Level Code: | C1 |
| Classification exception area dt: | None |
| Classification exception area dt: | Not reported |
| Deed Notice Status: | None |
| Deed Notice Date: | Not reported |
| Engineering Control Status: | None |
| Engineering Control Date: | Not reported |
| National Priorities List Status: | Not reported |
| National Priorities List Date: | Not reported |
| X Coordinate: | 519343 |
| Y Coordinate: | 598310 |
| Coordinate System: | NJ State Plane (NAD83) - USFEET |

**20**
**WSW**
**< 1/8**
**0.044 mi.**
**233 ft.**

**38 PATTON DRIVE**
**38 PATTON DR**
**EAST BRUNSWICK TWP, NJ 08816**

**FINDS** **1011912538**
**SHWS** **N/A**

**Relative:**
**Lower**

**Actual:**
**61 ft.**

FINDS:

Registry ID: 110037301498

Environmental Interest/Information System
NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

SHWS:

| | |
|---|---|
| Site ID: | 383314 |
| Status: | CLOSED |
| Home Owner: | Yes |
| PI Number: | 478264 |
| X Coord Site: | Not reported |
| X Coord PI: | Not reported |
| Y Coord Site: | Not reported |
| Y Coord PI: | Not reported |

---

**E21**
**WSW**
**< 1/8**
**0.060 mi.**
**316 ft.**

**21 PATTON DRIVE**
**21 PATTON DR**
**EAST BRUNSWICK, NJ 08816**
**Site 1 of 4 in cluster E**

**VCP** **S108062556**
**N/A**

**Relative:**
**Lower**

**Actual:**
**58 ft.**

VCP:

| | |
|---|---|
| Incident Number: | 06-01-21-0948-15 |
| MOA Execution Date: | 4/6/2006 |
| Type Of Vcp File: | HISTORICAL |
| Pi Number: | Not reported |
| Case Type(Case Type): | Not reported |
| Case Contact: Department | Not reported |
| Case Contact Name: | Not reported |
| Case Contact: Organization | Not reported |
| Case Contact: Address: Line1 | Not reported |
| Case Contact: Address: Line2 | Not reported |
| Case Contact: Address: Line3 | Not reported |
| Case Contact City,St,Zip: | Not reported |

---

**E22**
**WSW**
**< 1/8**
**0.060 mi.**
**316 ft.**

**21 PATTON DRIVE**
**21 PATTON DR**
**EAST BRUNSWICK TWP, NJ 08816**
**Site 2 of 4 in cluster E**

**FINDS** **1010557301**
**SHWS** **N/A**

**Relative:**
**Lower**

**Actual:**
**58 ft.**

FINDS:

Registry ID: 110032564428

Environmental Interest/Information System
NJ-NJEMS (New Jersey - New Jersey Environmental Management System).

**21 PATTON DRIVE (Continued)** **1010557301**

The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

SHWS:
Site ID: 218304
Status: CLOSED
Home Owner: Yes
PI Number: 285012
X Coord Site: Not reported
X Coord PI: Not reported
Y Coord Site: Not reported
Y Coord PI: Not reported

---

**E23** **28 PATTON DRIVE** **FINDS 1010544076**
**WSW** **28 PATTON DR** **SHWS N/A**
**< 1/8** **EAST BRUNSWICK TWP, NJ 08816**
**0.066 mi.**
**349 ft.** **Site 3 of 4 in cluster E**

**Relative: Lower**

**Actual: 58 ft.**

FINDS:

Registry ID: 110032409800

Environmental Interest/Information System
NJ-NJEMS (New Jersey - New Jersey Environmental Management System).
The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

SHWS:
Site ID: 164888
Status: CLOSED
Home Owner: Yes
PI Number: 216705
X Coord Site: Not reported
X Coord PI: Not reported
Y Coord Site: Not reported
Y Coord PI: Not reported

---

**E24** **NJ Release S106215823**
**WSW** **28 PATTON DR** **VCP N/A**
**< 1/8** **EAST BRUNSWICK TWP, NJ 08816**
**0.066 mi.**
**349 ft.** **Site 4 of 4 in cluster E**

**Relative: Lower**

**Actual: 58 ft.**

NJ Release:
Facility ID: 72178
Date Received: 9/24/2003
Operator: Not reported
Incident Type: Underground Storage Tank
Location: Not reported
Other Location: Not reported
Contact Name: Not reported
Caller Name: Not reported
Case Number: 03-09-24-1120-29
Nature of Incident: Not reported
Incident Location: RESID

**(Continued)** **S106215823**

| | | | |
|---|---|---|---|
| Caller Title: | Not reported | | |
| Caller Address: | Not reported | | |
| Caller City,St,Zip: | Not reported | | |
| Caller Telephone: | Not reported | | |
| Facility Phone: | Not reported | | |
| Incident Date: | 9/24/2003 | Incident Time: | Not reported |
| Substance(s): | Not reported | | |
| Substance Type: | Not reported | Substance Identity: | Not reported |
| CAS Number: | Not reported | A310 Letter: | Not reported |
| TCPA Chemical: | Not reported | Hazrds Material: | Not reported |
| COMU: | Not reported | Ref. Code: | Not reported |
| Amnt Released: | Not reported | Contained: | Not reported |
| Release Type: | Not reported | Release VE: | Not reported |
| Injuries: | No | | |
| Public Exposure: | No | Facility Evacuation: | No |
| Police at Scene: | No | Firemen at Scene: | No |
| Contamination of: | Not reported | Receiving Water: | Not reported |
| Status at Spill: | Not reported | | |
| NJ Spill Date: | Not reported | NJ Spill Time: | Not reported |
| NJ Spill Name: | Not reported | NJ Spill Title: | Not reported |
| NJ Spill Phone: | Not reported | | |
| Other Date: | Not reported | Other Time: | Not reported |
| Other Name: | Not reported | Other Title: | Not reported |

| | |
|---|---|
| Other Telephone: | Not reported |
| Public Evacuation: | No |
| Assistance Requested: | Not reported |
| Wind Direction/Speed: | Not reported |
| Local Municipality Notified: | Not reported |
| Local Municipality Name: | Not reported |
| Local Municipality Title: | Not reported |
| Local Municipality Telephone: | Not reported |
| Local Municipality Date: | Not reported |
| Local Municipality Time: | Not reported |
| Incident Description: | Not reported |
| Incident Name: | Not reported |
| Incident Referred To: | Not reported |
| Incident Region: | Not reported |
| Incident Telephone: | Not reported |
| Incident Date: | Not reported |
| Incident time: | Not reported |
| Incident ITM: | Not reported |
| Comments: Not reported | |
| Date A310 Letter Printed: | Not reported |
| Date Local Authority Was Notified: | Not reported |
| Date Updated: | Not reported |
| Date Report Faxed to Local Authority: | Not reported |
| Local Authority Notification Date: | Not reported |
| Rep Receive Date: | 9/24/2003 |
| Reporter Type: | Other |
| Reporter Name: | REDACTED |
| Reporter Title: | REDACTED |
| Reporter Org: | REDATED |
| Reporter Address: | Not reported |
| Reporter City,St,Zip: | Not reported |
| Reporter County: | Not reported |
| Incident Status: | Terminated |
| Incident Category: | Other |

**(Continued)** **S106215823**

| | |
|---|---|
| Incident Source: | FANNY CHING |
| Incident Address: | 28 PATTON DR |
| Incident Address 2: | Not reported |
| Incident City,St,Zip: | East Brunswick Twp, NJ 8816 |
| Incident County: | Middlesex |
| DEP Requested: | No |
| Confidential: | Not reported |
| Notify Type: | Not reported |
| Road Closed: | No |
| Direction: | Not reported |
| Responsible Party: | Not reported |
| Responsible Party Name: | Not reported |
| Responsible Party Contact: | Not reported |
| Responsible Party Title: | Not reported |
| Responsible Party Phone: | Not reported |
| Responsible Party Street: | Not reported |
| Responsible Party County: | Not reported |
| Responsible Party City,St,Zip: | Not reported |
| Memo. Of Understanding: | Not reported |
| Drill/trng Exercise: | Not reported |
| Hazardous: | Not reported |

VCP:

| | |
|---|---|
| Incident Number: | 03-09-24-1120-29 |
| MOA Execution Date: | 11/24/2003 |
| Type Of Vcp File: | HISTORICAL |
| Pi Number: | Not reported |
| Case Type(Case Type): | Not reported |
| Case Contact: Department | Not reported |
| Case Contact Name: | Not reported |
| Case Contact: Organization | Not reported |
| Case Contact: Address: Line1 | Not reported |
| Case Contact: Address: Line2 | Not reported |
| Case Contact: Address: Line3 | Not reported |
| Case Contact City,St,Zip: | Not reported |

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**F25** **WINTHROP PRODUCTS** **RCRA-NonGen** **1000409933**
**SE** **33 MCGUIRE ST** **FINDS** **NJD078256872**
**< 1/8** **EAST BRUNSWICK, NJ 08816**
**0.099 mi.**
**521 ft.** **Site 1 of 3 in cluster F**

**Relative:**
**Lower**

**Actual:**
**38 ft.**

RCRA-NonGen:

| | |
|---|---|
| Date form received by agency: | 01/01/2007 |
| Facility name: | WINTHROP PRODUCTS INC |
| Facility address: | 33 MCGUIRE ST<br>EAST BRUNSWICK, NJ 08816 |
| EPA ID: | NJD078256872 |
| Mailing address: | MCGUIRE ST<br>EAST BRUNSWICK, NJ 08816 |
| Contact: | BENJAMIN MIKULKA |
| Contact address: | MCGUIRE ST<br>EAST BRUNSWICK, NJ 08816 |
| Contact country: | US |
| Contact telephone: | (732) 545-1001 |
| Contact email: | Not reported |
| EPA Region: | 02 |

**WINTHROP PRODUCTS (Continued)** **1000409933**

Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: STERLING DRUG INC
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: STERLING DRUG INC
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: Unknown
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: WINTHROP PRODUCTS INC
Classification: Not a generator, verified

Date form received by agency: 07/31/1990
Facility name: WINTHROP PRODUCTS INC
Site name: WINTHROP PRODUCTS
Classification: Large Quantity Generator

Date form received by agency: 08/13/1980
Facility name: WINTHROP PRODUCTS INC
Classification: Not a generator, verified

**WINTHROP PRODUCTS (Continued)** **1000409933**

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 11/08/1990
Evaluation: COMPLIANCE SCHEDULE EVALUATION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/24/1990
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110004164298

Environmental Interest/Information System
NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

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**F26** **MIDDLESEX GYMNASTICS ACADEMY** **SHWS** **U000371206**
**SE** **33 MCGUIRE ST** **HIST LUST** **N/A**
**< 1/8** **EAST BRUNSWICK TWP, NJ 08816** **UST**
**0.099 mi.**
**521 ft.** **Site 2 of 3 in cluster F**

**Relative:**
**Lower**

**Actual:**
**38 ft.**

SHWS:
Site ID: 48711
Status: CLOSED
Home Owner: No
PI Number: 020176
X Coord Site: Not reported
X Coord PI: Not reported
Y Coord Site: Not reported
Y Coord PI: Not reported

LUST HIST:
Case ID: 91-09-17-1555
Lead Program Assigned: Bureau of Underground Storage Tanks
**Facility Status:** **Site Issued Letter of No Further Action for Area(s) Of Concern**
UST ID: 0201764
TMS Number: Not reported
Remedial Level: Not reported
Case Manager: Not reported
Facility Phone: Not reported

**MIDDLESEX GYMNASTICS ACADEMY (Continued)** **U000371206**

No Further Action: 6/4/1992 0:00:00
RAW Approved: Not reported
CEA: Not reported
Date CEA Lifted: Not reported
Dead Notice: Not reported

UST:
Facility ID: 020176
Owner Name: MICHAEL SHALIT
Organization: MICHELE LTD
Contact Type(UST Reg): Tank Owner
Contact Address (UST Reg): 28 KENNEDY BLVD
Contact Address 2 (UST Reg): Not reported
Conact City,St,Zip (UST Reg): East Brunswick Twp, NJ 08816
Owner Name: Not Identified Not Identified
Organization: Not Identified
Contact Type(UST Reg): Facility Operator
Contact Address (UST Reg): Not reported
Contact Address 2 (UST Reg): Not reported
Conact City,St,Zip (UST Reg): Not reported

Tank Id: TANK-1
Tank Number: 0001
Tank Contents: Heating Oil (No. 2)
Tank Size: 6000
Install Date: 1/1/1979
Tank Compliance: No
**Tank Status: Removed**
Overfill: No
Tank Status Date: 7/26/1991
Compliance Monitoring?: No
Overfill Protection: No
Spill Containment: No
Tank Wellhead Protection: Not reported

TANK MONITOR DATA:
Monitor Tank / Pipe: Pipe
Monitor Type: None
Monitor Tank / Pipe: Tank
Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: CONVERSION (NON-NULLABLE)
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: CONVERSION (NON-NULLABLE)

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**F27** **MIDDLESEX GYMNASTICS ACADEMY** **ISRA** **S107588613**
**SE** **33 MCGUIRE STREET** **N/A**
**< 1/8** **EAST BRUNSWICK TWP, NJ 08816**
**0.099 mi.**
**521 ft.** **Site 3 of 3 in cluster F**

**Relative:**
**Lower**

**Actual:**
**38 ft.**

NJ ISRA:
Pi Number: 020176
Action Number: ISR880002
Title: E88241 Sterling Drug Company
Isra Trg: Finalized Date Not reported

**MIDDLESEX GYMNASTICS ACADEMY (Continued)** **S107588613**

| | |
|---|---|
| Start Date: | 1989-05-22 00:00:00 |
| Facility Status: | NFA (No Further Action) HISTORIC |
| Case No: | E88241 |
| Case Name: | Sterling Drug Company |
| Case Type: | ISRA |
| Trigger Type: | Cessation |
| Trigger Date: | 1988-07-25 00:00:00 |
| | |
| Pi Number: | 020176 |
| Action Number: | ISR880002 |
| Title: | E88241 Sterling Drug Company |
| Isra Trg: Finalized Date | Not reported |
| Start Date: | 1989-05-22 00:00:00 |
| Facility Status: | NFA (No Further Action) HISTORIC |
| Case No: | E88241 |
| Case Name: | Sterling Drug Company |
| Case Type: | ISRA |
| Trigger Type: | Stock Transfer |
| Trigger Date: | 1988-07-25 00:00:00 |

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**28** **NEWMEYER JAMES** **RCRA-NonGen** **1004752309**
**SE** **30 N WOODLAND AVE** **FINDS** **NJD986638658**
**< 1/8** **EAST BRUNSWICK, NJ 08816**
**0.122 mi.**
**644 ft.**

**Relative:**
**Lower**

**Actual:**
**45 ft.**

RCRA-NonGen:

| | |
|---|---|
| Date form received by agency: | 01/01/2007 |
| Facility name: | NEWMEYER JAMES |
| Facility address: | 30 N WOODLAND AVE<br>EAST BRUNSWICK, NJ 08816 |
| EPA ID: | NJD986638658 |
| Mailing address: | N WOODLAND AVE<br>EAST BRUNSWICK, NJ 08816 |
| Contact: | JAMES NEWMEYER |
| Contact address: | N WOODLAND AVE<br>EAST BRUNSWICK, NJ 08816 |
| Contact country: | US |
| Contact telephone: | (732) 249-0868 |
| Contact email: | Not reported |
| EPA Region: | 02 |
| Classification: | Non-Generator |
| Description: | Handler: Non-Generators do not presently generate hazardous waste |

Owner/Operator Summary:

| | |
|---|---|
| Owner/operator name: | JAMES NEWMEYER |
| Owner/operator address: | 30 N WOODLAND AVE<br>EAST BRUNSWICK, NJ 08816 |
| Owner/operator country: | US |
| Owner/operator telephone: | (732) 249-0868 |
| Legal status: | Private |
| Owner/Operator Type: | Owner |
| Owner/Op start date: | Not reported |
| Owner/Op end date: | Not reported |
| | |
| Owner/operator name: | JAMES NEWMEYER |
| Owner/operator address: | 30 N WOODLAND AVE |

**NEWMEYER JAMES (Continued)** **1004752309**

EAST BRUNSWICK, NJ 08816
Owner/operator country: US
Owner/operator telephone: (732) 249-0868
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: Unknown
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: NEWMEYER JAMES
Classification: Not a generator, verified

Date form received by agency: 08/06/1992
Facility name: NEWMEYER JAMES
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110004237246

Environmental Interest/Information System
NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**G29** **EXXON R/S 3-1996** **UST** **U000358737**
**WNW** **34 HWY 1** **N/A**
**1/8-1/4** **NEW BRUNSWICK CITY, NJ 08901**
**0.132 mi.**
**699 ft.** **Site 1 of 3 in cluster G**

**Relative:**
**Higher**

**Actual:**
**79 ft.**

UST:

| | |
|---|---|
| Facility ID: | 008360 |
| Owner Name: | COMPLIANCE ANALYST |
| Organization: | EXXON MOBIL CORP |
| Contact Type(UST Reg): | Facility Operator |
| Contact Address (UST Reg): | 7300 W FRIENDLY AVE MS F 76 |
| Contact Address 2 (UST Reg): | C/O GILBARCO VEEDER ROOT CMS |
| Conact City,St,Zip (UST Reg): | GREENSBORO, NC 27420 |
| Owner Name: | COMPLIANCE ANALYST |
| Organization: | EXXON MOBIL CORP |
| Contact Type(UST Reg): | Tank Owner |
| Contact Address (UST Reg): | 7300 W FRIENDLY AVE MS F 76 |
| Contact Address 2 (UST Reg): | C/O GILBARCO VEEDER ROOT CMS |
| Conact City,St,Zip (UST Reg): | GREENSBORO, NC 27420 |
| Tank Id: | TANK-1 |
| Tank Number: | E1 |
| Tank Contents: | Unleaded Gasoline |
| Tank Size: | 10000 |
| Install Date: | 1/1/1983 |
| Tank Compliance: | Yes |
| **Tank Status:** | **In-use** |
| Overfill: | Yes |
| Tank Status Date: | 1/1/1983 |
| Compliance Monitoring?: | Yes |
| Overfill Protection: | Yes |
| Spill Containment: | Yes |
| Tank Wellhead Protection: | No |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | In-tank(automatic)monitoring |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | Tightness Test |
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | Tightness Test |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | In-line electronic pressure monitor |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | Interstitial |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Fiberglass-reinforced plastic |
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Fiberglass-reinforced plastic |
| Tank Id: | TANK-2 |
| Tank Number: | E2 |
| Tank Contents: | Unleaded Gasoline |
| Tank Size: | 10000 |
| Install Date: | 1/1/1983 |
| Tank Compliance: | Yes |
| **Tank Status:** | **In-use** |

**EXXON R/S 3-1996 (Continued)** **U000358737**

Overfill: Yes
Tank Status Date: 1/1/1983
Compliance Monitoring?: Yes
Overfill Protection: Yes
Spill Containment: Yes
Tank Wellhead Protection: No

TANK MONITOR DATA:
Monitor Tank / Pipe: Tank
Monitor Type: Tightness Test
Monitor Tank / Pipe: Pipe
Monitor Type: Interstitial
Monitor Tank / Pipe: Pipe
Monitor Type: In-line electronic pressure monitor
Monitor Tank / Pipe: Tank
Monitor Type: In-tank(automatic)monitoring
Monitor Tank / Pipe: Pipe
Monitor Type: Tightness Test

TANK DETAIL:
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Fiberglass-reinforced plastic
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Fiberglass-reinforced plastic

Tank Id: TANK-3
Tank Number: E3
Tank Contents: Unleaded Gasoline
Tank Size: 8000
Install Date: 1/1/1983
Tank Compliance: Yes
**Tank Status:** **In-use**
Overfill: Yes
Tank Status Date: 1/1/1983
Compliance Monitoring?: Yes
Overfill Protection: Yes
Spill Containment: Yes
Tank Wellhead Protection: No

TANK MONITOR DATA:
Monitor Tank / Pipe: Tank
Monitor Type: Tightness Test
Monitor Tank / Pipe: Pipe
Monitor Type: In-line electronic pressure monitor
Monitor Tank / Pipe: Pipe
Monitor Type: Interstitial
Monitor Tank / Pipe: Tank
Monitor Type: In-tank(automatic)monitoring
Monitor Tank / Pipe: Pipe
Monitor Type: Tightness Test

TANK DETAIL:
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Fiberglass-reinforced plastic
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Fiberglass-reinforced plastic

Tank Id: TANK-4
Tank Number: E4

**EXXON R/S 3-1996 (Continued)** **U000358737**

| | |
|---|---|
| Tank Contents: | Light Diesel Fuel (No. 1-D) |
| Tank Size: | 6000 |
| Install Date: | 1/1/1983 |
| Tank Compliance: | Yes |
| **Tank Status:** | **In-use** |
| Overfill: | Yes |
| Tank Status Date: | 1/1/1983 |
| Compliance Monitoring?: | Yes |
| Overfill Protection: | Yes |
| Spill Containment: | Yes |
| Tank Wellhead Protection: | No |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | In-line electronic pressure monitor |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | Tightness Test |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | Interstitial |
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | Tightness Test |
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | In-tank(automatic)monitoring |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Fiberglass-reinforced plastic |
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Fiberglass-reinforced plastic |

| | |
|---|---|
| Tank Id: | TANK-5 |
| Tank Number: | E5 |
| Tank Contents: | Waste Oil |
| Tank Size: | 1000 |
| Install Date: | 1/1/1984 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 12/3/1993 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Fiberglass-reinforced plastic |
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Fiberglass-reinforced plastic |

**G30** **SEARCH ROEBUCK & CO** **UST** **U000361854**
**WNW** **RT 1 & RT 18** **N/A**
**1/8-1/4** **NEW BRUNSWICK CITY, NJ 08901**
**0.132 mi.**
**699 ft.** **Site 2 of 3 in cluster G**

**Relative:**
**Higher**

**Actual:**
**79 ft.**

UST:

| | |
|---|---|
| Facility ID: | 012432 |
| Owner Name: | Not Identified Not Identified |
| Organization: | Not Identified |
| Contact Type(UST Reg): | Facility Operator |
| Contact Address (UST Reg): | Not reported |
| Contact Address 2 (UST Reg): | Not reported |
| Conact City,St,Zip (UST Reg): | Not reported |
| Owner Name: | SCOTT DEMUTH |
| Organization: | SEARS ROEBUCK & CO |
| Contact Type(UST Reg): | Tank Owner |
| Contact Address (UST Reg): | 3333 BEVERLY RD |
| Contact Address 2 (UST Reg): | Not reported |
| Conact City,St,Zip (UST Reg): | HOFFMAN ESTATES, IL 60179 |
| | |
| Tank Id: | TANK-1 |
| Tank Number: | 0001 |
| Tank Contents: | Waste Oil |
| Tank Size: | 550 |
| Install Date: | 1/1/1969 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 1/13/1994 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Bare steel |
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Other |
| | |
| Tank Id: | TANK-2 |
| Tank Number: | 0002 |
| Tank Contents: | Unleaded Gasoline |
| Tank Size: | 8000 |
| Install Date: | 1/1/1982 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 1/13/1994 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

**SEARS ROEBUCK & CO (Continued)** **U000361854**

TANK MONITOR DATA:
Monitor Tank / Pipe: Tank
Monitor Type: None
Monitor Tank / Pipe: Pipe
Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Fiberglass-reinforced plastic
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Other

Tank Id: TANK-3
Tank Number: 0003
Tank Contents: Unleaded Gasoline
Tank Size: 6000
Install Date: 1/1/1978
Tank Compliance: No
**Tank Status: Removed**
Overfill: No
Tank Status Date: 1/13/1994
Compliance Monitoring?: No
Overfill Protection: No
Spill Containment: No
Tank Wellhead Protection: Not reported

TANK MONITOR DATA:
Monitor Tank / Pipe: Tank
Monitor Type: None
Monitor Tank / Pipe: Pipe
Monitor Type: None

TANK DETAIL:
Tankpipe Tank / Pipe: Tank
Tankpipe Construction Type: Bare steel
Tankpipe Tank / Pipe: Pipe
Tankpipe Construction Type: Other

Tank Id: TANK-4
Tank Number: 4
Tank Contents: Heating Oil (No. 2)
Tank Size: 10000
Install Date: 1/1/1968
Tank Compliance: No
**Tank Status: Removed**
Overfill: No
Tank Status Date: 4/23/1998
Compliance Monitoring?: No
Overfill Protection: No
Spill Containment: No
Tank Wellhead Protection: Not reported

TANK MONITOR DATA:
Monitor Tank / Pipe: Tank
Monitor Type: None
Monitor Tank / Pipe: Pipe
Monitor Type: None

TANK DETAIL:

**SEARS ROEBUCK & CO (Continued)** **U000361854**

| | |
|---|---|
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Bare steel |
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Bare steel |
| | |
| Tank Id: | TANK-5 |
| Tank Number: | 5 |
| Tank Contents: | Heating Oil (No. 2) |
| Tank Size: | 10000 |
| Install Date: | 1/1/1968 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 4/23/1998 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Bare steel |
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Bare steel |
| | |
| Tank Id: | TANK-6 |
| Tank Number: | 6 |
| Tank Contents: | Heating Oil (No. 2) |
| Tank Size: | 5000 |
| Install Date: | 1/1/1968 |
| Tank Compliance: | No |
| **Tank Status:** | **Removed** |
| Overfill: | No |
| Tank Status Date: | 4/21/1998 |
| Compliance Monitoring?: | No |
| Overfill Protection: | No |
| Spill Containment: | No |
| Tank Wellhead Protection: | Not reported |

TANK MONITOR DATA:

| | |
|---|---|
| Monitor Tank / Pipe: | Pipe |
| Monitor Type: | None |
| Monitor Tank / Pipe: | Tank |
| Monitor Type: | None |

TANK DETAIL:

| | |
|---|---|
| Tankpipe Tank / Pipe: | Tank |
| Tankpipe Construction Type: | Bare steel |
| Tankpipe Tank / Pipe: | Pipe |
| Tankpipe Construction Type: | Bare steel |

**G31** **CIRCLE EXXON SERVICE STATION #31996** **RCRA-NonGen** **1000541595**
**WNW** **RTE 1 & RTE 18** **FINDS** **NJD986599041**
**1/8-1/4** **NEW BRUNSWICK, NJ 08901**
**0.134 mi.**
**707 ft.** **Site 3 of 3 in cluster G**

**Relative:**
**Higher**

**Actual:**
**79 ft.**

RCRA-NonGen:

| | |
|---|---|
| Date form received by agency: | 01/01/2007 |
| Facility name: | EXXON CO USA 31996 |
| Facility address: | RTE 1 & RTE 18<br>NEW BRUNSWICK, NJ 08901 |
| EPA ID: | NJD986599041 |
| Mailing address: | PO BOX 4415<br>HOUSTON, NJ 77210 |
| Contact: | Not reported |
| Contact address: | PO BOX 4415<br>HOUSTON, NJ 77210 |
| Contact country: | US |
| Contact telephone: | Not reported |
| Contact email: | Not reported |
| EPA Region: | 02 |
| Classification: | Non-Generator |
| Description: | Handler: Non-Generators do not presently generate hazardous waste |

Owner/Operator Summary:

| | |
|---|---|
| Owner/operator name: | EXXON CO USA |
| Owner/operator address: | PO BOX 4415<br>HOUSTON, TX 77210 |
| Owner/operator country: | US |
| Owner/operator telephone: | (713) 656-7761 |
| Legal status: | Private |
| Owner/Operator Type: | Owner |
| Owner/Op start date: | Not reported |
| Owner/Op end date: | Not reported |

| | |
|---|---|
| Owner/operator name: | EXXON CO USA |
| Owner/operator address: | PO BOX 4415<br>HOUSTON, TX 77210 |
| Owner/operator country: | US |
| Owner/operator telephone: | (713) 656-7761 |
| Legal status: | Private |
| Owner/Operator Type: | Operator |
| Owner/Op start date: | Not reported |
| Owner/Op end date: | Not reported |

Handler Activities Summary:

| | |
|---|---|
| U.S. importer of hazardous waste: | Unknown |
| Mixed waste (haz. and radioactive): | Unknown |
| Recycler of hazardous waste: | No |
| Transporter of hazardous waste: | Unknown |
| Treater, storer or disposer of HW: | No |
| Underground injection activity: | No |
| On-site burner exemption: | Unknown |
| Furnace exemption: | Unknown |
| Used oil fuel burner: | No |
| Used oil processor: | No |
| User oil refiner: | No |
| Used oil fuel marketer to burner: | No |

**CIRCLE EXXON SERVICE STATION #31996 (Continued)** **1000541595**

Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: EXXON CO USA 31996
Classification: Not a generator, verified

Date form received by agency: 02/18/1994
Facility name: EXXON CO USA 31996
Classification: Large Quantity Generator

Date form received by agency: 10/29/1990
Facility name: EXXON CO USA 31996
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110007956364

Environmental Interest/Information System
NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

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**32** **51 PENNINGTON ROAD** **SHWS S108398727**
**ENE** **51 PENNINGTON RD** **VCP N/A**
**1/8-1/4** **NEW BRUNSWICK CITY, NJ**
**0.169 mi.**
**892 ft.**

**Relative:**
**Lower**

**Actual:**
**69 ft.**

SHWS:
Site ID: 340347
Status: CLOSED
Home Owner: Yes
PI Number: 420753
X Coord Site: Not reported
X Coord PI: Not reported
Y Coord Site: Not reported
Y Coord PI: Not reported

VCP:
Incident Number: 06-08-09-1959-38
MOA Execution Date: 2/16/2007
Type Of Vcp File: CURRENT

**51 PENNINGTON ROAD (Continued)** **S108398727**

| | |
|---|---|
| Pi Number: | 420753 |
| Case Type(Case Type): | MOA |
| Case Contact: Department | Not reported |
| Case Contact Name: | ROBERT DUFFY |
| Case Contact: Organization | Not reported |
| Case Contact: Address: Line1 | 51 PENNINGTON RD |
| Case Contact: Address: Line2 | Not reported |
| Case Contact: Address: Line3 | Not reported |
| Case Contact City,St,Zip: | New Brunswick, NJ 08901 |

