

# DELCO LEAD TRAIN SAFE HAVEN SERVICE AND INSPECTION FACILITY

Environmental Assessment • Draft Section 4(f) Evaluation

NORTH BRUNSWICK AND NEW BRUNSWICK,  
MIDDLESEX COUNTY, NEW JERSEY

PREPARED BY:  
FEDERAL TRANSIT ADMINISTRATION  
and NEW JERSEY TRANSIT CORPORATION

DECEMBER 2015



## **Abstract**

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New Jersey Transit Corporation (NJ TRANSIT) is proposing to construct a Service and Inspection (S&I) Facility and storage tracks for ten 12-car trains in County Yard, an existing railroad property adjacent to the Northeast Corridor in New Brunswick, NJ and improve the Delco Lead, which is adjacent to both the County Yard property and the Northeast Corridor between County Yard and North Brunswick Township. The Delco Lead improvements will include removal of an existing freight track and construction of two new tracks (except in the vicinity of the How Lane Bridge) for storage of NJ TRANSIT equipment during severe weather events.

The purpose of the County Yard and Delco Lead improvements (the proposed Project) is to provide NJ TRANSIT with an S&I Facility and emergency rail car storage at an inland location that is not susceptible to flooding or tree fall, at an elevation that minimizes flood hazard risk. The S&I Facility will permit the rapid return to service of train sets after a storm by allowing Federal Railroad Administration (FRA) mandated inspections to occur in the same location as the emergency train storage.

The Delco Lead will only be used for storage of railroad rolling stock under emergency conditions. The County Yard improvements, including the S&I Facility, will be used under emergency conditions and for normal operations, including nighttime storage, light maintenance and inspections. Co-locating the S&I Facility with daily storage adjacent to both the Northeast Corridor and the nearby Jersey Avenue commuter rail station, where many trains begin and end revenue service to New York, will reduce the distance trains have to travel without passengers (deadhead miles) compared to the current S&I facility at the Morrisville Yard 30 miles to the south. Therefore, the proposed Project will reduce NJ TRANSIT's overall energy usage and associated Green House Gas (GHG) emissions.

This Environmental Assessment (EA)/Section 4(f) Evaluation documents the proposed Project and assesses the potential for environmental and community impacts of the Build Alternative in relation to a No Action Alternative, in accordance with the requirements of the National Environmental Policy Act of 1969 (NEPA) and Section 4(f) of the U.S. Department of Transportation Act of 1966. For this proposed Project, these laws (codified at 42 USC 4332(2)(c), 49 USC 303 and 23 USC 138) are implemented by regulations found at: 40 CFR Parts 1500-1508 (CEQ NEPA implementing regulations); 23 CFR Part 771 (FTA NEPA implementing regulations); and 23 CFR 774 (Section 4(f) implementing regulations).

This EA/Section 4(f) Evaluation is being made available so that agencies and the public can review and comment on the proposal and its anticipated impacts. Please submit comments no later than January 29, 2016 via email to: [delcolead@njtransitresilienceprogram.com](mailto:delcolead@njtransitresilienceprogram.com) or by posting them to: <http://njtransitresilienceprogram.com/contact-us/>; or by mailing them to: NJ TRANSIT Resilience Program, Capital Planning & Programs Department, One Penn Plaza East, 8th Floor, Newark, NJ 07105. Following the close of the 30-day comment period, FTA will review the findings of the EA, and the comments and responses, and make a formal NEPA determination for the proposed Project. Public comments will be addressed in FTA's NEPA determination.

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## **Chapter 1**

## **Purpose and Need**

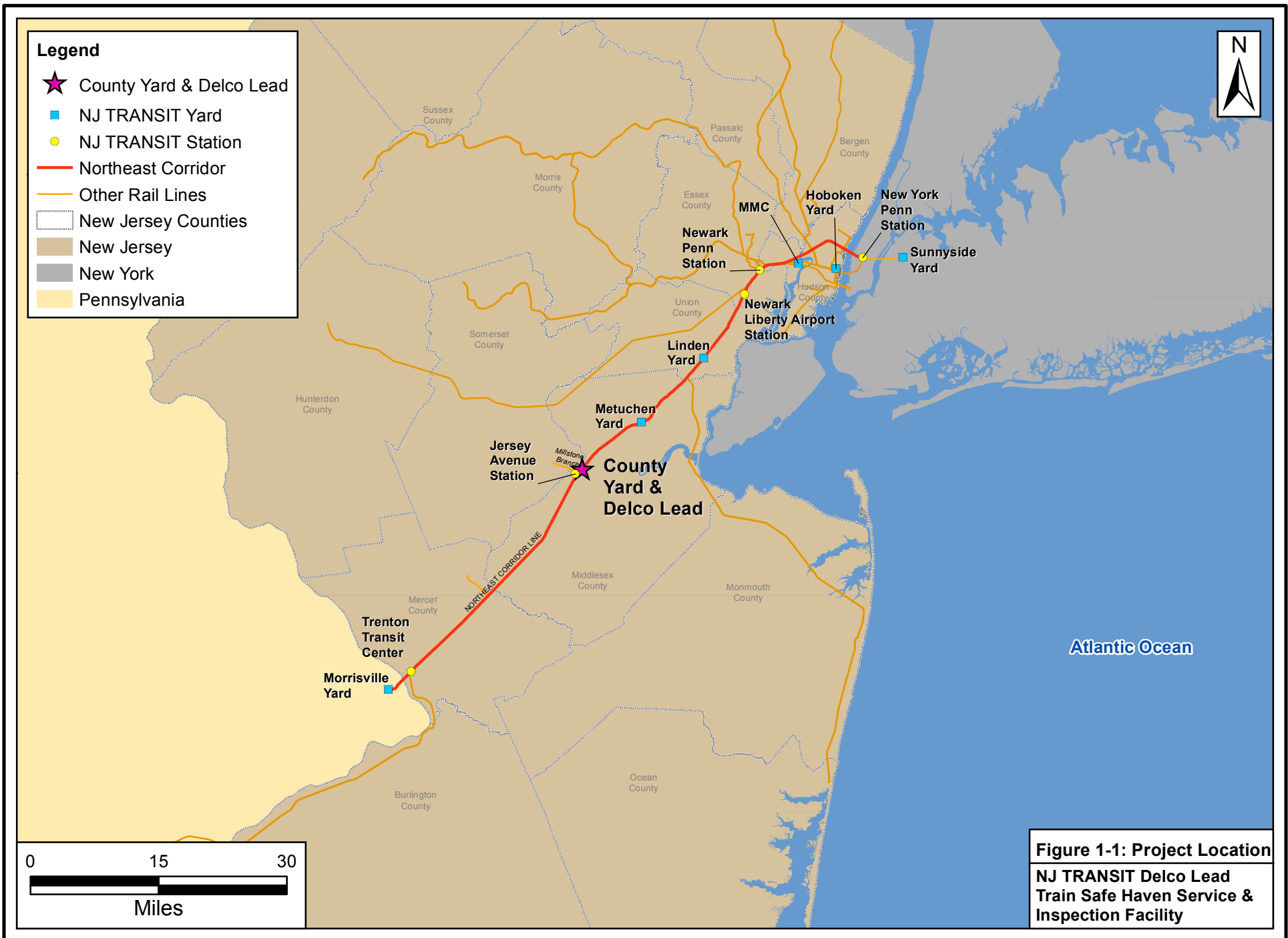
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New Jersey Transit Corporation (NJ TRANSIT) is proposing to construct a two-track Service and Inspection (S&I) Facility and storage tracks for ten 12-car trains in County Yard, an existing railroad property adjacent to the Northeast Corridor in New Brunswick, Middlesex County, NJ. In addition, NJ TRANSIT is proposing improvements to the Delco Lead, a freight siding property that runs adjacent to the Northeast Corridor and County Yard between County Yard and North Brunswick Township, NJ (see Figures 1-1 and 1-2).

These improvements (the proposed Project) have been identified by the Federal Transit Administration (FTA) as eligible for federal funding as a resiliency project through FTA's Emergency Relief Program under the Disaster Relief Appropriations Act of 2013. The purpose of the proposed Project is to provide NJ TRANSIT with a location to store rail cars at an inland location along the Northeast Corridor that is not susceptible to flooding or tree fall, at an elevation that minimizes flood hazard risk. The S&I Facility will permit the rapid return to service of train sets after a storm by allowing Federal Railroad Administration (FRA) mandated inspections to occur in the same location as the emergency train storage. The purpose of the proposed Project is also to provide a yard within NJ TRANSIT's service territory on the Northeast Corridor to permit more efficient train movements under normal operating conditions. The central location of County Yard on the Northeast Corridor, adjacent to the Jersey Avenue Station where some trains begin and end revenue service to New York, will reduce the number of miles trains have to travel without passengers (deadhead miles); reducing NJ TRANSIT's operating costs, energy usage, and associated Greenhouse Gases (GHG).

Prior to providing funding, the FTA must review the proposed Project in accordance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (Section 106), as well as other related statutes and regulations. This Environmental Assessment (EA) has been prepared to comply with NEPA, FTA's Environmental Impact and Related Procedures (23 CFR Part 771), and Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500), as well as Section 106 of the National Historic Preservation Act of 1966, Section 4(f) of the U.S. Department of Transportation Act (1966), Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," and other relevant regulations.

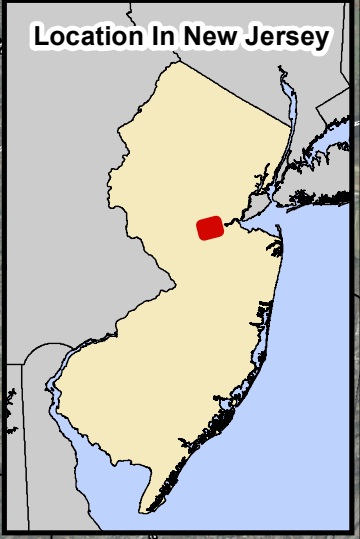
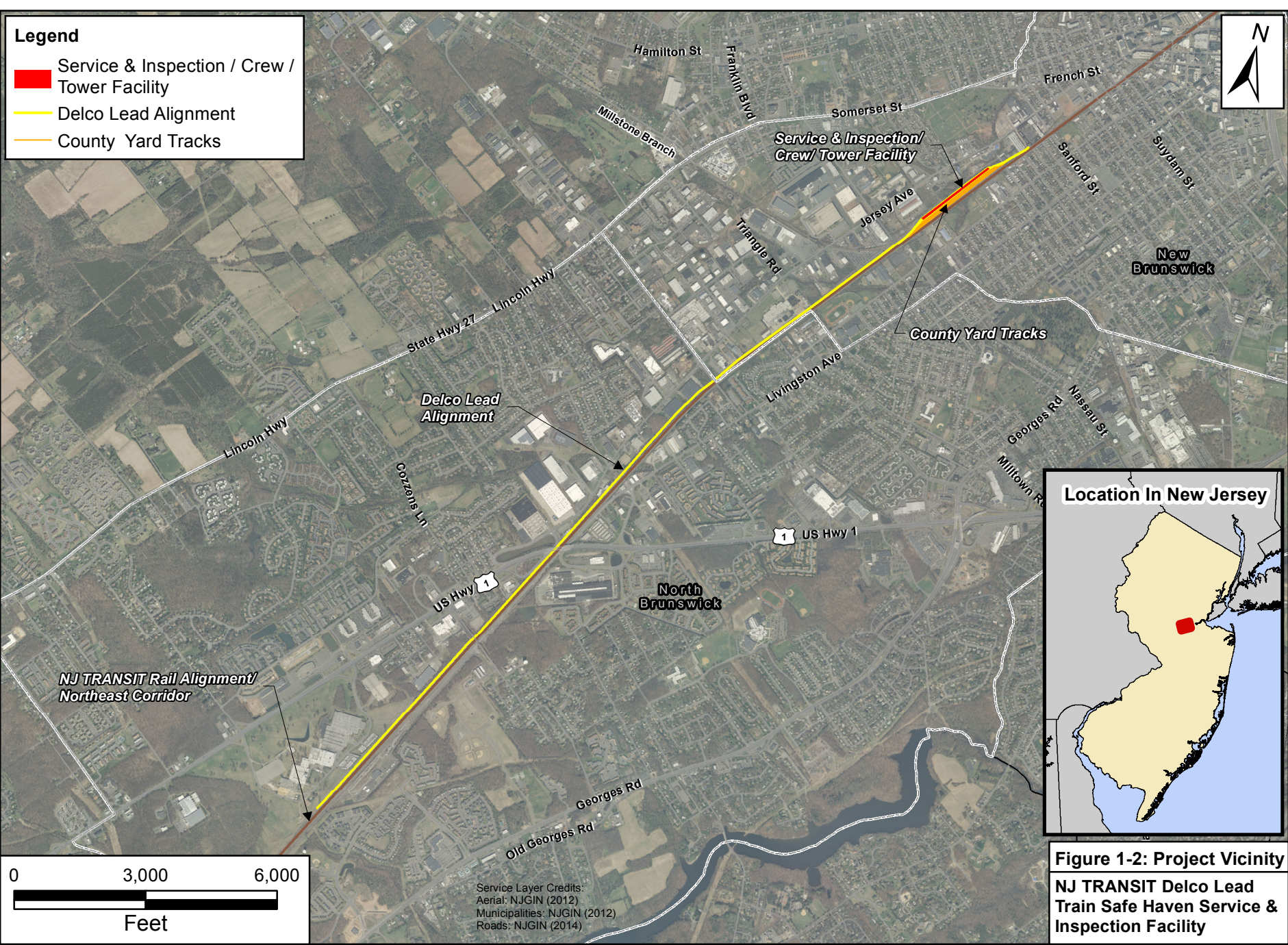
This EA documents the purpose and need for the proposed Project (below), describes the proposed Project Alternatives analyzed in this document (Chapter 2), and describes the Environmental Consequences of the No Action and Build alternatives (Chapter 3). A Section 4(f) Evaluation, which determines that there is no feasible and prudent alternative to prevent the conversion of historic properties to transportation use, is also provided (Chapter 4). Finally, a summary of the agency consultation and public outreach that was conducted for the proposed Project is presented (Chapter 5).





**Legend**

- Service & Inspection / Crew / Tower Facility
- Delco Lead Alignment
- County Yard Tracks



**Figure 1-2: Project Vicinity**  
**NJ TRANSIT Delco Lead Train Safe Haven Service & Inspection Facility**



## **1.1 BACKGROUND**

The majority of New Jersey's cities and economic centers, and the commuter rail infrastructure that links them to residential neighborhoods, are located in low lying areas, in floodplains near rivers or wetlands, following the patterns of traditional Industrial-era development. The Hoboken Terminal and Yard, Meadows Maintenance Complex (MMC) and other key rail maintenance and storage facilities are located in coastal floodplains near dense urbanized areas (see Figure 1-3). The MMC is located in Kearny, Hudson County, New Jersey on the Morris & Essex line, near the Northeast Corridor, which is New Jersey TRANSIT's busiest rail line. The Northeast Corridor line runs between New York Penn Station and the Trenton Transit Center, and serves Newark Liberty International Airport and several of the most heavily used stations in the system, operating through one of the most densely populated areas in the United States. The siting of these facilities made operational, functional, and land use sense at the time of development, and until recently, historic climate patterns proved the risk of substantial flooding to be low.

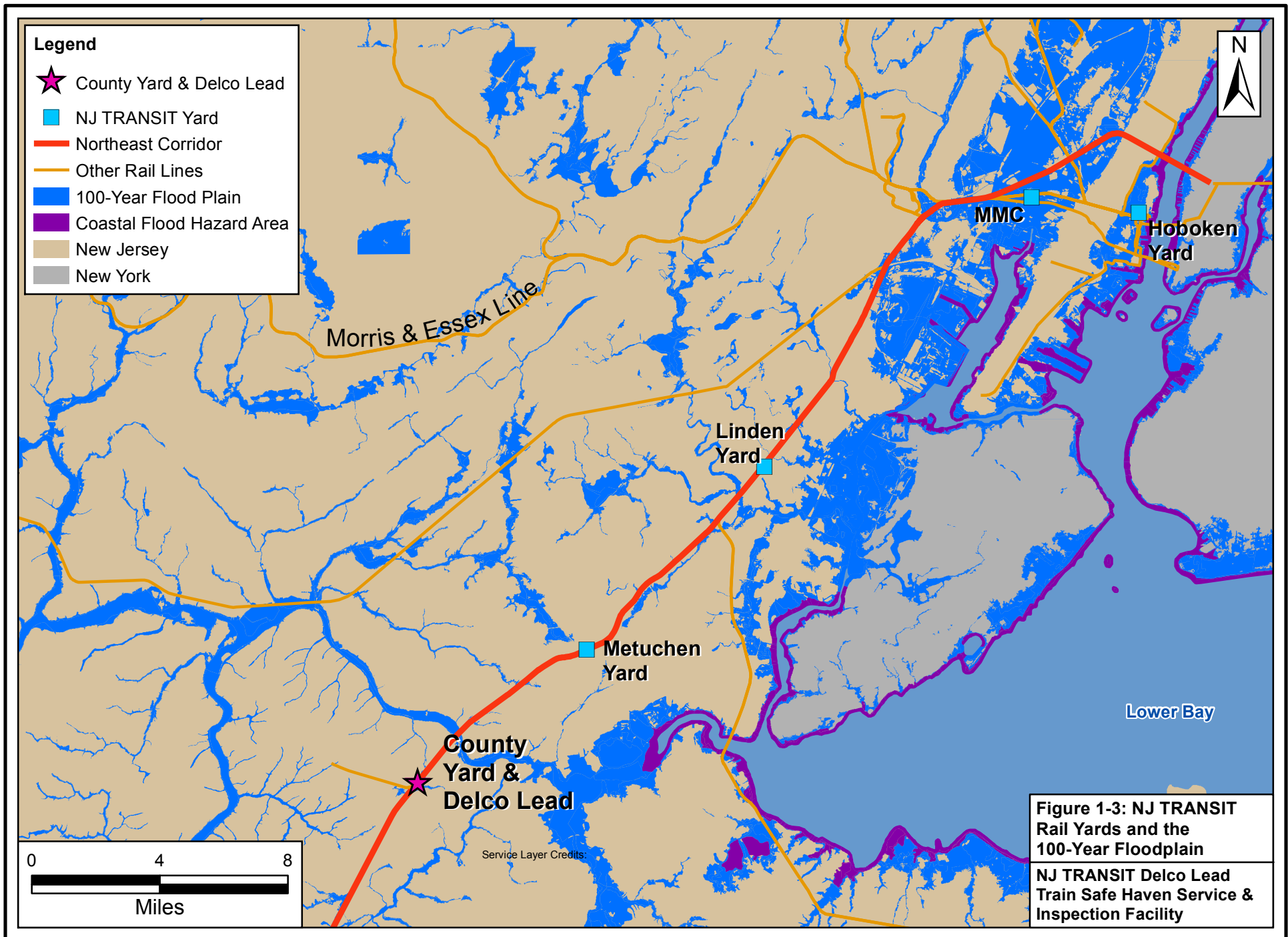
Damage to transportation infrastructure during Hurricane Irene in 2011, and the following year during Sandy, reversed these assumptions. Sandy, with its extraordinarily high surge, impacted the MMC for the first time in its 30-year history. This resulted in damage to over 300 rail cars and severely impacted NJ TRANSIT's ability to restore service after the storm. This event clearly demonstrated the need for an alternative inland rail storage facility that is not susceptible to future flooding events or other potential weather-related hazards such as tree falls.

Most of the NJ TRANSIT trains operating on the Northeast Corridor line are serviced at its western end, at the Morrisville Yard in Morrisville, Pennsylvania. Trains stored in Morrisville Yard during Sandy did not suffer damage; however, they were stranded due to flooding and track damage in the low-lying segment of rail line near Trenton between Morrisville and the heavily travelled New York route starting at Jersey Avenue Station, and could not be returned to service. Storing the trains at the Morrisville Yard caused serious delays in NJ TRANSIT's effort to resume normal service after Sandy.

## **1.2 NJ TRANSIT RESILIENCE PROGRAM**

To reduce the impact of future storms, NJ TRANSIT is undertaking a system wide resilience program to restore damaged equipment and harden infrastructure, focusing on elements that will allow NJ TRANSIT to restore critical service as soon as possible after a storm event. This resilience program includes: elevating electrical substations and signal structures to prevent future damage and/or service disruption; protecting assets in flood prone areas against future storms by raising electrical, signal and interlocking apparatus, installing sheathing to prevent washouts at bridges; and replacing wooden catenary poles with steel structures less vulnerable to damage from wind and falling trees.

The program also includes five key resilience projects that will enhance service reliability and allow NJ TRANSIT to restore service quickly after a major storm:



- NJ TRANSITGRID, a new electrical microgrid that includes a natural gas generation plant (approximately 104 megawatt), which will be used primarily to supply the power to operate trains and distributed generation solutions (i.e., fuel cells, combined heat and power plants, and photovoltaic panels) to supply electricity for some bus garages, trains stations and other facilities. These improvements will enhance the resiliency of the electricity supply to the NJ TRANSIT and Amtrak infrastructure that serves key commuter markets in New York and New Jersey, to minimize public transportation service disruptions when the commercial power grid is compromised.
- Raritan River Drawbridge Replacement Project, which will address the vulnerability of the existing bridge to major storm and seismic events and enhance the reliability of the North Jersey Coast Line service.
- Hoboken Long Slip Rail Enhancement Project, which will build a resilient train station for use during emergencies and fill a slip that penetrates Hoboken Rail Yard that acted as a conduit for storm surge waters. The new elevated station and six tracks will be built on top of the fill and enable the operation of commuter rail service while the yard proper is being shut down in preparation of a significant storm event or returned to service after storm-related or ocean-surge flooding.
- Train Controls Resilience, which will harden signal and communication systems and other infrastructure on the Hudson Bergen Light Rail system and four commuter rail lines – the Main and Bergen County Lines, Pascack Valley Line, Raritan Valley Line, and Morris and Essex Line.
- Delco Lead Train Safe Haven S&I Facility, which is the subject of this document.

These five resilience initiatives have been selected by the FTA for funding through FTA's Emergency Relief Program because of their critical importance in the region. While these projects together will greatly improve the transit system's resiliency, they each have independent utility and are being developed separately, with separate environmental reviews in accordance with NEPA.

### **1.3 PROBLEM STATEMENT**

While NJ TRANSIT has a program of projects underway to address the vulnerabilities revealed by Sandy, those resilience efforts cannot change the basic geographic location of the MMC or prevent the future damage to its storage tracks, which cannot be practically raised to a safe elevation above the floodplain. NJ TRANSIT's current emergency preparedness plan specifies use of Linden Yard and Metuchen Yard to shelter the vehicles stored at the MMC under normal circumstances (as indicated below, these yards do not have the capacity to accommodate the rail cars stored overnight in Morrisville Yard). While these facilities will serve as a temporary measure, there are several problems related to their continued use.

First, Linden Yard is leased from Conrail for a period of only five years and Conrail has retained the right to terminate the lease at any time if their business requires its use. Lease renewal is uncertain. Second, the combined Linden and Metuchen facilities can only store 350 rail cars and NJ TRANSIT's

emergency storage need exceeds that number. The average number of rail cars<sup>1</sup> stored overnight at the MMC and Morrisville Yard is 351 and 214, respectively. Third, use of these facilities compromises the ability of NJ TRANSIT to maintain service leading up to a storm and resume service quickly after a storm since:

- Trains stored at Linden and Metuchen during emergencies need to travel either to the MMC or Morrisville Yard for inspection prior to being returned to service to comply with Federal Rail Administration (FRA) safety requirements; and
- Both Linden and Metuchen yards are located on the south side of the Northeast Corridor (eastbound direction), which requires trains stored at the MMC and those traveling from New York City to cross over the four heavily used Northeast Corridor tracks.

Since both the MMC and the route to the Morrisville Yard are susceptible to flooding, the risk of extended delays is a high probability. As a result, storm preparedness requires service reductions on the Northeast Corridor several days prior to a storm in order to move rail cars to the Linden and Metuchen yards.

The resilience of NJ TRANSIT's system is dependent on reliable measures for providing safe haven for its fleet. The inadequate capacity and tenuous nature of the leased properties without permanent usage rights presents a risk to long-term system resilience. Since the loss of availability of Linden Yard and Metuchen Yard, due to lease termination, would put hundreds of rail cars at risk, NJ TRANSIT has taken the initiative to act before a crisis arises to identify a permanent safe haven location.

#### **1.4 PURPOSE OF THE PROPOSED PROJECT**

NJ TRANSIT has identified the following inter-related goals for storm preparedness both in advance of and following an event:

- maintain continuity of operations for as long as possible before and after a storm;
- minimize customer inconvenience and economic slowdown;
- maintain access to job centers and mobility within New Jersey and between New York and New Jersey; and,
- provide an effective evacuation capability from population and job centers during emergencies.

The purpose of the proposed Project is to mitigate the risk of damage to NJ TRANSIT equipment as a result of severe weather events and maintain continuity of operations for as long as possible before and after a storm. The objective is to locate storage tracks and an S&I Facility in a centrally located inland area that is not susceptible to flooding or tree fall, at an elevation that minimizes flood hazard risk by accounting for the potential effects of future extreme weather. The need for equipment to be moved to outlying facilities for the FRA-mandated inspections (which are required before trains

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<sup>1</sup> Defined as coaches, locomotives and Multiple Units.

can be returned to revenue service) will be eliminated by the co-located storage and S&I facilities. As a result, service restoration will be expedited.

The purpose of the proposed Project is also to maximize operating efficiencies under normal operating conditions. Trains that begin their run at the Jersey Avenue train station will be stored overnight at the adjacent County Yard, saving the 30-mile trip to the south to Morrisville Yard for storage, service and inspection. A more efficient operating plan will result in a reduction of NJ TRANSIT's overall electricity usage and associated Green House Gas (GHG) emissions.

## **Chapter 2**

## **Project Alternatives**

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This chapter describes the No Action and Build Alternatives that are evaluated in this Environmental Assessment (EA). There are no reasonable alternatives to the use of the Delco Lead and County Yard that meet NJ TRANSIT's goal of building a transportation system that is resilient against future storms. For a discussion of siting considerations, alternative locations considered, and alternative site layouts see Chapter 4, Section 4(f) Evaluation.

### **2.1 NO ACTION ALTERNATIVE**

The No Action Alternative is defined as the existing transportation network plus the committed transportation improvements that will be in place by the proposed Project's build year 2021, without the Delco Lead and County Yard improvements. Delco Lead would remain as an unused freight siding and the County Yard would remain as it is today, containing only a few tracks that would not accommodate the maintenance, storage or inspection needs of trains that operate on the Northeast Corridor.

Under the No Action Alternative, during severe weather events, approximately 350 train cars would be stored at Linden and Metuchen Yards, assuming NJ TRANSIT can extend the current lease and maintain access to these yards (see Figure 1-1). The combined capacity of these yards does not meet NJ TRANSIT's storage and maintenance needs for trains operating on the Northeast Corridor, which under normal conditions use yards that are located in, or cut off by, areas that are subject to flood inundation or coastal storm surge during severe weather (i.e., Morrisville Yard, the MMC, Sunnyside Yard<sup>2</sup>). Additionally, Linden and Metuchen yards are located to the south of the Northeast Corridor tracks (eastbound side), which requires crossing all four Northeast Corridor tracks when moving rail cars from the MMC and Sunnyside Yard. Due to the congestion of Amtrak and NJ TRANSIT's rail traffic on the Northeast Corridor, movement of NJ TRANSIT rail cars to Linden and Metuchen yards prior to a storm would require diminished service to Northeast Corridor customers several days ahead of the storm. After a storm, service restoration would also be slow due to the need for trains to be inspected either at the Morrisville Yard or the MMC prior to being returned to revenue service. The inefficient movement of equipment before and after a storm under the No Action Alternative would result in prolonged customer inconvenience and reduced mobility in the region.

Under the No Action Alternative, if Linden and Metuchen Yards are not available for use by NJ TRANSIT, prolonged service disruptions would be expected to occur before and after severe weather events.

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<sup>2</sup> Sunnyside Yard is used by NJ TRANSIT for midday service for some of the trains that terminate revenue service at New York's Penn Station during the morning peak period. Sunnyside Yard is at the eastern end of NJ TRANSIT's service territory, and can be cut off from the rest of the system during storms due to flooding in the Hudson River and East River tunnels.

Under the No Action Alternative, during normal operations, some trains that start and end revenue service at the Jersey Avenue Station would operate without carrying passengers to and from Morrisville Yard (located 30 miles to the south) rather than the adjacent storage location in County Yard. During the midday, NJ TRANSIT would not be able to take advantage of a centrally located S&I Facility on the Northeast Corridor, requiring additional deadhead miles and an inefficient operating plan. The inefficient operating plan would result in unnecessary expenditure of energy and increased GHG emissions.

NJ TRANSIT is considering implementation of two other projects under the NJ TRANSIT Resilience Program, regardless of whether the proposed Project is developed. The projects that will affect service conditions on the Northeast Corridor include:

- **MMC Rail Operations Center Yard Power System:** During Sandy, electrical equipment in the MMC Rail Operations Center was damaged along with the rail cars that were stored in the yard. Currently unfunded, this project is being designed to repair, replace and relocate transformers and electrical equipment at the MMC including substations, conduit, cables, ground mounted boxes with receptacles and circuit breakers, switch gear and panel boards. A new 13.2 kV distribution system is being designed with all transformers and switch gear raised. The storage yard will still be vulnerable to storms that generate the high storm surges seen during Sandy since the tracks cannot be practically raised.
- **NJ TRANSITGRID:** Expected to be operational in year 2021, this project will provide a resilient power supply to operate trains during widespread failure of the commercial grid. A microgrid will be constructed, which includes an approximately 104 megawatt (MW) natural gas fired electric power generating plant and associated infrastructure in Kearny, NJ. The facility will be sized to handle emergency operations on a portion of the NJ TRANSIT and Amtrak systems, including the Northeast Corridor between New York Penn Station and County Yard, and the Morris & Essex (M&E) line between Hoboken and Newark's Broad Street Station, and the Hudson-Bergen Light Rail (HBLR) Transit System.

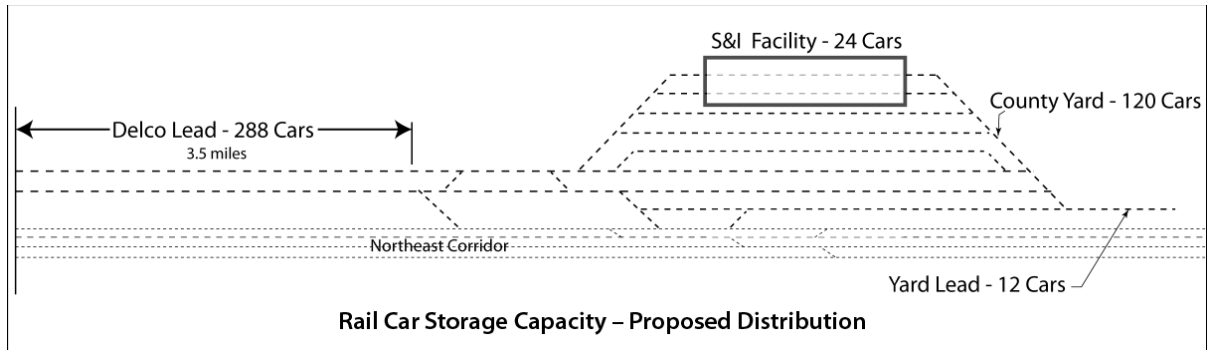
While these projects will provide substantial benefits as described, they will not meet the Purpose and Need of the proposed Project.

## **2.2 BUILD ALTERNATIVE**

One Build Alternative is assessed in this EA. The Build Alternative includes construction of storage tracks and an S&I Facility in County Yard, and construction of new storage tracks adjacent to the Northeast Corridor on the Delco Lead extending approximately 3.5 miles south from County Yard to North Brunswick Township. The storage capacity under the Build Alternative will be 444 rail cars (as illustrated below), which will be accommodated by:

- Five storage tracks in County Yard (120 rail cars);
- Yard lead track to County Yard (12 rail cars);
- S&I Facility tracks (24 rail cars); and
- Delco Lead (288 rail cars).





### 2.2.1 County Yard Improvements

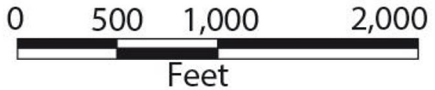
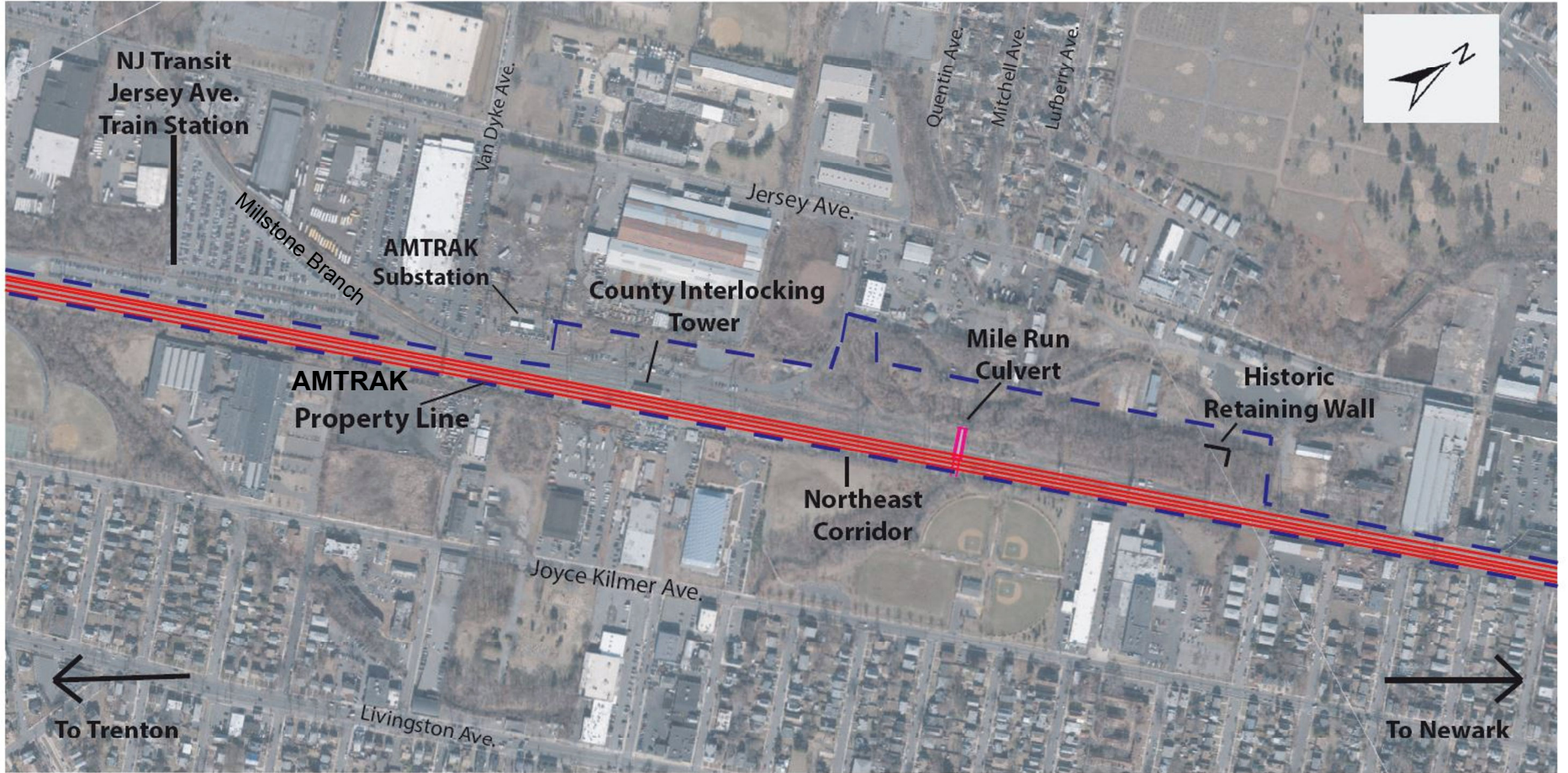
County Yard, which is located in the City of New Brunswick, currently consists of abandoned railroad tracks, paved areas, three active electrified siding tracks with a storage capacity of four trains, and the County Interlocking Tower, which houses Amtrak’s Communications and Signals Facility (see Figure 2-1). Trees and other vegetation have encroached upon unused portions of the site.

A 1,250 foot-long S&I Facility will be constructed in a currently unused portion of the Amtrak-owned County Yard (see Figures 2-2 and 2-3). The S&I Facility will accommodate two parallel tracks (each capable of holding one 12-car train) for routine inspection and light maintenance of NJ TRANSIT equipment under normal operations. In the event of severe weather, the S&I Facility will facilitate the rapid return to service of the trains stored on the Delco Lead by allowing for FRA-mandated inspections to occur in the same location where the trains are stored. It will include crew quarters, spare parts storage and sanding facilities, and a 183-space parking lot able to accommodate the increased staff that would be needed in the event of severe weather. Under normal operating conditions, only about 30 parking spaces will be used by employees in any given shift.

As described more fully in Section 3.1.3 and shown on Figure 2-4, the 13-acre yard will be reconfigured and expanded by two acres by acquiring:

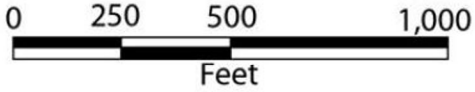
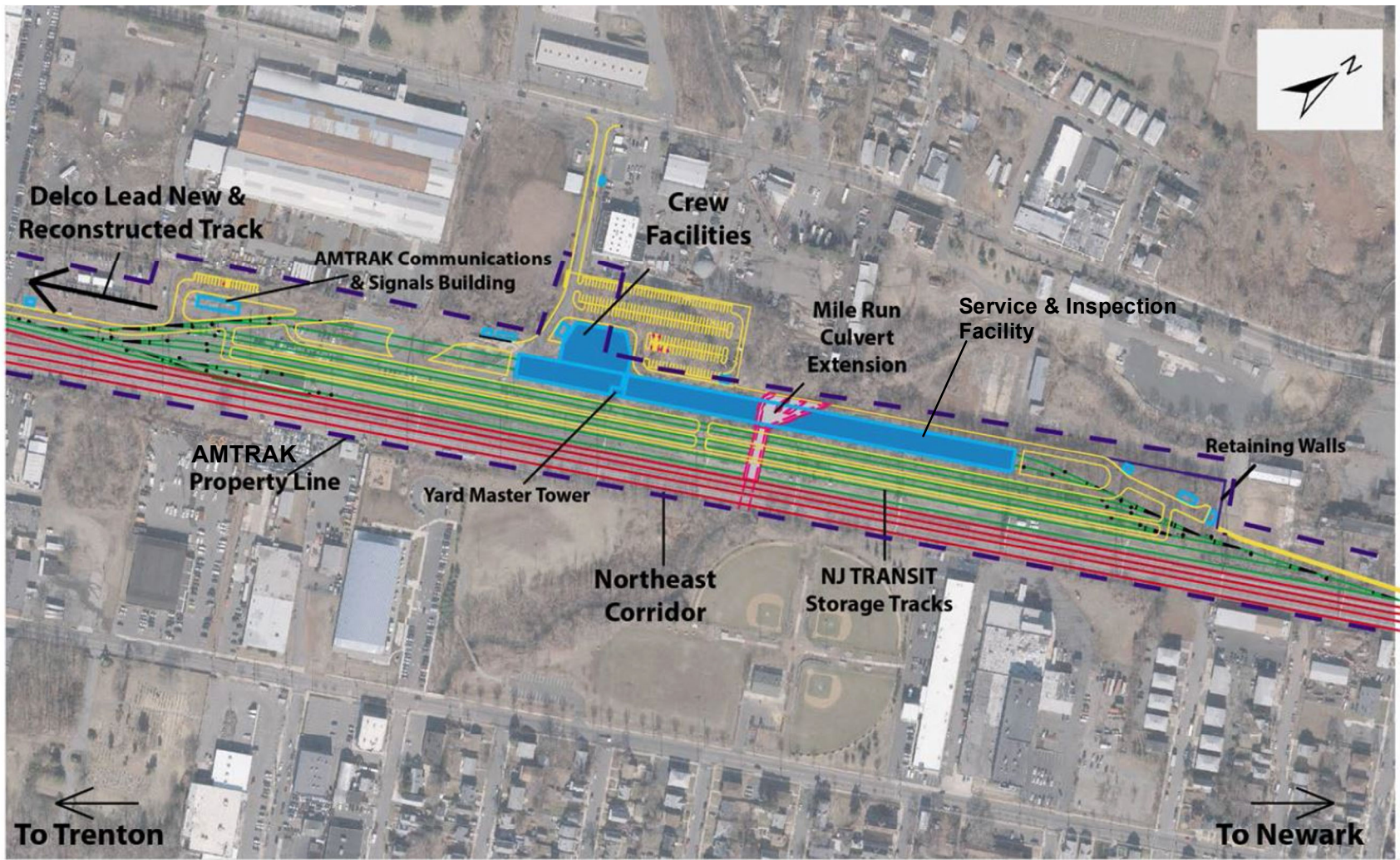
- An approximate 12.4 acre parcel from Amtrak in County Yard;
- An approximate 1.8 acre parcel from the City of New Brunswick;
- An approximate 0.2 acre parcel from 120 Jersey Ave, LLC;
- An approximate 0.4 acre parcel from Solvay USA Inc.;
- A permanent access easement of approximately 0.3 acre from the City of New Brunswick.