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**33**
**ENE**
**1/8-1/4**
**0.178 mi.**
**939 ft.**

**5 GOODALE CIRCLE**
**5 GOODALE CIR**
**NEW BRUNSWICK CITY, NJ**

**SHWS** **S109531647**
**N/A**

**Relative:**
**Lower**

**Actual:**
**57 ft.**

SHWS:

| | |
|---|---|
| Site ID: | 390845 |
| Status: | CLOSED |
| Home Owner: | Yes |
| PI Number: | 488610 |
| X Coord Site: | Not reported |
| X Coord PI: | Not reported |
| Y Coord Site: | Not reported |
| Y Coord PI: | Not reported |

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**34**
**NNW**
**1/8-1/4**
**0.196 mi.**
**1035 ft.**

**SEARS ROEBUCK**
**51 US HWY 1**
**NEW BRUNSWICK, NJ 08901**

**RCRA-SQG** **1000543025**
**FINDS** **NJD986615268**
**HIST LUST**
**MANIFEST**

**Relative:**
**Higher**

**Actual:**
**86 ft.**

RCRA-SQG:

| | |
|---|---|
| Date form received by agency: | 01/01/2007 |
| Facility name: | SEARS ROEBUCK |
| Facility address: | 51 US HWY 1<br>NEW BRUNSWICK, NJ 089011590 |
| EPA ID: | NJD986615268 |
| Mailing address: | US HWY 1<br>NEW BRUNSWICK, NJ 089011590 |
| Contact: | GENE PAYOR |
| Contact address: | US HWY 1<br>NEW BRUNSWICK, NJ 089011590 |
| Contact country: | US |
| Contact telephone: | (732) 937-7393 |
| Contact email: | Not reported |
| EPA Region: | 02 |
| Land type: | Facility is not located on Indian land. Additional information is not known. |
| Classification: | Small Small Quantity Generator |
| Description: | Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time |

**SEARS ROEBUCK (Continued)** **1000543025**

Owner/Operator Summary:
Owner/operator name: SEARS ROEBUCK
Owner/operator address: SEARS TOWERS
CHICAGO, IL 60684
Owner/operator country: US
Owner/operator telephone: (213) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: SEARS ROEBUCK
Owner/operator address: SEARS TOWERS
CHICAGO, IL 60684
Owner/operator country: US
Owner/operator telephone: (213) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: Unknown
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: SEARS ROEBUCK
Classification: Small Quantity Generator

Date form received by agency: 03/20/1996
Facility name: SEARS ROEBUCK
Site name: SEARS #1314 AND 7144
Classification: Large Quantity Generator

Date form received by agency: 12/09/1994
Facility name: SEARS ROEBUCK
Site name: SEARS, ROEBUCK AND COMPANY
Classification: Large Quantity Generator

Date form received by agency: 09/10/1991
Facility name: SEARS ROEBUCK

**SEARS ROEBUCK (Continued)** **1000543025**

Classification: Small Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: TSD IS-Preparedness and Prevention
Date violation determined: 01/11/2007
Date achieved compliance: 01/11/2007
Violation lead agency: EPA
Enforcement action: VERBAL INFORMAL
Enforcement action date: 01/11/2007
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 01/11/2007
Date achieved compliance: 01/11/2007
Violation lead agency: EPA
Enforcement action: VERBAL INFORMAL
Enforcement action date: 01/11/2007
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 01/11/2007
Date achieved compliance: 01/11/2007
Violation lead agency: EPA
Enforcement action: VERBAL INFORMAL
Enforcement action date: 01/11/2007
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 01/11/2007
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 01/11/2007
Evaluation lead agency: EPA

Evaluation date: 01/11/2007
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 01/11/2007

**SEARS ROEBUCK (Continued)** **1000543025**

Evaluation lead agency: EPA

Evaluation date: 01/11/2007
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Preparedness and Prevention
Date achieved compliance: 01/11/2007
Evaluation lead agency: EPA

Evaluation date: 11/30/1999
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110002340878

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and it Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

LUST HIST:

Case ID: 94-01-14-1222
Lead Program Assigned: Bureau of Underground Storage Tanks
**Facility Status:** **Site Issued Letter of No Further Action for Area(s) Of Concern**
UST ID: 0124328
TMS Number: C93-5534; C93-5535
Remedial Level: Site has more than 1 area of concern or more than 1 media of concern.
Case Manager: Not reported
Facility Phone: Not reported
No Further Action: 11/4/1994 0:00:00
RAW Approved: Not reported
CEA: Not reported
Date CEA Lifted: Not reported
Dead Notice: Not reported

**SEARS ROEBUCK (Continued)** **1000543025**

NJ MANIFEST:

| | |
|---|---|
| Manifest Code: | 001001494SKS |
| EPA ID: | NJD986615268 |
| Date Shipped: | 4/16/2008 |
| TSDF EPA ID: | NJD002182897 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 4/16/2008 |
| Date Trans2 Transported Waste: | 4/29/2008 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 4/29/2008 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | Not reported |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | F001 |
| Manifest Year: | 2008 New Jersey Manifest Data |
| Quantity: | 300 |
| Unit: | P |
| Hand Code: | H061 |

| | |
|---|---|
| Manifest Code: | 001030442SKS |
| EPA ID: | NJD986615268 |
| Date Shipped: | 6/3/2008 |
| TSDF EPA ID: | KYD053348108 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 6/3/2008 |
| Date Trans2 Transported Waste: | 6/11/2008 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |

**SEARS ROEBUCK (Continued)** **1000543025**

Date Trans6 Transported Waste: Not reported
Date Trans7 Transported Waste: Not reported
Date Trans8 Transported Waste: Not reported
Date Trans9 Transported Waste: Not reported
Date Trans10 Transported Waste: Not reported
Date TSDF Received Waste: 6/12/2008
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: Not reported
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: D001
Manifest Year: 2008 New Jersey Manifest Data
Quantity: 100
Unit: P
Hand Code: H061

Manifest Code: 001165745SKS
EPA ID: NJD986615268
Date Shipped: 6/27/2008
TSDF EPA ID: NJD982270506
Transporter EPA ID: TXR000050930
Transporter 2 EPA ID: Not reported
Transporter 3 EPA ID: Not reported
Transporter 4 EPA ID: Not reported
Transporter 5 EPA ID: Not reported
Transporter 6 EPA ID: Not reported
Transporter 7 EPA ID: Not reported
Transporter 8 EPA ID: Not reported
Transporter 10 EPA ID: Not reported
Date Trans1 Transported Waste: 6/27/2008
Date Trans2 Transported Waste: Not reported
Date Trans3 Transported Waste: Not reported
Date Trans4 Transported Waste: Not reported
Date Trans5 Transported Waste: Not reported
Date Trans6 Transported Waste: Not reported
Date Trans7 Transported Waste: Not reported
Date Trans8 Transported Waste: Not reported
Date Trans9 Transported Waste: Not reported
Date Trans10 Transported Waste: Not reported
Date TSDF Received Waste: 6/27/2008
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: Not reported
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: D039
Manifest Year: 2008 New Jersey Manifest Data
Quantity: 9
Unit: G
Hand Code: H141

**SEARS ROEBUCK (Continued)** **1000543025**

| | |
|---|---|
| Manifest Code: | 000549746SKS |
| EPA ID: | NJD986615268 |
| Date Shipped: | 11/2/200 |
| TSDF EPA ID: | KYD053348108 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 11/2/2 |
| Date Trans2 Transported Waste: | 11/7/2 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 11/8/2 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | Not reported |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | Not reported |
| Manifest Year: | Not reported |
| Quantity: | Not reported |
| Unit: | Not reported |
| Hand Code: | Not reported |

| | |
|---|---|
| Manifest Code: | 000549770SKS |
| EPA ID: | NJD986615268 |
| Date Shipped: | 11/12/20 |
| TSDF EPA ID: | NJD982270506 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | Not reported |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 11/12/ |
| Date Trans2 Transported Waste: | Not reported |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |

**SEARS ROEBUCK (Continued)** **1000543025**

| | |
|---|---|
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 11/12/ |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | Not reported |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | Not reported |
| Manifest Year: | Not reported |
| Quantity: | Not reported |
| Unit: | Not reported |
| Hand Code: | Not reported |

| | |
|---|---|
| Manifest Code: | 001290929SKS |
| EPA ID: | NJD986615268 |
| Date Shipped: | 9/3/2008 |
| TSDF EPA ID: | KYD053348108 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 9/3/2008 |
| Date Trans2 Transported Waste: | 9/10/2008 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 9/11/2008 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | Not reported |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | D001 |
| Manifest Year: | 2008 New Jersey Manifest Data |
| Quantity: | 200 |
| Unit: | P |
| Hand Code: | H061 |

**SEARS ROEBUCK (Continued)** **1000543025**

| | |
|---|---|
| Manifest Code: | 001435467SKS |
| EPA ID: | NJD986615268 |
| Date Shipped: | 10/17/2008 |
| TSDF EPA ID: | NJD982270506 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | Not reported |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 10/17/2008 |
| Date Trans2 Transported Waste: | Not reported |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 10/17/2008 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | Not reported |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | D039 |
| Manifest Year: | 2008 New Jersey Manifest Data |
| Quantity: | 9 |
| Unit: | G |
| Hand Code: | H141 |

| | |
|---|---|
| Manifest Code: | NJA5070766 |
| EPA ID: | NJD986615268 |
| Date Shipped: | 20050221 |
| TSDF EPA ID: | NJD982270506 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | Not reported |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 050221 |
| Date Trans2 Transported Waste: | 000000 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |

**SEARS ROEBUCK (Continued)** **1000543025**

Date Trans7 Transported Waste: Not reported
Date Trans8 Transported Waste: Not reported
Date Trans9 Transported Waste: Not reported
Date Trans10 Transported Waste: Not reported
Date TSDF Received Waste: 050221
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 04130521
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5041170
EPA ID: NJD986615268
Date Shipped: 20050318
TSDF EPA ID: KYD053348108
Transporter EPA ID: TXR000050930
Transporter 2 EPA ID: NJD071629976
Transporter 3 EPA ID: Not reported
Transporter 4 EPA ID: Not reported
Transporter 5 EPA ID: Not reported
Transporter 6 EPA ID: Not reported
Transporter 7 EPA ID: Not reported
Transporter 8 EPA ID: Not reported
Transporter 10 EPA ID: Not reported
Date Trans1 Transported Waste: 050318
Date Trans2 Transported Waste: 050323
Date Trans3 Transported Waste: Not reported
Date Trans4 Transported Waste: Not reported
Date Trans5 Transported Waste: Not reported
Date Trans6 Transported Waste: Not reported
Date Trans7 Transported Waste: Not reported
Date Trans8 Transported Waste: Not reported
Date Trans9 Transported Waste: Not reported
Date Trans10 Transported Waste: Not reported
Date TSDF Received Waste: 050328
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05100521
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

**SEARS ROEBUCK (Continued)** **1000543025**

| | |
|---|---|
| Manifest Code: | NJA5223065 |
| EPA ID: | NJD986615268 |
| Date Shipped: | 20050616 |
| TSDF EPA ID: | NJD982270506 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | Not reported |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 050616 |
| Date Trans2 Transported Waste: | 000000 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 050616 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | 07140521 |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | Not reported |
| Manifest Year: | Not reported |
| Quantity: | Not reported |
| Unit: | Not reported |
| Hand Code: | Not reported |

| | |
|---|---|
| Manifest Code: | NJA5113125 |
| EPA ID: | NJD986615268 |
| Date Shipped: | 20050908 |
| TSDF EPA ID: | KYD053348108 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 050908 |
| Date Trans2 Transported Waste: | 050914 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |

**SEARS ROEBUCK (Continued)** **1000543025**

Date Trans7 Transported Waste: Not reported
Date Trans8 Transported Waste: Not reported
Date Trans9 Transported Waste: Not reported
Date Trans10 Transported Waste: Not reported
Date TSDF Received Waste: 050916
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 10200521
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5213975
EPA ID: NJD986615268
Date Shipped: 20051007
TSDF EPA ID: NJD002200046
Transporter EPA ID: NYD980761191
Transporter 2 EPA ID: VTR000500090
Transporter 3 EPA ID: Not reported
Transporter 4 EPA ID: Not reported
Transporter 5 EPA ID: Not reported
Transporter 6 EPA ID: Not reported
Transporter 7 EPA ID: Not reported
Transporter 8 EPA ID: Not reported
Transporter 10 EPA ID: Not reported
Date Trans1 Transported Waste: 051007
Date Trans2 Transported Waste: 051007
Date Trans3 Transported Waste: Not reported
Date Trans4 Transported Waste: Not reported
Date Trans5 Transported Waste: Not reported
Date Trans6 Transported Waste: Not reported
Date Trans7 Transported Waste: Not reported
Date Trans8 Transported Waste: Not reported
Date Trans9 Transported Waste: Not reported
Date Trans10 Transported Waste: Not reported
Date TSDF Received Waste: 051012
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 12080521
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

**SEARS ROEBUCK (Continued)** **1000543025**

| | |
|---|---|
| Manifest Code: | NJA5043383 |
| EPA ID: | NJD986615268 |
| Date Shipped: | 20050518 |
| TSDF EPA ID: | KYD053348108 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 050518 |
| Date Trans2 Transported Waste: | 050527 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 050531 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | 07190521 |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | Not reported |
| Manifest Year: | Not reported |
| Quantity: | Not reported |
| Unit: | Not reported |
| Hand Code: | Not reported |

| | |
|---|---|
| Manifest Code: | NJA5044012 |
| EPA ID: | NJD986615268 |
| Date Shipped: | 20050824 |
| TSDF EPA ID: | KYD053348108 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 050824 |
| Date Trans2 Transported Waste: | 050831 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |

**SEARS ROEBUCK (Continued)** **1000543025**

| | |
|---|---|
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 050901 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | 10060525 |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | Not reported |
| Manifest Year: | Not reported |
| Quantity: | Not reported |
| Unit: | Not reported |
| Hand Code: | Not reported |

| | |
|---|---|
| Manifest Code: | NJA5035772 |
| EPA ID: | NJD986615268 |
| Date Shipped: | 20051221 |
| TSDF EPA ID: | KYD053348108 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 051221 |
| Date Trans2 Transported Waste: | 051228 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 051229 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | 02160622 |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | Not reported |
| Manifest Year: | Not reported |
| Quantity: | Not reported |
| Unit: | Not reported |
| Hand Code: | Not reported |

**SEARS ROEBUCK (Continued)** **1000543025**

| | |
|---|---|
| Manifest Code: | 000550242SKS |
| EPA ID: | NJD986615268 |
| Date Shipped: | 7/31/200 |
| TSDF EPA ID: | NJD982270506 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | Not reported |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 7/31/2 |
| Date Trans2 Transported Waste: | Not reported |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 7/31/2 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | Not reported |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | D039 |
| Manifest Year: | 2007 New Jersey Manifest Data |
| Quantity: | 9 |
| Unit: | G |
| Hand Code: | H14 |

| | |
|---|---|
| Manifest Code: | 000550200SKS |
| EPA ID: | NJD986615268 |
| Date Shipped: | 7/18/200 |
| TSDF EPA ID: | KYD053348108 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 7/18/2 |
| Date Trans2 Transported Waste: | 7/25/2 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |

**SEARS ROEBUCK (Continued)** **1000543025**

| | |
|---|---|
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 7/26/2 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | Not reported |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | D001 |
| Manifest Year: | 2007 New Jersey Manifest Data |
| Quantity: | 200 |
| Unit: | P |
| Hand Code: | H06 |

| | |
|---|---|
| Manifest Code: | NJA5252178 |
| EPA ID: | NJD986615268 |
| Date Shipped: | 20051003 |
| TSDF EPA ID: | NJD982270506 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | Not reported |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 051003 |
| Date Trans2 Transported Waste: | 000000 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 051003 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | 11170521 |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | Not reported |
| Manifest Year: | Not reported |
| Quantity: | Not reported |
| Unit: | Not reported |
| Hand Code: | Not reported |

**SEARS ROEBUCK (Continued)** **1000543025**

| | |
|---|---|
| Manifest Code: | 000550098SKS |
| EPA ID: | NJD986615268 |
| Date Shipped: | 6/29/200 |
| TSDF EPA ID: | KYD053348108 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 6/29/2 |
| Date Trans2 Transported Waste: | 7/5/20 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 7/6/20 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | Not reported |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | D001 |
| Manifest Year: | 2007 New Jersey Manifest Data |
| Quantity: | 300 |
| Unit: | P |
| Hand Code: | H06 |

| | |
|---|---|
| Manifest Code: | 000039134SKS |
| EPA ID: | NJD986615268 |
| Date Shipped: | 5/23/200 |
| TSDF EPA ID: | KYD053348108 |
| Transporter EPA ID: | TXR000050930 |
| Transporter 2 EPA ID: | NJD071629976 |
| Transporter 3 EPA ID: | Not reported |
| Transporter 4 EPA ID: | Not reported |
| Transporter 5 EPA ID: | Not reported |
| Transporter 6 EPA ID: | Not reported |
| Transporter 7 EPA ID: | Not reported |
| Transporter 8 EPA ID: | Not reported |
| Transporter 10 EPA ID: | Not reported |
| Date Trans1 Transported Waste: | 5/23/2 |
| Date Trans2 Transported Waste: | 5/30/2 |
| Date Trans3 Transported Waste: | Not reported |
| Date Trans4 Transported Waste: | Not reported |
| Date Trans5 Transported Waste: | Not reported |
| Date Trans6 Transported Waste: | Not reported |

**SEARS ROEBUCK (Continued)** **1000543025**

| | |
|---|---|
| Date Trans7 Transported Waste: | Not reported |
| Date Trans8 Transported Waste: | Not reported |
| Date Trans9 Transported Waste: | Not reported |
| Date Trans10 Transported Waste: | Not reported |
| Date TSDF Received Waste: | 6/4/20 |
| Tranporter 1 Decal: | Not reported |
| Tranporter 2 Decal: | Not reported |
| Data Entry Number: | Not reported |
| Reference Manifest Number: | Not reported |
| Was Load Rejected (Y/N): | No |
| Reason Load Was Rejected: | Not reported |
| Waste Code: | D001 |
| Manifest Year: | 2007 New Jersey Manifest Data |
| Quantity: | 200 |
| Unit: | P |
| Hand Code: | H06 |

---

**35** **P J VENTURES INC** **RCRA-NonGen** **1000543577**
**SSE** **212A HWY 18** **FINDS** **NJD986621217**
**1/8-1/4** **EAST BRUNSWICK, NJ 08816**
**0.236 mi.**
**1245 ft.**

**Relative:**
**Lower**

**Actual:**
**77 ft.**

RCRA-NonGen:

| | |
|---|---|
| Date form received by agency: | 01/01/2007 |
| Facility name: | P J VENTURES INC |
| Facility address: | 212A HWY 18<br>EAST BRUNSWICK, NJ 08816 |
| EPA ID: | NJD986621217 |
| Mailing address: | HWY 18<br>EAST BRUNSWICK, NJ 08816 |
| Contact: | Not reported |
| Contact address: | HWY 18<br>EAST BRUNSWICK, NJ 08816 |
| Contact country: | US |
| Contact telephone: | Not reported |
| Contact email: | Not reported |
| EPA Region: | 02 |
| Classification: | Non-Generator |
| Description: | Handler: Non-Generators do not presently generate hazardous waste |

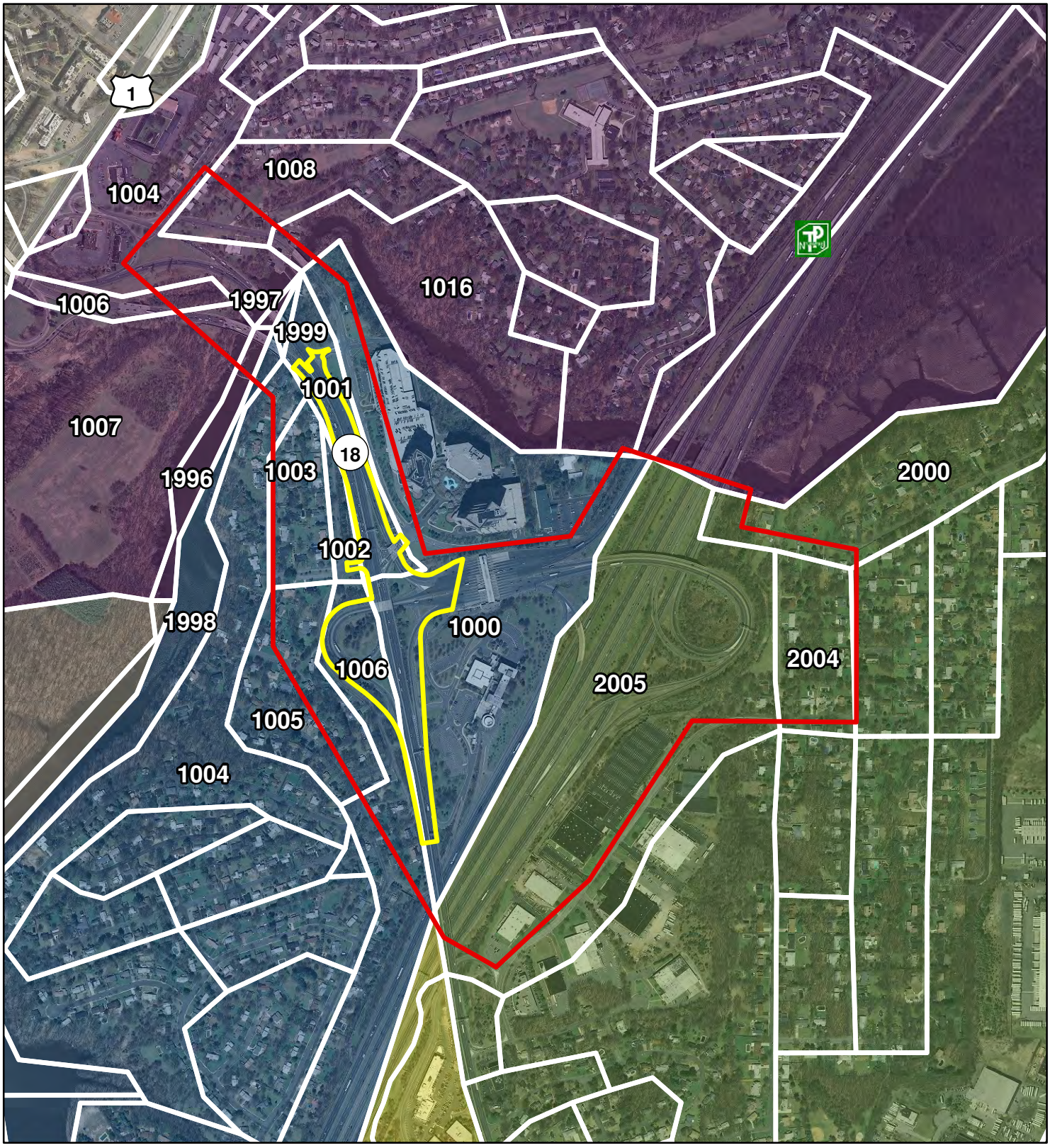
Owner/Operator Summary:

| | |
|---|---|
| Owner/operator name: | P J VENTURES INC |
| Owner/operator address: | 212A HWY 18<br>EAST BRUNSWICK, NJ 08816 |
| Owner/operator country: | US |
| Owner/operator telephone: | (732) 238-5848 |
| Legal status: | Private |
| Owner/Operator Type: | Owner |
| Owner/Op start date: | Not reported |
| Owner/Op end date: | Not reported |

| | |
|---|---|
| Owner/operator name: | P J VENTURES INC |
| Owner/operator address: | 212A HWY 18<br>EAST BRUNSWICK, NJ 08816 |

# Appendix G - EDR Database Reports (CD Format)

# Appendix G
# 2000 Census Data




Study Area

Limits of IPA

Tract 6000, Group 1

Tract 6403, Group 1

Tract 6403, Group 2

Tract 6404, Group 1

Block Boundary

800 400 0 800 Feet

Data Source: United States Bureau of the Census. Census 2000 TIGER Blocks

Base Layer: NJ Office of Information Technology, Office of Geographic Information Systems. NJ 2007-2008 High Resoluation Orthophotograph (2008).

New Jersey Turnpike Authority

Census Block Locations

Design and Environmental Permitting for Improvements at Interchange 9
NJTA OPS No. T3254
East Brunswick Township, Middlesex County

Baker JACOBS

| Demographic, Income, and Employment Statistics | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tract | 60 | | 60 | | 60 | | 60 | | 60 | | 64.03 | | 64.03 | | 64.03 | | 64.03 | | 64.03 | |
| Group | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | 1 | | 1 | | 1 | |
| Block | | | | | 1004 | | 1008 | | 1016 | | | | | | 1003 | | 1005 | | 1006 | |
| | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** |
| Total: | 8,404 | | 1,974 | | 197 | | 57 | | 50 | | 2,460 | | 1,366 | | 52 | | 66 | | 84 | |
| White | 4,053 | 48.23% | 1,016 | 51.47% | 45 | 22.84% | 48 | 84.21% | 47 | 94.00% | 1,807 | 73.46% | 1,053 | 77.09% | 37 | 71.15% | 53 | 80.30% | 47 | 55.95% |
| Black | 1,598 | 19.01% | 459 | 23.25% | 71 | 36.04% | 7 | 12.28% | 3 | 6.00% | 67 | 2.72% | 49 | 3.59% | 7 | 13.46% | 0 | 0.00% | 0 | 0.00% |
| American Indian & Alaska Native | 11 | 0.13% | 1 | 0.05% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 2 | 0.08% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Asian | 918 | 10.92% | 81 | 4.10% | 17 | 8.63% | 2 | 3.51% | 0 | 0.00% | 382 | 15.53% | 167 | 12.23% | 8 | 15.38% | 7 | 10.61% | 19 | 22.62% |
| Native Hawaiin/Pacific Islander | 1 | 0.01% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| some other race | 18 | 0.21% | 3 | 0.15% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 4 | 0.16% | 2 | 0.15% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| two or more races | 184 | 2.19% | 34 | 1.72% | 8 | 4.06% | 0 | 0.00% | 0 | 0.00% | 64 | 2.60% | 40 | 2.93% | 0 | 0.00% | 6 | 9.09% | 18 | 21.43% |
| Hispanic or Latino | 1,621 | 19.29% | 380 | 19.25% | 56 | 28.43% | 0 | 0.00% | 0 | 0.00% | 134 | 5.45% | 55 | 4.03% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| | | | | | | | | | | | | | | | | | | | | |
| Median Household Income 1999 | $43,216 | | | | | | | | | | $90,538 | | | | | | | | | |
| Income in 1999 below poverty level* | 561 | 11.73% | | | | | | | | | 73 | 2.93% | | | | | | | | |
| In Civilian Labor Force | 5,115 | 60.86% | | | | | | | | | 1323 | 53.78% | | | | | | | | |
| Employed | 4,168 | 81.49% | | | | | | | | | 1279 | 96.67% | | | | | | | | |
| Unemployed | 947 | 18.51% | | | | | | | | | 44 | 3.33% | | | | | | | | |

| Tract | 64.03 | | 64.03 | | 64.03 | | 64.03 | | New Jersey | | Middlesex County | | Township of East Brunswick | | City of New Brunswick | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | 2 | | 2 | | 2 | | 2 | | | | | | | | | |
| Block | | | 2000 | | 2004 | | 2005 | | | | | | | | | |
| | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** | **Individuals** | **%** |
| Total: | 1,094 | | 54 | | 61 | | 5 | | 8,414,350 | | 750,162 | | 46,756 | | 48,573 | |
| White | 754 | 68.92% | 40 | 74.07% | 45 | 73.77% | 5 | 100.00% | 5,557,209 | 66.04% | 464,537 | 61.92% | 35,004 | 74.87% | 15,964 | 32.87% |
| Black | 18 | 1.65% | 0 | 0.00% | 2 | 3.28% | 0 | 0.00% | 1,096,171 | 13.03% | 64,435 | 8.59% | 1,282 | 2.74% | 10,043 | 20.68% |
| American Indian & Alaska Native | 2 | 0.18% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 11,338 | 0.13% | 805 | 0.11% | 37 | 0.08% | 71 | 0.15% |
| Asian | 215 | 19.65% | 14 | 25.93% | 10 | 16.39% | 0 | 0.00% | 477,012 | 5.67% | 103,788 | 13.84% | 7,584 | 16.22% | 2,544 | 5.24% |
| Native Hawaiin/Pacific Islander | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 2,175 | 0.03% | 206 | 0.03% | 3 | 0.01% | 23 | 0.05% |
| some other race | 2 | 0.18% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 19,565 | 0.23% | 2,046 | 0.27% | 57 | 0.12% | 182 | 0.37% |
| two or more races | 24 | 2.19% | 0 | 0.00% | 1 | 1.64% | 0 | 0.00% | 133,689 | 1.59% | 12,405 | 1.65% | 832 | 1.78% | 799 | 1.64% |
| Hispanic or Latino | 79 | 7.22% | 0 | 0.00% | 3 | 4.92% | 0 | 0.00% | 1,117,191 | 13.28% | 101,940 | 13.59% | 1,957 | 4.19% | 18,947 | 39.01% |
| | | | | | | | | | | | | | | | | |
| Median Household Income 1999 | | | | | | | | | $55,146 | | $61,446 | | $75,956 | | $36,080 | |
| Income in 1999 below poverty level** | | | | | | | | | 699,668 | 8.50% | 48,205 | 6.59% | 1,321 | 2.83% | 11,545 | 27.26% |
| In Civilian Labor Force* | | | | | | | | | 4,204,393 | 64.23% | 391,067 | 52.13% | 25,008 | 53.49% | 26,652 | 54.87% |
| Employed | | | | | | | | | 3,950,029 | 93.95% | 370,817 | 94.82% | 24,136 | 96.51% | 23,832 | 89.42% |
| Unemployed | | | | | | | | | 243,116 | 5.78% | 20,250 | 5.18% | 872 | 3.49% | 2820 | 10.58% |

Source: www.census.gov

**Note:** The following census blocks do not contain residences; therefore no analysis of the population data was available

| Tract | Group | Block |
|---|---|---|
| 60 | 1 | 1006 |
| 60 | 1 | 1007 |
| 60 | 1 | 1996 |
| 60 | 1 | 1997 |
| 60 | 1 | 1998 |
| 60 | 1 | 1999 |
| 64.03 | 1 | 1000 |
| 64.03 | 1 | 1001 |
| 64.03 | 1 | 1002 |
| 64.03 | 1 | 1998 |
| 64.03 | 1 | 1999 |

# Appendix H

# Interchange 9 Improvements Traffic Report

# NEW JERSEY TURNPIKE AUTHORITY

# INTERCHANGE 9 IMPROVEMENTS
## NJTA - OPS T3254

## TRAFFIC REPORT

**July 11, 2011**

**PREPARED BY:**

JACOBS

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## APPENDIX

## *Introduction*

Interchange 9 is located in the vicinity of New Jersey Turnpike Milepost 83.0 in East Brunswick, Middlesex County. It connects with Route 18 just to the south of the Route 18/US Route 1 interchange. The interchange also services New Brunswick, Highland Park, North Brunswick, Edison and the New Brunswick and Piscataway campuses of Rutgers University.