Five storage tracks; each with the capability of storing two 12-car trains will be constructed in County Yard. The five tracks of County Yard will therefore have the capacity to store a total of ten 12-car trains or 120 rail cars. Two 8-foot wide cart paths for NJ TRANSIT employees will be required to service the train within the yard. The County Interlocking Tower (a contributing resource to the



**Figure 2-1: County Yard Existing Conditions**  
**NJ TRANSIT Delco Lead Train Safe Haven Service & Inspection Facility**





**Figure 2-2: Proposed Layout for County Yard**

**NJ TRANSIT Delco Lead Train Safe Haven Service & Inspection Facility**

# PERSPECTIVES



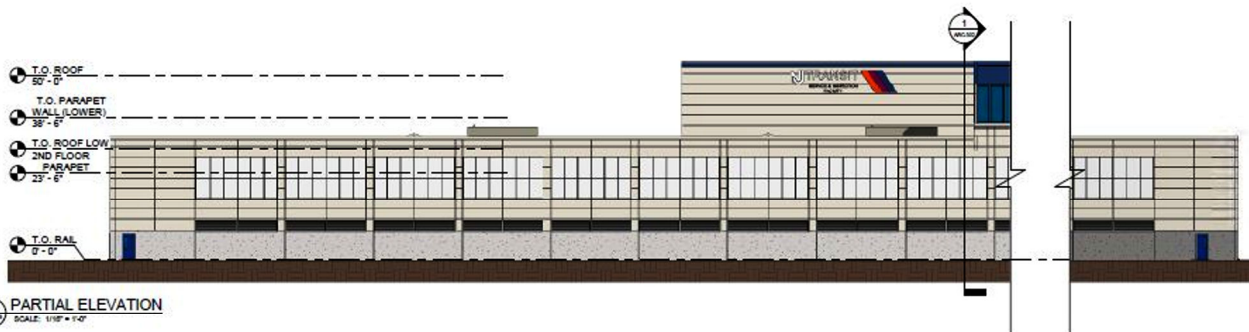
1 FULL BUILDING NORTH-WEST PERSPECTIVE  
SCALE: 1/8" = 1'-0"



2 PARTIAL NORTH -WEST PERSPECTIVE  
SCALE:



4 PARTIAL NORTH-EAST PERSPECTIVE  
SCALE:

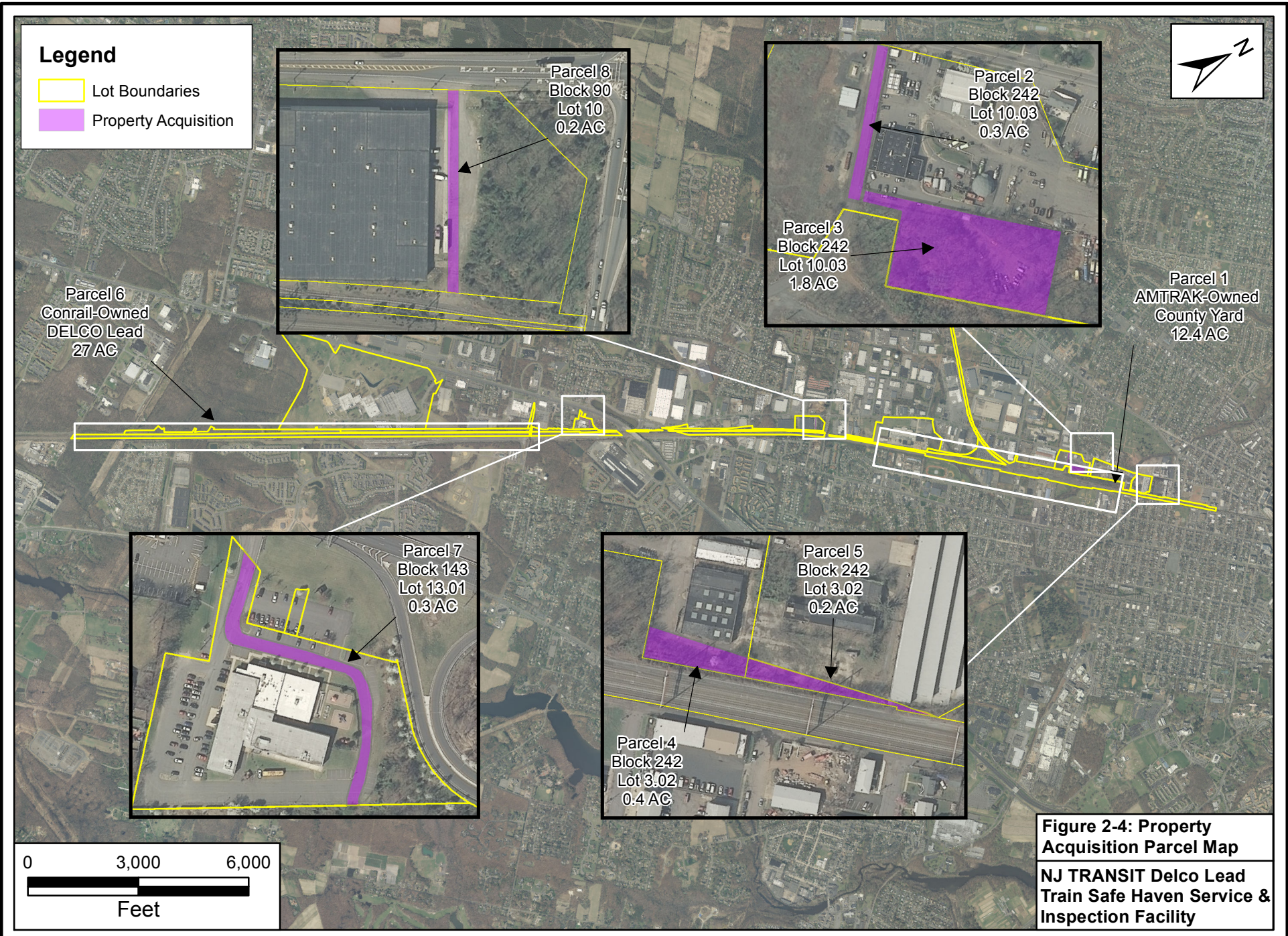


3 PARTIAL ELEVATION  
SCALE: 1/16" = 1'-0"

10% PRELIMINARY DESIGN

**Figure 2-3: S&I Facility Rendering**  
**NJ TRANSIT Delco Lead Train Safe Haven Service & Inspection Facility**





**Legend**

- Lot Boundaries
- Property Acquisition



Parcel 6  
Conrail-Owned  
DELCO Lead  
27 AC

Parcel 8  
Block 90  
Lot 10  
0.2 AC

Parcel 2  
Block 242  
Lot 10.03  
0.3 AC

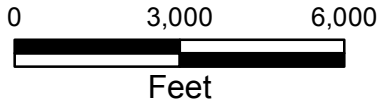
Parcel 3  
Block 242  
Lot 10.03  
1.8 AC

Parcel 1  
AMTRAK-Owned  
County Yard  
12.4 AC

Parcel 7  
Block 143  
Lot 13.01  
0.3 AC

Parcel 5  
Block 242  
Lot 3.02  
0.2 AC

Parcel 4  
Block 242  
Lot 3.02  
0.4 AC



**Figure 2-4: Property Acquisition Parcel Map**  
**NJ TRANSIT Delco Lead Train Safe Haven Service & Inspection Facility**



Pennsylvania Railroad Historic District that encompasses the site), will be demolished and Amtrak's Communications and Signals Facility will be housed in a new building near the existing Amtrak Substation. Parking for 17 Amtrak employees will also be provided to accommodate Amtrak's work force at County Yard. The yard will be equipped with hydrants, dumpsters, compressed air, wayside power, cart storage, air compressors, sanding facilities and sanitary dump station(s).

Construction elements (see Figure 2-2) will include:

- Site clearance, including tree removal, and demolition of railroad infrastructure including the historic County Yard Tower (a contributing resource to the National Register of Historic Places eligible Pennsylvania Railroad Historic District);
- Utility relocations as necessary to accommodate the proposed Project;
- Construction of three retaining walls of varying length within the yard area. The approximate height of two walls at the eastern end of the proposed Project site ranges from 12 to 15 feet. The third wall, located north of the S&I Facility, is estimated to be 30 feet high;
- An approximate 80-foot extension via a bridge structure of an existing culvert over Mile Run (a tributary of the Raritan River which runs beneath County Yard);
- Addition of fill to elevate all proposed Project elements to meet NJ TRANSIT Flood Elevation Design Criteria for inland facilities, which is Federal Emergency Management Agency (FEMA) base flood elevation (BFE) + 1.5 feet. Most of the fill will be placed to the east of the Mile Run culvert in the northeast section of the yard in the vicinity of the retaining walls to raise the site from elevation 48 feet to 82 feet (NAVD88). Areas to the west of Mile Run will require between one and seven feet of fill to meet the floodplain criteria. The volume of fill is estimated to be approximately 188,400 cubic yards for County Yard, which will require approximately 15,700 truckloads brought onto the proposed Project site over a 16-month period (50 trucks per day);
- Construction of a new 1,250-foot (length) by 55-foot (width) structure that includes the S&I Facility, crew quarters, and a 50-foot tall yardmaster tower, spare parts storage and sanding facilities;
- Construction of two employee parking lots (17 spaces for Amtrak, 183 spaces for NJ TRANSIT (based on the maximum number of employees expected at each facility during any given shift) and improvements to the existing site access point;
- Reconfiguration of existing tracks and track connections;
- Upgrading of existing track and signal connections to the Northeast Corridor;
- New track work, and associated catenary, signals and drainage; and
- Security fencing and yard lighting.

### **2.2.2 Delco Lead Improvements**

The Delco Lead improvements include removal of an existing freight track and construction of two new tracks (except in the vicinity of the How Lane Bridge) adjacent to the Northeast Corridor in the City of New Brunswick, extending approximately 3.5 miles south into North Brunswick Township, NJ. The Delco Lead was planned to accommodate two tracks during its construction in the mid-twentieth century but currently consists of only one; however, the two-track right-of-way has been

preserved. As described more fully in Section 3.1.3 and shown on Figure 2-4, the Delco Lead property and two permanent access easements will be required:

- An approximate 27 acre fee acquisition from Conrail (for the Delco Lead property);
- An approximate 0.3 acre easement along Route 1 from WOW Plaza IV, LLC; and
- An approximate 0.2 acre easement along How Land from 1200 Jersey Avenue LLC.

The Delco Lead will provide for the emergency storage or “safe haven” of 288 rail cars in the event of severe weather. It will not be used under normal operating conditions.

Construction elements will include:

- Removal of the existing freight siding;
- Addition of fill to accommodate two tracks in some areas and elevate all proposed Project elements to meet NJ TRANSIT Flood Elevation Design Criteria for inland facilities, which is FEMA base flood elevation (BFE) + 1.5 feet. Most of the fill will be used to create embankments in the vicinity of the Mile Run crossing of Delco Lead (see Section 3.7) and at its western terminus. The volume of fill is estimated to be approximately 80,000 cubic yards for the Delco Lead, which will require approximately 6,670 truckloads brought onto the proposed Project site over a period of seven months (50 trucks per day);
- Construction of two new tracks, and associated catenary and signals;
- Drainage, track side ditches, cross culverts and pipes, and storm water management features;
- Upgrading of track and signal connections to the County Yard;
- Utility relocations as necessary to accommodate the proposed Project; and
- Access roads for track maintenance and emergency egress for train crews.

### **2.3 OPERATIONAL ASPECTS**

Currently, three NJ TRANSIT trains (comprised of 34 rail cars) that begin and end revenue service to New York at the Jersey Avenue Station are stored overnight in County Yard. In the morning, four trains are made up from the 34 cars. No weekend service operates from the Jersey Avenue Station. Approximately 60 NJ TRANSIT employees report to work on weekdays. In addition, County Yard is used by Conrail to disassemble and re-assemble freight trains that operate commercially on the Millstone Branch (see Figure 2-1).

Future NJ TRANSIT activity on the Delco Lead and at County Yard is discussed below and summarized in Table 2-1.



**Table 2-1: NJ TRANSIT Operations at Delco/County Yard- Weekday Conditions**

<b>Activity</b>	<b>Storage (No. of rail cars)</b>	<b>Service &amp; Inspection (trains per day)</b>	<b>No. of Employees (total for 3 shifts)</b>
Existing/No Action Conditions	34	4	60
Build Conditions – Normal Operations	96	11	110
Build Conditions - Emergency Operations	444	19	430

**2.3.1 No Action Conditions**

Under No Action conditions, operations at the yard would be expected to be the same as they are today.

**2.3.2 Build Conditions**

***Normal Operations***

Upon completion of the proposed Project, NJ TRANSIT will store, service and inspect rail cars in County Yard during normal operations (the Delco Lead will not be used for storage during normal operations). Under normal operating conditions, the Build Alternative will result in operation of the S&I Facility over a period of approximately six hours, during early morning and midday hours. It is anticipated that under normal conditions a total of eight 12-car trains will be stored overnight at County Yard and serviced and inspected in the new enclosed S&I Facility. An additional three trains will be serviced and inspected in the S&I Facility during the midday. Total employment at County Yard over 24 hours will increase by approximately 50 for a total of 110, with an average for an 8-hour shift of approximately 37 employees.

When compared to No Action conditions, County Yard will service seven additional trains, which would otherwise need to travel empty (deadhead miles) to and from Morrisville Yard, located approximately 30 miles to the south of the Jersey Avenue Station/County Yard. Total savings in 12-car train miles will be 420 miles per day or a reduction of approximately 110,000 miles per year for all seven 12-car trains.

***Emergency Operations***

Upon completion of the proposed Project, during emergency operations, NJ TRANSIT will temporarily store a total of approximately 444 rail cars at the County Yard and Delco Lead properties in advance of the storm. These rail cars would otherwise be stored elsewhere on the Northeast Corridor (e.g., Morrisville Yard, MMC) under normal operating conditions. Immediately following the storm, these trains will be inspected at the S&I Facility and returned to service on the Northeast Corridor. Under emergency operating conditions, the Build Alternative will result in operation of the S&I Facility over a 24-hour period. Total employment at County Yard over 24 hours will increase to up to 430 employees, with an average for an 8-hour shift of approximately 163 employees. The co-location of the storage yard and S&I Facility will allow trains to be returned to service immediately

following a storm, thereby minimizing customer inconvenience and economic slowdown, and maintaining the continuity of service to job centers in New York.

## **Chapter 3** **Environmental Considerations**

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### **3.1 LAND USE AND ZONING**

This section reviews land use and zoning in the vicinity of the proposed Project and includes consideration of parkland and recreation areas, open space, and community facilities. The probable impacts of the No Action and Build alternatives are identified.

The analysis contained in this section uses a study area that extends a quarter-mile around the proposed Project site (see Figure 3-1). Land use and land use patterns, zoning districts, community facilities, parklands and recreation areas, and open space within the study area are identified in Section 3.1.1. Section 3.1.2 describes the probable impacts of the No Action and Build Alternatives; reviews the Build Alternative's consistency with land use and zoning in the study area; and identifies associated property acquisition requirements.

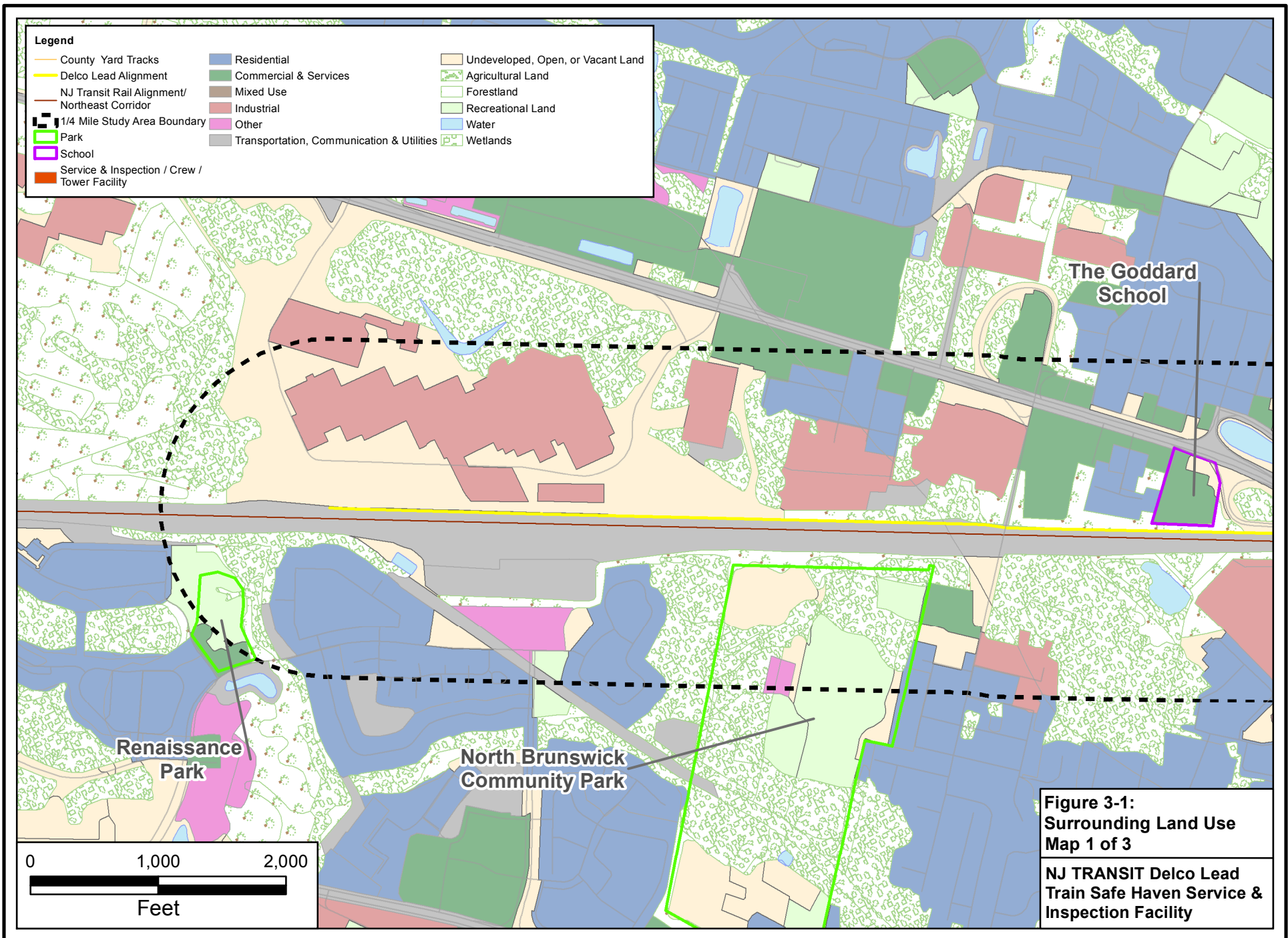
#### **3.1.1 Affected Environment**

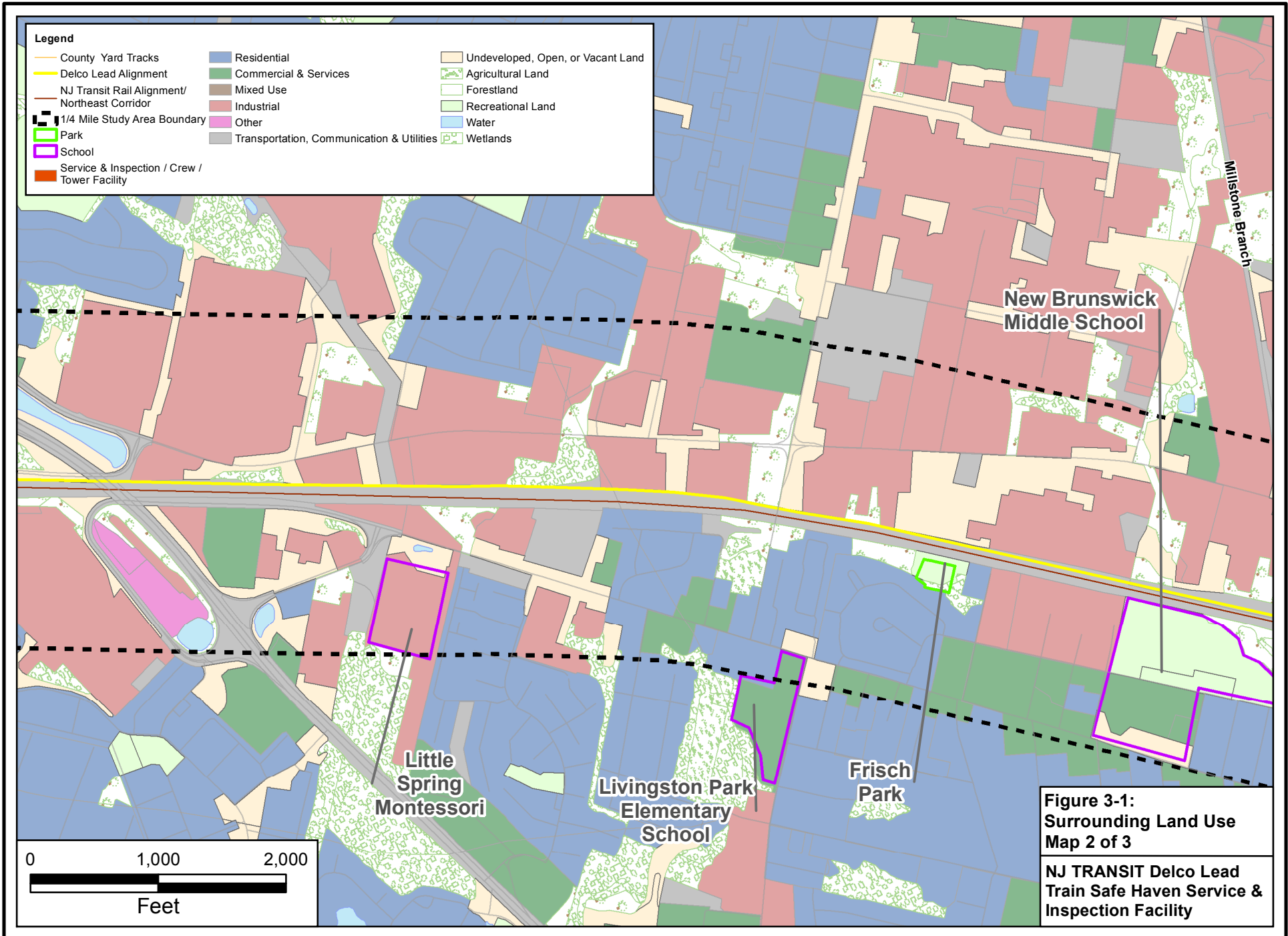
##### **Land Use and Zoning**

The County Yard is located adjacent to Amtrak's four-track Northeast Corridor in a highly industrialized section of the City of New Brunswick. Land use in the immediate vicinity of the County Yard includes NJ TRANSIT's Jersey Avenue Station to the west; Amtrak's Substation 37 to the northwest; New Brunswick's Department of Public Works facility to the north; and a private industrial facility to the east. Three active electrified tracks, abandoned tracks, paved areas and the County Interlocking Tower are located on the proposed Project site. The 3.5-mile-long Delco Lead portion of the proposed Project site consists of a single track just west of the four-track Northeast Corridor.

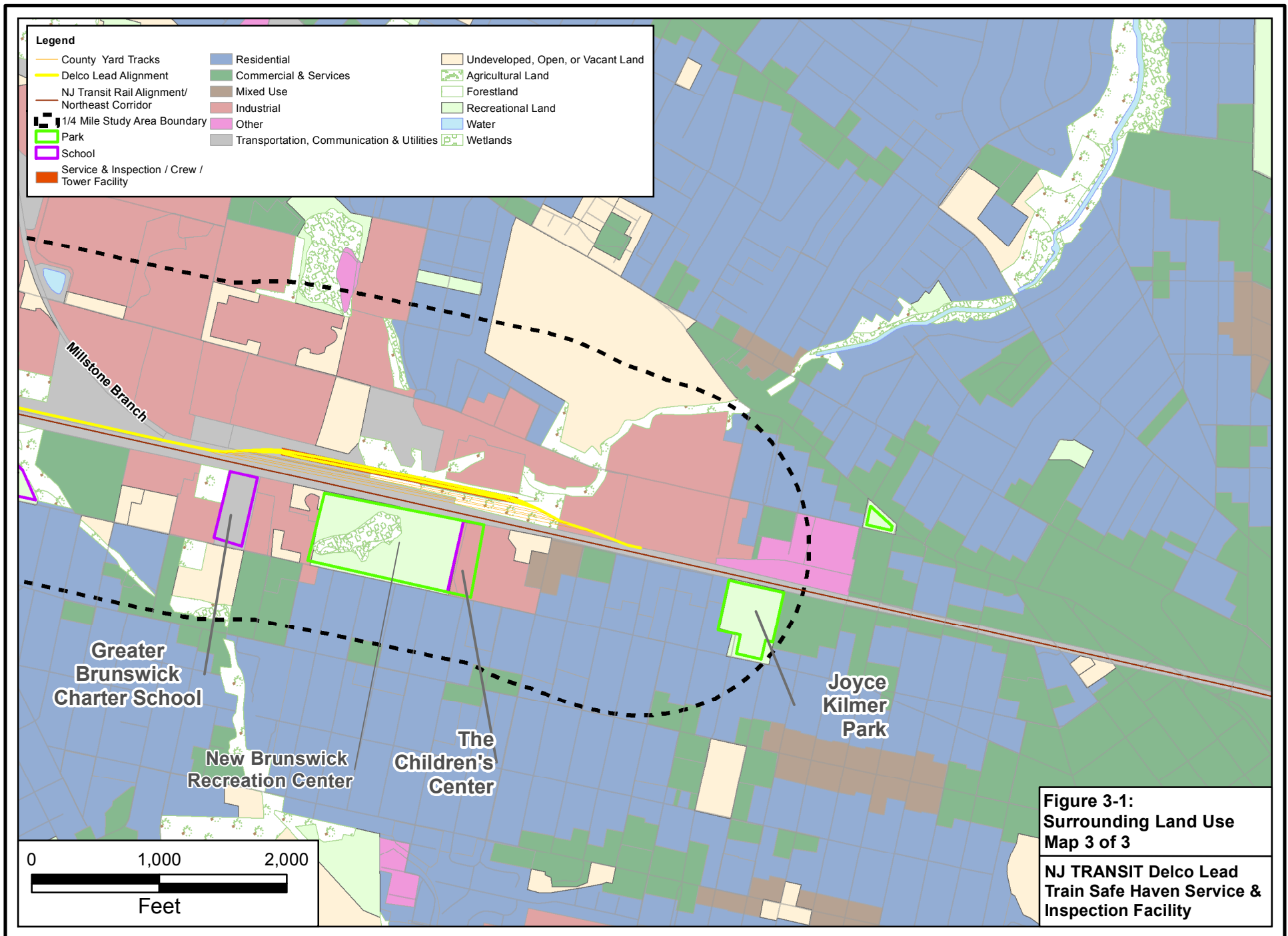
Land use adjacent to the proposed Project site consists mostly of light industrial facilities that historically utilized the railroad for shipping and distribution purposes. Pockets of established residences occur sporadically, mostly on the eastern side of the corridor. These residential uses become denser in the New Brunswick (northern) portion of the study area. However, the heavily-used four-track Northeast Corridor separates the land uses to the east from the activities associated with the improvements in County Yard. Land Use in the study area is shown in Figure 3-1.

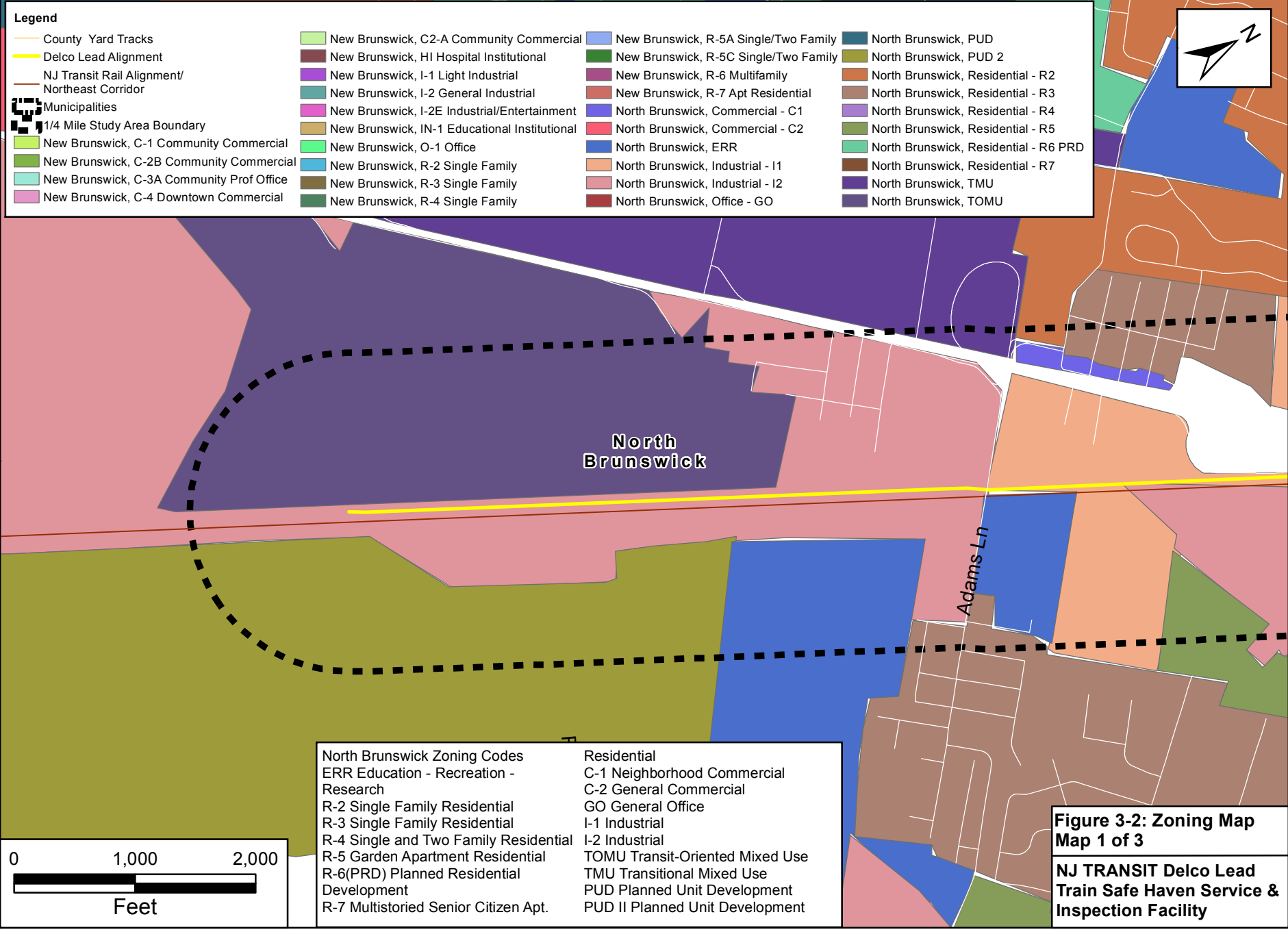
Land use within the study area is consistent with its municipal zoning classifications (see Figure 3-2). The North Brunswick portion of the study area (southern) is predominantly Industrial (I2). Mixed use development is permitted in the southernmost portion of the study area, where development of the former Johnson & Johnson site is planned. Following the corridor north, nearly all zoning to the west of the alignment is Industrial. The eastern side of the Northeast Corridor is zoned for various residential densities in New Brunswick and a small portion as Commercial (C1). The location of County Yard and the proposed S&I Facility is zoned General Industrial (I-2) and some of the principal



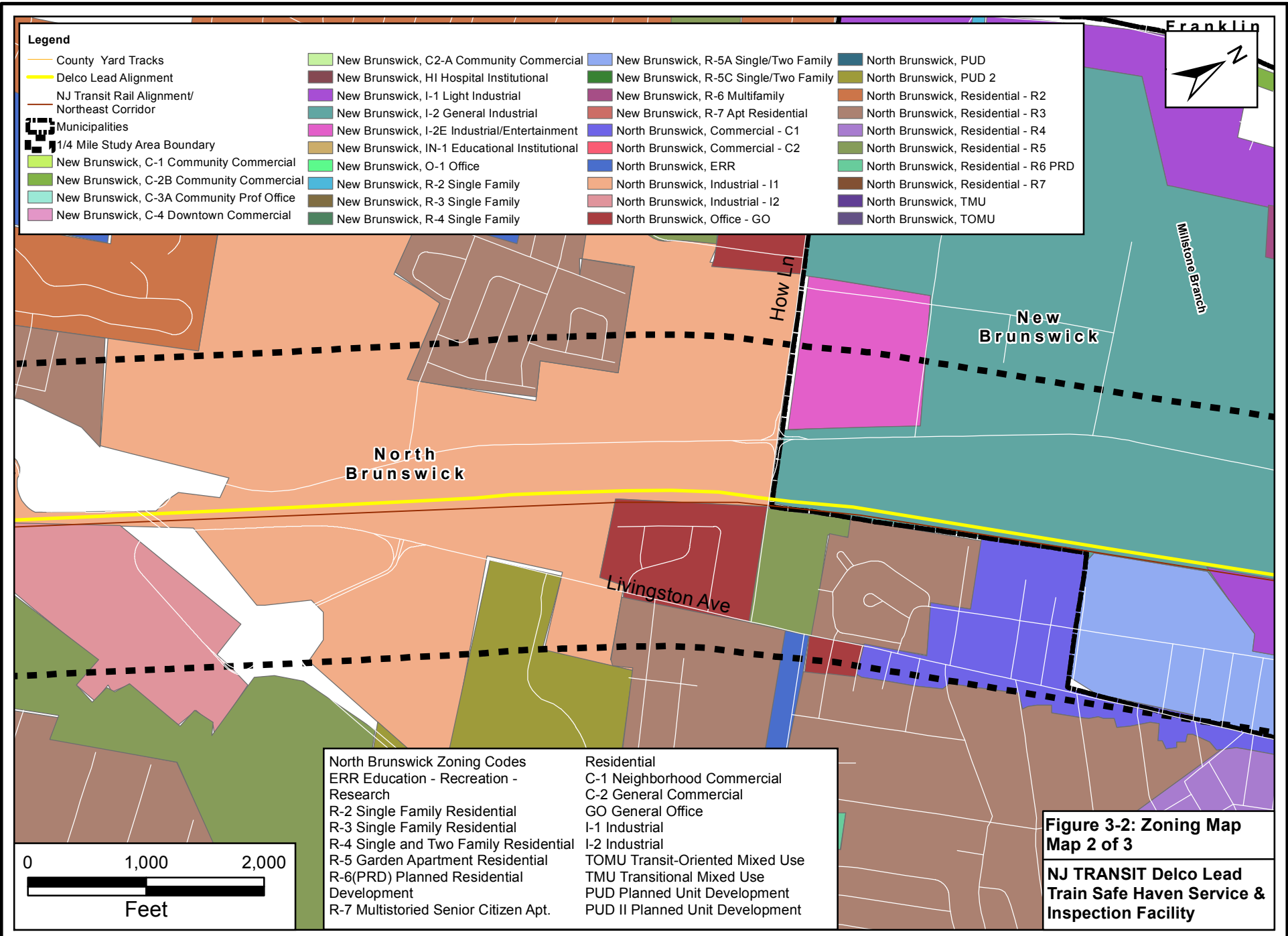


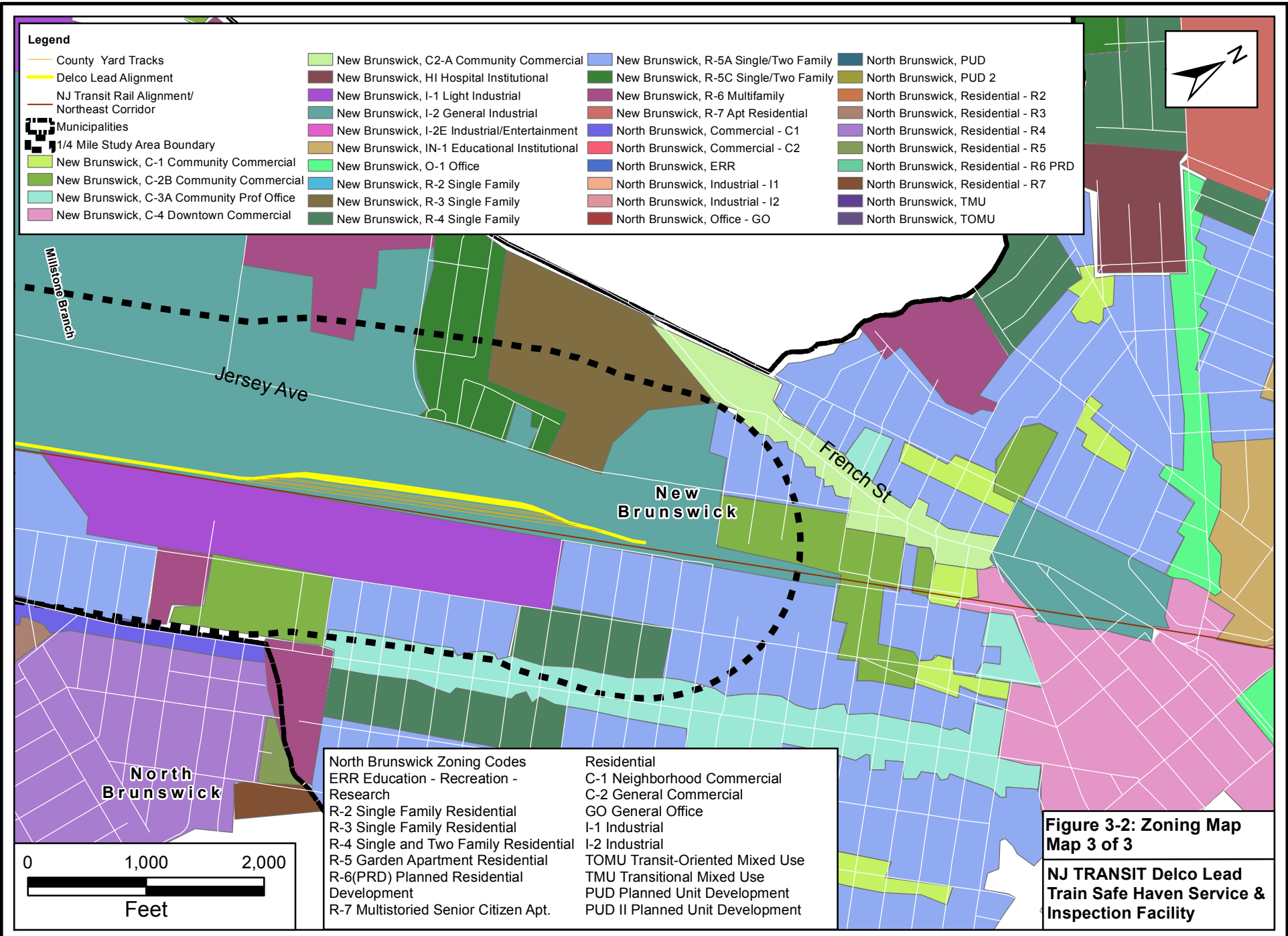






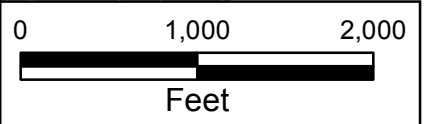






Legend		
County Yard Tracks	New Brunswick, C2-A Community Commercial	New Brunswick, R-5A Single/Two Family
Delco Lead Alignment	New Brunswick, HI Hospital Institutional	New Brunswick, R-5C Single/Two Family
NJ Transit Rail Alignment/ Northeast Corridor	New Brunswick, I-1 Light Industrial	New Brunswick, R-6 Multifamily
Municipalities	New Brunswick, I-2 General Industrial	New Brunswick, R-7 Apt Residential
1/4 Mile Study Area Boundary	New Brunswick, I-2E Industrial/Entertainment	North Brunswick, Commercial - C1
New Brunswick, C-1 Community Commercial	New Brunswick, IN-1 Educational Institutional	North Brunswick, Commercial - C2
New Brunswick, C-2B Community Commercial	New Brunswick, O-1 Office	North Brunswick, ERR
New Brunswick, C-3A Community Prof Office	New Brunswick, R-2 Single Family	North Brunswick, Industrial - I1
New Brunswick, C-4 Downtown Commercial	New Brunswick, R-3 Single Family	North Brunswick, Industrial - I2
	New Brunswick, R-4 Single Family	North Brunswick, Office - GO
		North Brunswick, PUD
		North Brunswick, PUD 2
		North Brunswick, Residential - R2
		North Brunswick, Residential - R3
		North Brunswick, Residential - R4
		North Brunswick, Residential - R5
		North Brunswick, Residential - R6 PRD
		North Brunswick, Residential - R7
		North Brunswick, TMU
		North Brunswick, TOMU

North Brunswick Zoning Codes	
ERR Education - Recreation - Research	Residential
R-2 Single Family Residential	C-1 Neighborhood Commercial
R-3 Single Family Residential	C-2 General Commercial
R-4 Single and Two Family Residential	GO General Office
R-5 Garden Apartment Residential	I-1 Industrial
R-6(PR-D) Planned Residential Development	I-2 Industrial
R-7 Multistoried Senior Citizen Apt.	TOMU Transit-Oriented Mixed Use
	TMU Transitional Mixed Use
	PUD Planned Unit Development
	PUD II Planned Unit Development



**Figure 3-2: Zoning Map  
Map 3 of 3**  
**NJ TRANSIT Delco Lead  
Train Safe Haven Service &  
Inspection Facility**

permitted uses include transportation, communications facilities, and terminals. The remaining northern end of the study area contains Light Industrial (I-1), and Single/Two-Family Residential (R-5A) zoning.