Interchange 9 was previously evaluated by URS for the Authority as part of OPS T3040. The summary of their work is contained in the 2006 document Toll Plaza Improvement Studies, Interchanges 9-11, 13A-18W, and 14A-14C. Of the fifteen interchanges investigated, Interchange 9 was identified as one of the top three interchanges in need of operational and safety improvements. Contributing factors to the problems at the interchange are high traffic volumes, short weaving distances, and traffic congestion on Route 18.

The New Jersey Turnpike Authority (NJTA) commissioned Jacobs, under OPS No. T3254, to develop alternatives that meet the Authority's future operational and safety needs at Interchange 9. The traffic elements of this effort are discussed in this report.

The physical limits of this study on Route 18 are between the bridge over the NJ Turnpike mainline and the nose of the ramp to US Route 1 northbound from Route 18 northbound. However, the traffic analysis included the Route 18 and US Route 1 interchange to assess the influence the current interchange configuration has on traffic on Route 18 and the NJTA ramps. The study also evaluates the ramps to and from the toll plaza and the arrangement of cash and EZ-pass lanes at the toll plaza.

The approach taken in this study to analyze the flow of traffic throughout the project involves identifying problem areas, developing potential solutions to address these areas, assessing the improvements the potential solution has within the problem area, and determining how the potential solution works with other possible improvements within the project area.

Several problem areas were identified within the project limits. These included the Route 18 southbound approach to Ramp WT, the weaving of traffic from Ramp TW onto Route 18 northbound and the weaving within the toll plaza. A traffic microsimulation model was created to analyze how these areas will influence the future operations of Interchange 9 using the Paramics software package. The existing conditions are in the base year 2010 with an Estimated Time of Completion (ETC) of 2013 and a future design year 2033 analysis. The use of Paramics for this project allowed the study team the flexibility to quickly test a wide range of physical alternatives for the interchange.

## ***Data Collection and Volume Balancing***

The first step in the analysis process was to establish a base line for the existing volumes. The Route 18 corridor has been the subject of previous studies. Key studies have been reviewed in order to identify existing traffic conditions in the vicinity of Interchange 9.

The *Route 18, Route 1 to Edgeboro Road, Concept Development Report* prepared by GPI for the NJDOT was reviewed. Traffic volume data contained in this report was used in the modeling and analysis of improvements to the NJ TPK Interchange 9. As part of the GPI study, traffic volumes at several of the ramps to/from Route 18 to the NJ Turnpike Interchange 9 were collected. GPI performed classified manual turning movement counts for the following intersections during March 2007 and September 2008, between the hours of 6:30 through 9:30 A.M., 10:30 A.M. through 2:00 P.M., and 3:00 through 6:30 P.M. In consideration of current economic conditions and related downturn in traffic volumes in general, this data was considered reflective of typical conditions and utilized in our analysis for calibrating subsequently collected data to create the baseline for the current traffic volume.

The count data was classified in 15-minute increments into the following three categories:

- Automobiles/Light Trucks (Motorcycles, cars, SUV's, minivans, pick-up trucks and full-size vans, for personal or commercial use)
- Medium Trucks (Single unit trucks)
- Heavy Trucks/Buses (Tractor trailers)

The following locations were included in the GPI study:

1. Route 18 and Edgeboro Road
2. Edgeboro Road and Old Bridge Turnpike
3. Route 18 and S. Woodland Avenue/Eggers Road
4. Route 18 southbound, north of the queue from S. Woodland Avenue
5. Route 18 and Naricon Place
6. Route 18 southbound, north of the queue from Naricon Place
7. Naricon Place and Tower Center Boulevard
8. Ramp between Route 18 and US Route 1 northbound and Tunison Road
9. U-turn between the entrance and exit ramps for US Route 1 northbound
10. Route 18 and Tices Lane
11. Tices Lane and Old Bridge Turnpike
12. Old Bridge Turnpike and North End Drive
13. Old Bridge Turnpike and the forward jughandle from Route 18 northbound

Automatic Traffic Recorder (ATR) counts by direction were conducted continuously for seven days during March 2007, April 2007, and September 2008. These counts were aggregated in 15- minute intervals. ATR counts were conducted at the following locations:

1. Route 18 northbound, south of Edgeboro Road
2. Route 18 southbound, south of Edgeboro Road
3. Ramp from Route 18 southbound to Edgeboro Road
4. Edgeboro Road east of Old Bridge Turnpike
5. Old Bridge Turnpike south of Edgeboro Road
6. S. Woodland Road east of Route 18
7. S. Woodland Road west of Route 18
8. Ramp from Route 18 northbound to the NJ Turnpike prior to the entrance driveway for the former NJ Turnpike Authority Administrative Building
9. Ramp from the NJ Turnpike onto Route 18 southbound north of Westons Mill Road ramps
10. Ramp from the NJ Turnpike onto Route 18 southbound south of Westons Mill Road ramps
11. Ramp from Route 18 southbound to the New Jersey Turnpike
12. Route 18 south of the ramp from Route 18 southbound to the New Jersey Turnpike
13. Ramp from the New Jersey Turnpike to Route 18 northbound
14. Ramp from Route 18 northbound to US Route 1 northbound, south of Tunison Road.
15. Ramp from US Route 1 northbound to Route 18 northbound, beyond split to Tunison Road
16. Route 18 northbound immediately north of the ramp to US Route 1 northbound
17. Ramp from Route 18 northbound to US Route 1 southbound
18. Ramp from Route 18 southbound to US Route 1 northbound
19. Ramp from Route 18 southbound to US Route 1 southbound
20. Ramp from US Route 1 northbound onto Route 18 southbound
21. Ramp from US Route 1 southbound to Route 18 northbound
22. Ramp from US Route 1 southbound to Route 18 southbound
23. Route 18 northbound north of ramp from US Route 1 southbound and south of Paulus Boulevard
24. Route 18 southbound between Burnet Street and Crest Road
25. Route 18 northbound, south of Tices Lane
26. Route 18 southbound, south of Tices Lane
27. Route 18 northbound, north of Tices Lane
28. Route 18 southbound, north of Tices Lane
29. Tices Lane west of C.R. 527 (Old Bridge Turnpike)
30. Old Bridge Turnpike, south of Tices Lane
31. Old Bridge Turnpike, north of Tices Lane
32. North End Drive, east of C.R. 527 (Old Bridge Turnpike)
33. Old Bridge Turnpike, south of North End Drive
34. Old Bridge Turnpike, north of North End Drive
35. One-way eastbound connector (forward jug handle) from Route 18 northbound to Old Bridge Turnpike, north of the Old Bridge Turnpike and North End Drive intersection
36. Old Bridge Turnpike, north of the (forward jug handle) Route 18 northbound connector to Old Bridge Turnpike

Since the GPI study focused on Route 18 traffic, a complete picture of traffic entering and exiting the NJ Turnpike at Interchange 9 was not developed for their study. Therefore, it was necessary to collect additional data. The supplemental data gathered by the Jacobs team sub consultant TechniQuest consisted primarily of Automatic Traffic Recorders (ATRs). ATRs were installed in March 2010 for a one week period at the following locations.

1. NJ Turnpike NB Exit Ramp NOT – Outer Roadway (Truck Lanes)
2. NJ Turnpike NB Exit Ramp NIT – Inner Roadway (Car Lanes)
3. NJ Turnpike NB Entrance Ramp TNO - Outer Roadway (Truck Lanes)
4. NJ Turnpike NB Entrance Ramp TNI - Inner Roadway (Car Lanes)
5. NJ Turnpike SB Exit Ramp SIT - Inner Roadway (Car Lanes)
6. NJ Turnpike SB Exit Ramp SOT - Outer Roadway (Truck Lanes)
7. From NJ Turnpike to Route 18 NB Ramp TW
8. From NJ Turnpike to Route 18 SB Ramp TE
9. Route 18 SB Ramp WT to NJ Turnpike
10. Route 18 NB Ramp ET to NJ Turnpike
11. NJ Turnpike SB Entrance Ramp TSI - Inner Roadway (Car Lanes)
12. NJ Turnpike SB Entrance Ramp TSO - Outer Roadway (Truck Lanes)

Manual turning movement counts were also collected by Jacobs during the peak hours at the intersection of Route 18 and Naricon Place. These counts were collected on March 10, 2010 during the AM peak (6:30 – 9:30 AM) and PM peak (3:30 – 6:30 PM) periods.

The traffic count locations by GPI and by Jacobs are depicted in Figure 1.

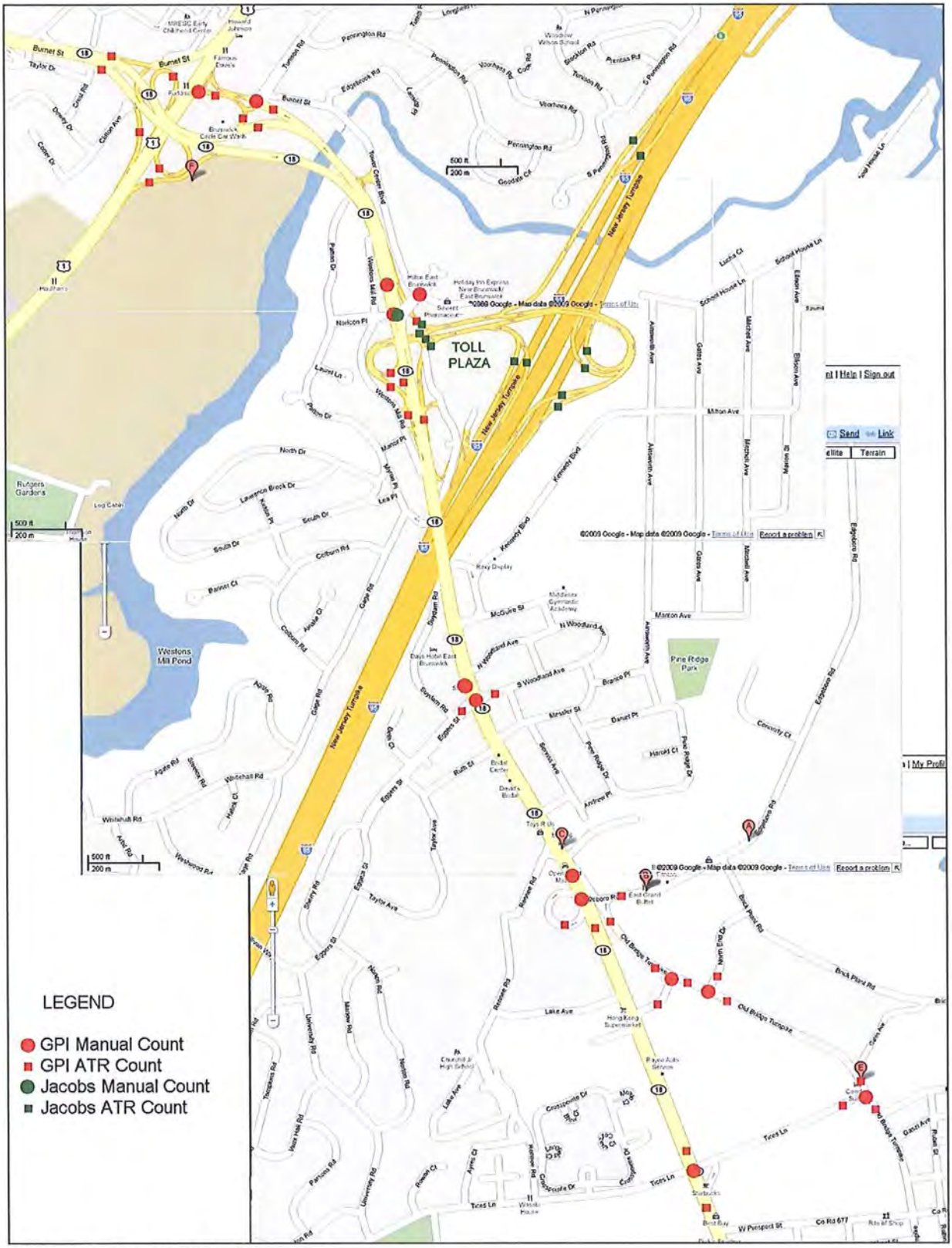



*Figure 1 – Traffic Count Locations*

The AM and PM peak hour volumes at each location were calculated. These volumes were used to develop network volumes for the interchange and for Route 18. The counts previously collected by GPI were utilized to provide proportional balances along segments of Route 18 where additional counts were not collected. The network volumes were developed in the form of a trip table. The trip table defines the entering and exiting volumes at each cordon line which define the network. The cordon lines are as follows.

1. NJ Turnpike NB entrance Ramps TNI and TNO/exit ramps Ramp ST
2. NJ Turnpike SB Exit Ramp NIT and Exit Ramp NOT
3. Route 18 in vicinity of bridge over NJ Turnpike
4. Route 18 SB s/o US Route 1
5. Route 18 NB s/o US Route 1
6. Route 18 NB ramp to US Route 1
7. Naricon Place e/o Route 18
8. Tower Center Boulevard
9. NJ Turnpike SB Entrance Ramp TSI and Entrance Ramp TSO
10. Ramp from NJ Turnpike to Westons Mill Road
11. Naricon Place w/o Route 18

Once the origin and destination points were defined, a study was performed to determine the proportion of trips from each origin point to each destination. These proportions were derived from the aerial imagery obtained by SkyComp, Inc. in October 2009. Images of the entire network were taken every two seconds. Digital tracking methods were employed to obtain a sufficient sample group of vehicles and their movements were tracked from origin to destination. These proportions were then incorporated into the trip tables.

The AM and PM trip tables were utilized in subsequent stages of the analysis. The cordon lines correspond to the zones that are utilized in the Paramics model.

Once the network volumes were determined, they were compared with toll plaza data provided by the NJTA. The toll plaza data was collected in October 2009. Comparison of the ATR counts and the NJTA data shows that they are of the same order of magnitude.

As part of the development of the network volumes to be incorporated into the analyses, it was important to obtain a comprehensive understanding of lane utilization on the approaches and departures at the toll plaza and weaving areas. Additional data was collected by SkyComp, Inc. at the toll plaza. Data pertaining to weaving movements and proportional toll lane utilization by entrance lane were derived from the aerial imagery obtained by SkyComp, Inc. This information was supplemented by field observations made from one of the unmanned toll booths during the morning peak periods in the spring of 2010. This data provided proportions only, and not absolute hourly volumes. To supplement the peak period traffic flow counts, the following information was obtained from the NJTA.

- Classified traffic counts, by lane at the toll plaza.
- Proportion of EZ-Pass users by approach to the toll plaza by hour.
- Directional distribution of the EZ-Pass and Non-EZ Pass users (i.e.: entering vehicles destined northbound vs. southbound)

The number of vehicles per lane, by hour, by vehicle type was determined for both directions. At the exit ramps from the NJ Turnpike mainline to the toll plaza there are two lanes from the southbound direction (Ramp NT) and one lane from the northbound direction (Ramp ST). The data obtained from SkyComp was utilized to determine the proportion of vehicles from each entrance point to each specific toll lane.

## ***Microsimulation Model Creation***

The physical road network in the vicinity of Interchange 9 was laid out in Paramics on high resolution aerials of the study area. The precision of the network coding and how vehicles use the facilities was aided through site visits, photographs, and the use of internet-based mapping tools. The lane distribution for the toll plaza (EZPass, Cash) was modeled to match the current operations at the plaza. The single traffic signal in the model located at the intersection of Route 18 and Naricon Place was coded using the actual signal timing.

*Figure 2 – Interchange 9 Paramics Model*

It should be noted that, as shown in Figure 1, the model does not encompass the Route 18/US Route 1 interchange, nor does it include the mainline lanes of the New Jersey Turnpike (I-95). As a result, any degradation of operations due to conditions outside of the model would not be accounted for in the analysis.

The Paramics microsimulation model assigns traffic via an Origin-Destination (O-D) table, as opposed to traditional turning movements at node/intersection points. Using an O-D table, vehicles in the model are assigned their "A to B" journey to make their way through the network as best they can within the infrastructure available to them. This O-D table is independent of the physical roads of the network and can therefore be used for any number of differing physical alternatives without requiring the analyst to recalculate volumes throughout the network. This allows for quick and efficient testing of many alternatives with minimal effort.

Given the narrow focus of this model on only the roads immediately adjacent to Interchange 9, there were no alternate paths in the model between any of the Origin and Destination points (known as Zones in Paramics). This greatly facilitated the creation of the O-D table, as described above.

The traffic volumes evaluated in the microsimulation models focused on peak hour traffic flows rather than peak periods of multiple hours or 24-hour periods. This was conducted to assess the highest concentration of traffic volumes and peak arrival rates.

## ***Model Calibration***

Model calibration is simply the modification of inputs, settings, or geometry in the model to ensure that it matches certain sets of data related to the performance of the network in reality within a reasonable tolerance. Validation is the confirmation of model calibration via data not directly used in the model calibration phase to ensure that the model is 'valid' for its intended purpose.

There are currently no mandated standards for model calibration and validation. The FHWA's Traffic Analysis Toolbox lists criteria used by the Wisconsin Department of Transportation, an agency that concerns itself greatly with the use of microsimulation models, as shown in Table 1 below. These criteria were based on guidelines developed in the United Kingdom[1].

[1] Federal Highway Administration, Traffic Analysis Toolbox: Volume III, http://ops.fhwa.dot.gov/trafficanalysistools/index.htm

| Criteria and Measures | Calibration Acceptance Targets |
|---|---|
| ***Hourly Flows, Model Versus Observed*** | |
| Individual Link Flows | |
| Within 15%, for 700 veh/h < Flow < 2700 veh/h | >85% of cases |
| Within 100 veh/h, for Flow < 700 veh/h | >85% of cases |
| Within 400 veh/h, for Flow > 2700 veh/h | >85% of cases |
| Sum of All Link Flows | Within 5% of sum of all link counts |
| GEH Statistic < 5 for Individual Link Flows | >85% of cases |
| GEH Statistic for Sum of All Link Flows | GEH < 4 for sum of all link counts |
| $GEH = \sqrt{\frac{2(M-C)^2}{M+C}}$ | |
| Where M is the hourly traffic volume from the traffic model (or new count) and C is the real-world hourly traffic count (or the old count) | |
| ***Travel Times, Model Versus Observed*** | |
| Journey Times, Network | |
| Within 15% (or 1 min, if higher) | >85% of cases |
| ***Visual Audits*** | |
| Individual Link Speeds | |
| Visually Acceptable Speed-Flow relationship | To analyst's satisfaction |
| Bottlenecks | |
| Visually Acceptable Queuing | To analyst's satisfaction |

*Table 1 – Wisconsin DOT criteria for model calibration from FHWA's Traffic Analysis Toolbox: Vol III*

Table 2 shows the quality of the match between the Interchange 9 Paramics model and the balanced count data collected for the study. It can be seen from Table 2 that the Interchange 9 microsimulation model meets all of the criteria laid out in the 'Hourly Flows' segment of the FHWA table, though these statistics are generally used in calibration of much larger models.

The validation of the model was performed qualitatively using the study team's knowledge of the operations of the interchange and by referring to the general operational descriptions found in the 'New Jersey Turnpike Toll Plaza Improvement Studies' prepared for NJTA by URS Corporation in September, 2006. Vehicle operations and network geometry were modified in order to match the general queuing and congestion described therein.

| *AM* | Simulated | Count | Difference | % Difference | GEH |
|---|---|---|---|---|---|
| TPK SB ramp | 2721 | 2762 | -41 | -1.5% | 0.8 |
| TPK NB ramp | 763 | 845 | -82 | -9.7% | 2.9 |
| TPK ramp to Rt. 18 NB | 2506 | 2619 | -113 | -4.3% | 2.2 |
| TPK ramp to Rt. 18 SB | 963 | 988 | -25 | -2.5% | 0.8 |
| Rt. 18 NB ramp to TPK | 893 | 962 | -69 | -7.2% | 2.3 |
| Rt. 18 SB ramp to TPK | 1856 | 1927 | -71 | -3.7% | 1.6 |
| TOTAL | 9702 | 10103 | -401 | -4.0% | 4.0 |

| *PM* | Simulated | Balanced | Difference | % Difference | GEH |
|---|---|---|---|---|---|
| TPK SB ramp | 3331 | 3270 | 61 | 1.9% | 1.1 |
| TPK NB ramp | 405 | 390 | 15 | 3.8% | 0.8 |
| TPK ramp to Rt. 18 NB | 2194 | 2220 | -26 | -1.2% | 0.6 |
| TPK ramp to Rt. 18 SB | 1536 | 1440 | 96 | 6.7% | 2.5 |
| Rt. 18 NB ramp to TPK | 724 | 729 | -5 | -0.7% | 0.2 |
| Rt. 18 SB ramp to TPK | 1830 | 2049 | -219 | -10.7% | 5.0 |
| TOTAL | 10020 | 10098 | -78 | -0.8% | 0.8 |

*Table 2 – Microsimulation model calibration statistics*

## ***Future Growth***

The growth of the peak hour volumes into the future was calculated using the NJTPA's North Jersey Regional Transportation Model – Enhanced (NJRTM-E). Volumes on all links external to the Paramics model were recorded from the 2009 and 2035 NJRTM-E model assignments. Growth factors were calculated from these volumes and applied directly to the Paramics model for the improvement completion year 2013 and future year 2033. Tables showing the inputs and outputs to the growth calculations are shown in Appendix A.

The difference between the existing NJRTM-E model traffic volumes and the future NJRTM-E traffic volumes was determined on an Origin-Destination (O-D) pair basis. The growth factors were ascertained based on the difference in the volumes and applied to a balanced model roadway network. The future traffic volumes are projected to vary by O-D pairs. Overall, the traffic volumes at the interchange are projected to increase in the future. However, some O-D traffic volumes are projected to decrease due to improvements outside the study area network, particularly along the US Route 1 corridor.

The NJRTM-E is a reflection of the aggregate effects of all the significant improvements and modifications throughout the region. In the travel demand forecasting process, future link volumes were not extracted directly from the NJRTM-E for application in future condition analysis. Rather, the percentage difference in link volumes between the existing and future conditions as extracted from the NJRTM-E was applied to the Paramics existing condition trip

tables that were calibrated based upon a study-specific traffic count program. This process applied the shifting of patterns in the region as opposed to applying volumes extracted directly from the NJRTM-E for future conditions.

Turnpike Interchange 8-A is recognized as a constraint in the overall Turnpike system, particularly in the southbound direction as the truck and car lanes join, and overall lane capacity is reduced. The ongoing widening of the Turnpike mainline between Interchanges 6 and 9 will undoubtedly affect volumes at Interchange 9. These effects are reflected in the forecasted volumes used in the study.

The traffic projections indicate fewer southbound vehicles will exit at interchange 9 (a portion of whom will continue to US Route 1) in the future. This reflects the improvements to the Turnpike mainline that encourages more southbound drivers to remain on the Turnpike as opposed to exiting at Interchange 9 for access to US Route 1 southbound as an alternative route. This is viewed as a major contributor to the reduction in peak period westbound volumes through the toll plaza. In the opposite direction, additional traffic is expected to utilize the Turnpike subsequent to completion of the widening, which would serve to increase the eastbound volumes through the toll plaza.

Industrial land uses in New Jersey are shrinking, particularly the manufacturing sector. Warehouse and distribution center activities have grown slowly and are expected to continue to do so in specific areas. Interchange 8A is virtually built out as an industrial center, with little or no increase in truck activity expected there. The industrial base in and around New Brunswick has not shown appreciable growth nor is it expected to in the future. Most growth in this area is anticipated around Interchanges 12 and 10. Therefore, it is reasonable to expect a lack of future truck traffic volume growth through Interchange 9.

## *Critical Interchange Points*

The operations of the roadways in the study area hinge on a number of key roadway segments and junctions. These locations are discussed separately as individual critical points, along with a subsequent discussion on the effects to the traffic flow at the interchange.

### *Ramp WT – Southbound Route 18 Loop Ramp to NJ Turnpike*

This loop ramp takes vehicles from southbound Route 18 and feeds them into the NJ Turnpike toll plaza at Interchange 9. It is currently a single lane ramp with a substandard radius of approximately 125 feet. This relatively small radius creates a difficult condition for truck drivers traveling through Ramp WT. The degree of difficulty increases with a fully loaded trailer particularly those hauling unbalanced loads.

The traffic volumes on Ramp WT are currently 1,502/1,592 (AM/PM) and the projected traffic volumes in the future year 2033 are 1,598/1,889 (AM/PM). The projected traffic volume is beyond the capacity of a single lane ramp. Currently, the southbound Route 18 queue occasionally extends back to the north side of the US Route 1 interchange due to the traffic volume destined to the New Jersey Turnpike. The southbound queue also impedes the flow of through traffic for Route 18 southbound beyond the ramp.

### *Route 18 and Naricon Place Signalized Intersection*

This traffic signal is critical in the operation of the interchange and surrounding roadways. With a quick overview, the intersection may be assessed as a bottleneck and may be blamed for causing most of the congestion in the study area. The queue build up along both directions of Route 18 during the red phase of the signal is significant. The cumulative effect of the red signal on Route 18 contributes to the congestion at this junction and delays all the traffic that passes through the intersection.

On the other hand, the traffic signal benefits the Naricon Place traffic attempting to enter Route 18 and create gaps (a metering effect) in the traffic stream for vehicles on Ramp TW attempting to cross over to the left lanes destined to northbound Route 18. This 'metering' effect at the intersection allows critical components of the interchange to operate more smoothly.

### *Toll Plaza- Entrance*

Traffic enters the toll plaza via Ramp WT from southbound Route 18 and Ramp ET serving northbound Route 18. The toll plaza is illustrated in Figure 3. The traffic flow at the convergence of these two ramps at the toll plaza is regulated with a Yield sign. The traffic signal

at the Route 18 and Naricon Place intersection creates gaps in the traffic flow on Ramp WT. The flow of traffic on Ramp ET enters the plaza at the gaps in the Ramp WT traffic flow. A continuous flow of traffic on Ramp WT will limit the flow of Ramp ET traffic from entering the toll plaza and generate a queue that may spill back to northbound Route 18.

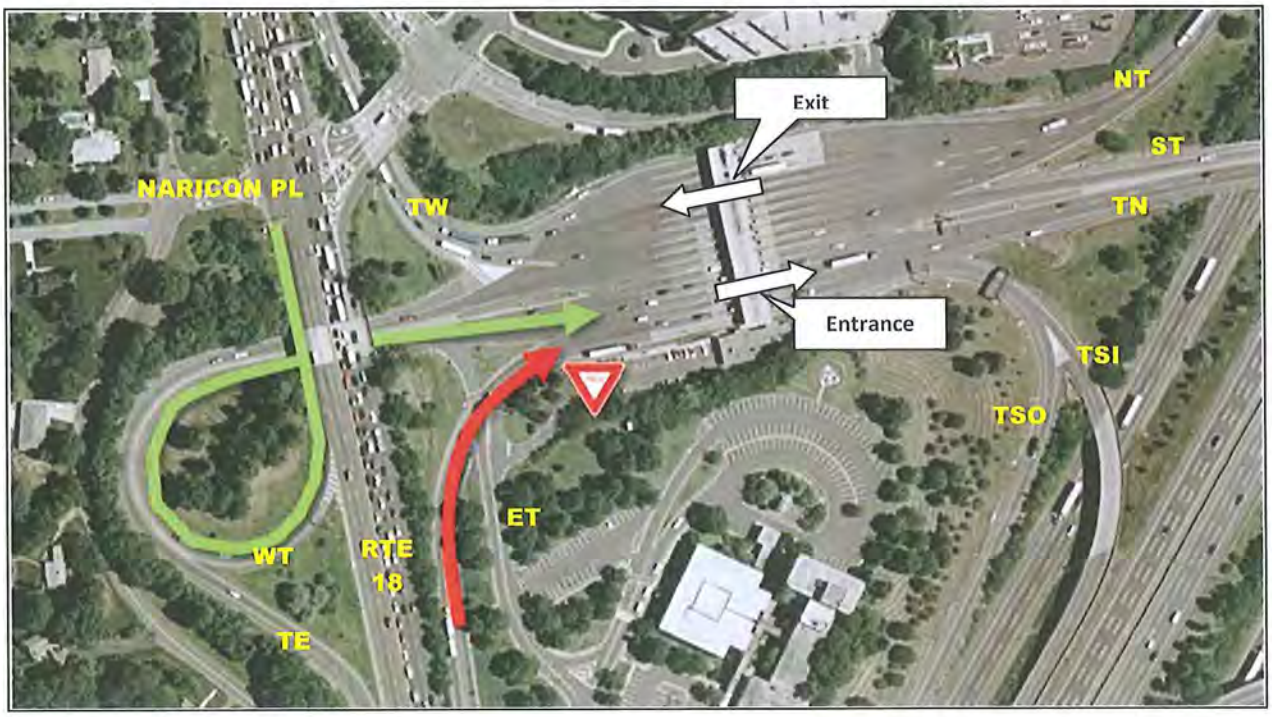



*Figure 3 – Yield at Turnpike Entrance*

The distance from the centerline of toll plaza to the nose of the concrete gore for Ramp ET and Ramp WT is approximately 330 feet, which is much less than the desirable 500 foot half length. Consequently, there is not much room for vehicles to perform the required weaving maneuvers on this side of the plaza. One possible modification of the toll plaza entrance could be to split the approach into distinct groups of three lanes for Ramp WT, and another group of two lanes for Ramp ET. This would allow the vehicles to approach the facility without yielding, which may be beneficial when volumes are heavier. This, however, pushes any weaving for access to the northbound and southbound NJ Turnpike ramps to the mainline side of the plaza.