The nearest residential development to the County Yard site is the New Brunswick neighborhood of Lincoln Gardens (zoned Single/Two Family R-5C) consisting of affordable housing along Quentin Avenue, Mitchell Avenue and Lake Street, all of which run perpendicular to Jersey Avenue. This development is located more than 500 feet away from the proposed Project site.

### **Parks and Recreation**

Within a ¼ mile radius of the proposed Project area there are two parks owned by the City of New Brunswick (near County Yard) and three parks owned by North Brunswick Township (in the vicinity of the Delco Lead) (see Figure 3-1).

The City of New Brunswick parks are:

- New Brunswick Recreation Center (HUB Recreation Center), located at 411 Joyce Kilmer Ave, which hosts a fitness center, dance studio, game room, computer labs, movie theater, sound studio, batting cage, cafe, baseball and soccer fields; and
- Joyce Kilmer Park, located a few blocks north on Joyce Kilmer Avenue, which has baseball fields, basketball courts, and playground equipment.

North Brunswick Township parks are:

- Renaissance Park, located at Lindsey Drive, is a 14.3-acre park offering baseball, soccer and lacrosse fields, a playground and picnic area;
- The North Brunswick Community Park, located at 2015 US-130, is a 105-acre park offering soccer and baseball fields, recreational trails, a playground, and dog park; and
- Frisch Park, located on McAuliffe Drive, is a 1.3-acre park offering baseball, softball and basketball fields, and a playground.

### **Community Facilities and Services**

The following educational facilities are located within the ¼ mile study area of the proposed Project:

- Little Spring Montessori, located at 1460 Livingston Ave, North Brunswick;
- New Brunswick Middle School, located at 1125 Livingston Ave, New Brunswick (which has football and baseball fields located adjacent to the Northeast Corridor);
- Greater Brunswick Charter School, located at 429 Joyce Kilmer Ave, New Brunswick;
  - The Children's Center, located at 411 Joyce Kilmer Ave, #2, New Brunswick; and
  - Chester Redshaw Elementary School, located at 40 Van Dyke Ave, New Brunswick.

In New Brunswick, the Middlesex County Cultural and Heritage Commission is located at 703 Jersey Ave and several Middlesex County government offices including unemployment services and US Social Security Administration are located just north of the Jersey Avenue Station at 506 Jersey Avenue.

### **3.1.2 No Action Alternative**

Under the No Action Alternative, improvements would not be made at the County Yard and Delco Lead properties; they would remain underutilized and unused transportation resources, respectively. There are no community development plans affecting the proposed Project site, which is zoned for industrial use. The No Action Alternative would be consistent with land use, zoning and public policy and would not affect parkland, recreational facilities, community facilities or community services in the study area.

In the study area, Main Street North Brunswick is a Transit Oriented Development (TOD) project located at the former site of the Johnson & Johnson complex on Route 1. When complete, it will include 1,875 housing units, a hotel and spaces for offices and retail stores. The project is being developed by Garden Homes Development (operating as North Brunswick TOD Associates). The plan has a 25-year build out, phased to infrastructure improvements and the construction of a new train station by NJ TRANSIT to tie the development to the rail line.

A light industrial development is proposed at 760 Jersey Avenue at the location of the former Delco-Remy site. Wick Companies proposes to demolish a significant portion of an existing building and construct new warehouse space. The property is intended to be used by Occidental Chemical for their eastern distribution center for calcium chloride. Conrail will service the property during nighttime freight operations.

### **3.1.3 Build Alternative**

#### **Land Use, Zoning, Parks and Community Facilities**

The Build Alternative is consistent with current land use and zoning within the proposed Project site and in the study area as a whole. It will not adversely affect land use, land use trends, community facilities, including schools, or parks and recreation areas in the study area (also see Section 3.6, Noise and Vibration). The proposed Project site is currently zoned for industrial use in both New Brunswick and North Brunswick and County Yard is currently in active use as a rail yard. The Delco Lead is an inactive rail siding and will only be used for storage to protect NJ TRANSIT's equipment during severe weather events. County Yard is buffered by industrial uses to the north and east, the four-track Northeast Corridor to the south, and the Jersey Avenue Station to the west. The proposed rail use is compatible with these adjacent land uses.

#### **Property Acquisition**

The permanent property acquisition that is needed for the proposed Project is listed in Table 3-1 (and shown in Figure 2-4). The 13-acre County Yard will be reconfigured and expanded by approximately two acres to accommodate the storage tracks, S&I Facility, and employee parking.

**Table 3-1: Permanent Property Acquisition Required for the Proposed Project**

Map Reference No.	Likely type of Acquisition	Address/Block/Lot	Owner	Estimated acreage	Reason for Acquisition	Current Use/Zoning
1	Easement	Multiple	Amtrak	12.4	County Yard Improvements	Rail Yard/Industrial
2	Access Easement	242/10.03	City of New Brunswick	0.3	County Yard Access Road	Existing County Yard Access Road/Industrial
3	Partial Fee Acquisition	400 Jersey Avenue, New Brunswick/ 242/10.03	City of New Brunswick	1.8	County Yard Employee Parking	Industrial
4	Partial Fee Acquisition	298 Jersey Avenue, New Brunswick/ 242/5.06	Solvay USA, Inc.	0.4	County Yard Access Track to Northeast Corridor	Industrial
5	Partial Fee Acquisition	120 Jersey Avenue, New Brunswick/ 242/3.02	120 Jersey Ave, LLC	0.2	County Yard Access Track to Northeast Corridor	Industrial
6	Fee Acquisition	Multiple	Conrail	27	Delco Lead Storage Tracks	Delco Lead/Industrial
7	Access Easement	1846 US Rt.1, North Brunswick/ 143/13.01	WOW Plaza IV, LLC	0.3	Delco Lead Access	Industrial
8	Access Easement	1200 Jersey Avenue, North Brunswick/ 90/10	1200 Jersey Avenue LLC	0.2	Delco Lead Access	Industrial

Two primary property acquisitions are required for the Build Alternative. NJ TRANSIT will acquire, potentially via a permanent easement from Amtrak, most of County Yard (approximately 12.4 acres, with less than one acre remaining adjacent to the Amtrak substation for the new Amtrak Crew Facility). The Delco Lead property (approximately 27 acres) will be acquired from Conrail. In addition, three access easements and three partial fee acquisitions will be required.

No residential or business displacements will be required. The properties to be acquired beyond the railroad right-of-way are, for the most part, undeveloped even though the area is active with

industrial uses and some parcels do have paved areas, fencing, and sheds. In addition to the access easements and partial fee acquisitions, permanent maintenance easements will also be required in the vicinity of the proposed retaining wall, access routes, and County Yard track connections to the Northeast Corridor. These maintenance easements will range from 2.5 feet to 25 feet from the new infrastructure.

#### **3.1.4 Mitigation**

No mitigation is required because no adverse impacts are expected to occur as a result of the Build Alternative. The rights of the owners of the property that will be acquired to implement the Build Alternative are protected under the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the Uniform Act), which has established equitable land acquisition procedures. NJ TRANSIT will adhere to the procedures in the Federal Uniform Act for the property acquisitions that are required for the Build Alternative.

### **3.2 AESTHETIC RESOURCES**

Aesthetic resources are physical features that make up the visible landscape, including land, water, vegetation, and man-made elements to which viewers attach visual value. Visual resources may include historic buildings, open spaces and parks, and views to natural resources such as water features and natural vegetation. This section considers the effects of the Build Alternative, in particular the construction of the S&I Facility, on the visual character and aesthetic conditions in the study area. The assessment of potential impacts to aesthetic resources takes into account the sensitivity of viewer groups to the proposed change in the visual landscape, and the duration and type of view that will be experienced. So, for example, railroad customers who may notice a change in the visual environment at County Yard during their train ride are not considered sensitive viewer groups. On the other hand, residents with direct lines of sight to major infrastructure improvements would be considered sensitive viewer groups. View shed mapping is used to show areas of potential visibility based on topography and the top of the 50 foot tower that will be built in the S&I Facility.

#### **3.2.1 Affected Environment**

County Yard is a long and narrow rail yard located adjacent to the busy Northeast Corridor. A small tributary called Mile Run crosses beneath the yard near its mid-point and meanders on a downstream course along the yard's western boundary toward the Raritan River. A line of heavy vegetation extends along the banks of the Run. Presently, County Yard site is heavily overgrown with trees and shrubs, particularly in the north (eastbound) section. Most yard tracks remain in place, as do former catenary poles and the remains of a stone retaining wall near the northwest corner of the property. Numerous abandoned nineteenth and twentieth-century industrial buildings and vacant former building sites with parking lots surround the yard on both the east and west. The eastern side of the yard includes some adjoining residential urban city blocks with a combination of older dwellings and modern residential housing. Former industrial parcels bordering the railroad on the east side have been redeveloped into modern athletic fields.

The single-track Delco Lead extends southward for approximately 3.5 miles from County Yard along the western side of the Northeast and passes through generally flat terrain in an area currently built up with large twentieth-century industrial and commercial complexes, busy highways, and dense residential housing on the outskirts of the City of New Brunswick. The track bed travels through shallow cuts and low fills and is connected to a series of active and abandoned spurs serving adjoining industries.

### 3.2.2 No Action Alternative

Under the No Action Alternative, no changes to the aesthetic character of the study area or to visually sensitive resources are anticipated.

### 3.2.3 Build Alternative

The effects of upgrading, realigning and installing railroad tracks within existing and former rail yard facilities will not adversely affect aesthetic conditions in the study area as it is consistent with existing conditions in the rail yard. In addition, the visibility of the S&I Facility, including its 50-foot tower, was assessed through viewshed mapping<sup>3</sup>. Figure 3-3 shows that the new structure will not be highly visible from any location that contains sensitive viewer groups. The residential community of Lincoln Gardens, which is a Historic District eligible for listing on the National Register of Historic Places, is more than 500 feet away from County Yard. A line of trees prevents a direct line of sight between Lincoln Gardens and the proposed Project site. The points of visibility shown on Figure 3-3 are from rooftops, and not representative of the average vantage point.







***Looking east from Lincoln Gardens toward County Yard, which is more than 500 feet away (GoogleMaps, Street View, 2015).***

<sup>3</sup> The Viewshed Map was produced utilizing Arc GIS 3D analyst software, and Light Detection and Ranging data provided by the National Oceanic and Atmospheric Administration (NOAA) to generate a digital terrain depicting ground elevation, canopy, and building height.

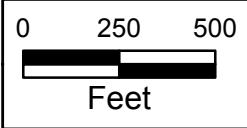


**Legend**

-  Tower Location
-  1/4 Mile Buffer
-  Historic District
-  Visible



**Millstone Branch**



Service Layer Credits:

**Figure 3-3: Viewshed Map**  
**NJ TRANSIT Delco Lead**  
**Train Safe Haven Service &**  
**Inspection Facility**



### 3.2.4 Mitigation

No mitigation is required because no adverse impacts to aesthetic conditions in the study area are expected to occur as a result of the Build Alternative.

## 3.3 HISTORIC ARCHITECTURAL AND ARCHAEOLOGICAL RESOURCES

This section considers the Build Alternative's potential to affect historic resources, including historic architectural and archaeological resources, within the Architectural and Archaeological Areas of Potential Effect (APE)<sup>4</sup>, which were determined in consultation with the New Jersey State Historic Preservation Office (NJ SHPO). Project effects on historic architectural resources can include both direct effects such as demolition or alteration of a historic resource, and indirect effects such as changes in the appearance of a historic resource or in its setting, including the introduction of incompatible visual, audible, or atmospheric elements. Ground disturbance during construction could impact archaeological resources if any are located within the APE-Archaeology. Documentary research has been performed to identify areas where prehistoric or historic-period activities have occurred and may have left archaeological remains.

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as implemented by federal regulations appearing at 36 CFR Part 800, mandates that federal agencies consider the effect of their actions on any properties listed on or determined eligible for listing on the National Register of Historic Places (NRHP), and afford the federal Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The Section 106 review process requires consultation with the NJ SHPO in order for FTA to determine whether a project may directly or indirectly alter characteristics of a historic property that qualifies it for inclusion in the NRHP, which would constitute an "adverse effect". The views of the public are essential to informed federal decision-making in the Section 106 process and the public and agency participation efforts that have been conducted for this proposed Project are described in Chapter 5.

This section summarizes the results of the Section 106 review process<sup>5</sup>. Historic properties are also protected under Section 4(f) of the Department of Transportation Act of 1966. A Section 4(f) Evaluation is included as Chapter 4 of this EA.

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<sup>4</sup> Note that the APE-Architecture did not include the Historic Lincoln Gardens District due to its distance away from County Yard. The analyses contained in this EA confirm that the boundary of the APE-architecture is appropriate since there will be no direct or contextual impacts associated with construction or operation of the Build Alternative at Lincoln Gardens (see Section 3.14).

<sup>5</sup> The Section 106 review process conducted for the proposed Project is documented in the *Phase 1A Archaeological Survey and Historic Architectural Resources Background Study (HARBS)/Effects Assessment Report, NJ TRANSIT County Yard/Delco Lead Emergency Train Storage and Service and Inspection Facility Project*, RGA Cultural Resources Consultants, July 2014 (Revised November 2014).

### **3.3.1 Affected Environment**

#### **Historic Resources**

Two historic districts are located within the APE-Architecture. Both the Pennsylvania Railroad (New York to Philadelphia) Historic District (PRRHD) and the Camden and Amboy Railroad (C&ARR) Branch Line Historic District have received NJ SHPO determinations of eligibility for listing in the NRHP. The PRRHD is eligible for NRHP listing for its association with the areas of transportation and commerce, as well as for its engineering features such as cuts, embankments, bridges, stations, towers, and overhead catenary system elements. The C&ARR Branch Line Historic District is eligible for NRHP listing as an early extension of New Jersey's first railroad, and for the associated construction of its roadbed, cuts, bridges, culverts, and other surviving railroad features.

As determined by NJ SHPO, five contributing resources are located within the NRHP-eligible PRRHD in County Yard. Contributing resources are buildings, structures or objects that add to the historical integrity or architectural qualities that make the historic district significant. The contributing resources are the:

1. Mile Run Yard;
2. Delco Lead;
3. Mile Run Culvert;
4. County Interlocking Tower; and
5. Stone Retaining Walls.

There are no identified resources contributing to the C&ARR Branch Line Historic District within the APE-Architecture.

#### **Archaeological Resources**

Most of the APE-Archaeology has been subjected to extensive prior ground disturbance related to the construction of tracks and digging for utilities. With the exception of the following two areas, the APE-Archaeology has low sensitivity for archaeological resources:

1. The area where a retaining wall is proposed (see Figure 2-2) has a high sensitivity for significant prehistoric archaeological resources; and
2. The area between the historic retaining wall (see Figure 2-1) and the Northeast Corridor has high sensitivity for the potential to contain archaeological deposits associated with an 1845 engine house, a late nineteenth century round house, and a late nineteenth century turntable. Archaeological evidence of these railroad-related structures could include deep foundation remains.

### **3.3.2 No Action Alternative**

Under the No Action Alternative, historic architectural and archaeological resources (if present) in the study would remain unaffected.

### **3.3.3 Build Alternative**

#### **Historic Resources**

Based on consultation with the NJ SHPO, the Build Alternative will have an adverse effect on the following resources:

- **Pennsylvania Rail Road Historic District;**
- **Mile Run Yard**, which was developed to meet changing operational needs as the Pennsylvania Railroad evolved from a freight and passenger hauler into part of the nation's preeminent high-speed passenger rail system. It is historically significant as it retains integrity of location and setting and continues to function for rail purposes, and conveys the essence of a rail yard despite the losses of related railroad maintenance facilities and track; and
- **County Interlocking Tower**, rebuilt in 1951 after a freight train derailment partly demolished a 1900-era building, is utilitarian in form, was designed for efficiency and economy, and currently serves as a communications and signals facility for Amtrak operations on the Northeast Corridor. The structure lacks the typical architectural details normally associated with interlocking towers in the historic district, and physical alterations to the building diminish its integrity. However, the 1950s era electronic interlocking machine and associated equipment remain inside, and the building was re-constructed during the period of significance of the Pennsylvania Railroad. Therefore, it is historically significant as it retains sufficient integrity to convey its associations with the railroad and continues to function for railroad purposes.

Mile Run Yard will be extensively altered and covered in fill to create level ground on which to construct the new S&I building, tracks, yard master's tower and related infrastructure. County Interlocking Tower will be demolished to allow for the construction of these new yard elements.

As described below in Section 3.3.4, a Programmatic Agreement (PA) between FTA, NJ TRANSIT and the NJ SHPO has been executed to resolve the adverse effects on these historic properties and is included in Appendix A. In addition, the Programmatic Agreement addresses stipulations for other identified contributing resources to the historic district.

#### **Archaeological Resources**

In order to determine the likelihood of encountering significant archeological resources in the areas of high sensitivity identified above, archaeological trenching will be conducted prior to construction at the locations of proposed catenary poles and an archaeological survey will be conducted in the location of the proposed retaining wall. If significant archaeological resources that are determined to be NRHP-eligible based on consultation between FTA, NJ TRANSIT and the NJ SHPO are found to be present in the area, mitigation measures will be developed and/or data recovery will be undertaken to avoid significant impacts to such resources in accordance with the protocols delineated in the PA.

### 3.3.4 Mitigation

As indicated above, the executed Programmatic Agreement between FTA, NJ TRANIST and the NJ SHPO (see Appendix A) stipulates the procedures that will avoid, minimize or mitigate adverse effects to historic architectural and archaeological properties (if present). These include:

- Documentation of the Mile Run Yard and its constituent parts to the standards of the Historic American Building Survey (HABS)/Historic American Engineering Record (HAER);
- The preparation and installation of interpretive signs related to the history and significance of the railroads associated with the proposed Project site and/or the development and evolution of the Mile Run Yard and/or the Delco Lead;
- Design of all new structures within Mile Run Yard in accordance with the Secretary of the Interior's "Standards for the Treatment of Historic Properties;"
- Provisions to afford the NJ SHPO the opportunity to review and comment on final design plans; and
- Protocols for archaeological investigations and reporting in conjunction with select proposed catenary pole foundations and the proposed retaining wall.

## 3.4 TRANSPORTATION

This section assesses the potential benefits and impacts of the proposed Project alternatives on transportation in the study area. The effects on traffic, parking, commuter rail and freight operations in the study area are described. The traffic analysis considers maximum usage of the facility assuming emergency conditions to support the noise analysis. Emergency operating assumptions were used in the analysis due to the significant increase in employee trips that would be expected to occur compared to normal operating conditions and the presence of Environmental Justice communities in the study area. Due to the presence of Environmental Justice communities in the northern portion of study area and the potential for traffic increases to affect ambient noise at residential properties, the traffic analysis assumes 320 employees would report to work at the site for the 6 AM, 2 PM and 10 PM shifts. Under a worst-case scenario, the facility could operate in this condition for a period of days until the emergency is declared over and normal train operations resume.

### 3.4.1 Affected Environment

#### Traffic

The route into and out of County Yard is via Jersey Avenue (State Route 91), an urban minor arterial with one travel lane in each direction and a 25 mile per hour posted speed limit. For the purpose of describing traffic conditions at the rail yard intersection with Jersey Avenue, annual average daily traffic (AADT) was reviewed<sup>6</sup>. Table 3-2 shows the current northbound and southbound traffic

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<sup>6</sup> The latest available New Jersey Department of Transportation traffic volume count data, year 2011, of AADT along Jersey Avenue was used. Since there has not been significant development in the area since 2011, the data is considered to be representative of study area conditions.

distribution for Jersey Avenue for the start of each work shift and the preceding hour. AADT at Sanford Street (approximately one-third of a mile geographic north of County Yard) is approximately 9,700 vehicles, and AADT at Triangle Road (approximately three quarters of a mile geographic south of County Yard) is approximately 15,500 vehicles. Morning peak hour traffic volume is approximately 910 vehicles at 8:00 AM and the evening peak hour traffic volume is 840 vehicles at 3:00 PM. The peak hours appear to be related to the commuter traffic accessing the Jersey Avenue Commuter Train Station located between Triangle Road and the rail yard. According to the FHWA Highway Functional Classifications guidelines, typical AADT for this class of roadway ranges from 3,000 to 14,000 vehicles. Traffic volumes at both Sanford Street and Triangle Road exceed the FHWA threshold for an urban minor arterial roadway. Sanford Street is located 0.55 miles north of the site entrance on Jersey Avenue. Triangle Road is located 0.75 miles south of the site entrance on Jersey Avenue. Traffic volumes in the immediate vicinity of the site entrance on Jersey Avenue are below the FHWA threshold for an urban minor arterial roadway.

**Table 3-2: Current Jersey Avenue Hourly Volume Distribution (at Sanford Street)**

Hour	Northbound Volume (vph)	Southbound Volume (vph)	Total Volume (vph)	NB Split	SB Split
5:00 AM – 6:00 AM	85	104	188	45%	55%
6:00 AM – 7:00 AM	247	190	436	57%	43%
1:00 PM – 2:00 PM	348	291	638	54%	46%
2:00 PM – 3:00 PM	355	334	689	52%	48%
9:00 PM – 10:00 PM	195	217	412	47%	53%
10:00 PM – 11:00 PM	143	149	292	49%	51%

*Source: Year 2011 NJDOT Traffic Volume Data*

**Parking**

Current parking for employees at County Yard is in a partially paved lot that is adjacent to the existing County Interlocking Tower. Parking is sufficient for the 60 employees (including Amtrak-employees) that work at County Yard over three shifts.

**Commuter and Freight Rail Operations**

County Yard is used by Conrail to disassemble and re-assemble freight trains that operate commercially on the Millstone Branch (see Figure 2-1). In addition, three NJ TRANSIT trains (comprised of 34 rail cars) that end their run at the Jersey Avenue Station are stored overnight in County Yard. Amtrak’s Communications and Signals Facility, which supports intercity rail service on the Northeast Corridor, is also located in County Yard.

NJ TRANSIT’s current emergency preparedness plan specifies use of Linden Yard and Metuchen Yard to shelter vehicles stored at the MMC under normal circumstances. During severe weather events, approximately 350 train cars can be stored at Linden and Metuchen Yards.

### **3.4.2 No Action Alternative**

#### **Traffic and Parking**

Under the No Action Alternative, the proposed Project would not be constructed and the 60 employees who currently work at County Yard would be expected to continue their current pattern of travel to work. Traffic and parking in the study area would not be affected.

#### **Commuter and Freight Rail Operations**

Under the No Action Alternative, Amtrak, Conrail and NJ TRANSIT would continue to use County Yard as they do today. As indicated in Chapter 2, during normal operations, NJ TRANSIT trains that begin and end revenue service to New York at the Jersey Avenue Station would need to travel empty to and from Morrisville Yard (located 30 miles to the south) rather than the adjacent storage location in County Yard. During the midday, NJ TRANSIT would not be able to take advantage of a centrally located S&I Facility on the Northeast Corridor, requiring additional deadhead miles and an inefficient operating plan. Under emergency conditions, Linden and Metuchen Yards would be used to store trains, if these yards are still available, and the resiliency of NJ TRANSIT's system would be compromised. If Linden and Metuchen Yards are not available for use by NJ TRANSIT, prolonged service disruptions would be expected to occur before and after severe weather events.

Other projects that are part of NJ TRANSIT's Resilience Program (see Chapter 1) will be constructed. However, the full benefits of NJ TRANSITGRID, which will energize tracks to County Yard/Jersey Avenue Station during widespread power outages, would not be realized.

### **3.4.3 Build Alternative**

#### **Traffic**

There will be one point of vehicular ingress and egress to the employee parking lot via Jersey Avenue. The proposed S&I Facility is estimated to generate 320 additional vehicle trips during an emergency response, an increase of approximately three percent of daily vehicular traffic volume. It was assumed that the traffic entering the site would occur during the hour preceding the start of a work shift (i.e. 5:00 AM to 6:00 AM) and the traffic exiting the site would occur over the hour following the start of the shift (i.e. 6:00 AM to 7:00 AM), as the trips of transportation crews are typically spread out to match train arrival and departure times. Using the existing northbound-southbound traffic distribution from Jersey Avenue, the trip distribution entering and exiting the site was estimated. The assignment of trips was made in proportion to the existing volumes on Jersey Avenue. The projected volumes are shown in Table 3-3.

The heaviest turn movement volumes are anticipated as right-turns entering the site between 1:00 PM and 2:00 PM (84 vehicles) and the left-turns exiting the site between 10:00 PM and 11:00 PM (84 vehicles), both off-peak periods. The southbound left turn movement and driveway exit are expected to experience the highest delays, but these will occur during the off-peak hour, between 1:00 PM and 2:00 PM.



**Table 3-3: S&I Facility Trip Generation & Distribution Under Emergency Operating Conditions**

<b>Trips Entering the Site</b>			
<b>Hour</b>	<b>Right-turn Volume - NB (vph)</b>	<b>Left-turn Volume - SB (vph)</b>	<b>Total Volume (vph)</b>
5:00 AM – 6:00 AM	50	60	110
1:00 PM – 2:00 PM	84	71	155
9:00 PM – 10:00 PM	52	58	110
<b>Trips Exiting the Site</b>			
<b>Hour</b>	<b>Right-turn Volume - NB (vph)</b>	<b>Left-turn Volume - SB (vph)</b>	<b>Total Volume (vph)</b>
6:00 AM – 7:00 AM	58	52	110
2:00 PM – 3:00 PM	60	50	110
10:00 PM – 11:00 PM	71	84	155

A traffic Level of Service (LOS) analysis was performed utilizing the standard procedures outlined in the 2010 Highway Capacity Manual (HCM) for unsignalized intersections, published by the Transportation Research Board. The peak hour traffic volume on Jersey Avenue (Table 3-2) was used for the LOS analysis in conjunction with the site generated traffic under emergency conditions to represent worst-case conditions. The analysis assumed the existing land configuration and width and that two percent of the traffic would be heavy vehicles. The LOS analysis for the intersection shows an acceptable LOS 'C' or better for all time periods analyzed. As a result, based on the available traffic volume data and LOS analysis, under the Build Alternative, no significant adverse traffic impacts on Jersey Avenue are expected to occur.

**Parking**

The design of the Build Alternative includes an adequate number of parking spaces to accommodate NJ TRANSIT employees under both normal and emergency conditions. Parking is also provided at the proposed Project site for Amtrak and Conrail employees.

Proposed improvements to the Delco Lead will require the displacement of approximately 56 parking spaces in the Jersey Avenue Station parking lot, which is owned by NJ TRANSIT and managed by the New Brunswick Parking Authority (NBPA). The NBPA manages a total of 1,500 parking spaces at the Jersey Avenue Station, and reports an approximate 70 percent occupancy rate. Hence, there is more than sufficient capacity to address the approximate four percent loss of parking spaces as a result of the Delco Lead track alignment. Some commuters that currently park in the primary lot near the railroad tracks may instead need to use the lot located on the north side of Jersey Avenue (across from the Station). These commuters will need to cross Jersey Avenue as part of their

commute along with the others who use the lot located on the north side of the avenue at the existing pedestrian crosswalk.

### **Commuter and Freight Rail Operations**

The Build Alternative is being designed to accommodate the operational movements of Conrail's freight service, which include the ability to access the Millstone Branch from County Interlocking. Both the yard and the S&I Facility will have "run through" capability where a train can enter from the east and exit to the west, which will minimize unnecessary train movements in the yard. The design will enable an efficient operation with a quick turnaround of fleet and high reliability to maintain and/or resume operations quickly. Amtrak's Communications and Signals Facility, currently housed in County Interlocking Tower, will be relocated to the western side of County Yard in a new building.

#### **3.4.4 Mitigation**

No significant transportation impacts are expected to result under the Build Alternative. As a result, no mitigation is required.

### **3.5 AIR QUALITY**

This section assesses the effects of operation of the proposed Project alternatives on air quality that is regulated under the Clean Air Act (CAA). Construction-related air quality effects are discussed in Section 3.12. Greenhouse Gas emissions related to the construction and operation of the Build Alternative are addressed in Section 3.13.

Air quality can be affected by air pollutants produced by moving sources, such as vehicular traffic or diesel locomotives, referred to as "mobile sources" and by fixed facilities, such as power plants, parking lots and diesel train yards, referred to as "stationary sources." The proposed Project will not affect diesel train operations because all trains movements would be made under electric power and so the analysis below focuses on the increase in employee trips to and from the new parking lots in County Yard. In addition, the analysis considers an indirect source of air emissions related to the electricity needed to operate electric trains. The reduction in air emissions associated with a more efficient operating plan is also reviewed below.

#### **3.5.1 Regulatory Context**

Following the passage of the CAA in 1955 and its amendments in 1970 (delegating responsibility for regulating air pollutant emissions to the states), the United States Environmental Protection Agency (EPA) promulgated the revised regulations which set National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), lead (Pb), sulfur dioxide (SO<sub>2</sub>), total suspended particulates (TSP), inhalable particle matter smaller than 10 micrometers (PM<sub>10</sub>), and in 1997, a new particulate standard for inhalable particulate matter smaller than 2.5 micrometers (PM<sub>2.5</sub>).

NAAQS are divided into two types of criterion. Primary standards define air quality levels intended to protect the public health with an adequate margin of safety. Secondary standards define levels of air quality intended to protect the public welfare from any known or anticipated adverse effect of a pollutant (e.g., soiling, vegetation damage, material corrosion). Primary and secondary national ambient air quality standards are shown in Table 3-4.

**Table 3-4: EPA National Air Quality Standards**

Pollutant	Averaging Period	National Primary	National Secondary
Carbon Monoxide	1 hour	35 ppm	-
	8 hour	9 ppm	-
Ozone	8 hour	0.075 ppm	0.075 ppm
Nitrogen Dioxide	Annual	53 ppb	53 ppb
	1 hour	100 ppb	-
Lead	Rolling 3 month Average	0.15 $\mu\text{g}/\text{m}^3$	0.15 $\mu\text{g}/\text{m}^3$
Sulfur Dioxide	3 hour	-	0.5 ppm
	1 hour	75 ppb	-
Inhalable Particulates (PM <sub>10</sub> )	24 hour	150 $\mu\text{g}/\text{m}^3$	150 $\mu\text{g}/\text{m}^3$
Fine Particulates (PM <sub>2.5</sub> )	24 hour	35 $\mu\text{g}/\text{m}^3$	35 $\mu\text{g}/\text{m}^3$
	Annual	12 $\mu\text{g}/\text{m}^3$	15 $\mu\text{g}/\text{m}^3$

Source: EPA, 2014; <http://epa.gov/air/criteria.html>

### 3.5.2 Affected Environment

Section 107 of the 1970 CAA Amendments requires EPA to identify areas that do not meet the NAAQS. An area which does not meet a standard is referred to as a nonattainment area. The entire state of New Jersey is classified as an O<sub>3</sub> nonattainment area. Naturally occurring O<sub>3</sub> in the upper atmosphere protects the population from harmful ultraviolet rays. Ground-level O<sub>3</sub> is created when nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC) react in the presence of sunlight and heat. Ground-level O<sub>3</sub> can cause serious adverse health effects by damaging cells that line our airways. Therefore, O<sub>3</sub> can aggravate respiratory disease and cause the public to be more susceptible to respiratory infections. The incomplete combustion of fossil fuel, power plants and other sources of combustion emit the primary source of NO<sub>x</sub>. In recent years documented O<sub>3</sub> levels had been decreasing. In 2008, the EPA created a more stringent O<sub>3</sub> standard, and therefore precursors (NO<sub>x</sub> and VOCs) are monitored very carefully.

In 2013, EPA re-designated Middlesex County along with twelve other New Jersey counties to PM<sub>2.5</sub> attainment. Middlesex County is considered a PM<sub>2.5</sub> maintenance area but it is still subject to the same requirements as a PM<sub>2.5</sub> nonattainment area. These requirements include being held to a strict maintenance plan. Particulate matter includes very small liquid and solid particles suspended within the lower atmosphere. Particulate matter irritates the membranes of the respiratory system and therefore may affect sensitive groups including the elderly, individuals with cardiopulmonary disease such as asthma, and children.

Middlesex County is in attainment for all of the other criteria pollutants, including CO.

### **3.5.3 No Action Alternative**

Under the No Action Alternative, employee trips and rail operations would remain the same at County Yard, and trains would have to continue running long deadhead routes in order to be serviced at Morrisville or the MMC. This operating plan would not lead to any reduction in NJ TRANSIT energy usage, or the air emissions associated with producing electricity, including VOCs and NO<sub>x</sub>, the O<sub>3</sub> precursor pollutants (also see Section 3.13 for a discussion of GHG emissions).

### **3.5.4 Build Alternative**

Under normal operating conditions, a small increase in employee trips will occur spread out over three shifts. The primary pollutant of concern for typical passenger vehicles is CO, a colorless and odorless gas formed from the incomplete combustion of fossil fuel. Federally funded projects located within CO attainment areas are not required to quantify microscale mobile-source CO emissions. Therefore, a localized CO hot-spot analysis is not required to address the proposed increase in employee trips and the new parking lots. Given that the yard access intersection at Jersey Avenue will operate at LOS C or better under all time periods during emergency conditions (see Section 3.4), significant increases in CO levels in the study are not expected under normal or emergency conditions.

Since the rail cars utilizing the S&I Facility will be electrified, diesel-powered rail vehicles are not expected to operate or idle at the facility or along the Delco Lead tracks. In addition, an insignificant number of diesel-powered maintenance vehicles will be utilized to service wayside trains outside the S&I Facility. Based on the proposed improvements, the Build Alternative is not expected to cause or contribute to a significant adverse PM<sub>2.5</sub> impact.

As stated previously, the entire State of New Jersey is classified as in O<sub>3</sub> nonattainment, including Middlesex County. Transportation projects, whether exempt, non-exempt or considered regionally significant are reviewed by the appropriate Metropolitan Planning Organization. Precursors of O<sub>3</sub>, including NO<sub>x</sub> and VOCs emissions are modeled by the North Jersey Transportation Planning Authority (NJTPA) on a regional basis to determine conformity, and therefore not addressed on a microscale or project level. The improved operating plan and reduction in deadhead miles will, however, have a small beneficial impact on O<sub>3</sub> precursor pollutants due to a reduction in energy usage associated with improved railroad operations.

### **3.5.5 Project-Level Conformity**

The proposed Project is listed in the FY 2014-2017 North Jersey Transportation Improvement Program (TIP) and the FY 2014-2023 Statewide Transportation Improvement Program (STIP) as part of the New Jersey Transit Project Program (DB # T900). In consideration of localized air quality impacts and based on the air quality assessment addressing both CO and PM<sub>2.5</sub>, localized impacts are not expected to result from the proposed Project's implementation. The proposed Project will not create any new violations, nor increase the frequency or severity of any existing violations of the NAAQS. Therefore, the proposed Project complies with EPA's final transportation conformity rule, dated August 15, 1997, requiring the North Jersey Transportation Planning Authority (the region's Metropolitan Planning Organization) and FTA to make conformity determinations on long range

transportation plans, TIPs, and transportation projects with respect to the STIP before they are adopted or approved.

### **3.5.6 Mitigation**

No significant impacts to air quality are expected to result under the Build Alternative; therefore no mitigation is required.

## **3.6 NOISE AND VIBRATION**

This section assesses the effects of operation of the Build Alternative on noise and vibration in the study area. Construction-related noise and vibration effects are discussed in Section 3.12.

FTA's *Transit Noise and Vibration Impact Assessment*, May 2006, (FTA's guidance document), considers yards and maintenance facilities as stationary sources of transit noise that typically result from the use of signal horns, PA systems, impact tools, car/bus washer/driers, and vehicle activity occurring both inside and outside of the facility. FTA's noise screening procedure was implemented, and a general noise assessment was performed, to evaluate the effects of the new facility in County Yard assuming conservative operating conditions (emergency operations). Since vehicular traffic associated with employee work trips could increase ambient noise levels in the vicinity of Environmental Justice communities located in the northern portion of the study area, this source of noise under emergency conditions was accounted for in the general noise assessment.

Since tracks along the Delco Lead will only be utilized as a linear safe haven for train storage during extreme weather events, operational noise and vibration impacts are not anticipated from the Delco Lead component of the proposed Project. Also, there are no vibration-sensitive land uses within applicable screening distances from County Yard as per the FTA guidance document. Therefore, no further assessment of vibration is warranted.

### **3.6.1 Noise Screening Results**

To identify the potential for noise impacts to result from the proposed Project's implementation, noise sensitive land use in the vicinity of County Yard were reviewed. Three categories of noise sensitive land uses are defined in FTA's guidance document:

**Category 1** – tracts of land where quiet is an essential element of the intended purpose;

**Category 2** – residences and buildings where people normally sleep where nighttime sensitivity is greatest (e.g. homes, hospitals, and hotels); and

**Category 3** – institutional land uses with daytime and evening use (e.g. schools, libraries, theaters, churches, parks, and recreational facilities where avoiding speech interference is critical).

When noise sensitive land use is located within 1,000 feet of the facility, unobstructed by buildings in the sound path, further analysis is necessary, requiring a general noise assessment. If there are

intervening buildings in the sound path, then further analysis is needed for noise sensitive land use within 650 feet of the facility.

County Yard is buffered by the Northeast Corridor tracks to the east and an industrial zone to the west. Noise sensitive land uses located within FTA's screening distances are listed in Table 3-5 and shown on Figure 3-4. They include residences, which are located more than 500 feet away to the east and west of the yard; and a youth sports complex, children's center, and school located to the east more than 250 feet away from the yard. With the exception of the residences between Tailor Square and Hay Street (including those in the Lincoln Gardens Historic District), all other noise sensitive land uses are located east of the Northeast Corridor tracks.

**Table 3-5: Noise Sensitive Analysis Locations**

Analysis Location Number	Analysis Location	FTA Land Use Category	Distance to Proposed S&I Facility (ft) <sup>2</sup>
1	Residences on Joyce Kilmer Ave between Charles St & Rutgers St	2	837
2	Residences Lawrence St at Railroad Ave	2	541
3	Residences on Jersey Avenue between Tailer Sq & Hay St <sup>1</sup>	2	534
4	The Greater Brunswick Charter School	3	369
5	Youth Sports Complex	3	262
6	The Children's Center	3	262

**Note:**

1. Additional vehicular traffic associated with employee work trips could increase noise levels at this location.
2. Source-receiver distances were measured from the closest point of County Yard to the property line of the closest first row home within the listed residential neighborhoods (Category 2) and the closest outdoor use at the Category 3 land use. Although The Children's Center possesses indoor facilities, it was assumed that outdoor fields at the directly adjacent Youth Sports Complex are utilized.