Pushing all of the weaving to the mainline side of the plaza compounds an already difficult weaving movement. The distance from the centerline of toll plaza to the nose of the concrete gore for the northbound and southbound NJ Turnpike ramps is approximately 330', which much less than the desirable 500' half length. Consequently there is not much room for vehicles to perform all of the required weaving maneuvers on only this side of the plaza. If the approach to the tolls is left as is, the total distance from the nose of the ramps from Route 18 to the plaza

(330') and after the plaza (330') can be used for weaving, essentially doubling the available weaving distance for vehicles. Therefore, it is advisable to leave the entrance side of the plaza as it exists today.

***Northbound Route 18 and Ramp TW Merge and Weave Area***

The convergence of northbound Route 18 and Ramp TW from the NJ Turnpike is significant because of the heavy volumes, lane drop, the short distance between the merge and diverge points, and the subsequent weaving movements associated with the Route 18/US Route 1 interchange. The merge point is the joining of Ramp TW and northbound Route 18. The diverge point is the separation of the northbound Route 18 traffic stream from the traffic destined to northbound US Route 1. The merging traffic streams are illustrated in green and red lines Figure 4.

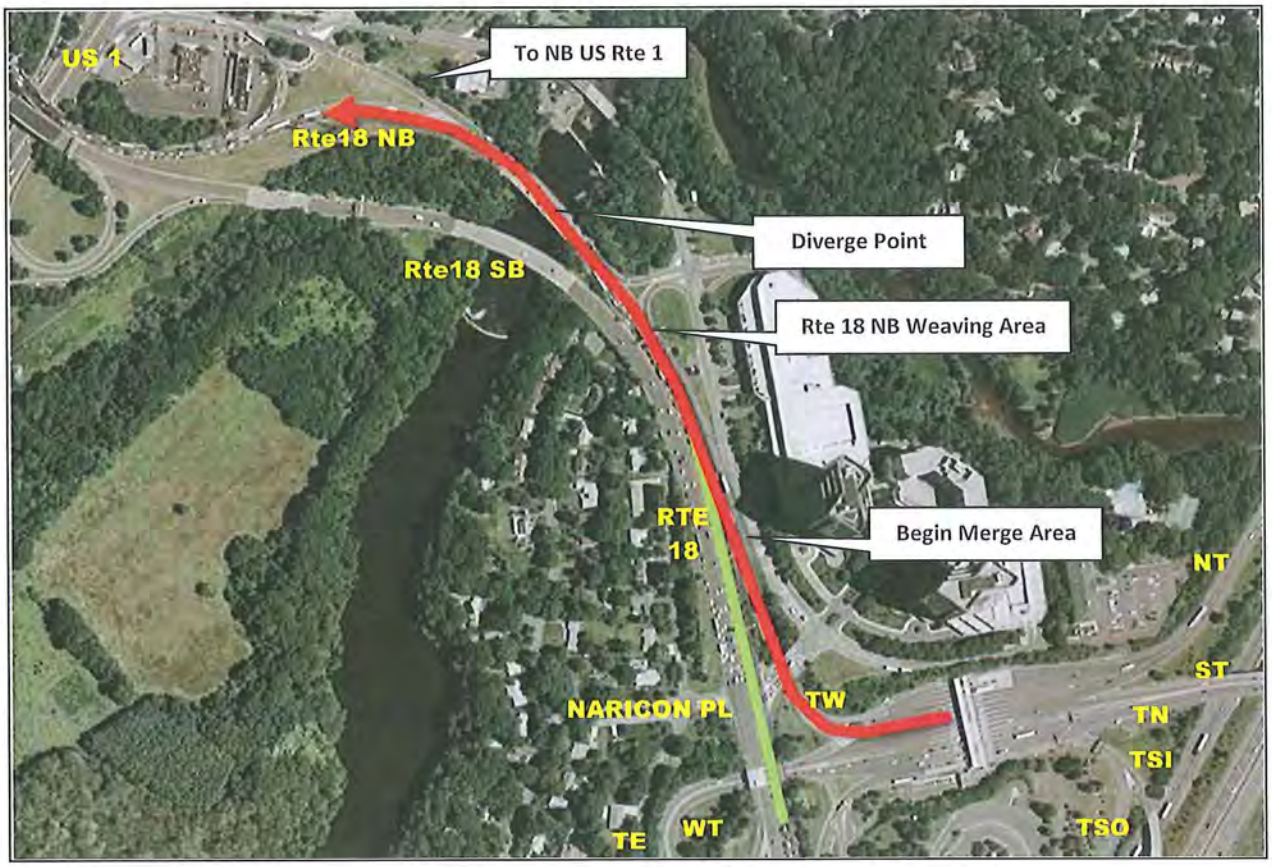



*Figure 4 – Difficult Weave and Merge Section on Northbound Route 18*

There is a significant volume of traffic at the merge of northbound Route 18 and Ramp TW that must also simultaneously weave due to the close proximity of the Route 18/US Route 1 interchange. In the future condition, approximately 90% of drivers on Ramp TW from the NJ Turnpike are attempting to weave to the two left lanes to access northbound Route 18 or

southbound US Route 1. The Ramp TW traffic volume making this movement is 2,689/1,834 (AM/PM) over the 3,276/2,960 (AM/PM) hourly vehicles in the northbound Route 18 lanes.

In the northbound direction, there are additional factors outside the project limits of the Paramics model that contribute to degrade the traffic operations as well, primarily the signal further north at the Route 18 and Paulus Boulevard intersection, and the capacity of the Route 18/US Route 1 interchange. Since these are outside of the project, these areas were not evaluated, but they warrant further investigation due to their propagation of congestion upstream to Interchange 9. For the purposes of this report, the model assumed that future improvements will be performed on the Route 18/US Route 1 interchange to eliminate congestion.

***Toll Plaza Exit***

The traffic flow exiting the Turnpike may become problematic in the future depending on the structure of the upstream and downstream elements and the layout of the booths. A higher traffic volume destined to northbound Route 18 will increase weaving issues on either side of the exit plaza.

The current configuration of the plaza and NJ Turnpike ramps, with half distances less than the desired Turnpike standard, amplifies weaving issues on both sides of the toll plaza. Vehicles approaching the plaza from the northbound NJ Turnpike lanes (Ramp ST) and destined for northbound Route 18 must weave across the entire plaza, either before or after the toll plaza. This is especially important in the AM peak hour with 1,204 vehicles attempting to make this movement (309 in the PM peak hour) with 947/1,379 (AM/PM) hourly vehicles heading southbound on Route 18.

***Former NJ Turnpike Authority Headquarters Site***

None of the scenarios that were analyzed included the former NJ Turnpike Headquarters site in use. There are currently no plans to redevelop or reopen the NJ-Turnpike-owned buildings located in the interchange. Access to the facility for maintenance purposes will be via a driveway to Ramp ET. The existing site access near the toll plaza will be removed as part of the redesigned Ramp ET. This will include the elimination of the existing southbound Route 18 and Ramp WT access to the former NJ Turnpike Authority Headquarters site at the toll plaza.

## *Interchange Alternatives*

Given the discussion of the individual critical interchange elements above, various alternatives were created for analysis in the Paramics model. These alternatives were created by combining options for the various site solutions and addressing the critical interchange points to gauge their effectiveness when taken as a whole. The following are schemes that were evaluated for each of the critical interchange points:

### Ramp WT - Southbound Route 18 Loop Ramp to NJ Turnpike

The projected future traffic volume on this ramp will require two lanes for efficient operation. The existing configuration of the ramp is a single lane that loops to the right with a 125 foot radius. The proposed improvements will increase capacity on the ramp with the addition of a second lane and a larger radius for the curve that will meet current standards. The improvements on Ramp WT are also anticipated to improve traffic flow in the southbound direction of Route 18. The three improvement schemes are identified as Improvement A-1 to Improvement A-3. The three alternative Ramp WT improvement schemes that were evaluated, along with their disadvantages and advantages, are presented below:

- **Improvement A-1** will increase the ramp radius to the Authority's Desirable Radius of 235 feet. The proposed improvements are illustrated in Figure 5. This proposed improvement will:
  - increase capacity with two lanes on Ramp WT
  - improve traffic flow and safety with a larger radius for Ramps WT and TE
  - require acquisition of seven houses and adversely impact five other properties
  - eliminate the slip ramp to Weston Mills Road from Ramp TE
  - eliminate the Weston Mills Road entry ramp on Ramp TE to southbound Route 18
  - eliminate most of the Weston Mills Road section between Manor Place and Naricon Place
  - terminate Weston Mills Road section, north of Manor Place to a cul-de-sac

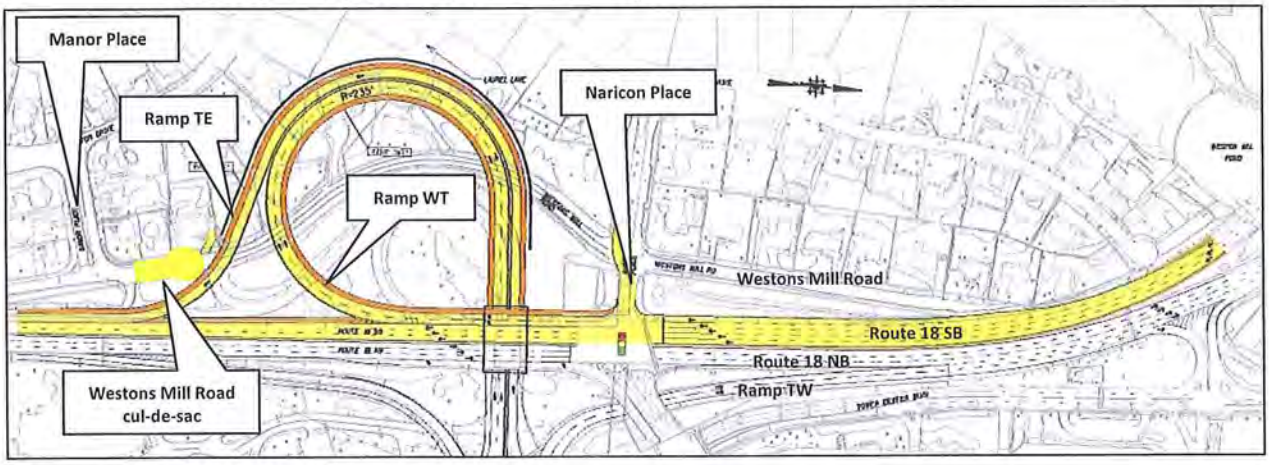



*Figure 5 - Improvement A-1*

- **Improvement A-2** will increase the ramp radius to the Authority's Minimum Desirable Radius of 150 feet. The proposed improvements are illustrated in Figure 6. This proposed improvement will:
  - increase capacity with the two lanes on Ramp WT
  - improve traffic flow and safety with a larger radius for Ramps WT and TE
  - require acquisition of two houses and adversely impact two other properties
  - obliterate most of the Weston Mills Rd section between Manor Place and Naricon Place
  - terminate Weston Mills Road section, north of Manor Place, to a cul-de-sac
  - eliminate the slip ramp to Weston Mills Road from Ramp TE
  - eliminate the Weston Mills Road entry ramp on Ramp TE to southbound Route 18

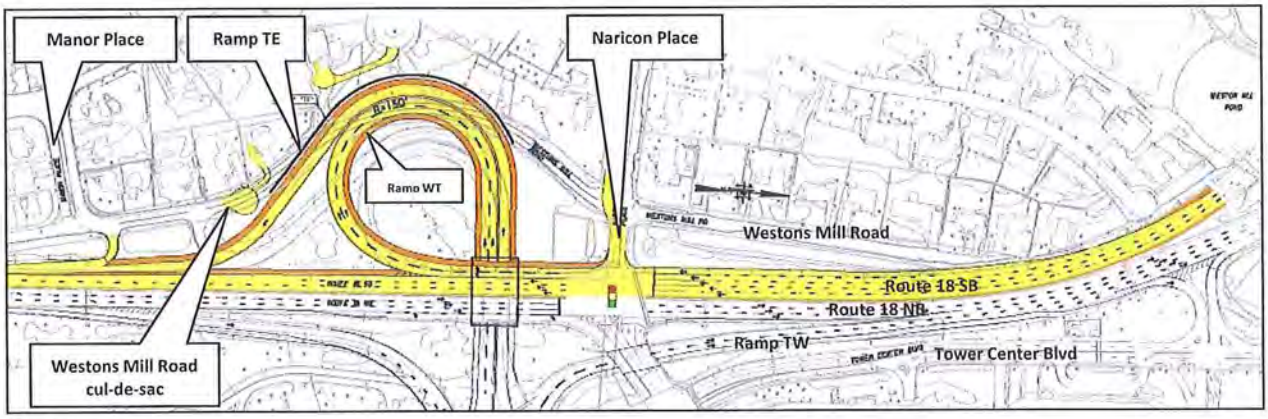



*Figure 6 - Improvement A-2*

- **Improvement A-3** will increase the ramp radius to the Authority's Minimum Desirable Radius of 150 feet and shift the Route 18 center line to the east. The proposed improvements are illustrated in Figure 7. This proposed improvement will:
  - not impact the adjacent residential properties
  - maintain the Weston Mills Road section between Manor Place and Naricon Place
  - maintain the Weston Mills Road entry ramp on Ramp TE towards southbound Route 18
  - maintain the slip ramp to Weston Mills Road from Ramp TE
  - shift the Route 18 centerline to the east
  - facilitate the construction of the new Route 18 bridge over the ramps

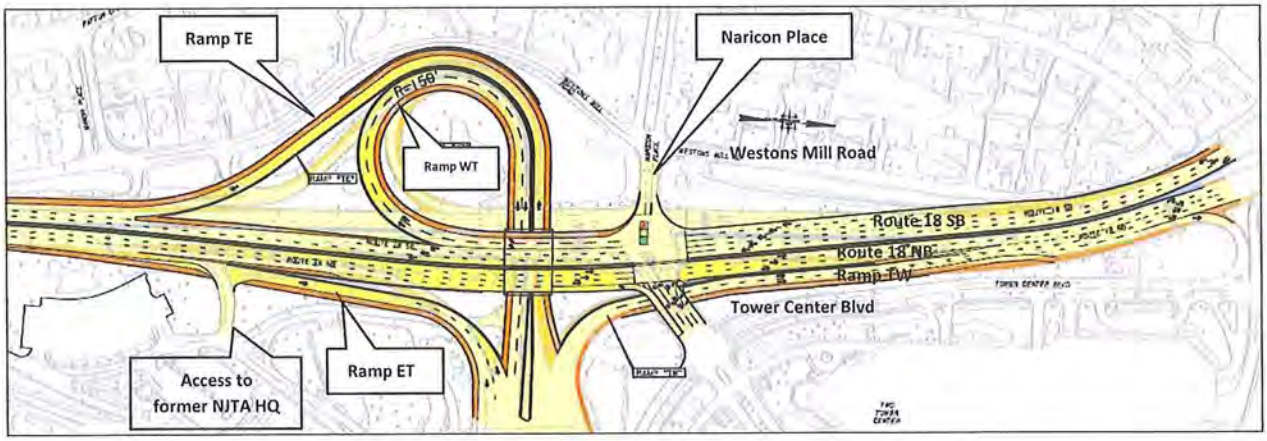



*Figure 7 - Improvement A-3*

Of the three schemes that were evaluated for Ramp WT, Improvement A-3 is recommended for implementation. The proposed two lanes along with a larger ramp radius, that will meet the acceptable minimum standards, will increase the safety and capacity of Ramps TW and TE and improve the traffic flow through the ramps. These improvements are projected to address the future traffic volume demands. Additionally, the ramp alignment will not adversely impact the adjacent residential properties.

**Route 18 and Naricon Place Signalized Intersection**

The traffic signal at this intersection has typically been considered as an impediment to the northbound and southbound Route 18 traffic flow. However, the traffic signal also has a 'metering' effect to the traffic flows at the junction that provides gaps for the cross weave section between Ramp TW and the US Route 1 interchange and allows other critical components of the interchange to operate more efficiently. Currently, there are four lanes on the northbound and southbound approaches to the intersection. The two lane eastbound approach is limited to one left turn and one right turn only movements. The westbound approach has four lanes with two left turn lanes to Route 18 southbound, one right turn lane to Route 18 northbound and one shared through/right turn lane. The three phase traffic signal operates with split phases for the side streets to allow traffic from each approach to enter the intersection separately. The proposed improvements at the intersection vary from a scheme eliminating the eastbound approach and the Ramp WT relocated upstream of the intersection to a scheme with modified southbound lane assignments. The proposed improvements are intended to increase capacity at the intersection with lane use reassignment, an additional lane, and modification to the traffic signal timing and phasing. The four improvement schemes identified as Improvement B-1 to Improvement B-4, along with their disadvantages and advantages, are presented below:

- **Improvement B-1** will eliminate the eastbound approach to the intersection and relocate both the entry and exit ramps to the NJ Turnpike north of the intersection. The Weston Mills Road section north of the intersection will be connected to Naricon Place with a new road along the proposed alignment of the new ramp. Improvement B-1 is illustrated in Figure 8. This proposed improvement will:
  - close the Naricon Place access to Route 18
  - terminate the Weston Mills Road section, south of Naricon Place, with a cul-de-sac just south of the proposed ramp alignment
  - require acquisition of four homes and adversely impact up to three other properties
  - provide two lanes on Ramp WT
  - pending NJDOT approval, allow a modified Weston Mills Road entry ramp to southbound Route 18 and southbound Route 18 exit ramp to Weston Mills Road in the same area as the current ramps
  - optimized traffic signal timing plan and modified phasing plan
  - provide southbound Route 18 with two through lanes and two lanes to Ramp TW
  - generate congestion at the toll plaza and Ramp ET due to the lack of the metering effect that the traffic signal at Naricon Place has on Ramp WT traffic

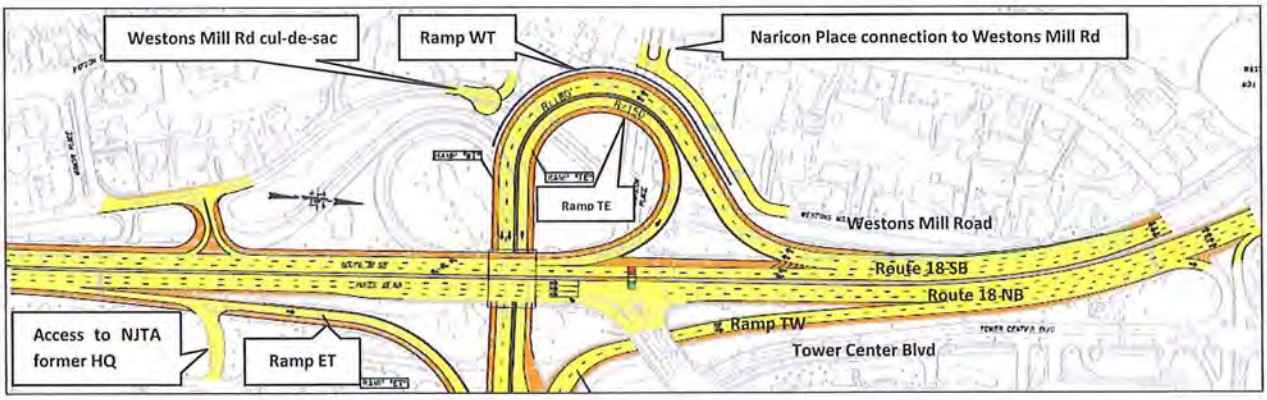



*Figure 8 - Improvement B-1*

- **Improvement B-2** will maintain the Naricon Place approach to the signalized intersection and provide two through lanes for southbound Route 18 as well as two lanes on Ramp WT. Improvement B-2 is illustrated in Figure 9. This proposed improvement will:
  - maintain the Naricon Place access to Route 18 as it exists
  - reduce the number of through lanes for southbound Route 18, at the Ramp WT terminus, from three lanes to two lanes
  - increase the radius of Ramp WT
  - designate two lanes on southbound Route 18 exclusive to the NJ Turnpike Ramp WT
  - not impact any of the adjacent residential properties if implemented with easterly shift of Route 18
  - the two southbound Route 18 through lanes will cause queue spill back to the US Route 1 and Route 18 interchange

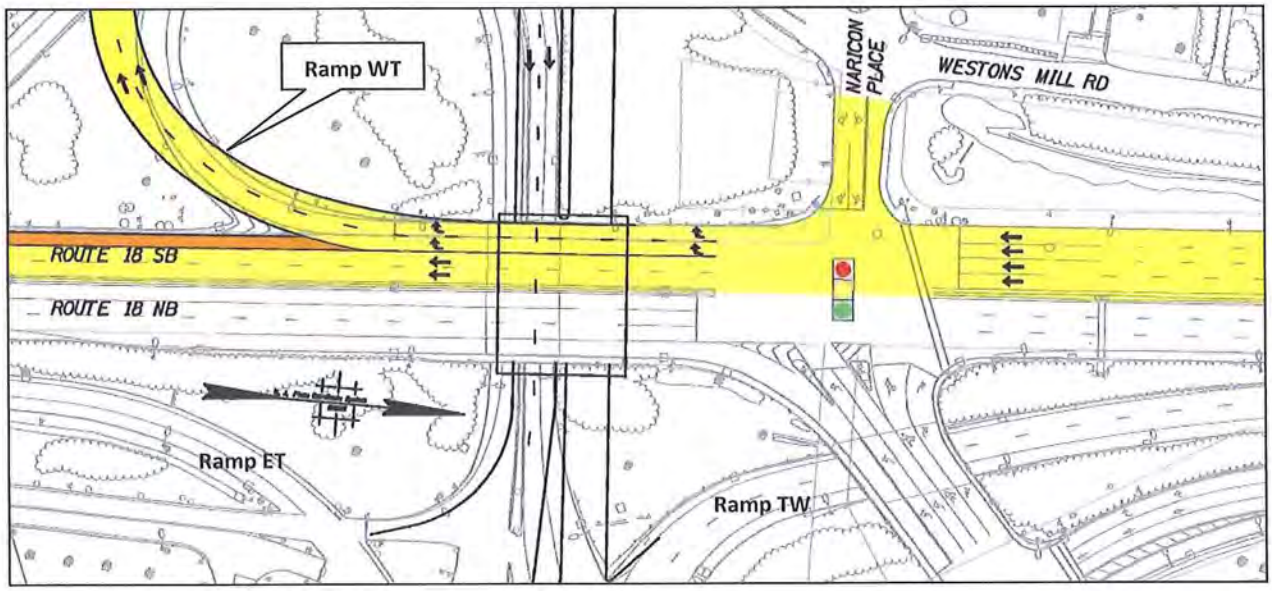



*Figure 9 - Improvement B-2*

- **Improvement B-3** will also maintain the Naricon Place approach to the signalized intersection. There are currently four southbound through lanes on the approach to the signalized intersection with the right-most lane assigned to serve through and right turn movements. South of the intersection, the right-most lane is exclusive to Ramp WT and three lanes continue south as through lanes. Improvement B-3 is illustrated in Figure 10. This proposed improvement will:
  - maintain the Naricon Place access to Route 18
  - provide two lanes on Ramp WT
  - increase the Ramp WT radius
  - revise the center right lane to a shared through-right lane
  - have the possibility of shifting the ramp underpass to the north to accommodate the new ramp radius
  - not impact any of the adjacent residential properties if implemented with a Route 18 easterly shift
  - cause congestion on southbound Route 18 due to the shared through right turn lane

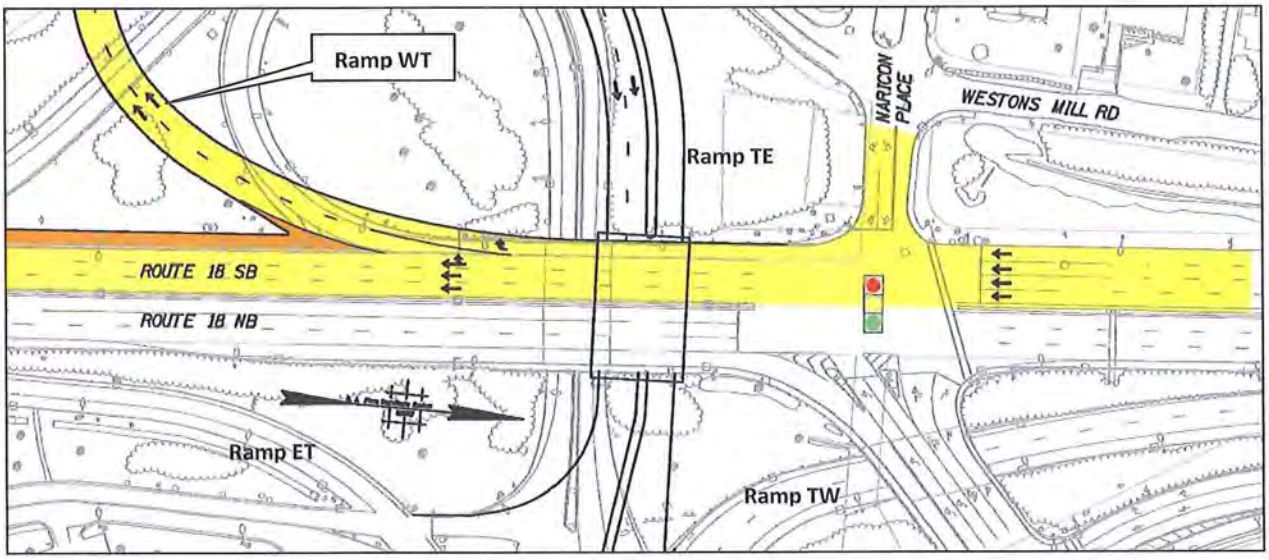



*Figure 10 - Improvement B-3*

- **Improvement B-4** will also maintain the Naricon Place approach to the signalized intersection. The Route 18 centerline may be realigned or shifted to the east. The number of lanes for the southbound Route 18 approach to the Naricon Place signalized intersection will be increased to five. The two right lanes will be exclusive to Ramp WT with a storage length of approximately 600 feet upstream of the traffic signal and the three left lanes will serve southbound Route 18 through traffic. The three through lanes for southbound Route 18 will be reduced to two lanes prior to the merge with Ramp TE. Improvement B-4 is illustrated in Figure 11. This proposed improvement will:
  - maintain the Naricon Place access to Route 18
  - increase the southbound Route 18 approach to the signalized intersection at Naricon Place to five lanes
  - assign the two right lanes exclusive to Ramp WT with storage
  - increase the Ramp WT radius
  - the Route 18 bridge over the ramp will shift to the east to accommodate the new Route 18 centerline alignment
  - not impact any of the adjacent residential properties if implemented with a Route 18 easterly shift although not necessarily an element of this Naricon Place concept
  - result in the best level of service at the intersection

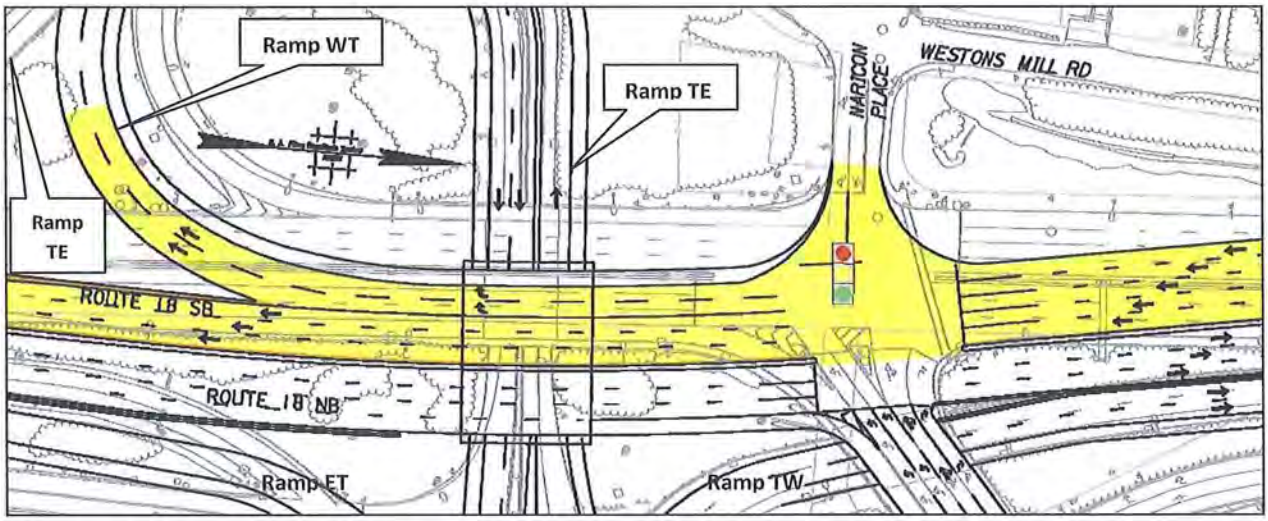



*Figure 11 - Improvement B-4*

Of the four schemes that were evaluated using the Paramics microsimulation model for the Route 18 and Naricon Place intersection, Improvement B-4 is recommended for implementation. The proposed five lanes for the southbound Route 18 approach to the Naricon Place intersection and the two exclusive lanes for Ramp WT are projected to allow more vehicles to clear the Route 18 southbound and Ramp WT roadway section of future traffic volume demands. The projected volumes of blocked vehicles in Improvements B-1 to B-4 are

listed in Table 3. Additionally, when combined with Recommended Improvement A-3, the Route 18 centerline realignment and the new Ramp WT alignment will not impact the adjacent residential properties and provides room within the current highway right of way north of the intersection for the additional southbound auxiliary lane.

| *AM* | Improvement B-1 | Improvement B-2 | Improvement B-3 | Improvement B-4 |
|---|---|---|---|---|
| Rt 18 NB | 690 | 788 | 658 | 203 |
| Rt 18 SB | 92 | 0 | 0 | 0 |
| | | | | |
| *PM* | Improvement B-1 | Improvement B-2 | Improvement B-3 | Improvement B-4 |
| Rt 18 NB | 0 | 0 | 0 | 0 |
| Rt 18 SB | 1225 | 476 | 331 | 54 |

*Table 3 – Blocked Vehicles in B-1, B-2, B-3, and B-4*

**Northbound Route 18 and Ramp TW Merge and Weave Area**

This section of northbound Route 18, approximately 1,000 feet in length, is between Ramp TW (the entry ramp from the New Jersey Turnpike) and the exit ramp to northbound US Route 1. At the Ramp TW merge, the northbound Route 18 approach consists of three lanes and Ramp TW consists of two lanes. The left lane of the ramp merges with the right lane of mainline Route 18 and the right lane of Ramp TW continues to the northbound US Route 1 connection. Traffic from the NJ Turnpike destined to northbound Route 18 and southbound US Route 1 must cross over to the two left lanes on northbound Route 18 within the current combined merge / weave area. Traffic on northbound Route 18 that is destined to the Tower Center Boulevard, Burnet Street, and northbound US Route 1 must cross over to the two right lanes within the weave area. The high volume of traffic that changes lanes within this relatively short roadway segment contributes to the congestion and delay in the northbound direction of Route 18, Ramp TW, and through the toll plaza.

The proposed improvements are intended to minimize or eliminate the weaving volumes. The five improvement schemes, identified as Improvement C-1 to Improvement C-5 along with their disadvantages and advantages, are presented as follows:

- **Improvement C-1** will modify the lane assignment with lane restriping between Ramp TW and the exit ramp to Tower Center Boulevard. The three mainline lanes on northbound Route 18 would continue through. The two lanes on Ramp TW will join the three lanes of Route 18. The right lane of Ramp TW would become an exclusive lane to the Tower Center Boulevard exit ramp. The left lane would continue to the northbound US Route 1 connection. Improvement C-1 is illustrated in Figure 12. This proposed improvement will:
  - Limit the use of the right lane of Ramp TW primarily for access to Tower Center Boulevard so that most drivers will use the left lane thus reducing the capacity of the two lane ramp
  - require drivers, from the toll plaza and destined to northbound Route 18 and US Route 1, to position their vehicles in the left lane of Ramp TW
  - require drivers from the toll plaza destined to southbound US Route 1 or northbound Route 18, beyond the US Route 1 NB ramp, to merge over two lanes at a minimum before the northbound US Route 1 exit

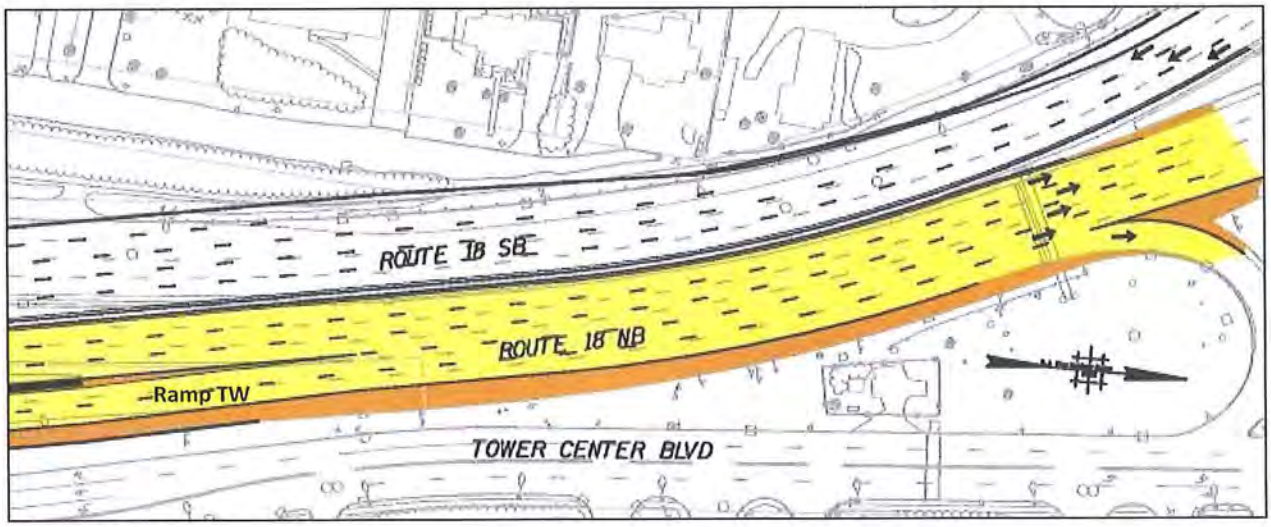



*Figure 12 - Improvement C-1*

- **Improvement C-2** will modify the lanes with restriping between Ramp TW and the diverge area to northbound US Route 1. The current three northbound Route 18 through lanes will be reduced to two through lanes at the diverge point. There will be four lanes at the diverge point with the two left lanes aligned to northbound Route 18 and the two lanes on the right aligned to the US Route 1 northbound ramp. The two lanes on Ramp TW will merge into a single lane on the right and will be aligned to the northbound US Route 1 connection. The merge area will begin 600 feet upstream of the bridge over Westons Mill Pond. An auxiliary lane will be added on the right side of the Ramp TW lanes for exclusive use of traffic destined to the Tower Center Boulevard exit ramp. The Ramp TW lane will continue to the northbound US Route 1 connection. Improvement C-2 is illustrated in Figure 13. This proposed improvement will:
  - restrict northbound Route 18 traffic from crossing over to Tower Center Boulevard exit. The northbound Route 18 traffic destined to Tower Center Boulevard must enter via Naricon Place.
  - eliminate merging the left lane of Ramp TW and the right lane of northbound Route 18 into a single lane
  - merge the two lanes of Ramp TW to a single lane resulting in a reduction of the capacity of the two lane ramp
  - require drivers from the toll plaza, that are destined to Route 18 northbound and the exit ramp to US Route 1 southbound, to merge left over at least two lanes before the US Route 1 northbound diverge point

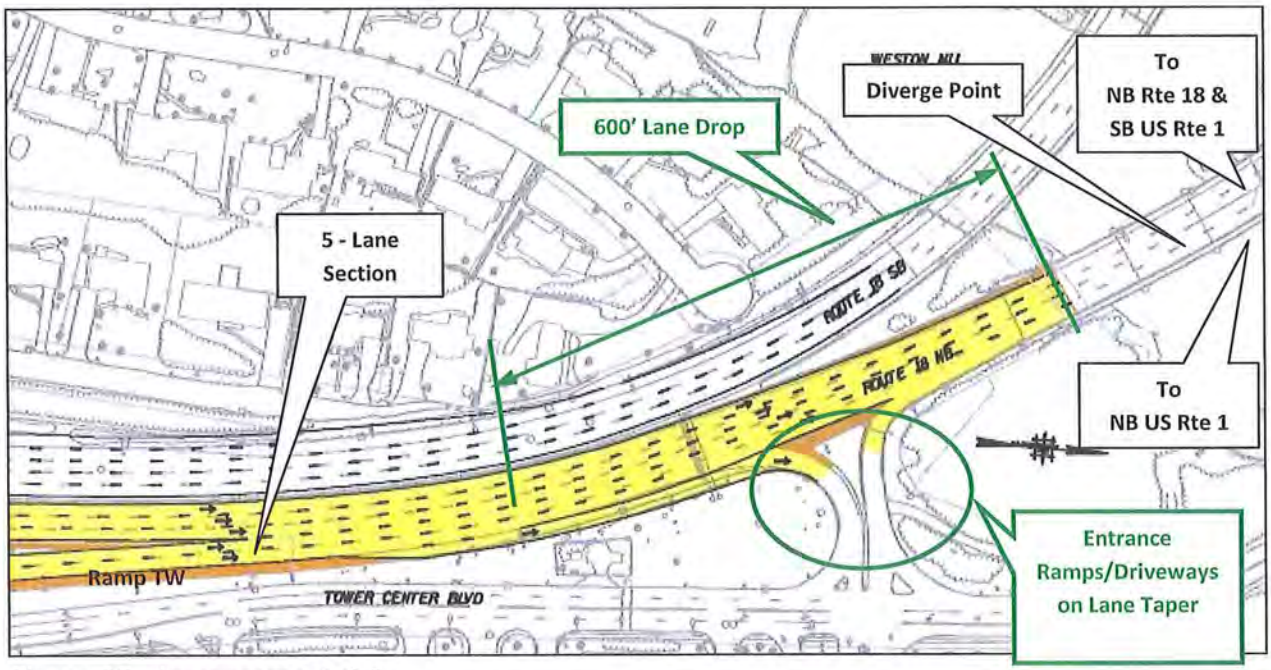



*Figure 13 - Improvement C-2*

- **Improvement C-3** will realign Ramp TW to enter northbound Route 18 on the median side. The two lanes of Ramp TW will merge into a single lane prior to joining the three lanes of northbound Route 18 as a fourth through lane. The northbound lanes of Route 18 will be shifted east to accommodate the new Ramp TW. The Ramp TW lane will continue to northbound Route 18. At the US Route 1 northbound ramp diverge point, the two left lanes will be aligned to northbound Route 18 and the two lanes on the right will be aligned to the US Route 1 northbound ramp. Improvement C-3 is illustrated in Figure 14. This proposed improvement will:
  - require a new underpass below the Route 18 and Naricon Place intersection
  - require reconstruction of the northbound Route 18 lanes between Naricon Place and US Route 1
  - restrict traffic from the toll plaza from using the Tower Center Boulevard ramp and shifts NJ Turnpike access to the Tower Center Complex to the Burnet Street signal on the ramp to northbound US Route 1
  - require drivers on Route 18 northbound in the two right lanes that are destined to Route 18 northbound and the US Route 1 southbound exit ramp to merge to the left lanes

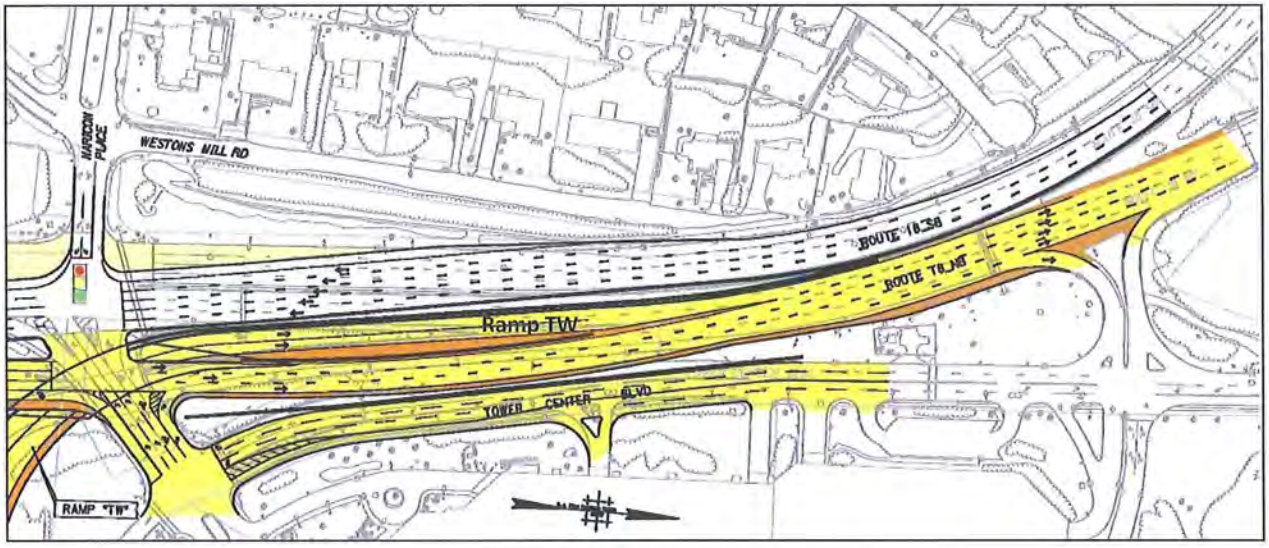



*Figure 14 - Improvement C-3*

- **Improvement C-4** will split the two lanes on Ramp TW. The left lane, to northbound Route 18, will be constructed with a new alignment below the Naricon Place intersection and merge with Route 18 on the median side. The right lane, to the US Route 1 northbound ramp, will merge with northbound Route 18 on the right side. The northbound Route 18 exit ramp to Tower Center Boulevard will remain in place. At the US Route 1 northbound ramp diverge point, the two left lanes will be aligned to northbound Route 18 and the two lanes on the right will be aligned to the US Route 1 northbound ramp. Improvement C-4 is illustrated in Figure 15. This proposed improvement will:
  - eliminate or significantly reduce lane changes and the cross weave volume
  - require a new underpass below the Route 18 and Naricon Place intersection for the left branch of Ramp TW (labeled Ramp TW2 in Figure 15)
  - require a second underpass under Naricon Place for the right branch of Ramp TW (labeled Ramp TW1 in Figure 15)
  - require shifting the northbound Route 18 lanes to the east
  - require reconstruction of the northbound Route 18 lanes between Naricon Place and US Route 1
  - require realignment of the Tower Center Boulevard and the reconstruction of the Tower Center Boulevard and Naricon Place intersection
  - require traffic from the toll plaza that is destined to Tower Center Boulevard to use the Ramp TW1
  - require more distance than available between the toll plaza and the split ramps for effective guide signs.
  - The split ramp design is unusual in New Jersey. It will likely generate driver indecision on the ramps and create confusion where the ramps enter the highway on both sides at approximately the same location

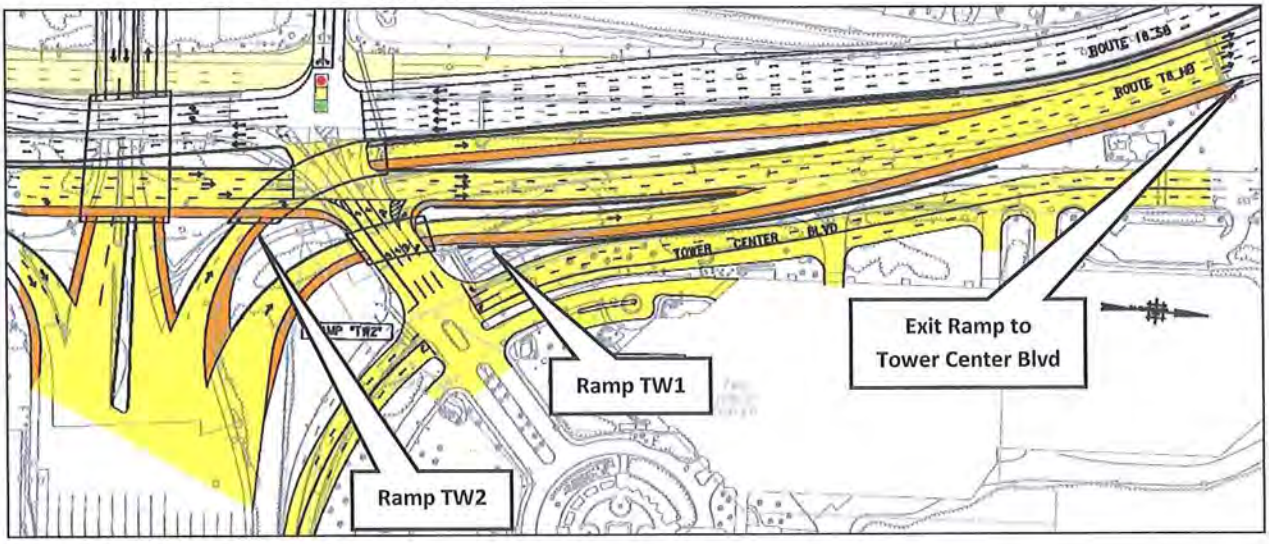



*Figure 15 - Improvement C-4*

- **Improvement C-5** will reduce the three lanes on northbound Route 18 to two lanes upstream of the Ramp TW merge. The two lanes on Ramp TW will join the two lanes on northbound Route 18. An auxiliary lane with a taper will be added on the right side of the Ramp TW lanes for exclusive use of traffic from the toll plaza that are destined to the Tower Center Boulevard exit ramp. At the US Route 1 northbound ramp diverge point, the two left lanes will be aligned to northbound Route 18 and the two lanes on the right will be aligned to the US Route 1 northbound ramp. Improvement C-5 is illustrated in Figure 16. This proposed improvement will:
  - limit the Ramp TW driver's weaving movements to at most two lane changes
  - extend the weaving section with the elimination of the merge of Ramp TW onto northbound Route 18
  - require northbound Route 18 traffic destined to Tower Center Boulevard to enter via Naricon Place
  - limit the access to the new auxiliary lane and the Tower Center Boulevard exit to traffic from the toll plaza
  - require Route 18 northbound traffic destined to US Route 1 northbound ramp to cross over one lane to the right
  - maintains current Naricon Place bridge over Ramp TW

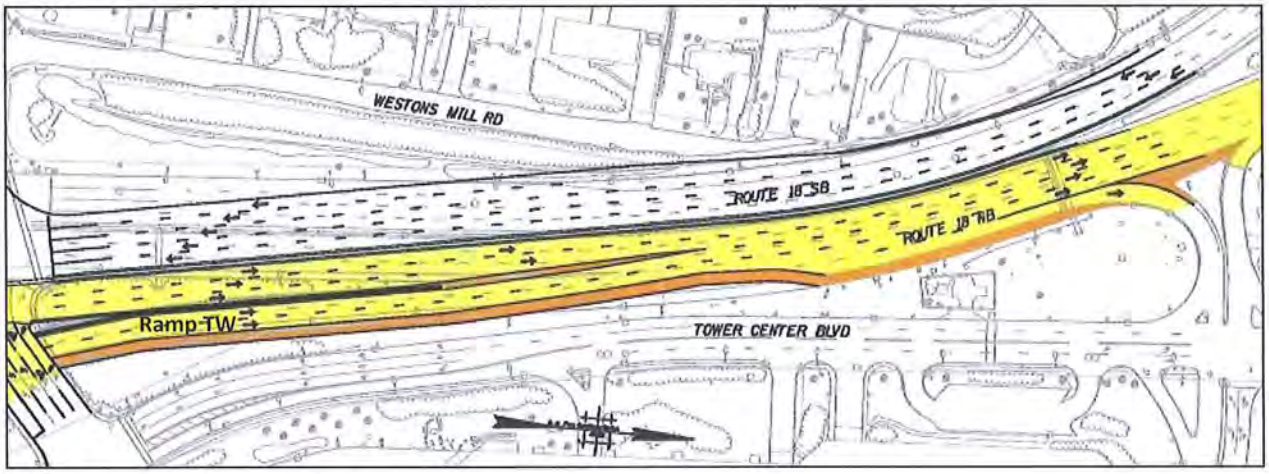



*Figure 16 - Improvement C-5*

Of the five schemes that were evaluated using the Paramics traffic model for the Route 18 Northbound Weave Area 1, Improvement C-5 is recommended for implementation due to the least number of vehicles projected to be blocked and the Measures of Effectiveness discussed in Appendix C. The number of vehicles that may be blocked within the identified roadway segment in each of the proposed improvements are listed in Table 4.

The proposed lane drop on northbound Route 18 and the auxiliary lane for the exit to Tower Center Boulevard is projected to mitigate the congestion caused by the weaving movements. The model indicates that two lanes are adequate for the projected 2033 northbound Route 18 volumes.

The northbound traffic on Route 18 will use the right turn lane at the signalized Naricon Place intersection to access Tower Center Boulevard. This will prevent a cross weave at the Ramp TW merge with the northbound Route 18 lanes.

The return trip from Tower Center Boulevard to southbound Route 18 may be performed by way of the Route 18 and Naricon Place signalized intersection. Drivers on Tower Center Boulevard that are destined to northbound Route 18 may enter by way of Naricon Place or the entrance near Westons Mill Pond.

| *AM* | Improvement C-1 | Improvement C-2 | Improvement C-3 | Improvement C-4 | Improvement C-5 |
|---|---|---|---|---|---|
| Rt 18 NB | 618 | 557 | 1208 | 588 | 0 |
| TPK NB | 176 | 173 | 0 | 134 | 0 |
| TPK SB | 121 | 168 | 0 | 15 | 0 |
| *TOTAL* | *915* | *898* | *1208* | *737* | *0* |

*Table 4. Blocked Vehicles in C-1, C-2, C-3, C-4 and C-5*

**Route 18 Northbound at US Route 1 Northbound Split**

This diversion area is on the north end of the Route 18 Northbound Weave Area 1. Currently, there are two lanes on the left side for northbound Route 18 and two lanes on the right side for northbound US Route 1. The proposed improvements are intended to extend the weaving section between Ramp TW and the diversion area. The two improvement schemes are identified as Improvement D-1 and Improvement D-2. The two mitigation schemes for the Route 18 at US Route 1 Northbound Split area that were evaluated, along with their disadvantages and advantages, are listed below:

- **Improvement D-1** will modify the lane striping for the middle right lane to allow drivers to either travel north on Route 18 or exit at the ramp for northbound US Route 1. The right most lane on northbound Route 18, downstream of the diverge point will merge with the adjacent lane. Northbound Route 18 will continue to have two lanes at the entrance of the ramp from US Route 1 northbound. Improvement D1 is illustrated in Figure 17. This proposed improvement will:
  - extend the weaving area to the new diversion gore point
  - extend the three northbound lanes on Route 18 past the diversion point
  - provide one full lane and a shared lane to northbound US Route 1
  - provide two full lanes and a shared lane for northbound Route 18 at the ramp from US Route 1 northbound
  - improve the short term traffic operation on Route 18

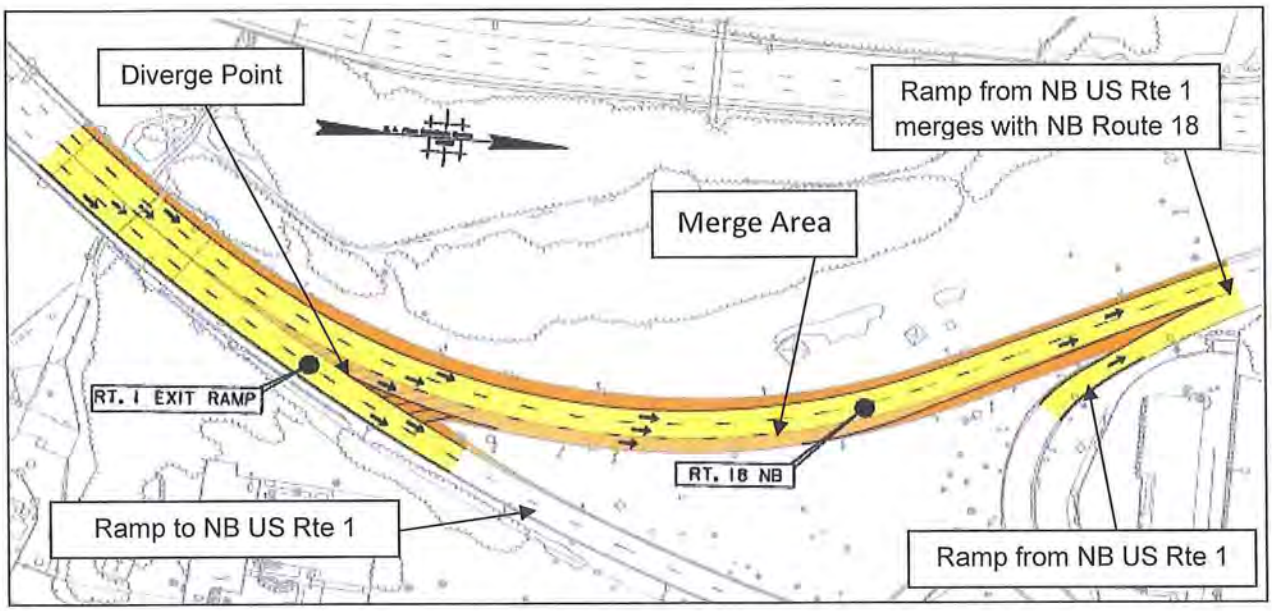



*Figure 17 - Improvement D-1*

- **Improvement D-2** will widen the northbound Route 18 section from the diverge point to three through lanes over US Route 1. The additional auxiliary lane on northbound Route 18 will begin at the entrance of the ramp from northbound US Route 1. Improvement D-2 is illustrated in Figure 18. This proposed improvement will:
  - extend the weaving area to the diversion gore point
  - provide three continuous through lanes on the northbound lanes of Route 18
  - require widening the Route 18 bridge over US Route 1
  - improve the long term traffic operation on Route 18

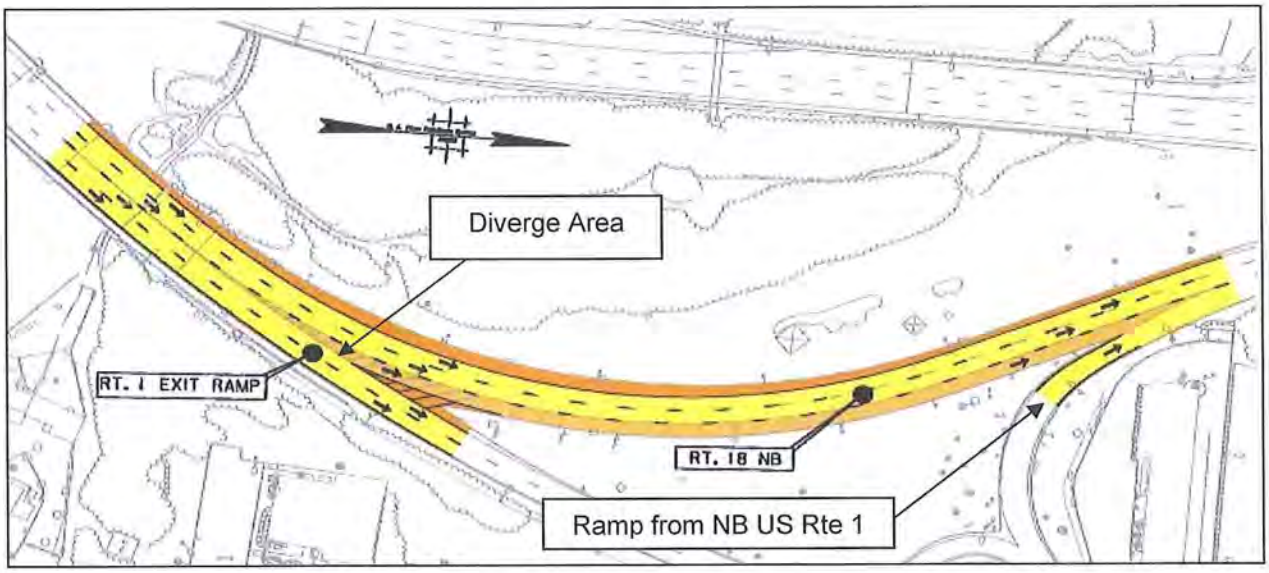



*Figure 18 - Improvement D-2*

Of the two improvement schemes that were evaluated using the Paramics traffic model for the Route 18 Northbound and US Route 1 Split area, Improvement D-1 is recommended for implementation to improve traffic as a short term solution until the future Route 18 / Route 1 interchange improvements are constructed. The travel times and vehicular speeds, used to evaluate the "Recommended Solution" (using Alternative D1) and the "Recommended Solution with Additional Lane over US Route 1" (alternative D2), are presented in Appendix B.

The proposed modifications to the pavement markings, that will allow shared use by traffic destined to northbound Route 18 and to northbound US Route 1 northbound, will extend the weaving area south of the gore point. The three lanes on northbound Route 18 reduction to two lanes will provide the traffic entering from US Route 1 with a continuous lane. The NJDOT Highway Design manual states that lane transition should occur on a tangent whenever possible and that the entire transition should be visible to the driver approaching the narrower section. The proposed transition will be on the outside of the curve and will be presented

within the field of view of the approaching drivers. Additionally, this proposed improvement is a short term fix until the US Route 1 Interchange is improved.

Improvement D-2 will require widening the Route 18 bridge over US Route 1 to provide a new auxiliary lane for the ramp entering from US Route 1 northbound. Vehicles exiting Route 18 to southbound US Route 1 will weave onto the same new auxiliary lane.

Discussions with the NJDOT regarding Alternatives D1 and D2 resulted in elimination of lane reconfigurations in the area of these alternatives from the Interchange 9 Improvements. The NJDOT intends to begin improvements at the Route 18 / Route 1 Interchange that will address the weaving and capacity issues. These improvements are anticipated to begin soon after the completion of the construction of the Interchange 9 Improvements.

**New Jersey Turnpike Exit Ramps NT and ST at Interchange 9**

Improvements to the New Jersey Turnpike exit Ramps NT and ST at Interchange 9 have been considered. Plans to improve the weaving movements at the approach to the exit plaza include a new flyover ramp to separate the weaving movements and extending the distance between the nose of the Ramps NT and ST and the toll lanes.

The current configuration of the exit plaza toll lanes is projected to experience congestion with the anticipated future traffic volumes. The distance between the ramp termini and the toll lanes is less than the desired Turnpike standard and magnifies the weaving impact to the traffic flows on both sides of the toll plaza. An earlier URS study noted that 51% of the crashes at the toll plaza were experienced by traffic weaving between the toll lanes and nose of Ramps TE and TW.