### 3.6.2 Affected Environment

Noise monitoring was performed at two residential locations and at the New Brunswick Recreation Center (also representing the Charter School) as depicted in Figure 3-4. In accordance with FTA guidelines, the noise metric used to characterize noise exposure at Category 2 land use, where nighttime noise sensitivity is of concern, is the Ldn. The Ldn is a 24-hour noise level that adds a 10 dBA penalty during nighttime hours (10PM – 7AM) to account for this sensitivity. The metric used to characterize noise exposure at Category 3 land use is the Leq (h) (i.e., hourly Leq) and should represent the hour of noisiest transit activity during hours of noise sensitivity. Hours of noise sensitivity for Category 3 land use were identified to be the hours of operation of the respective facilities (i.e., the Greater Brunswick Charter School, the Youth Sports Complex, and The Children's Center).

As shown in Table 3-6, ambient noise levels at the noise sensitive locations ranged between 61 dBA and 70 dBA on weekdays and weekends.



**Legend**

-  Proposed S&I Facility Location
-  Noise Monitoring Location and Number
-  Future Improvements
-  Category 2 Analysis Location within FTA Screening Distance
-  Category 3 Analysis Location within FTA Screening Distance

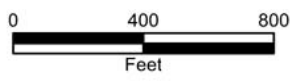
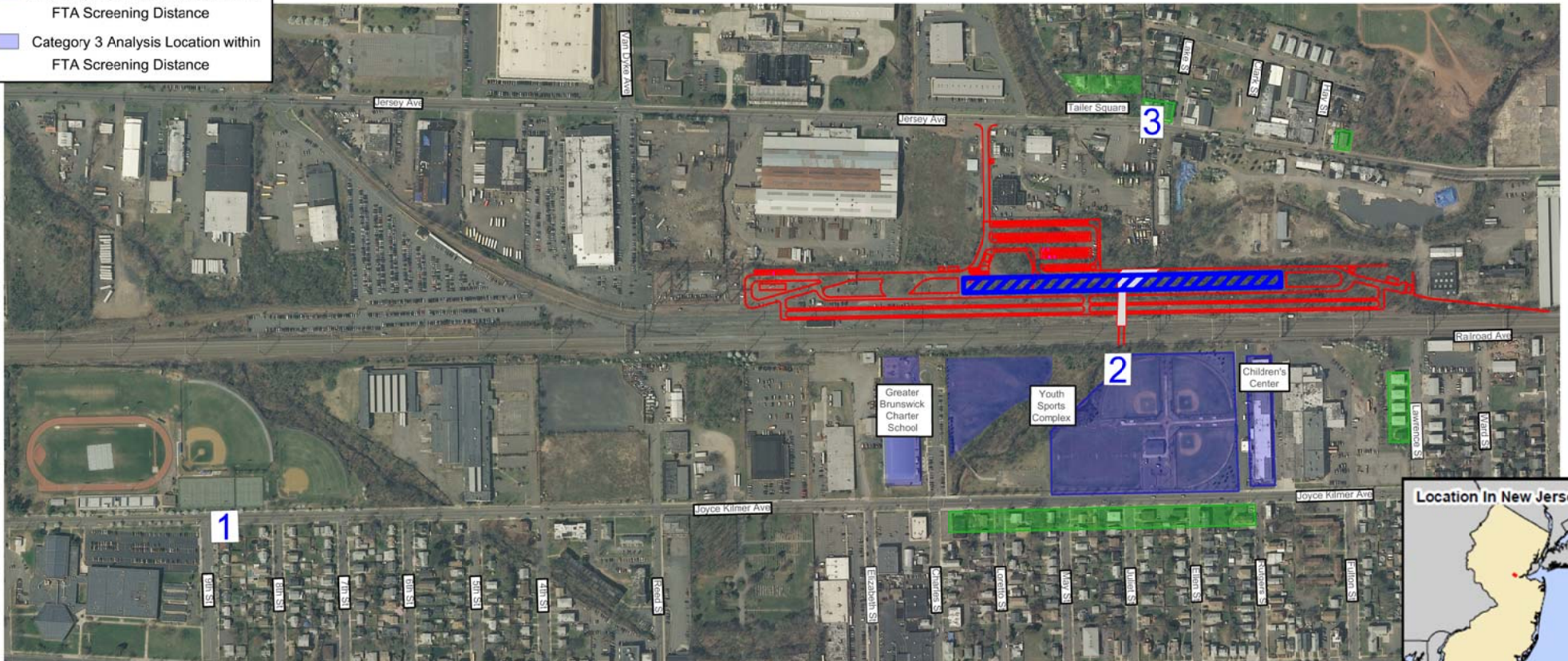


Figure : 3-4  
 Noise Monitoring Locations  
 NJ TRANSIT Delco Lead  
 Train Safe Haven Service &  
 Inspection Facility  
 Date: July 2015

### 3.6.3 No Action Alternative

Under the No Action Alternative, the S&I Facility and storage tracks in County Yard would not be constructed and the Delco Lead would not be reconstructed for use in emergency situations. Conrail freight activity would continue in County Yard, with the same number of employees traveling to work (about 60 employees). Noise levels in the community would be expected to be similar to existing conditions.

**Table 3-6: Existing Noise Exposure at Noise Sensitive Locations**

Analysis Location Number	Analysis Location	FTA Land Use Category	Applicable Noise Metric	Applicable Noise Monitoring Site	Weekday Existing Noise Exposure Level (dBA)	Weekend Existing Noise Exposure Level (dBA)	Noise Source <sup>1</sup>
1	Joyce Kilmer Ave between Charles St & Rutgers St	2	Ldn	1	63	62	Vehicular traffic, rail
2	Lawrence St at Railroad Avenue	2	Ldn	2	63	61	Rail, vehicular traffic
3	Jersey Avenue between Tailer Sq & Hay St	2	Ldn	3	70	70	Vehicular traffic, rail
4	The Greater Brunswick Charter School	3	Leq(h)	2	61	N/A	Rail, vehicular traffic
5	Youth Sports Complex	3	Leq(h)	2	61	63	Rail, vehicular traffic
6	The Children's Center	3	Leq(h)	2	61	63	Rail, vehicular traffic

**Note:**

1. While existing noise exposure at all analysis locations is comprised of both rail and vehicular traffic contributions, the noise source is listed in order of dominance for each location.

### 3.6.4 Build Alternative

FTA's General Noise Assessment methodology was used to determine the proposed Project's potential to cause significant adverse noise impacts. The assessment accounted for the increased activity in County Yard including noise associated with increased train movements into and out of the yard for storage, service and inspection, additional horn noise, and noise related to servicing and inspecting the trains. The noise analysis assumed that two trains per hour would operate into and out of the yard as a conservative, worst-case analysis, since that is the maximum number of trains the new S&I facility will be able to process.

Since noise sensitive land use is located north of the facility access road on Jersey Avenue, vehicular traffic passing by that residential community was accounted for as per Table 3-3 above.

Table 3-7 shows the existing ambient noise levels, calculated proposed Project-related noise exposure, and cumulative noise levels with the proposed Project in place. The noise impact assessment calculations are presented in Appendix B. Based on the results of the General Noise Assessment, the Build Alternative has no potential to exceed FTA’s noise impact criteria and no further noise analysis is warranted.

**Table 3-7: General Noise Assessment Results**

Analysis Location Number	Analysis Location <sup>1</sup>	Time Period	Existing Noise Exposure (dBA)	Project Noise Exposure (dBA)	Total Noise Exposure (dBA)	Noise Level Increase (dBA)	Allowable Noise Level Increase (dBA)	Impact Level
1	Joyce Kilmer Ave between Charles St & Rutgers St	Weekday	63	48	63	0	2	None
		Weekend	62		62	0	2	None
2	Lawrence St at Railroad Avenue	Weekday	63	53	63	0	2	None
		Weekend	61		62	1	2	None
3	Jersey Avenue between Tailer Sq & Hay St <sup>2</sup>	Weekday	70	59	70	0	1	None
4	The Greater Brunswick Charter School	Weekday	61	51	61	0	4	None
5	The Youth Sports Complex	Weekday	61	54	62	1	4	None
		Weekend	63	54	64	1	4	None
6	The Children’s Center	Weekday	61	54	62	1	4	None
		Weekend	63	54	64	1	4	None

**Note:**

1. Analysis Location #1, 2 and 3 noise exposure levels are based on a 24-hour Ldn, while noise exposure levels for Analysis Location #4, 5 and 6 are based on an hourly Leq.
2. Project noise exposure computed at Analysis Location #3 includes a combination of stationary source noise associated with the proposed S&I Facility and mobile source noise associated with the change in vehicular traffic noise on Jersey Avenue as a result of 320 new employees needed to restore trains to revenue service during emergency conditions.

**3.6.5 Mitigation**

No significant impacts to noise and vibration levels in the study area are expected to result from the Build Alternative; therefore no mitigation is required.

**3.7 NATURAL RESOURCES**

This section assesses the potential of the proposed Project to impact natural resources including: watercourses, flood hazard areas (i.e., the 100-year floodplain), riparian zones, wetlands, wetland transition areas and vernal pools, forested areas, and threatened and endangered (T&E) species.

Documented plant and animal species sightings and areas capable of providing habitat for plant and animal species are reviewed. The presence and absence of natural resources is assessed within the proposed Project area, which includes the limits of disturbance to support proposed Project site investigations, construction staging, and construction access. Construction activities within flood hazard and riparian areas, freshwater wetlands (forested, scrub shrub, emergent, vernal pools) and associated transition area resources are subject to New Jersey Department of Environmental Protection (NJDEP) regulations.

### **3.7.1 Affected Environment**

#### **Watercourses**

The *New Jersey National Hydrography Dataset Waterbody and Stream Network* was reviewed using the NJDEP's GeoWeb to determine the presence and absence of regulated watercourses (streams, rivers, etc.) in and near the proposed Project area. In the Delco portion of the proposed Project area, Six Mile Run passes beneath the proposed Project site via twin 40-inch corrugated metal pipes. In addition, Mile Run passes beneath the Delco Lead in the proposed Project area via a culvert (i.e., a reinforced concrete box). Mile Run also passes beneath County Yard in a culvert. In addition to these two watercourses that traverse the proposed Project site in three locations, a portion of a Lawrence Brook tributary is located within ¼ mile of the western terminus of the Delco Lead. Each of the above discussed watercourses are regulated by the NJDEP and classified under the Surface Water Quality Standards (N.J.A.C. 7:9B) as Freshwater-Non-trout -- waters that are subjected to man-made wastewater discharges or increases in runoff from anthropogenic sources (i.e., resulting from human activities) and are not trout stocked waters.

#### **Flood Hazard Areas/Riparian Zones**

Federal Executive Order 11988 "Floodplain Management", directs Federal agencies to "take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains." U.S. Department of Transportation (U.S.DOT) Order 5650.2 "Floodplain Management and Protection", contains policies and procedures for implementing Executive Order 11988. The Federal Emergency Management Agency (FEMA) has procedures under 44 CFR Part 9 "Floodplain Management and Protection of Wetlands:", which are administered at a State level under the New Jersey Administrative Code (N.J.A.C. 7:13 Flood Hazard Area Control Act Rules). These policies require an analysis to identify impacts on natural and beneficial floodplain values, and measures to minimize harm or to restore or preserve the natural and beneficial floodplain values affected by the project. An impact is characterized as a significant encroachment if it would involve: a considerable probability of loss of human life; likely future damage associated with the encroachment that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility; or a notable adverse impact on natural and beneficial floodplain values.

FEMA's most current resources for Flood Hazard Mapping were reviewed, including: Advisory Base Flood Elevations (BFE); Preliminary Work Maps; and Revised Flood Insurance Rate (FIRM) Maps, as

available. The latest available FIRM mapping and associated watercourses in the proposed Project area are presented in Figure 3-5<sup>7</sup>. The two watercourses (i.e. Mile Run and Six Mile Run) that traverse the proposed Project area have a Zone AE flood designation -- representing areas within the 100- year floodplain.

A riparian zone is the interface between land and a river or stream. NJDEP under Flood Hazard Area Control Act Rules (N.J.A.C. 7:13) regulates activities within riparian zones to minimize damage to preserve the quality of surface waters and to protect the wildlife and vegetation that exist and depend upon such areas for sustenance and habitat. There are no riparian zones associated with piped sections of streams. The riparian zones of naturally flowing streams extend between 50 and 300 feet away from the top of the stream bank depending on criteria related to the stream's value as per the Flood Hazard Area Rules. In accordance with the Flood Hazard Area Rules, a regulated amount of vegetation disturbance is allowable within a riparian zone, depending on the activity proposed and the associated riparian zone width.

In the proposed Project area, a riparian zone is associated with Mile Run as it emerges from the culvert beneath County Yard. This riparian zone is anticipated to be 50-feet wide since Mile Run is not a Category One stream, no associated T&E species or dependent habitat are located within the proposed Project area, and the stream flows through the Passaic Formation which is non-acid producing.

An anticipated 300 foot riparian zone is also associated with Six Mile Run since it flows into a Category One watercourse and is located within the same sub-watershed. The riparian zone associated with the Lawrence Brook tributary is anticipated to be between 50- and 150-feet wide, and therefore, is not within the proposed Project area (i.e., they will not be disturbed as a result of the proposed Project's construction).

### **Wetland Areas/ Vernal Pools**

NJDEP has jurisdiction over the wetlands present within and adjacent to the proposed Project area. These resources were field delineated to identify their jurisdictional extent in accordance with the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*<sup>8</sup>. Based upon the methodology established in this manual, the wetland scientist evaluates three parameters - the presence of hydric soils (soil that is permanently or seasonally saturated by water), dominance of wetland-specific vegetation, and the presence or indicators of wetland surface and subsurface water characteristics.

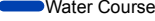

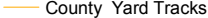


Freshwater wetlands identified within the proposed Project area include man-made linear stormwater ditches with emergent freshwater wetland vegetation, and fragmented interior scrub shrub and forested wetlands associated with stream and floodplain corridors. Approximately 2.8



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<sup>7</sup> FEMA Panel No. 34023C0-127F and 109, 117, 126, 128, and 136 effective July 6, 2010.


<sup>8</sup> An Interagency Cooperative Publication by the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service and U.S.D.A. Soil Conservation Service. January 10, 1989




**Legend**

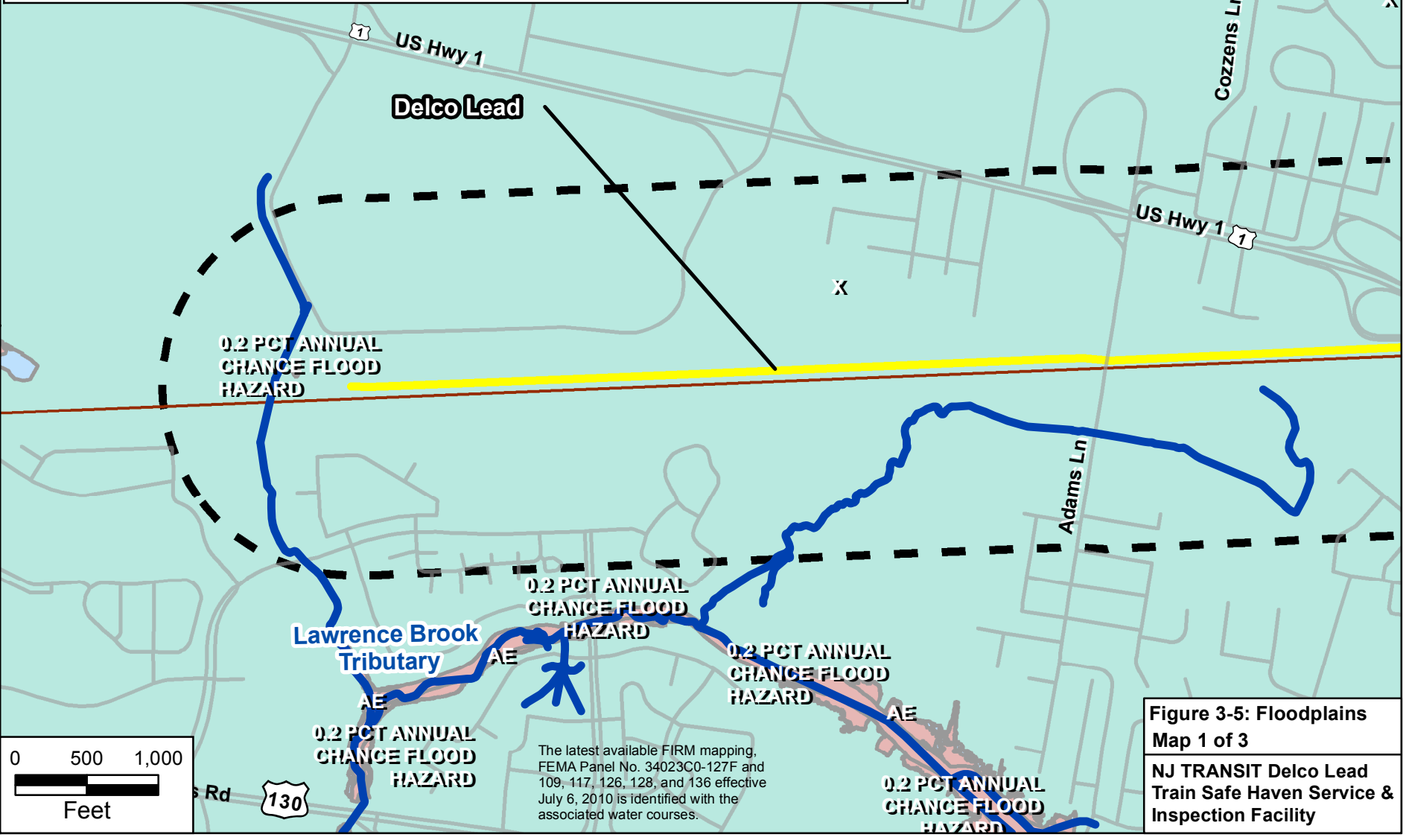
-  Water Course
-  Roads
-  County Yard Tracks
-  Delco Lead Alignment
-  NJ Transit Rail Alignment/  
Northeast Corridor

-  Service & Inspection / Crew /  
Tower Facility
-  1/4 Mile Study Area Boundary

**Flood Zone**

-  500-Year Flood Area - The flood elevation that has a 0.2 percent chance of being equaled or exceeded in any given year; it is not the flood that will occur once every 500 years.

-  AE - The base floodplain where base flood elevations are provided.
-  AO - River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet.
-  X - the area determined to be outside the 500-year flood and protected by levee from 100-year flood.