The proposed improvements are intended to reduce or eliminate the weaving movements between the toll lanes and Ramps NT and ST. Ramp ST is the northbound New Jersey Turnpike exit ramp to Interchange 9. Ramp NT is the southbound New Jersey Turnpike exit ramp to Interchange 9. The two improvement schemes are identified as Improvement E-1 and Improvement E-2. The two mitigation schemes for the toll plaza area that were evaluated, along with their disadvantages and advantages, are listed below:

- **Improvement E-1** will provide a new flyover ramp from the northbound exit ramp to the north side of the plaza. Improvement E-1 is illustrated in Figure 19. The proposed new flyover ramp identified as Ramp ST2 in Figure 19 will separate Route 18 southbound and northbound traffic to the south and to the north side of the toll plaza respectively. The two lane southbound exit Ramp NT may be also be signed to the right for Route 18 northbound and left lane, for Route 18 southbound. This proposed improvement will:
  - separate the southbound and northbound Route 18 traffic arriving from the northbound Turnpike mainline via Ramp ST and ST2
  - significantly reduce or eliminate the weaving movements between the exit ramps and Route 18
  - simplify the movements to mostly merging maneuvers versus weaving movements
  - mitigate crashes due to weaving maneuvers at the toll plaza
  - require the construction of a flyover ramp structure that will span the NJTPK mainline
  - be inconsistent with standard orientation of Turnpike interchange ramps

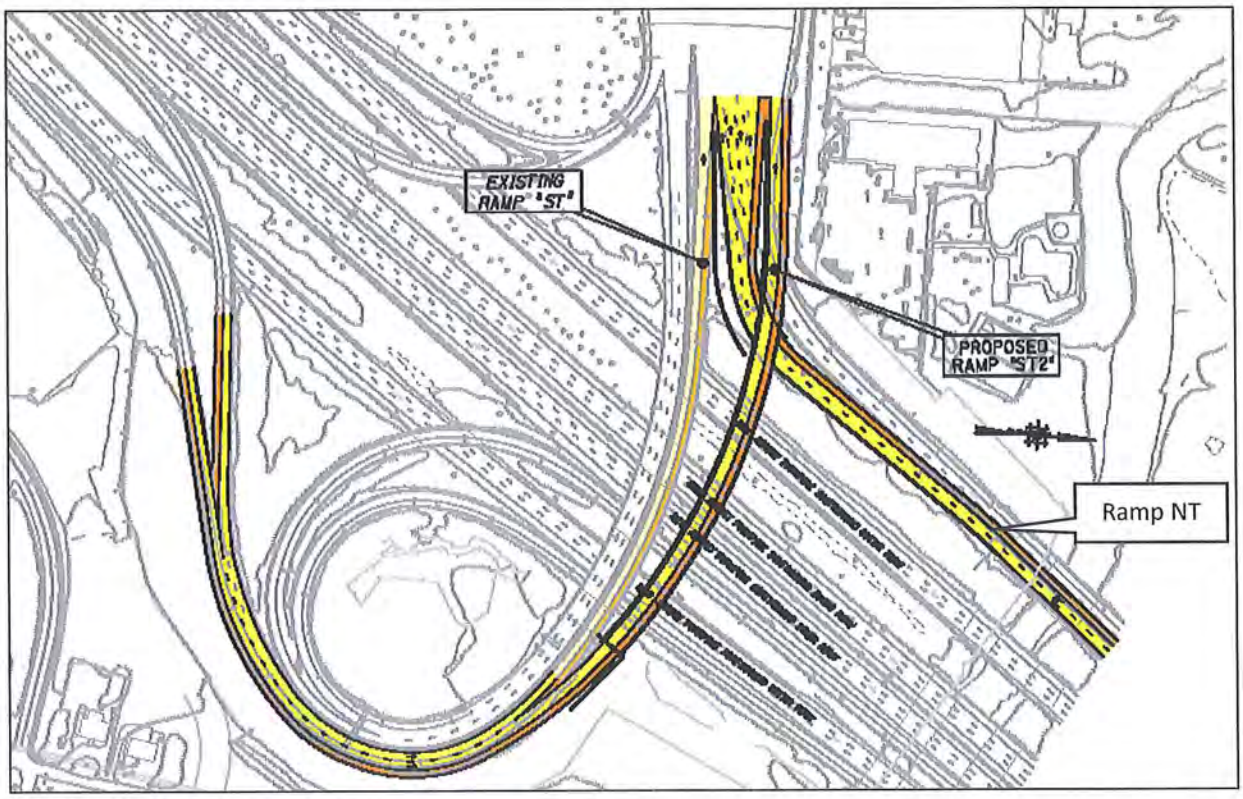



*Figure 19 - Improvement E-1*

- **Improvement E-2** will widen the Ramp NT and Ramp ST approaches to the exit toll plaza and move the nose of the junction of these two ramps to provide approximately the Authority's desirable 500 foot half-length. The single lane Ramp ST will expand to three lanes immediately after crossing the southbound outer roadway. A fourth lane is added to Ramp ST prior to joining the lanes from Ramp NT. The two lane southbound NJTPK exit Ramp NT will expand to five lanes at approximately 270 feet upstream of the Ramp ST gore area. Improvement E-2 is illustrated in Figure 20. This proposed improvement will:
  - reduce the number of lanes that weaving vehicles will cross over
  - improve the projected traffic flow with decreased weaving movement conflicts
  - not require a new structure
  - provide for more storage space at both ramps
  - increase the distance between the nose of the two ramps and the center of the toll lanes to approximately 500 feet
  - provide a better view of the toll plaza for drivers approaching on Ramp ST

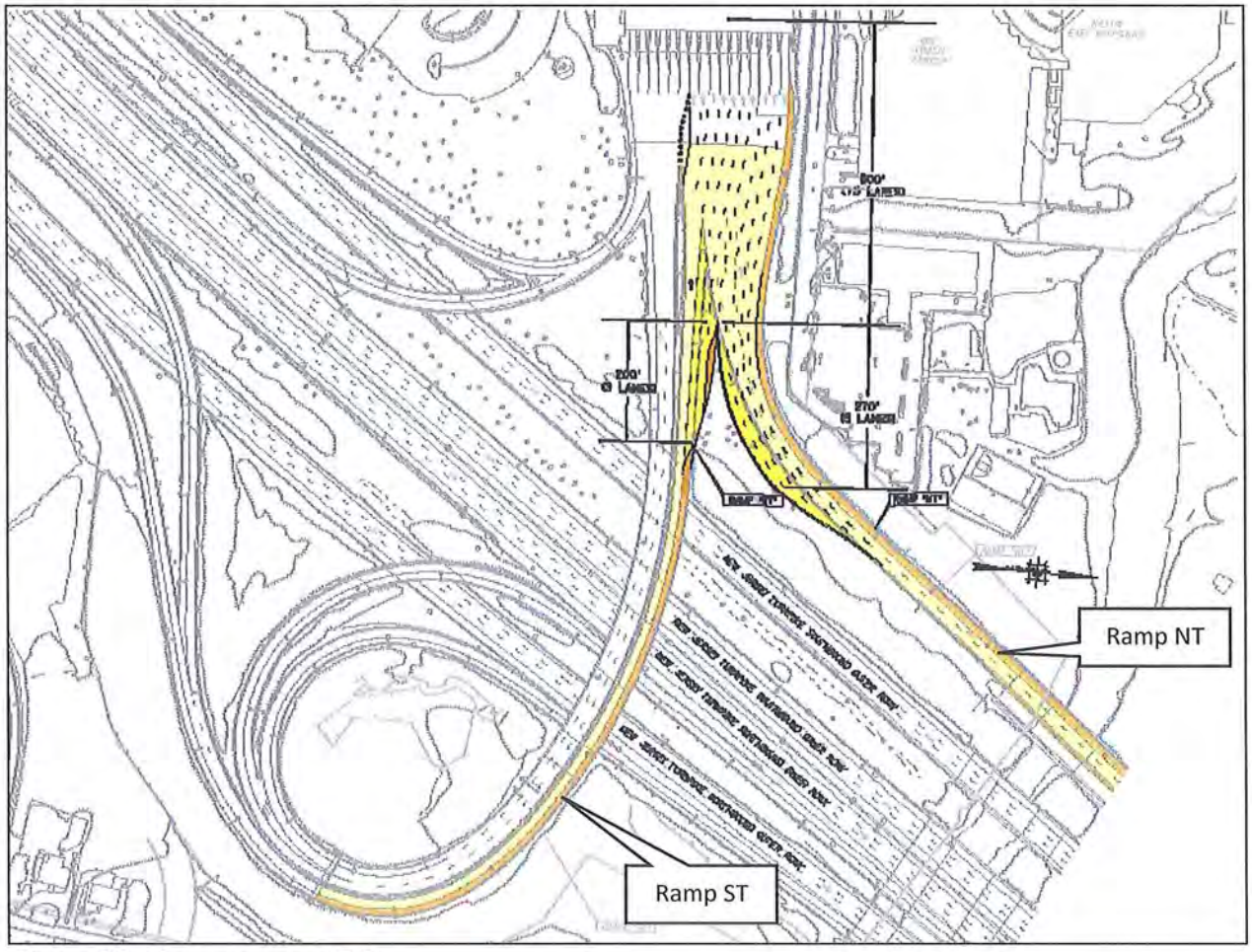



*Figure 20 - Improvement E-2*

Due to the relatively low cost of the improvement as well as the projected relief to weaving maneuver conflicts, Improvement E-2 is recommended for implementation. The additional lanes effectively repositioned the nose of the two ramps and increased the distance between the center of the toll lanes and the ramps to approximately 500 feet. The longer distance and revised orientation will contribute to a better view of the plaza and add a little more time for drivers to decide which lane to choose. The additional lanes should also reduce the number of lanes that weaving vehicles will need to cross over.

## *EZ-Pass and Cash Lanes Assessment*

The EZ-Pass lane and cash lane assignments of the toll lanes were evaluated to identify a more efficient configuration. There are sixteen lanes at the toll plaza. During the 2008 data collection, there were 11 exiting lanes and 5 entering lanes. The 2008 lane collection assignment is described in Table 3. The lanes are classified with a 'C' for cash transaction and 'E' for EZ-Pass transaction.

| Exiting Lanes | | | | | | | | | | | Entering Lanes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 1 | 2 | 3 | 4 | 5 |
| C | C | C | E | E | C | C | E | E | C | C | E | E | C | E | C |

*Table 5 – 2008 Cash & EZ-Pass Lane Assignments*

During the 2010 field survey, a slight change was observed with 10 lanes assigned to exiting traffic and 6 lanes for entering traffic. The 2010 lane collection assignment is described in Table 4.

| Exiting Lanes | | | | | | | | | | Entering Lanes | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 1 | 2 | 3 | 4 | 5 | 6 |
| E | E | C | E | E | C | C | E | E | C | C | E | E | C | E | C |

*Table 6 – 2010 Cash & EZ-Pass Lane Assignments*

Both the 2008 and 2010 lane assignments were modeled in Paramics with the projected 2033 traffic volumes and distribution. According to the NJTPK, the projected future EZ-Pass penetration rate will be at 79 percent for all approaches. This is higher than the existing EZ-Pass usage especially for the entering traffic flow. A trial and error process was performed to develop an efficient lane transaction assignment pattern that is presented in Table 5. It should be noted however, that the toll booths have sufficient capacity for processing transactions of arriving traffic and the short distance between the ramps and the toll gates is the principal factor to the congestion within the plaza. The proposed strategy to increase the distance between the ramp termini and the toll lanes as well as the improved approach lane alignments are projected to be more significant factors in alleviating the congestion at the plaza.

| Exiting Lanes | | | | | | | | | | Entering Lanes | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 1 | 2 | 3 | 4 | 5 | 6 |
| C | E | E | C | C | E | E | C | E | C | E | E | C | E | E | C |

*Table 7 – 2033 Most Efficient Cash & EZ-Pass Lane Assignments*

## ***Summary***

Each of the recommended improvements at Interchange 9 and the Route 18 ramp connections are projected to improve traffic flow. Based on the Paramics traffic model, the implementation of all the recommended improvements is expected to result in increased traffic flow and efficiency. However, the existing and future conditions at the nearby Route 18 and US Route 1 interchange that is within the jurisdiction of NJDOT are expected to continue interference with traffic flow and cause spillback to the area roadway network including Interchange 9. The recommended improvements at Interchange 9 are not envisioned to preclude any future improvements at the Route 18 and US Route 1 interchange.

The projected travel times and vehicular speeds during the AM and PM peak hours in the existing geometry and for the recommended improvements for key movements are presented in Appendix B. The table provides information for the following key movements between the following points:

- D - A – From the beginning of Ramp NT to Route 18 Northbound near the ramp to US Route 1 Southbound
- B – E – From Route 18 southbound near the entrance of the ramp from US Route 1 northbound to the split between the inner and outer roadways on Ramp TN
- C – A – From Route 18 northbound near the Turnpike mainline to Route 18 Northbound near the ramp to US Route 1 Southbound
- B- C - From Route 18 southbound near the entrance of the ramp from US Route 1 northbound to Route 18 southbound near the Turnpike mainline

The travel time and speed information in the table evaluates these movements at the estimate time of construction and for 10 and 20 years beyond. The table also show the results of implementing all of the of the recommended solutions and the additional benefits that can be expected if the US Route 1 interchange is improved by the addition of one lane on Route 18 northbound over US Route 1.

The recommended improvements are:

Improvement A-3 for Ramp WT
The improvement scheme will increase the ramp radius to the Authority's Minimum Desirable Radius of 150 feet, make Ramp WT a two lane ramp, and shift the Route 18 centerline east to accommodate the new Ramp WT alignment.

Improvement B-4 for the Signalized Route 18 and Naricon Place Intersection
This improvement scheme will increase the number of lanes on the southbound Route 18 approach to Naricon Place from 4 to 5 lanes. Two right lanes will be aligned towards Ramp WT and provide sufficient storage upstream of the traffic signal. The three left lanes will be exclusive to southbound Route 18. This would be implemented with Improvement A-3.

Improvement C-5 for the Route 18 and Ramp TW Weave Area

This improvement scheme will reduce the three northbound Route 18 lanes to two lanes north of the Naricon Place signalized intersection. An auxiliary lane will be provided for the exit to Tower Center Boulevard. The two lanes on Ramp TW will join the two lanes on northbound Route 18 to meet the existing four lane section of the bridge over Westons Mill Pond and diverge at the US Route 1 junction.

Improvement D-1 for the Route 18 and Northbound US Route 1 Diverge

This improvement scheme will revise the lane line markings to allow the center right lane to service both northbound Route 18 and the ramp for northbound US Route 1 traffic. At the February 28, 2011 meeting with the NJDOT Core Group, the NJDOT advised that they will be investigating adding a lane on Route 18 northbound over Route 1 as part of a current bridge deck replacement project. They will be addressing the Route 18 northbound / Route 1 northbound diverge as part of their project. Therefore, the recommended improvement in this area will not be implemented as part of the NJTA OPS T3254.

Improvement E-2 for New Jersey Turnpike Exit Ramps at Interchange 9

This improvement scheme will increase the single lane Ramp ST to three lanes immediately after clearing the southbound outer roadway. A fourth lane is added just upstream of the gore point between Ramp NT and Ramp ST. The two lane southbound NJTPK exit Ramp NT will expand to five lanes at approximately 270 feet upstream of the gore point. The additional lanes will relocate the nose of the two ramps and increase the distance to the toll gates to about 500 feet. The additional length and orientation will provide drivers with a better view at the approach to the toll plaza and additional time to decide which toll lane to take at the plaza.

Improvements on Naricon Place

Improvements will be made to the eastbound and westbound approaches to the Route 18 intersection with Naricon Place. The lane configuration and signal timing at the intersection of Tower Center Boulevard and Naricon place will be coordinated with the adjacent signal in Route 18. The analysis of these intersections is provided in Appendix D.

New Jersey Turnpike Authority

# INTERCHANGE 9 IMPROVEMENTS

## Traffic Report

## Appendix A

### Future Traffic Volumes

# *NJ TURNPIKE - INTERCHANGE 9*
## *Future Volume Summary*

JACOBS

November 18, 2010

***Notes***

Compound Annual Growth rates calculated directly from NJRTM-E outputs
CAGR applied only to zone productions
NJRTM-E period rates applied directly to the peak hours
Forecasted volumes through toll facilities are not capacity constrained

***Total Model Trips***

| | *2013* | *2033* | *Abs Growth* | *% Growth* |
|---|---|---|---|---|
| AM Peak Hour | 11,441 | 12,402 | 961 | 8% |
| PM Peak Hour | 11,246 | 13,064 | 1,818 | 16% |

***Toll Facility Volumes***

| *Cars* | *Eastbound* | | | | *Westbound* | | | |
|---|---|---|---|---|---|---|---|---|
| | *2013* | *2033* | *Abs Growth* | *% Growth* | *2013* | *2033* | *Abs Growth* | *% Growth* |
| AM Peak Hour | 2766 | 3044 | 278 | 10% | 3471 | 3544 | 73 | 2% |
| PM Peak Hour | 2678 | 3311 | 633 | 24% | 3595 | 3467 | -128 | -4% |

| *Trucks* | *Eastbound* | | | | *Westbound* | | | |
|---|---|---|---|---|---|---|---|---|
| | *2013* | *2033* | *Abs Growth* | *% Growth* | *2013* | *2033* | *Abs Growth* | *% Growth* |
| AM Peak Hour | 123 | 122 | -1 | -1% | 136 | 143 | 7 | 5% |
| PM Peak Hour | 100 | 97 | -3 | -3% | 65 | 54 | -11 | -17% |

*NJ TURNPIKE - INTERCHANGE 9*
*Growth Calculations*

JACOBS

May 26, 2010

### COMPOUND ANNUAL GROWTH

| | | DAILY TOTAL | | | | AM | | | | MD | | | | PM | | | | NT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | |
| Paramics Zone | Station | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction |
| 1 | NJTP NB Off Ramp | 1.41% | 0.36% | -0.38% | -0.12% | 2.19% | -0.04% | 0.87% | -0.76% | 0.69% | 0.84% | -0.89% | 0.00% | 0.65% | 0.00% | -0.07% | -0.20% | 0.99% | 0.78% | -0.43% | 0.00% |
| 2 | NJTP SB Off Ramp | 0.32% | 0.82% | 0.00% | 0.00% | -0.79% | 0.00% | -0.06% | 0.00% | 0.90% | 0.00% | 0.27% | 0.00% | -0.24% | 0.00% | -0.88% | 0.00% | 0.92% | 0.90% | 0.19% | 0.00% |
| 3 | NJ18 South end | 0.80% | 0.77% | 0.06% | -0.19% | 0.48% | 1.13% | 0.12% | 0.10% | 0.79% | 0.76% | -0.13% | -0.36% | 1.25% | 0.60% | 0.37% | -0.56% | 0.83% | 0.75% | 0.12% | 0.10% |
| 4 | NJ18 North End SB | 0.58% | 0.00% | -0.30% | 0.00% | 0.26% | 0.00% | -0.40% | 0.00% | 0.58% | 0.00% | -0.47% | 0.00% | 0.70% | 0.00% | -0.20% | 0.00% | 0.69% | 0.00% | -0.05% | 0.00% |
| 5 | NJ18 North End NB | 0.00% | 0.50% | 0.00% | -0.13% | 0.00% | 0.35% | 0.00% | -0.15% | 0.00% | 0.66% | 0.00% | -0.33% | 0.00% | 0.18% | 0.00% | 0.04% | 0.00% | 0.81% | 0.00% | 0.08% |
| 6 | NJ18 NB to Rt1 | 0.00% | 0.90% | 0.00% | 0.20% | 0.00% | 1.66% | 0.00% | 0.67% | 0.00% | 0.64% | 0.00% | 0.25% | 0.00% | 0.05% | 0.00% | -0.26% | 0.00% | 0.80% | 0.00% | 0.09% |
| 7 | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 8 | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 9 | NJTP SB On Ramp | 0.00% | 1.41% | 0.00% | -0.58% | 0.00% | 0.61% | 0.00% | -0.13% | 0.00% | 0.60% | 0.00% | -1.28% | 0.00% | 2.35% | 0.00% | 1.94% | 0.00% | 1.00% | 0.00% | -0.74% |
| 10 | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 11 | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |

### GROWTH FACTOR (2013 - 2033)

| | | DAILY TOTAL | | | | AM | | | | MD | | | | PM | | | | NT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | |
| Paramics Zone | Station | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction |
| 1 | NJTP NB Off Ramp | 1.341 | 1.078 | 0.924 | 0.974 | 1.575 | 0.991 | 1.199 | 0.852 | 1.155 | 1.192 | 0.829 | 1.000 | 1.146 | 0.999 | 0.986 | 0.960 | 1.231 | 1.177 | 0.913 | 1.000 |
| 2 | NJTP SB Off Ramp | 1.070 | 1.000 | 1.000 | 1.000 | 0.846 | 1.000 | 0.987 | 1.000 | 1.206 | 1.000 | 1.059 | 1.000 | 0.951 | 1.000 | 0.830 | 1.000 | 1.212 | 1.000 | 1.041 | 1.000 |
| 3 | NJ18 South end | 1.182 | 1.174 | 1.013 | 0.961 | 1.106 | 1.265 | 1.026 | 1.021 | 1.179 | 1.172 | 0.974 | 0.927 | 1.297 | 1.134 | 1.080 | 0.889 | 1.190 | 1.169 | 1.027 | 1.022 |
| 4 | NJ18 North End SB | 1.129 | 1.000 | 0.938 | 1.000 | 1.055 | 1.000 | 0.919 | 1.000 | 1.130 | 1.000 | 0.906 | 1.000 | 1.157 | 1.000 | 0.960 | 1.000 | 1.154 | 1.000 | 0.989 | 1.000 |
| 5 | NJ18 North End NB | 1.000 | 1.110 | 1.000 | 0.973 | 1.000 | 1.076 | 1.000 | 0.969 | 1.000 | 1.148 | 1.000 | 0.932 | 1.000 | 1.039 | 1.000 | 1.008 | 1.000 | 1.185 | 1.000 | 1.016 |
| 6 | NJ18 NB to Rt1 | 1.000 | 1.207 | 1.000 | 1.042 | 1.000 | 1.412 | 1.000 | 1.152 | 1.000 | 1.143 | 1.000 | 1.053 | 1.000 | 1.010 | 1.000 | 0.947 | 1.000 | 1.182 | 1.000 | 1.018 |
| 7 | | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| 8 | | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| 9 | NJTP SB On Ramp | 1.000 | 1.340 | 1.000 | 0.886 | 1.000 | 1.136 | 1.000 | 0.973 | 1.000 | 1.134 | 1.000 | 0.763 | 1.000 | 1.628 | 1.000 | 1.498 | 1.000 | 1.233 | 1.000 | 0.856 |
| 10 | | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| 11 | | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

### ABSOLUTE GROWTH (2013 - 2033)

| | | DAILY TOTAL | | | | AM | | | | MD | | | | PM | | | | NT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | |
| Paramics Zone | Station | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction |
| 1 | NJTP NB Off Ramp | 4,976 | 2,972 | -24 | -28 | 3,513 | -117 | 9 | -21 | 653 | 1,995 | -24 | 0 | 293 | -6 | 0 | -6 | 518 | 1,099 | -8 | 0 |
| 2 | NJTP SB Off Ramp | 2,923 | 0 | 0 | 0 | -900 | | -2 | | 2,441 | | 22 | | -715 | | -32 | | 2,097 | | 12 | |
| 3 | NJ18 South end | 9,021 | 8,938 | 20 | -65 | 1,764 | 2,123 | 6 | 5 | 2,466 | 2,745 | -17 | -53 | 3,186 | 2,096 | 20 | -27 | 1,605 | 1,974 | 10 | 10 |
| 4 | NJ18 North End SB | 8,944 | 0 | -136 | 0 | 722 | | -25 | | 2,841 | | -94 | | 2,951 | | -11 | | 2,430 | | -7 | |
| 5 | NJ18 North End NB | 0 | 6,413 | 0 | -41 | | 1,145 | | -7 | | 2,429 | | -42 | | 572 | | 2 | | 2,266 | | 7 |
| 6 | NJ18 NB to Rt1 | 0 | 3,040 | 0 | 22 | | 1,859 | | 12 | | 664 | | 12 | | 29 | | -4 | | 487 | | 2 |
| 7 | | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | |
| 8 | | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | |
| 9 | NJTP SB On Ramp | 0 | 4,502 | 0 | -28 | | 88 | | 0 | | 567 | | -29 | | 3,022 | | 13 | | 824 | | -12 |
| 10 | | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | |
| 11 | | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | |

### 2033 VOLUMES

| | | DAILY TOTAL | | | | AM | | | | MD | | | | PM | | | | NT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | |
| Paramics Zone | Station | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction |
| 1 | NJTP NB Off Ramp | 19,555 | 41,074 | 288 | 1,042 | 9,620 | 13,273 | 53 | 122 | 4,871 | 12,396 | 116 | 447 | 2,301 | 8,084 | 34 | 153 | 2,763 | 7,320 | 85 | 321 |
| 2 | NJTP SB Off Ramp | 44,975 | | 1,006 | | 4,940 | | 141 | | 14,267 | | 399 | | 13,782 | | 157 | | 11,986 | | 309 | |
| 3 | NJ18 South end | 58,538 | 60,206 | 1,531 | 1,610 | 18,369 | 10,135 | 255 | 272 | 16,209 | 18,735 | 616 | 674 | 13,916 | 17,705 | 270 | 216 | 10,044 | 13,631 | 390 | 448 |
| 4 | NJ18 North End SB | 78,396 | | 2,073 | | 13,753 | | 283 | | 24,764 | | 904 | | 21,690 | | 253 | | 18,189 | | 633 | |
| 5 | NJ18 North End NB | | 64,732 | | 1,481 | | 16,165 | | 231 | | 18,889 | | 582 | | 15,175 | | 228 | | 14,503 | | 441 |
| 6 | NJ18 NB to Rt1 | | 17,728 | | 544 | | 6,372 | | 92 | | 5,295 | | 239 | | 2,892 | | 79 | | 3,170 | | 134 |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | NJTP SB On Ramp | | 17,726 | | 220 | | 738 | | 17 | | 4,796 | | 92 | | 7,833 | | 39 | | 4,359 | | 72 |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |

### 2013 VOLUMES

| | | DAILY TOTAL | | | | AM | | | | MD | | | | PM | | | | NT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | | Cars | | Trucks | |
| Paramics Zone | Station | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction | Production | Attraction |
| 1 | NJTP NB Off Ramp | 14,579 | 38,102 | 312 | 1,070 | 6,107 | 13,390 | 44 | 143 | 4,218 | 10,401 | 140 | 447 | 2,008 | 8,089 | 34 | 159 | 2,245 | 6,221 | 93 | 321 |
| 2 | NJTP SB Off Ramp | 42,052 | | 1,005 | | 5,840 | | 143 | | 11,825 | | 377 | | 14,497 | | 189 | | 9,889 | | 297 | |
| 3 | NJ18 South end | 49,518 | 51,268 | 1,512 | 1,675 | 16,605 | 8,012 | 249 | 266 | 13,743 | 15,990 | 633 | 727 | 10,730 | 15,609 | 250 | 243 | 8,439 | 11,657 | 380 | 438 |
| 4 | NJ18 North End SB | 69,452 | | 2,209 | | 13,031 | | 308 | | 21,923 | | 997 | | 18,739 | | 263 | | 15,759 | | 640 | |
| 5 | NJ18 North End NB | | 58,319 | | 1,522 | | 15,020 | | 238 | | 16,460 | | 624 | | 14,602 | | 226 | | 12,237 | | 434 |
| 6 | NJ18 NB to Rt1 | | 14,688 | | 522 | | 4,512 | | 80 | | 4,631 | | 227 | | 2,862 | | 83 | | 2,682 | | 132 |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | NJTP SB On Ramp | | 13,223 | | 249 | | 649 | | 18 | | 4,229 | | 121 | | 4,811 | | 26 | | 3,535 | | 85 |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |

New Jersey Turnpike Authority

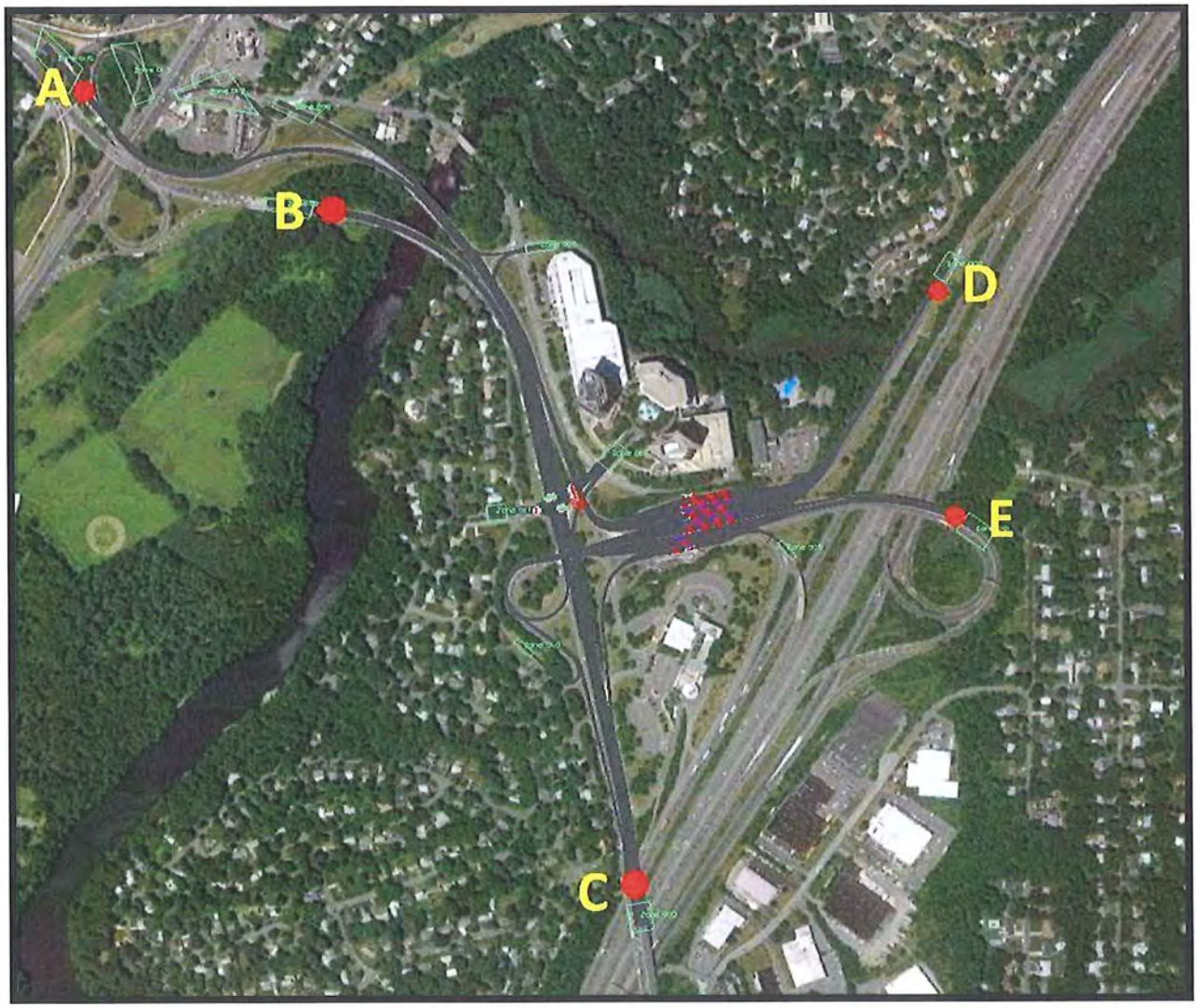
# INTERCHANGE 9 IMPROVEMENTS

## Traffic Report

## Appendix B

**Recommended Improvement**
**Travel Times and Vehicular Speeds**

## TRAVEL TIMES AND SPEED COMPARISON POINTS



## TRAVEL TIMES AND SPEED CHART

| | From D to A | | From B to E | | From C to A | | From B to C | |
|---|---|---|---|---|---|---|---|---|
| **AM PEAK HOUR** | **MIN.** | **MPH** | **MIN.** | **MPH** | **MIN.** | **MPH** | **MIN.** | **MPH** |
| ETC Existing Geometry | **3:53** | 17.9 | **4:09** | 14.8 | **6:12** | 11.5 | **2:42** | 18.0 |
| ETC Recommended Solution | **2:51** | 24.4 | **2:16** | 27.1 | **2:21** | 30.3 | **1:31** | 32.0 |
| 2023 Recommended Solution | **7:09** | 9.7 | **2:19** | 26.5 | **3:31** | 20.2 | **1:32** | 31.6 |
| 2023 Recommended Solution with Additional Lane over Rt. 1 | **2:46** | 25.1 | **2:19** | 26.5 | **2:13** | 32.1 | **1:31** | 32.0 |
| 2033 Recommended Solution | **7:25** | 9.4 | **2:25** | 25.4 | **4:00** | 17.8 | **1:32** | 31.6 |
| 2033 Recommended Solution with Additional Lane over Rt. 1 | **4:40** | 14.9 | **2:22** | 25.9 | **3:09** | 22.6 | **1:30** | 32.3 |
| **PM PEAK HOUR** | **MIN.** | **MPH** | **MIN.** | **MPH** | **MIN.** | **MPH** | **MIN.** | **MPH** |
| ETC Existing Geometry | **3:26** | 20.3 | **3:57** | 15.5 | **2:44** | 26.0 | **3:03** | 15.9 |
| ETC Recommended Solution | **3:03** | 22.8 | **2:42** | 22.7 | **2:12** | 32.3 | **2:10** | 22.4 |
| 2023 Recommended Solution | **2:37** | 26.6 | **2:48** | 21.9 | **2:03** | 34.7 | **2:08** | 22.7 |
| 2023 Recommended Solution with Additional Lane over Rt. 1 | **Not Modeled** | | | | | | | |
| 2033 Recommended Solution | **3:14** | 21.5 | **3:57** | 15.5 | **2:45** | 25.9 | **2:47** | 17.4 |
| 2033 Recommended Solution with Additional Lane over Rt. 1 | **Not Modeled** | | | | | | | |

New Jersey Turnpike Authority

# INTERCHANGE 9 IMPROVEMENTS

## Traffic Report

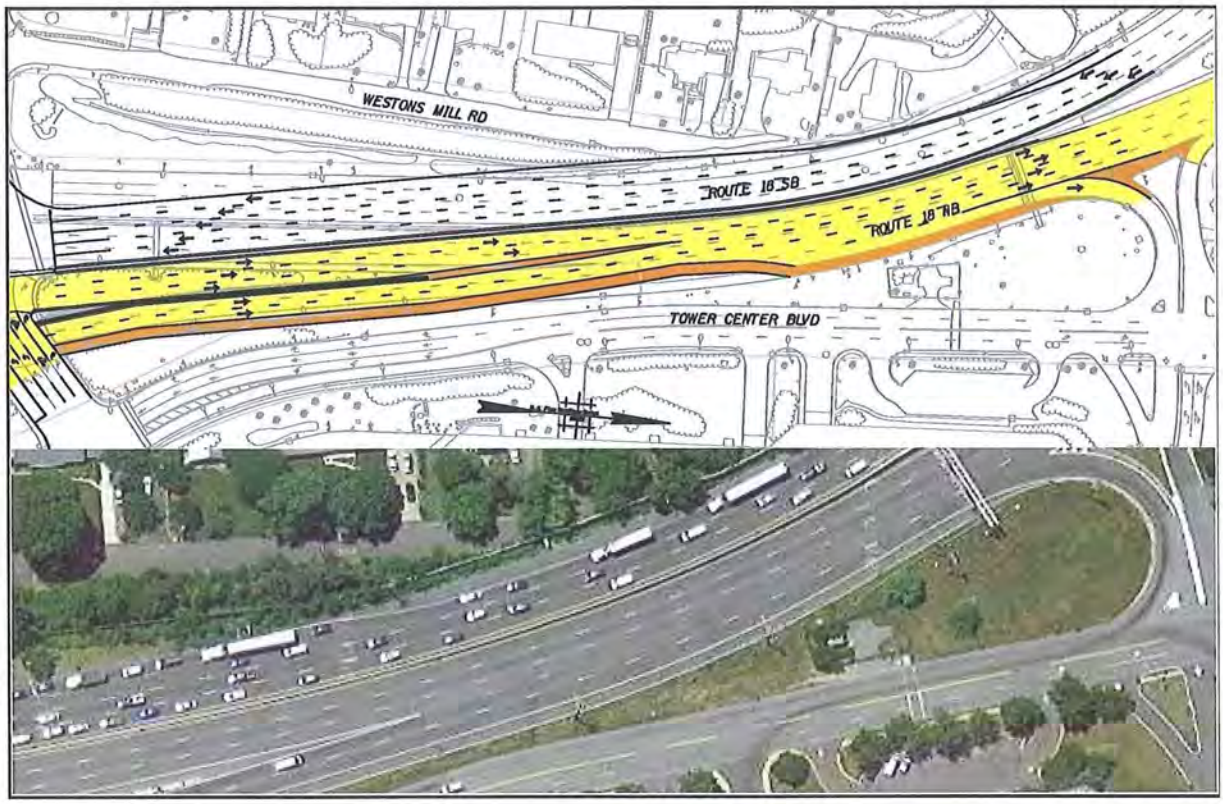
## Appendix C

## Route 18 NB / Ramp TW - Lane Drop and Weave

## EVALUATION OF THE IMPACT OF NJ ROUTE 18 NORTHBOUND LANE DROP ON NJ ROUTE 18 NORTHBOUND AND NJ TURNPIKE MERGING TRAFFIC FLOWS

One component of the Initially Preferred Alternative (IPA) consists of modification of the lane configuration at the merge of NJ Route 18 Northbound with the NJTA Interchange 9 Ramp TW (ramp exiting the Turnpike entering NJ Route 18 Northbound). The existing and proposed IPA geometry at this location are depicted on Figure 1.

**Figure 1: Existing and Proposed (IPA) Geometry – NJ Route 18 Northbound with NJTA Ramp TW Merge**




Currently, three (3) lanes on NJ Route 18 Northbound merge with two (2) lanes from the NJTA Ramp TW. These five (5) lanes merge into four (4) lanes with the right lane on NJ Route 18 and the left lane on NJTA Ramp TW merging in the middle of the roadway. This configuration creates confusion within the merge area, with no clear definition as to which movement is the primary flow and which is the merging flow. This condition is reflected by the congestion observed in the field and in the traffic simulation model. The IPA recommendation consists of merging the three (3) lanes on NJ Route 18 northbound into two (2) lanes prior to the merge with NJTA Ramp TW. In addition, the right-most lane after the merge currently splits with traffic having the option of continuing along NJ Route 18 northbound or exiting onto Tower Center Boulevard. The IPA includes the addition of a fifth lane for a dedicated deceleration/exit lane onto Tower Center Boulevard.

To assess the traffic operations implications of this change, targeted Measures of Effectiveness (MOE's) were extracted from Paramics simulation model developed for this study. While the model covers a wide geographic area, several specific roadway sections, or links, were identified for quantifying operations on the subject section of the roadway system. Within the model, Link 40:41 represents the section of NJ Route 18 from Naricon Place to the merge with NJTA Ramp TW. Link 41:46 represents NJ Route 18 Northbound/NJTA Ramp TW merge section from the tip of the gore to the exit to Tower Center Boulevard. These sections are depicted on Figure 2.

**Figure 2: Link Definitions within the Paramics Model**


The IPA proposes merging the three (3) lanes in Link 40:41 to two (2) lanes, so that NJ Route 18 northbound traffic is merged prior to the introduction of the NJTA Ramp TW traffic. An important consideration in the identification of this element of the IPA is that a small percentage of traffic on NJ Route 18 Northbound as well as traffic entering from NJTA ramp TW are destined for Route 1 Northbound. Most of the traffic on these approaches to the merge area must bear left after the merge to continue on NJ Route 18 northbound and for access to the Route 1 southbound ramp, beyond the current diverge point for the Route 1 northbound ramp located approximately 1,000 feet after the entrance of Ramp TW.

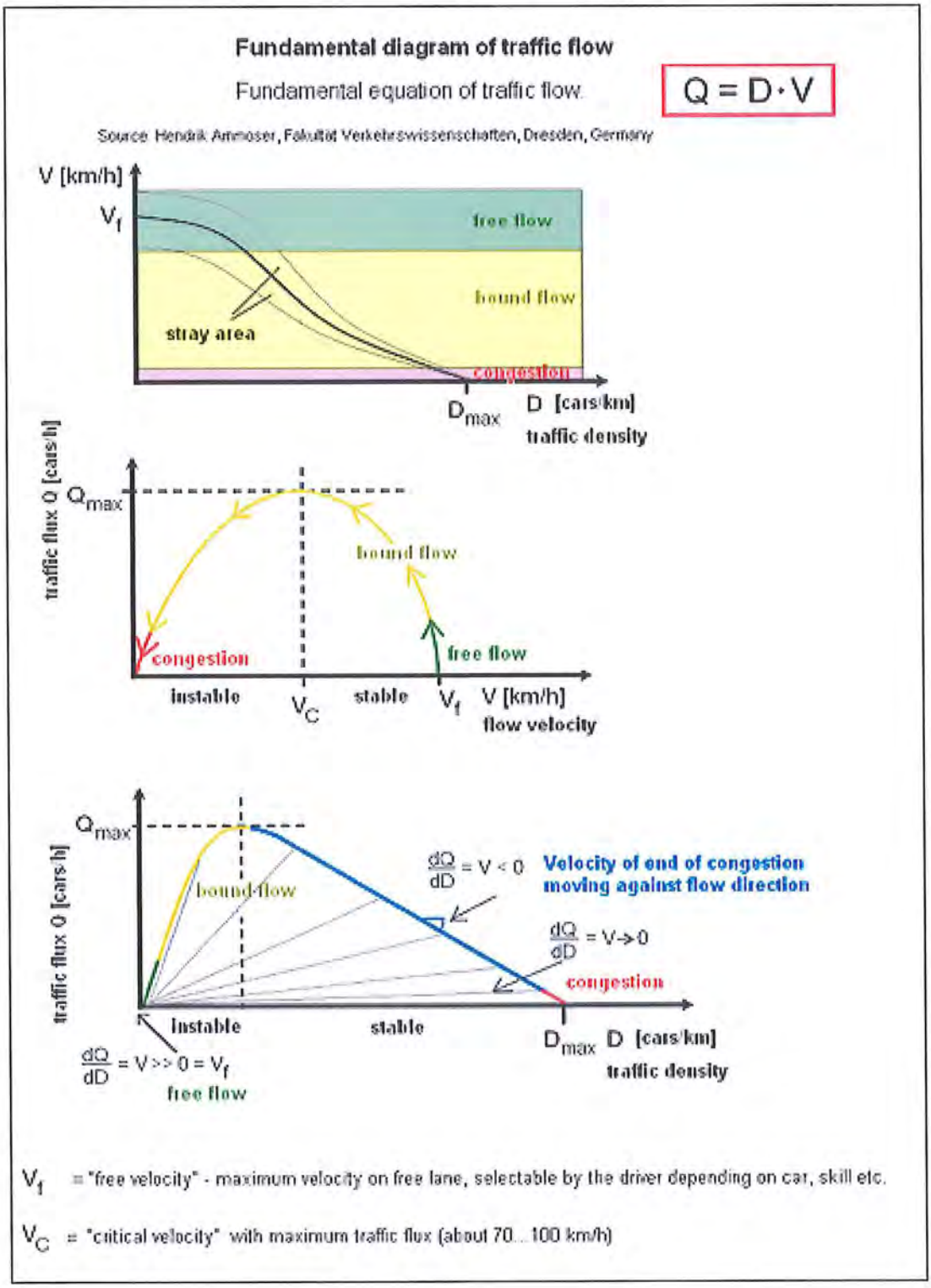
As a baseline for comparison, a configuration similar to the current condition was evaluated in terms of the effect it would have on traffic flow on the primary links in this analysis. The lane configuration in the model for this comparison does not merge the NJ Route 18 northbound traffic to two (2) lanes prior to the merge. Instead, a hard merge is used in the five-lane section along Link 41:46.

Measures of Effectiveness (MOE's) were extracted from the simulation model for Link 40:41 and Link 41:46 to isolate the performance along NJ Route 18 Northbound under both scenarios. Due to the complicated nature of traffic dynamics in the study sections, in-depth traffic flow theory was applied based on speed, flow, and density retrieved from the Paramics simulation model. It should be noted that under both scenarios it was assumed that traffic operates without the downstream constraints created by the width of the Mill Pond Bridge and the Route 1 interchange. This bottleneck was "released" within the Paramics model so that its influence would not become a factor in the evaluation of the IPA merge configuration.

Greenshield's model is an efficient model to analyze the relationship between speed-flow-density for uninterrupted traffic flow. Figure 3 depicts the fundamental relationship between flow-density, speed-flow, and speed-density. These three factors are generally related by the **"flow = speed * density"**. The fundamental diagrams were derived by plotting field data points

and developing a best fit curve through the data points. These curves and the relationships they express form the basis for the traffic flow algorithms within the Paramics model.

**Figure 3: Greenshield's Model "Speed-Flow-Density" Relationships**



Traffic operations as a physical phenomena are complex and nonlinear, with observed operations depending on the interactions of a large number of vehicles operated by unique individuals. Due to the individual reactions of human drivers, vehicles do not interact simply following the laws of mechanics, but rather show phenomena of cluster formation and shock wave propagation, both forward and backward, depending on vehicle density in a given area. These factors are represented in the Paramics simulation models and the performance measures reported. Table 1 summarizes key performance measures on the critical roadway links under the IPA and the Alternative configurations. Link 40:41 represents the NJ Route 18 northbound approach to the merge, while Link 41:46 represents the merge area itself.

**Table 1: Critical Link Measures of Effectiveness**

| Link | Density (pc/mi/ln) | | Speed (mph) | | Flow (veh/hr) | |
|---|---|---|---|---|---|---|
| | IPA | Alternative | IPA | Alternative | IPA | Alternative |
| **40:41** | 180.0 | 162.7 | 15.9 | 19.4 | 3,301 | 3,233 |
| **41:46** | 364.8 | 452.6 | 18.2 | 18.6 | 6,067 | 5,754 |

1. Under the IPA scenario, the NJ Route 18 approach to the merge area would experience a higher vehicle density and slower average travel speed as compared to the Alternative configuration without the advance merge on NJ Route 18 northbound. This is a direct result of the reduction from three (3) to two (2) travel lanes on this link. However, the total vehicle throughput under the IPA scenario is higher than the alternative configuration due to improved flows within the merge area and reduced spillback from Link 41:46 to link 40:41. As demonstrated in the middle portion of the diagram on Figure 3, increase in flow is not necessarily directly proportional to increased speed or decreased density. When traffic movements are in a free flow condition, decreasing speed will lead to increasing flow up to a point. As speeds continue to decrease, headways also tend to decrease until an unstable flow condition is reached, at which point, flow begins to decrease as speed decreases.

2. The IPA scenario would yield a greater flow (throughput) than the Alternative configuration on Link 41:46. Merging of the NJ Route 18 northbound lanes prior to the merge with NJTA Ramp TW would reduce conflicts within the merge area, increasing the throughput. The third section of the diagram on Figure 3 demonstrates that after flow reaches its capacity, increases in density will lead to a decrease in throughput due to friction and vehicles conflicts.

3. While total travel speed through this portion of the system would be slightly lower with the IPA than under the Alternative configuration, total vehicle throughput would be increased substantially.

In addition to the link-based analysis, another set of performance measures were extracted from the Paramics model focusing on the approaches to specific nodes, or intersections/junction points, within the model. These three (3) nodes are depicted on Figure 2 above, and are defined as:

- Node 40 – Intersection of Naricon Place with NJ Route 18
- Node 41 – Merge of NJ Route 18 northbound with NJTA Ramp TW
- Node 46 – Junction of NJ Route 18 Northbound with Tower Center Boulevard

There are four (4) roadway approaches to these three nodes for which performance measures were developed. These approaches include:

- NJ route 18 Northbound approach to Naricon Place
- NJ Route 18 Northbound approach to merge with NJTA Ramp TW
- NJTA Ramp TW approach to merge with NJ Route 18 northbound
- NJ Route 18 northbound approach to Tower Center Boulevard exit ramp

Vehicle throughput at these locations are listed in Table 2 for the IPA and the Alternative configuration scenarios. As shown, total vehicle throughput on the node approaches would be higher under the IPA than under the alternative configuration scenario.

**Table 2: Vehicle Throughput and Delay Comparison**

| Node Approach | Delay (seconds) | | Throughput (veh/hr) | |
|---|---|---|---|---|
| | IPA | Alternative | IPA | Alternative |
| **Naricon Place - NB Approach** | 6.6 | 6.9 | 3,185 | 3,116 |
| **NJ Route 18 NB Approach to Merge** | 16.5 | 11.7 | 3,301 | 3,233 |
| **NJTA Ramp TW Approach to Merge** | 32.1 | 44.5 | 2,782 | 2,534 |
| **Merge Area Approach to Tower Center Blvd** | 10.2 | 9.8 | 5,973 | 5,654 |

**Naricon Place Operations – Future Analysis Year 2033**

An independent analysis was conducted for the signal controlled intersection at Naricon Place with NJ Route 18 using Synchro software. Traffic operations at the signalized intersection under both the IPA and the future "No-Build" condition were evaluated. Performance measures extracted from the Synchro model are summarized in Table 3 for the 2033 "No-Build" condition and in Table 4 for the 2033 IPA condition.

**Table 3 MOEs for Naricon Place Intersection - 2033 AM "No-Build" Condition**

| Movement | V/C | Delay | Queue (95 th) | LOS |
|---|---|---|---|---|
| EBL | 1.39 | 271.7 | 197 | F |
| EBR | 1.05 | 108.2 | 382 | F |
| WBL | 0.81 | 54.2 | 208 | D |
| WBT | 0.06 | 25.1 | 24 | C |
| WBR | 0.06 | 17.8 | 18 | B |
| NBTR | 1.55 | 272.3 | 1417 | F |
| SBTR | 1.05 | 53.7 | 763 | D |
| Intersection Signal Delay: | | | 164.2 | |
| Intersection LOS: | | | F | |

**Table 4 MOEs for Naricon Place Intersection - 2033 AM IPA Condition**

| Movement | V/C | Delay | Queue (95 th) | LOS |
|---|---|---|---|---|
| EBL | 1.39 | 272.9 | 197 | F |
| EBR | 1.48 | 271.3 | 442 | F |
| WBL | 1 | 88.6 | 241 | F |
| WBT | 0.08 | 27.1 | 25 | C |
| WBR | 0.07 | 19.2 | 18 | B |
| NBTR | 1.35 | 181.8 | 1320 | F |
| SBTR | 0.77 | 15.4 | 398 | B |
| Intersection Signal Delay: | | | 112.4 | |
| Intersection LOS: | | | F | |

As summarized in Tables 3 and 4, the analysis indicates that the intersection would operate improved levels of service under the IPA condition. As the IPA does not include geometric modification of the northbound approach to this intersection, all improvements to this approach are related to signal timing modifications made possible by improvements to the southbound approach.

Though traffic will continue to experience congestion at the intersection with Naricon Place, operations would be significantly improved by construction of the IPA. An additional analysis was conducted to ensure that inclusion of the merging of NJ Route 18 northbound traffic from 3 to 2 lanes would not adversely effect intersection operations.

Figure 4: IPA 95th percentile Queue Formation - 2033

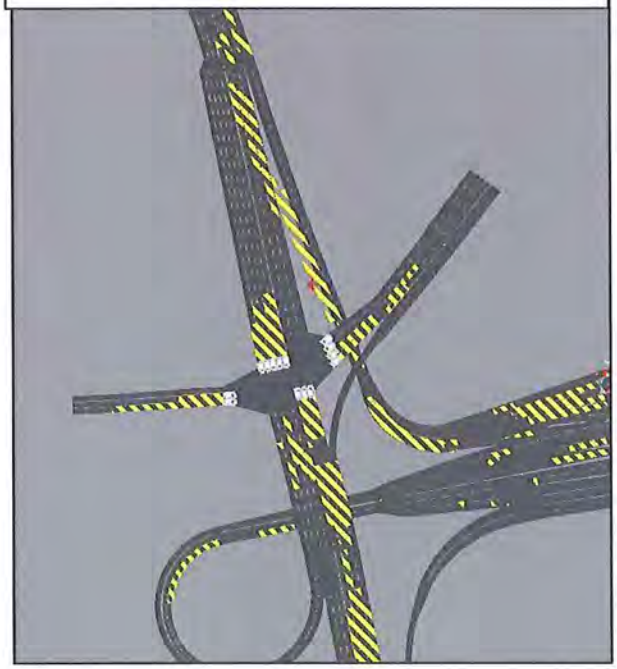
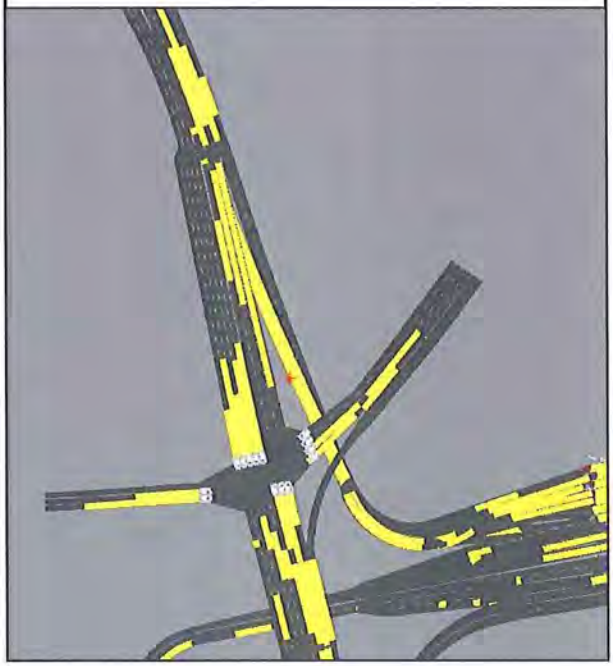


Figure 5: IPA Maximum Queue Formation - 2033



A contributing factor to the congestion on NJ Route 18 is that the intersection at Naricon Place currently has insufficient roadway capacity to accommodate demand. Spillback resulting from friction and operations within the merge area often result in spillback that further affects the vehicle queuing and throughput at the intersection with Naricon Place. The IPA addresses this spillback issue by reducing friction within the merge of NJ Route 18 northbound with Ramp TW, and improving vehicle throughput along the NJ Route 188 northbound roadway north of the Naricon Place intersection. Figure 4 and 5 schematically represent the locations of vehicle queuing around the intersection of NJ Route 18 with Naricon Place. Figure 4 presents the 95th percentile queue formation, while Figure 5 presents the maximum queue formation under 2033 conditions with the IPA in place.

As shown in the diagrams, any vehicle queuing that would occur within or on the approaches to the merge area would not reach the intersection of Naricon Place. Therefore, any congestion and queuing that would occur at the signalized intersection would be attributable to the throughput capacity of the intersection itself, and not the throughput capacity of the roadway north of the intersection.

**Summary / Conclusions**

The analysis assumed that there would be no external constraint north of the merge area that would adversely affect operations within the merge area. No spillback is assumed resulting from the constraints on the Mill Pond Bridge, or operational deficiencies at the interchange of Route 18 with Route 1.

The analysis presented above focused on a specific component of the IPA – the recommended merging of NJ Route 18 northbound from 3 lanes to 2 lanes prior to the merge of the NJTA Ramp TW. The analysis results demonstrate that this improvement would reduce friction and conflicts within the NJ Route 18 northbound / Ramp TW merge area, thereby improving flows and total vehicle throughput along NJ Route 18 northbound.

New Jersey Turnpike Authority

# INTERCHANGE 9 IMPROVEMENTS

## Traffic Report

## Appendix D

## Tower Center Boulevard and Naricon Place Intersections

## Interchange 9 Improvements

## Tower Center Boulevard and Naricon Place Intersections - Traffic Analysis

### Extension of Traffic Model Network:

The traffic simulation model for the Interchange 9 Improvements was extended to cover the area along the Tower Center Blvd, referred as "the site" in this study, to analyze traffic operations at the Naricon Place intersections and the adjacent areas. Four major traffic generators were identified at the site, as shown in Figure 1. They include:

Figure 1. Traffic Generators in the site


1. Hotels (Hilton and Holiday Inn Express), approximately 150 vehicles in and 150 out in the AM and PM peak period, respectively.
2. Office employee and visitor parking for the two office towers, AM mainly inbound and PM mainly outbound traffic
3. Commuter daily parking at the Nelson Parking Plaza, mainly inbound traffic in AM and outbound traffic in PM

4. Stop & Drop commuter traffic
5. In addition to the traffic related to the primary components listed above, some traffic destined to Tunison Road and bypass traffic from Rt. 1 NB to NJ 18 SB attempting to avoid the severe congestion along NJ 18 SB was observed on Tower Center Boulevard during the PM peak period.

**Lane Configuration:**

The traffic analysis for the site is based on the Turnpike IPA plan and NJDOT's future widening of NJ 18 NB to 3 through lanes after the diverge of the Rt. 1 NB ramp. The 3 through lane section will go beyond Rt. 1 and an additional lane at the Rt. 1 NB on-ramp will form a fourth auxiliary lane that will also serve as the deceleration lane for the exit ramp to Rt. 1 SB. These improvements will significantly increase the capacity for the traffic flow traveling along NJ 18 NB and will alleviate the current traffic congestion during the peak periods.

Traffic volumes at the study site were obtained from a previous NJDOT study for NJ 18, Route 1 to Edgeboro Road Proposed Operational Improvement, prepared by GPI. Though the data was collected in March 2007, a field survey on 03/09/2011 at the site confirmed that the data is still accurate and applicable. The future volumes in the 2033 design year for NJ 18 and the Turnpike were projected based on the North Jersey Regional Transportation Model. However, the primary trips in and out of the site are expected to remain constant in the future because the residential areas west of NJ 18 and Tower Center Plaza east of NJ 18 are currently fully developed.

In accordance with current NJTA standards, the IPA initially proposed closing the exiting ramps connecting Westons Mill Road to Ramp TE and NJ 18 SB. The ramp connecting Westons Mill Road to Ramp TE has the highest traffic volume during the PM peak hour. Currently during this period approximately 94 vehicles use the ramp. Subsequent discussions with East Brunswick officials resulted in revising the IPA to maintain the current connections to Westons Mill Road. Also, as requested during the February 28, 2011 NJDOT Core Group meeting, a raised median will be constructed between Route 18 NB and the exit lane to Tower Center Boulevard. This will prohibit NJ 18 NB traffic from weaving across two lanes of traffic downstream of Ramp TW in the very short distance between the end of the ramp and the exit. The highest traffic volume that bypasses the queue for the right turn from Rt. 18 NB to Naricon Place and performs this move is approximately 50 vehicles during the AM peak hour.

The impact of the two above conditions and the traffic operations along the Tower Center Blvd. have been assessed using an extended simulation model.

**Traffic Patterns:**

Traffic flows along NJ 18, the NJTA ramps, and Tower Center Blvd. demonstrate different patterns during AM and PM peak periods. The followings are highlights of the observed traffic patterns:

AM peak hour

- 483 veh/hour traveling southbound on Tower Center Blvd are from Rt. 1 NB via the connection to Burnet Street. Some of these vehicles are using Tower Center Blvd attempting to avoid the congestion at the NJ 18 SB approach to the signal Naricon Place.
- 713 veh/hour enter Tower Center Blvd by making a right turn from Rt. 18 NB at Naricon Place. About half of these vehicles are destined to the site and the other half are attempting to avoid the congestion along NJ 18 NB to get to Rt. 1 NB.
- At the exit from NJ 18 NB to Tower Center Blvd north of the Naricon Place intersection, there are 120 veh/hour using the exit to access the site, slightly less than half of them are from NJ 18 NB and the rest are from the Turnpike ramp. 283 veh/hr were observed exiting from Tower Center Blvd to NJ 18 NB. This volume includes some bypass traffic from NJ 18 NB and some traffic generated from the site.

PM peak hour

- A large portion of traffic will use Naricon Place to exit out of the site. Approximately, 555 vehicles use this intersection of which 400 vehicles are bypass vehicles from Rt. 1 NB to NJ 18 SB based on NJDOT previous survey. After construction of the IPA, the capacity of the NJ 18 SB the approach to Naricon Place will be significantly increased. To account for this in the analysis, half of the bypass traffic was moved from Tower Center Boulevard and placed on Rt. 18 SB in the model.
- Most of the northbound site traffic exiting the site during PM peak hour will turn right onto NJ 18 NB at the ramp near the Nelson Parking Plaza or continue north on Tower Center Blvd onto Burnet Street.

**Figure 2. Traffic Volume Diagram along Tower Center Blvd (from GPI Report)**

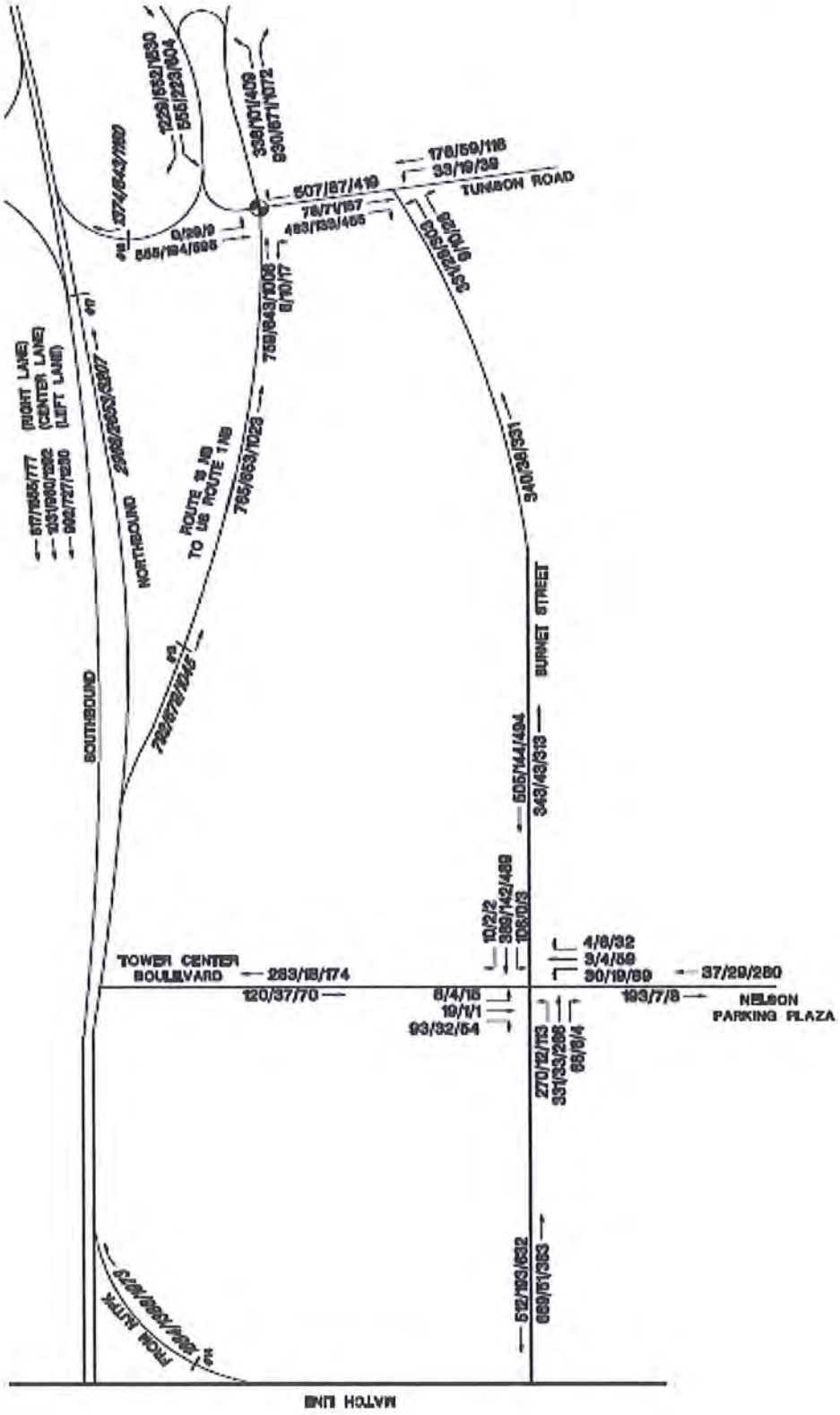
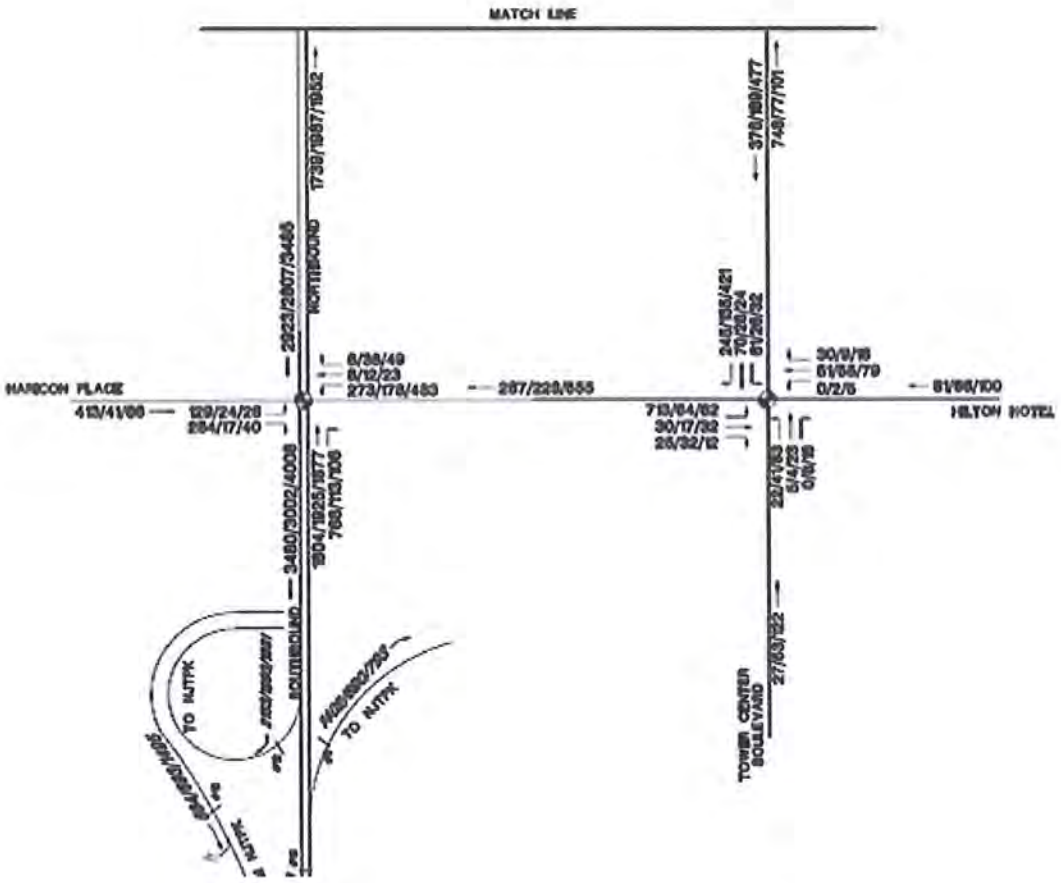


**Figure 3. Traffic Volume Diagram for Naricon Place (From GPI report)**




**Proposed Geometry improvement at the site:**

Based on the traffic patterns at the site, two geometry improvements are proposed to better accommodate the traffic.

1. For the intersection at NJ 18 and Naricon Place, an additional lane will be constructed on the eastbound approach of Naricon Place so that the lane configuration in this direction will consist of one left turn lane, one shared left and right turn lane, and one right turn lane. This will increase the turning movement capacity and will alleviate the associated congestion. In addition, this will allow more green time to be allocated for the NJ 18 phase of the signal.
2. For the intersection at Naricon Place and Tower Center Blvd, the southbound approach will be modified to provide two exclusive right turn lanes with and one shared through

and left turn lane. This will increase the capacity and storage space for southbound traffic exiting the site.

Along with the above geometry changes, the signal timing at these two intersections will be coordinated and the timing will be modified using an increased cycle length of 120 seconds to improve the flow of traffic.

**Impacts analysis:**

Traffic operations with above improvements have been analyzed for the following three elements.

(1) The revised route for traffic from the Turnpike destined to the residential area.
(2) The revised route for the NJ 18 NB that will be prohibited from weaving across two lanes north of Naricon Place to enter the site.
(3) The traffic operations along Tower Center Blvd during AM and PM peak hour.

*Revised route for traffic from the Turnpike destined to the residential area*

Traffic destined to the residential area currently has 3 major means of access. The first is from NJ 18 SB. The existing right turn at Naricon Place to the residential area will be maintained for traffic currently using this option. The second means of access is from the Turnpike. This traffic currently uses the slip ramp from Ramp TE to Westons Mill Road to access the residential area. The initial IPA proposed closing this slip ramp and traffic will be rerouted to Ramp TW to Tower Center Blvd and across Rt. 18 at the Naricon Place traffic signal. The initially proposed revised route for traffic destined to the residential area is illustrated in Figure 4.

Figure 4. Revised route for residential trips from the Turnpike

The travel times for traffic from the Turnpike destined to the residential area as generated by the simulation model are listed in Table 1:

Table 1. Time difference for different routings from TPK to residential area

| | | With Ramp TE slip ramp open (min) | Reroute through Tower Center Blvd (min) | Additional time* (min) |
|---|---|---|---|---|
| TPK traffic to residential area | AM | 1.4 | 4.1 | **2.7** |
| | PM | 1.5 | 4.5 | **3.1** |

* Subsequent discussions with East Brunswick officials resulted in maintaining the existing ramp connections. Therefore, there will be no additional travel time for this maneuver.

The third means of access to the residential area is traffic on NJ 18 NB that currently weaves across traffic from the Turnpike ramp north of Naricon Place to exit onto the Tower Center Blvd. A raised concrete island will be constructed to prohibit this movement. Access for traffic from NJ 18NB to the residential area will be accomplished by continuing on Rt. 18 NB and exiting onto Burnet Street, then traveling south on Tower Center Blvd. and across NJ 18 at the Naricon Place intersection. This revised route for traffic destined to the residential area is illustrated in Figure 5.

Figure 5. The revised route for NJ 18 NB to the residential area

The travel times of NJ 18 NB traffic destined to the residential areas as generated by the simulation model are listed in Table 2:

Table 2. Time difference for different routes from NJ 18 NB to residential area

| | | Allowing current weave across end of TPK ramp (min) | Rerouted through Tower center Blvd (min) | Additional time (min) |
|---|---|---|---|---|
| NJ 18 NB traffic to residential area | AM | 5.2 | 6.1 | 1 |
| | PM | 4.8 | 5.8 | 1 |

*Revised route for the NJ 18 NB traffic destined to the site*

In order to alleviate the weaving conflicts on the NJ 18 NB section between the merging point of NJ 18 NB and Turnpike ramp to the Tower Center Blvd exit, the traffic from NJ 18 NB destined to the site that bypasses the right turn onto Naricon Place will be physically prohibited from performing this maneuver and will instead continue through to exit at Burnet Street. The impact of this new route is the same as the revised route for the NJ 18 NB traffic traveling to the residential area. The resulting difference in travel time can be found in Table 2.

*Traffic operations along the Tower Center Blvd*

With the proposed geometry changes and signal timing optimization, Tower Center Blvd could maintain effective traffic operations. The queue analysis for the site was conducted and the 95 percentile queue lengths are shown in the Figure 6 and 7.

Figure 6. 95 percentile queue length for AM peak hour in 2033

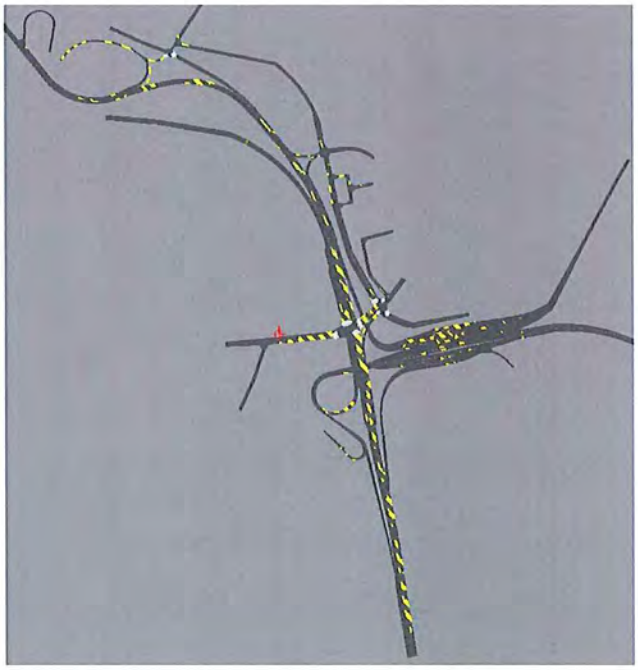
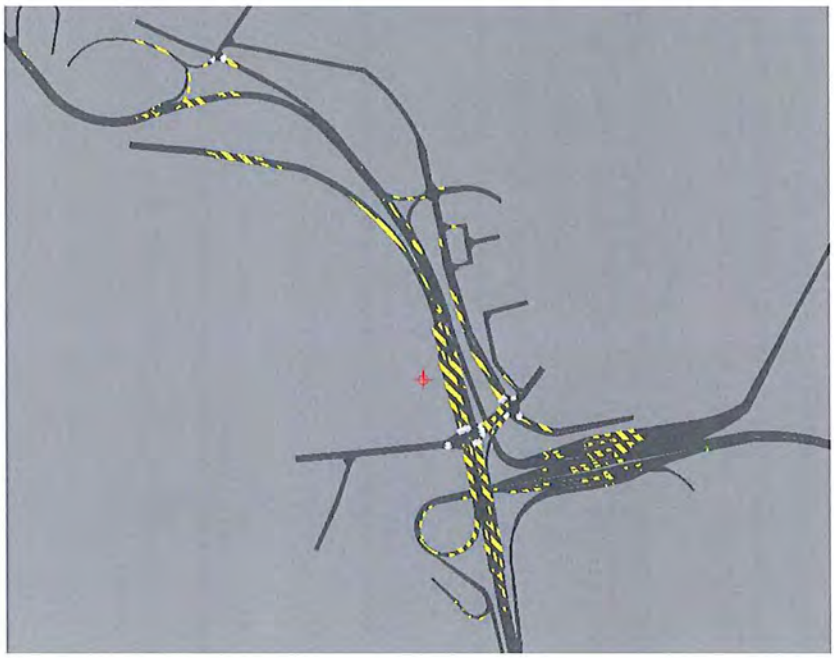


Figure 6. 95 percentile queue length for PM peak hour in 2033



In the design year at the end of the AM peak hour, there are anticipated to be a total of 162 vehicles blocked beyond the limits of the model for NJ 18 NB as compared to 1753 vehicles under the no-build condition. On NJ 18 SB in the design year 38 vehicles will be blocked out of the network during PM peak versus 766 vehicles under the no-build condition. Major corridors' performances are listed in Table 3 and 4.

Table 3. 2033 AM peak hour corridor performance

| Corridor | Link Flow (veh/hr) | Link Speed (mph) | Link Travel Time (min) |
|---|---|---|---|
| NJ18NB | 4837 | 20 | 3.6 |
| NJ18SB | 2514 | 38 | 1.3 |
| TPK to Rt18 NB | 3895 | 27 | 3.4 |
| TPK to NJ 18 SB | 1574 | 33 | 1.8 |

Table 4. 2033 PM peak hour corridor performance

| Corridor | Link Flow (veh/hr) | Link Speed (mph) | Link Travel Time (min) |
|---|---|---|---|
| NJ18NB | 4040 | 29 | 2.5 |
| NJ18SB | 4307 | 28 | 2.4 |
| TPK to Rt18 NB | 3431 | 29 | 3.0 |
| TPK to NJ 18 SB | 2187 | 32 | 2.0 |

# Appendix I
# Public Coordination

**COUNTY OF MIDDLESEX**
**DEPARTMENT OF PLANNING**
40 Livingston Avenue
New Brunswick, New Jersey 08901-3605



732-745-3062
FAX 732-745-3201
http://co.middlesex.nj.us

March 4, 2011

**TO:** All Members of the Middlesex County Transportation Coordinating Committee:

The next meeting of the TCC will be held on ***Tuesday, March 22, 2011 at 7:00 PM at the Middlesex County Planning Board Meeting Center, 1st Floor, 40 Livingston Avenue, New Brunswick, New Jersey***. You will find enclosed the agenda for this meeting.

Also, please be advised that because of other meetings in the Elks building that may be held at the same time, parking in the Elks parking lot is often limited and available on a first come first serve basis. Temporary parking permits will be made available in the Meeting Center. Those unable to find parking in the Elks lot will need to seek on street parking or park at the Morris Street Parking Deck with entrances on Morris Street and New Street. The Deck is located a block away within walking distance.

Please contact Anne Hummel at 732-745-3835 to confirm your attendance at this meeting.

Sincerely,

John J. Hogan

John J. Hogan, Chairman
Middlesex County Transportation Coordinating Committee

JJH/ag
Enclosure: As noted above.

# New Jersey Turnpike Authority

Interchange 9 Improvements
Public Information Center
East Brunswick, New Jersey
March 16, 2011
4:30 PM - 7:30PM

| Name | Affiliation/Address | Email | Phone |
|---|---|---|---|
| Robert Byrnes | 19 Civic Center Dr, Apt 13 E. Brunswick | rbyrnes@monroe.k12.nj.us | (732) 698-2279 |
| MARK CSIZMAR | 1 Civic Center Drive East Brunswick | mcsizmar@ebpd.net | 732-390-6969 |
| LAWRENCE GOLDSMITH | 47 Weitons Mill Rd E. Brun | lgoldsmith2000@yahoo.com | 732-246-8688 |
| Mary Dunlop | 37 Dorchester Dr | | 732.390-1924 |
| Glen Spinelli | 25 Ellison Ave | | 732-246-1331 |
| Robert Walf | 49 Westons mill Rd | | 352-217-5887 |
| Joseph Kong | 402 Carhart Ct. E. Brunswick, 08816 | leonphelps247@yahoo.com | 732-693-5877 |
| Susan Streisand | East Brunswick Traffic Advisory Bd | sstreisand@comcast.net | 732-257-0982 |
| Vincent Scutto | 1 civic center Drive | Vincent.Scutto@EastBrunswick.org | 732-390-6870 |
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# New Jersey Turnpike Authority

Interchange 9 Improvements
Public Information Center
East Brunswick, New Jersey
March 16, 2011
4:30 PM - 7:30PM

| Name | Affiliation/Address | Email | Phone |
|---|---|---|---|
| VINCENT HEIRY | 77 WESTONS MILL RD. | | 7325456407 |
| Christoph Barry | 97 WESTONS mill Rd | tomBARR07 @ YAHOO.COM | 732.846.0741 |
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# New Jersey Turnpike Authority

Interchange 9 Improvements
Public Information Center
East Brunswick, New Jersey
March 16, 2011
4:30 PM - 7:30PM

| Name | Affiliation/Address | Email | Phone |
|---|---|---|---|
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| Dennis Keck | JACOBS | Dennis.Keck@jacobs.com | |
| FRANK LOPATESKY | JACOBS | FRANK.LOPATESKY@JACOBS.COM | |
| ZALMAN & DORA SILKOWITZ | 2 NARICON PLACE | | 732 828-6290 |
| William Jumblo | 149 Sandford St New Brunswick 08901 | | 732-545-6081 |
| ANDREW GOLDBERGER | 11 PATTON DRIVE | mkag@comcast.net | 732-342-9885 |
| PAUL ONISH | 1304 Cypress Lane | PAUL.ONISH@GMAIL.com | 732-241-0800 |
| Kamlu Gulrajani | 26 Patton Drive East Brns. | kgul99@hotmail.com | 732 249-9219 |
| Kenneth Streisand | 18 Beacon Hill Dr EB | Kstreisand@att.net | (732) 238-0097 |
| GEORGE M. VERVERIDES | NJDOT/NBNJ | FAX 732 745 3201 | 732 745-3013 |
| Anthony Gambilongki | Middlesex Co Planning Dept | anthony.gambilongki@CountyMiddlesexNJ.US | 732-745-3843 |
| LAURA Hoover | 89 CENTRAL AVE | | |
| JAVIER GOMEZ | 44 PATTON DR | jagoble@hotmail.com | 908-720-6276 |
| | | | |

# New Jersey Turnpike Authority

Interchange 9 Improvements
Public Information Center
East Brunswick, New Jersey
March 16, 2011
4:30 PM - 7:30PM

| Name | Affiliation/Address | Email | Phone |
|---|---|---|---|
| Ed Coffey | Monroe Township | Edcoffey116@aol.com | |
| David Schneider | 19 North Dr EB | Hey Photoman@aol.com | 732-432-8481 |
| Bill Bevan | 10 Myron Pl. | | 732 819-0159 |
| Bernie Olender | 47 Schoolhouse Ln | Bernie@ALLW.net | 201-310-3282 |
| Jeff Withum | 62 Schoolhouse Ln | JWithum@EBIFC.com | 732 9216608 |
| GREG POTKULSKI | EAST BRUNSWICK ENGINEER | GREG.POTKULSKI@EASTBRUNSWICK.ORG | 732 390-6868 |
| HERMINE KRISTENSEN | E. BRUNSWICK | HKRISTENSEN2002@AOL.COM | |
| Mike Kramer | East Coast Greenway Alliance Edison NJ | Klinec54@optonline.net | 732-586-3981 |
| Peter Bonanos | 14 Plymouth Ln | bonanos@verizon.net | 732.254.6704 |
| | 153 Ithaca Lane | | |
| Michael Diuleto | 12 Myron Pl | mmycul@comcast.net | 732-846-6848 |
| SANFORD GARDNER | 45 WHITEHALL RD | Sgardner48@comcast.net | 732-247-5409 |
| Dilson Burgos | 95 weston mill rd | Eleritez.burgos@gmail.com | 732-801-5919 |
| MILLIE OFFENBERGER | 54 CORONA | | 732-846-6482 |

# New Jersey Turnpike Authority

Interchange 9 Improvements
Public Information Center
East Brunswick, New Jersey
March 16, 2011
4:30 PM - 7:30PM

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| CARL. Shirley Chaitt | 62 Patton Dr | CCHAITT@Comcast.net | 732 247-5217 |
| Carol Beske | ACT Engineers | cbeske@ | |
| Janet Pittman | 4 Hemmingway | | 732-254-0991 |
| Joyce Levine | 17 Lawrence Brk Dr. | joycelevine@comcast.net | 732-247-6396 |
| Miriam I. Wolin | 21 Patton Dr. | MimWoLin@VERIZON.NET | 732-249-9166 |
| Zhang Xi Ni | 401 New Brunswick Av Apt 201 | | 732-613-1595 |
| Byron Wilson | | | 732-513-3910 |
| Scott Parker | JACOBS ENGINEERING | SCOTT.PARKER@JACOBS.COM | 973 267-8830 x1326 |
| Michelle O'Hara | 12 Laurel Ln EB | mnkohara@Comcast.com | 732-214-9296 |
| Denise Contrino | Town Council | DeniseContrino@Comcast.net | 732-407-2400 |
| ROBERT SHAW | 65 Patton Dr. | RJSHAW@COMCAST.NET | 732-254-1254 |
| Fred Mantele | 30 Patton Dr | Mantele4@Aol.com | 732-418-1898 |
| JAMES York | 9 GATES AVE | York.J.L@COMCAST.NET | 732 846 3073 |
| Lorraine York | " " | " " | " " |

# New Jersey Turnpike Authority

Interchange 9 Improvements
Public Information Center
East Brunswick, New Jersey
March 16, 2011
4:30 PM - 7:30PM

| Name | Affiliation/Address | Email | Phone |
|---|---|---|---|
| DANIEL BREEN | 69 PATTON DR. | dbreen@comcast.net | 732 245-0871 |
| Jean Kenahan | 4 Manor Pl. | | 732-545-6532 |
| Janet Carson | 3 South Dr. | JRCARSON@COMCAST.NET | 732-214-1102 |
| MADELINE ROBINSON | 25 SOUTH DR. | | |
| CAMILLE Ferraro | 38 Harrison Ave | ferraro61@hotmail.com | 732 723 1352 |
| Jason | | | |
| KAREN PARRY | 19 PATTON DRIVE | Karenparry22@hotmail | 732-545-2850 |
| Pat Crawford | 2 Tower Center | ~~Rego~~ | 732-843-4827 |
| Bettina Sholk | 5 Rosemary Rd | BSholk2@Comcast.net | 732 254 4410 |
| NANCY PINKIN | Councilwoman | NPINKIN@EastBrunswick.org | |
| John Saccenti | | John.Saccenti@patch.com | 732 421 7563 |
| ~~KEVIN T. O'HARA~~ | 12 LAUREL LN | KNMOHARA2@COMCAST.NET | ~~732-347-5108985~~ |
| Shawn S. Taylor | NJTA | shtaylor@turnpike.state.nj.us | 732-750-5300 x 8282 |
| KAREN RAMSDEN | ACT Eng. | kramsden@actengineers.com | |

# New Jersey Turnpike Authority

Interchange 9 Improvements
Public Information Center
East Brunswick, New Jersey
March 16, 2011
4:30 PM - 7:30PM

| Name | Affiliation/Address | Email | Phone |
|---|---|---|---|
| Ronald Lau | 40 Patton Dr. E. Brunswick | rlau-md@comcast.net | 7329379035 |
| DAVID STAHL | MAYOR | | |
| Robert Carson | 3 South Drive | bjcarson@comcast.net | 732-214-1102 |
| Meredith Stahl | 65 Patton Drive | mermom721@comcast.net | 732 214 1254 |
| Eileen Mantele | 30 Patton Drive | MANTELE4@aol.com | 732 418 1898 |
| Victor Santamarina | 22 Bruning Rd. | | |
| Richard Revalinsky | 32 Elm Place Milltown NJ 08850 | RRevalinsky@yahoo.com | 732-261-8463 |
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# MIDDLESEX COUNTY TRANSPORTATION COORDINATING COMMITTEE (T.C.C.)

**John J. Hogan, Chairman**

## A G E N D A

**Tuesday, March 22, 2011**
**Middlesex County Planning Board**
**First Floor Meeting Center**
**40 Livingston Avenue**
**New Brunswick, New Jersey**
**7:00 P.M**

I. Call To Order
- Statement on Open Public Meetings Act
- Pledge of Allegiance

II. Distribution of February 22, 2011 Minutes
Approval of January 25, 2011 Minutes

III. A. Welcome / Chairman's Remarks
B. Sign in Reminder
C. Correspondence
D. Freeholder Comments

IV. Introduction of TCC Members

V. Special Item:

New Jersey Turnpike Authority Improvements at Route 18 and interchange 9
Michael Grant, P.E., Senior Project Engineer

VI. Staff Reports

A. New Jersey Department of Transportation – Denise Peck
B. New Jersey Transit - Tom Clark
C. North Jersey Transportation Planning Authority – Amy Magnuson
D. New Jersey Turnpike Authority, Richard Brundage
E. Rutgers-The State University – Jack Molenaar, Jennifer Stuart
F. Keep Middlesex Moving, Inc., Morteza Ansari
G. Middlesex County Department of Transportation - Steve Fittante
H. Middlesex County Engineering Office / Traffic Safety – Jim Markovich
I. Middlesex County Board of Social Services, - Nancy Nicola
j. TCC - Bikeways-Pedestrian Task Force – Guy Gaspari, Chairman
K. East Coast Greenway Alliance, Mike Kruimer
L. TCC - Transit Subcommittee – Paul Larrousse, Chairman
M. Academy Bus Co. – Chuck Kassinger
N. Suburban Transit /Coach USA - Ron Kohn
O. Transportation News Update – MCPD Staff
P. Staff Activities - George M. Ververides

VII. A. TCC Member Comments
B. Public Comments

VIII. Adjournment

***The next meeting of the TCC will be held on April 26, 2011.***

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# E.B., Turnpike Authority work to revise construction plans

1 RJR
2 SmD
3 MG MG

Residents, twp. officials air concerns about noise, local traffic

**BY CHRIS ZAWISTOWSKI**
**Staff Writer**

East Brunswick Mayor David Stahl and the New Jersey Turnpike Authority are inching closer to a compromise on proposed improvements to a stretch of Route 18 near the New Jersey Turnpike entrance.

The $26 million plan was first introduced in March when Turnpike Authority officials held an information session for residents in the municipal courtroom. Stahl recently met with Turnpike Authority officials and said the original plans for construction have been altered based on many of the township's concerns.

"They came back with some modified plans that pretty much took into account all of the comments that myself and other members [of the council] have made," Stahl said. "I'm not saying we are finished . but we are making progress."

The Turnpike Authority plan aims to ease traffic by widening the Turnpike ramp on Route 18 south to two lanes while shifting the state highway 50 feet east. A south- bound lane would be added on the highway, expanding that stretch of Route 18 to five lanes wide through Naricon Place.

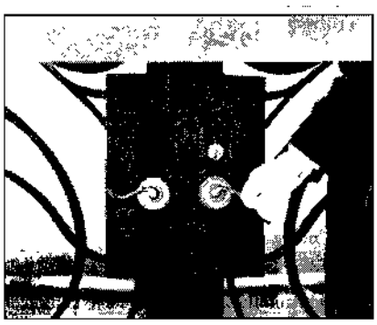
Northbound, the Turnpike Authority would narrow Route 18 to two lanes as it approaches the merge with Turnpike traffic. After this merge, Route 18 would be expanded to four lanes.

But township residents and officials expressed several concerns with the project, ranging from noise problems to motorists cutting through township roads. Many of these concerns, though, have been worked into the altered plan, Stahl said.

The original plan called for the elimination of ingress and egress points out of the Lawrence Brook section of the township. Township officials and residents, however, insisted that the access points remain, and Stahl said the Turnpike Authority agreed.

"Those access points have been put back into the plan," Stahl said.

The original plan also called for the elimination of ingress and egress points near the Turnpike Authority Administration Building. Stahl said the township is working to try to get the Turnpike Authority to move back to the building in full, sell it or donate it to the township. By eliminating access to the Turnpike from the building, the value would decrease dramatically, he said.



Stahl said Turnpike Administration officials will take this factor into account as well.

Concerns still remain over the merger on Route 18 north, where three lanes will be reduced to two lanes coming off the Turnpike, Stahl said. Turnpike officials argue that this lane reduction will prevent drivers from weaving between lanes, reducing congestion and safety hazards, he said.

Overall, though, Stahl said he was pleased with the progress on the plan and said he is working to get the state Department of Transportation more involved in the process.

"[The new plan] was much more acceptable to me," Stahl said.

Stahl said crews will conduct some testing during the coming weeks along Route 18 and Westons Mill Road. Actual work, however, will not begin for some time, he said.

Members of the public can review the revised plan at the Township Engineering Department office. Stahl said he will have copies posted on the township website and will invite Turnpike Authority engineers and officials to future council meetings, if needed.

A required public hearing on the construction will be scheduled for September.