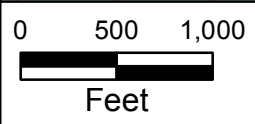
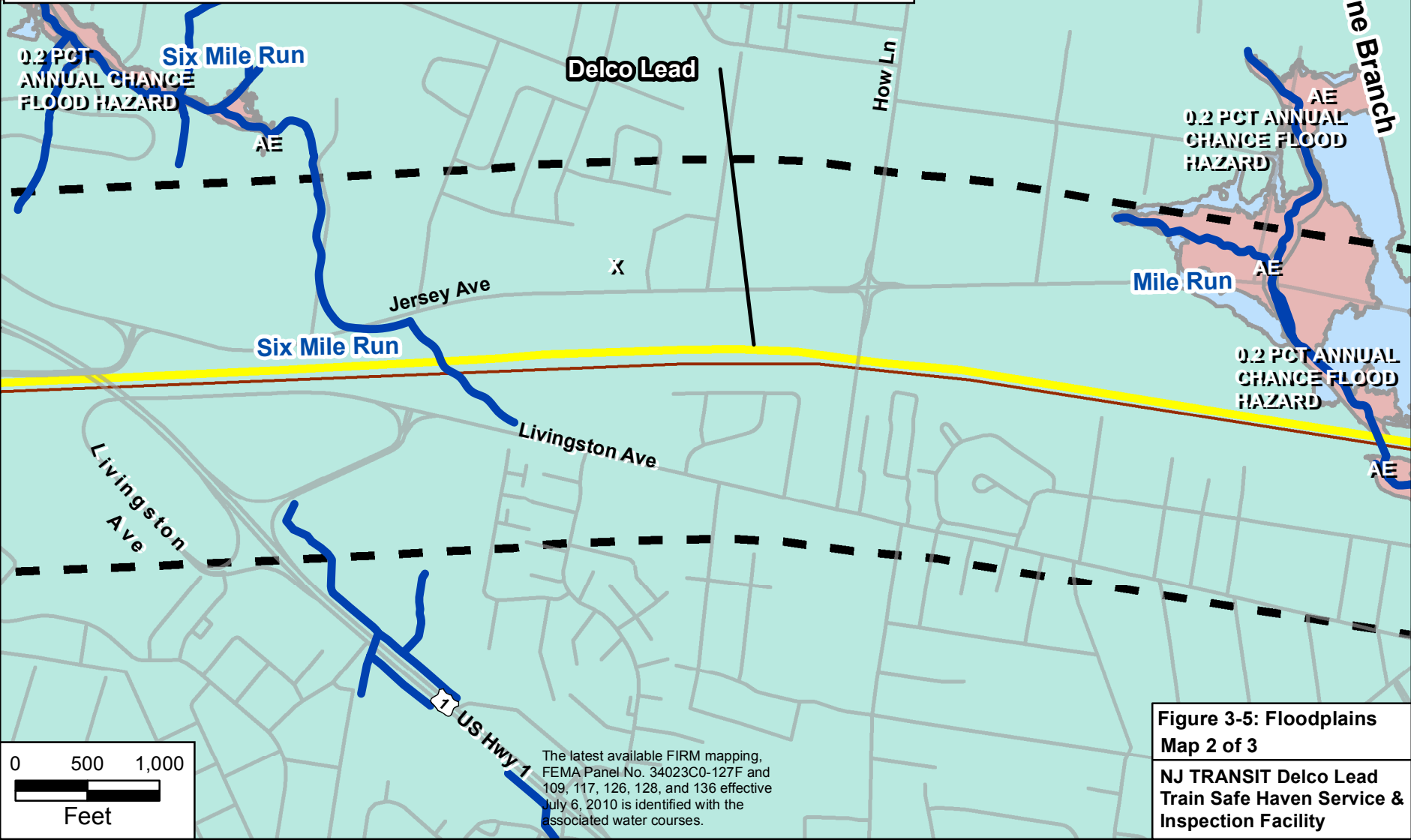


**Figure 3-5: Floodplains  
Map 1 of 3**  
**NJ TRANSIT Delco Lead  
Train Safe Haven Service &  
Inspection Facility**



**Legend**

Water Course	Service & Inspection / Crew / Tower Facility	AE - The base floodplain where base flood elevations are provided.
Roads	1/4 Mile Study Area Boundary	AO - River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet.
County Yard Tracks	<b>Flood Zone</b>	X - the area determined to be outside the 500-year flood and protected by levee from 100-year flood.
Delco Lead Alignment	500-Year Flood Area - The flood elevation that has a 0.2 percent chance of being equaled or exceeded in any given year; it is not the flood that will occur once every 500 years.	
NJ Transit Rail Alignment/ Northeast Corridor		

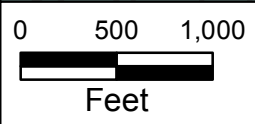
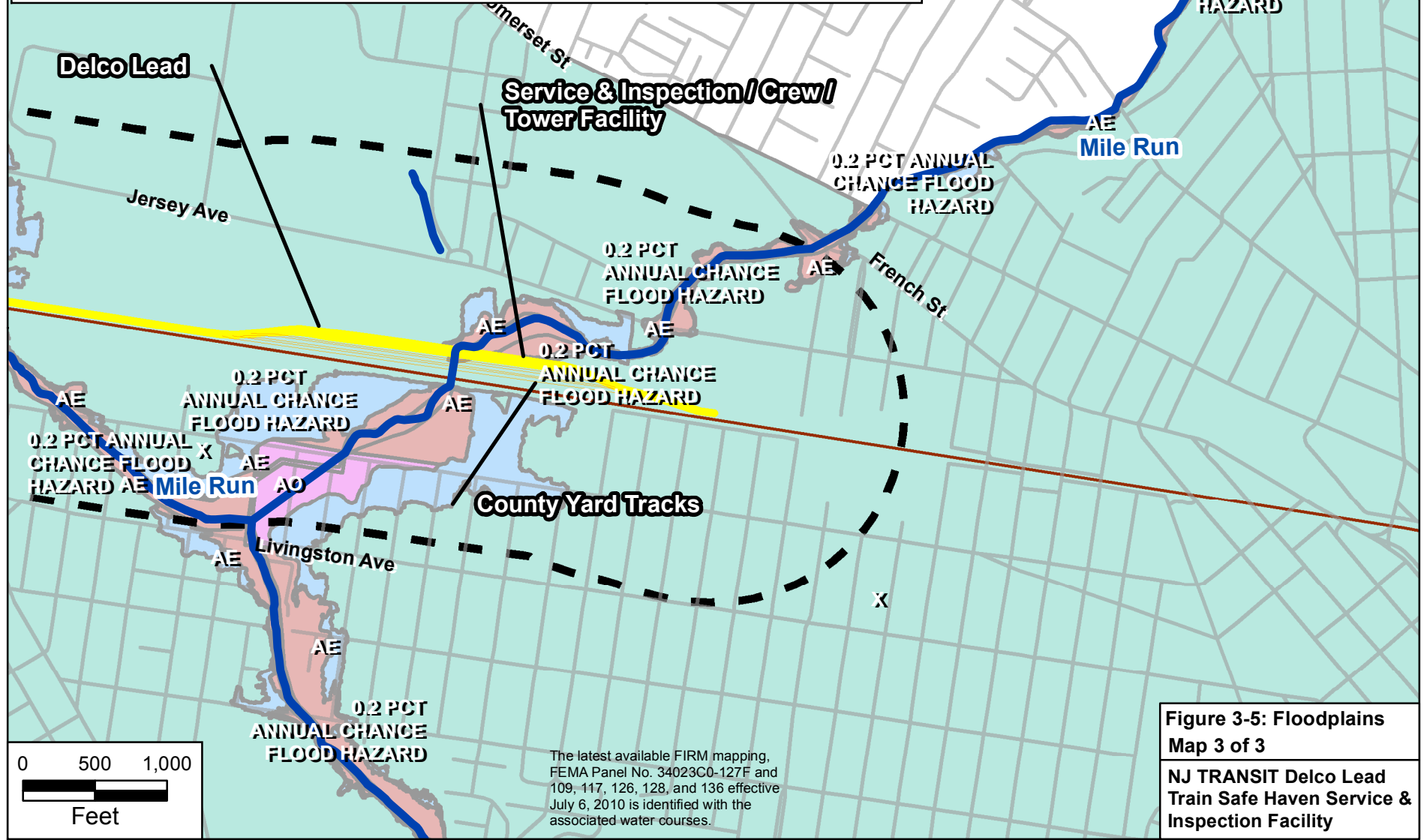


The latest available FIRM mapping, FEMA Panel No. 34023C0-127F and 109, 117, 126, 128, and 136 effective July 6, 2010 is identified with the associated water courses.

**Figure 3-5: Floodplains  
Map 2 of 3**  
**NJ TRANSIT Delco Lead  
Train Safe Haven Service &  
Inspection Facility**

**Legend**

- Water Course
- Roads
- County Yard Tracks
- Delco Lead Alignment
- NJ Transit Rail Alignment/ Northeast Corridor
- Service & Inspection / Crew / Tower Facility
- 1/4 Mile Study Area Boundary
- Flood Zone**  
500-Year Flood Area - The flood elevation that has a 0.2 percent chance of being equaled or exceeded in any given year; it is not the flood that will occur once every 500 years.
- AE - The base floodplain where base flood elevations are provided.
- AO - River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet.
- X - the area determined to be outside the 500-year flood and protected by levee from 100-year flood.



The latest available FIRM mapping, FEMA Panel No. 34023C0-127F and 109, 117, 126, 128, and 136 effective July 6, 2010 is identified with the associated water courses.

**Figure 3-5: Floodplains  
Map 3 of 3**  
**NJ TRANSIT Delco Lead  
Train Safe Haven Service &  
Inspection Facility**

acres of freshwater wetlands have been identified and delineated in the 40-acre proposed Project area. This includes approximately 1.37 acres of emergent wetland (stormwater ditches), 0.93 acres of forested wetland, and 0.50 acres of open water stream corridor (see Wetland Delineation Maps-Appendix C). These resources will be afforded either no transition area (ordinary resource-ditches) or a 50 foot transition area (intermediate resource), as applicable. The NJDEP Natural Heritage Program determination dated July 23, 2015, indicates the potential for one Vernal Pool<sup>9</sup> Habitat in the vicinity of the proposed Project area (see Appendix D). However, based on a review of NJDEP's GeoWeb environmental mapper, the vernal pool is approximately 4,500 feet away from the proposed Project area.

### **Forested Areas**

The proposed Project area is comprised of interspersed canopy trees dominated by shrub vegetation, common to altered/disturbed segmented industrial areas. In addition to assessing the potential of these trees to provide functional habitat value to T&E species, New Jersey State entities are required to replant trees when trees are removed during development projects involving one-half acre or more of tree loss under the State's "No Net Loss" Policy. Observed dominant deciduous species in the tree stratum had diameter at breast height (dbh) range of approximately 3 to 36 inches. Species identified in the field included Staghorn Sumac (*Rhus Typhina*), Pin Oak (*Quercus palustris*), Tree of Heaven (*Ailanthus altissima*), Norway Maple (*Acer platanoides L.*), Red Maple (*Acer rubrum L.*), Northern Catalpa (*Catalpa speciosa*), Black Cherry (*Prunus serotina*), Black Locust (*Robinia pseudoacacia*), and American Elm (*Ulmus americana L.*). The County Yard site currently contains approximately seven acres of tree cover (approximately 54 percent of the site) and the Delco Lead contains approximately five acres (approximately 20 percent of the site).

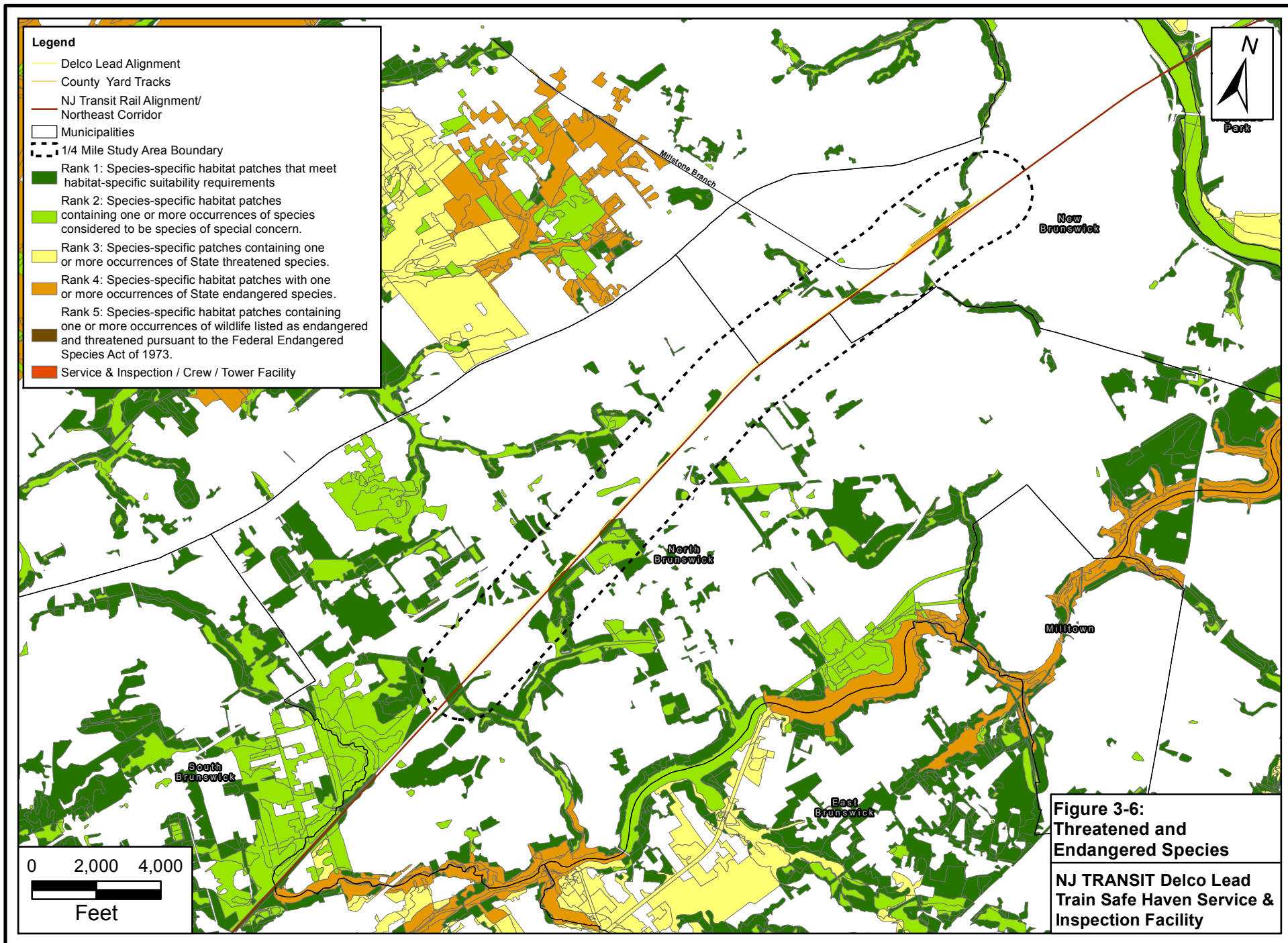
### **Threatened and Endangered Species**

NJDEP's GeoWeb was utilized to review the NJDEP Division of Fish and Wildlife Natural Heritage Program (NHP) threatened and endangered species and their associated habitats through the 2012 Landscape Project. The 2012 Landscape Project combines documented wildlife locations with the NJDEP-provided aerial imagery-based 2007 Land Use/Cover data, which are used together to delineate threatened and endangered species habitat within New Jersey. Current mapping from GeoWeb is shown in Figure 3-6, depicting habitat of special concern (Rank 1 and 2). None are associated with T&E species.

The NHP indicates records for foraging areas for the State endangered Bald Eagle (*Haliaeetus leucocephalus*), and breeding and sighting locations for the Red-shouldered Hawk (*Buteo lineatus*) within one mile of the proposed Project area (see Appendix D).

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<sup>9</sup> Vernal pools are seasonal wetlands that occur in glaciated areas. They are covered by shallow water for variable periods from winter to spring, but may be completely dry for most of the summer and fall.



The proposed Project area was also delineated using the US Fish & Wildlife Service's "Information, Planning, and Conservation" (IPaC) system, which did not identify any threatened or endangered species onsite. Furthermore, the *New Jersey Municipalities with Hibernation or Maternity Occurrences of Indiana and Northern Long-eared Bat*, January 15, 2014<sup>10</sup> and the NJ Field Office County species distribution records were reviewed. Based on this review, the following species could occur in the proposed Project Area: Fauna-Indiana Bat (*Myotis sodalist*), Northern Long-eared Bat (*Myotis septentrionalis*), Bog Turtle (*Clemmys muhlenbergii*), several avian species, and Flora-Swamp pink (*Helonias bullata*) (see Appendix D).

However, the proposed Project area (and specific clearing areas) does not provide optimum habitat potential for either of the bat species due to limited access or proximity to waters, and the lack of scrub shrub presence that could support their foraging activities. In a letter of September 15, 2015, the USFWS confirmed that the site does not provide suitable roosting habitat for either of the bat species (see Appendix D).

Suitable habitat for Bog Turtles also was not observed in the proposed Project area. Work is proposed predominately in or adjacent to resources impacted by a historically functional rail corridor with evident successional growth through rail ballast beds. These resources receive hydrologic inputs from adjoining industrial and roadway networks. No evidence of scat, shell or egg fragments were observed within the proposed Project area. The absence of Bog Turtle habitat onsite has further been confirmed by the NJDEP Natural Heritage Program and the USFWS (Appendix D).

In summary, no critical habitat or refuges were identified in the proposed Project area for Indiana Bat, Northern Long-eared Bat, or the Bog Turtle, confirmed by the NJDEP Natural Heritage Program and the USFWS. Twenty-three (23) birds protected by the Migratory Bird Treaty Act may be in the proposed Project area during their migration, as identified by the USFWS IPaC Trust Resources List, Appendix D.

Lastly, the Federal and State threatened flora Swamp Pink was not observed during completed wetland delineation field walks by wetland scientist and viable micro-topographic conditions (hummocks) or common associate vegetation were not identified that could potentially support the plant species.

### **3.7.2 No Action Alternative**

Under the No Action Alternative, the S&I Facility and Delco Lead tracks would not be constructed. This would result in no trees cleared or structural crossing of a watercourse, including any culvert work. However, the Yard would continue to be utilized for storage and Conrail activities and trees may need to be removed for maintenance purposes. There would also be no disturbances for access, investigation, stormwater improvements along the Delco portion of the site or filling

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<sup>10</sup> The USFWS has since updated and revised their *New Jersey Municipalities with Hibernation or Maternity Occurrences of Indiana and Northern Long-eared Bat* list in August 2015 (Appendix D), which does not identify these species to be located within Middlesex County.

activities within the proposed Project site with the potential to affect the watercourses, flood hazard areas, riparian zones, wetlands, wetland transition areas, or forested areas at the proposed Project site.

### **3.7.3 Build Alternative**

#### **Watercourses/ Flood Hazard Areas/ Riparian Zones**

The Build Alternative has been designed to avoid direct impacts to Mile Run stream to the greatest extent practicable. At the Mile Run crossing in County Yard, a three sided box culvert extension is proposed to maintain the existing streambed and minimize impacts to stream banks. Fill will be placed within approximately 0.7 acres of the 100-year floodplain associated with Mile Run in this area (see Area 1 on Figure 3-7). Retaining walls will be constructed to reduce slope and fill impacts.

At the Mile Run crossing beneath Delco Lead, no improvements will be made to the existing culvert. Fill will be placed in approximately 0.2 acres of the 100-year floodplain that is associated with Mile Run in this area. This area is currently used as a parking lot for the Jersey Avenue Station and has an impervious surface (see Area 2 in Figure 3-7). As a result, no impacts to floodplains will result from the filling activity.

At the Six Mile Run crossing of the Delco Lead, a three sided box culvert extension is proposed to maintain the existing streambed and minimize impacts to stream banks. The box culvert extension will accommodate the Delco Lead tracks, retaining walls and drainage improvements. There is no floodplain associated with Six Mile Run in the proposed Project area due to its conveyance via the twin 40-inch corrugated metal pipes that extend beyond the proposed Project area. As a result, the proposed fill at Six Mile Run will have no impact on floodplains. Other minor culvert improvements or replacements are proposed under the project's stormwater improvements to allow proper drainage, collection and filtration within linear vegetated swales that exist along the rail ROW for the Delco Lead. The design minimizes the placement of structures and fill in the flood hazard area, and the need for vegetation clearing in the riparian zones. As indicated above, there will be two locations where fill will be placed within regulated floodplains. Approximately two feet of fill will be placed within the Mile Run 100-year floodplain at the Delco Lead affecting a total of approximately 0.2 acres of impervious surface. Approximately 40 feet of fill will be placed within the Mile Run 100-year floodplain in County Yard, to support the S&I Facility and associated infrastructure, affecting a total of approximately 0.7 acres (see Figure 3-7). Neither of these impacts to the 100-year floodplain constitutes a significant encroachment. There will be no loss of human life, or likely future damage associated with the encroachment, or notable impact on natural or beneficial floodplain values. The design of the Build Alternative includes a Mile Run culvert extension to accommodate the volume of water (flood storage) and amount of flow (drainage and velocity) so that no impact either upstream or downstream will result. The culvert extension will be large enough to maintain the existing hydrology and the water table elevation that supports adjacent wetlands, riparian areas and contiguous natural resources. As a result, the Build Alternative will not result in an adverse impact on "natural and beneficial floodplain values." As designed, the proposed Project will protect the public and minimize damage to life, habitat and property from flooding.

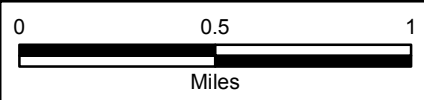
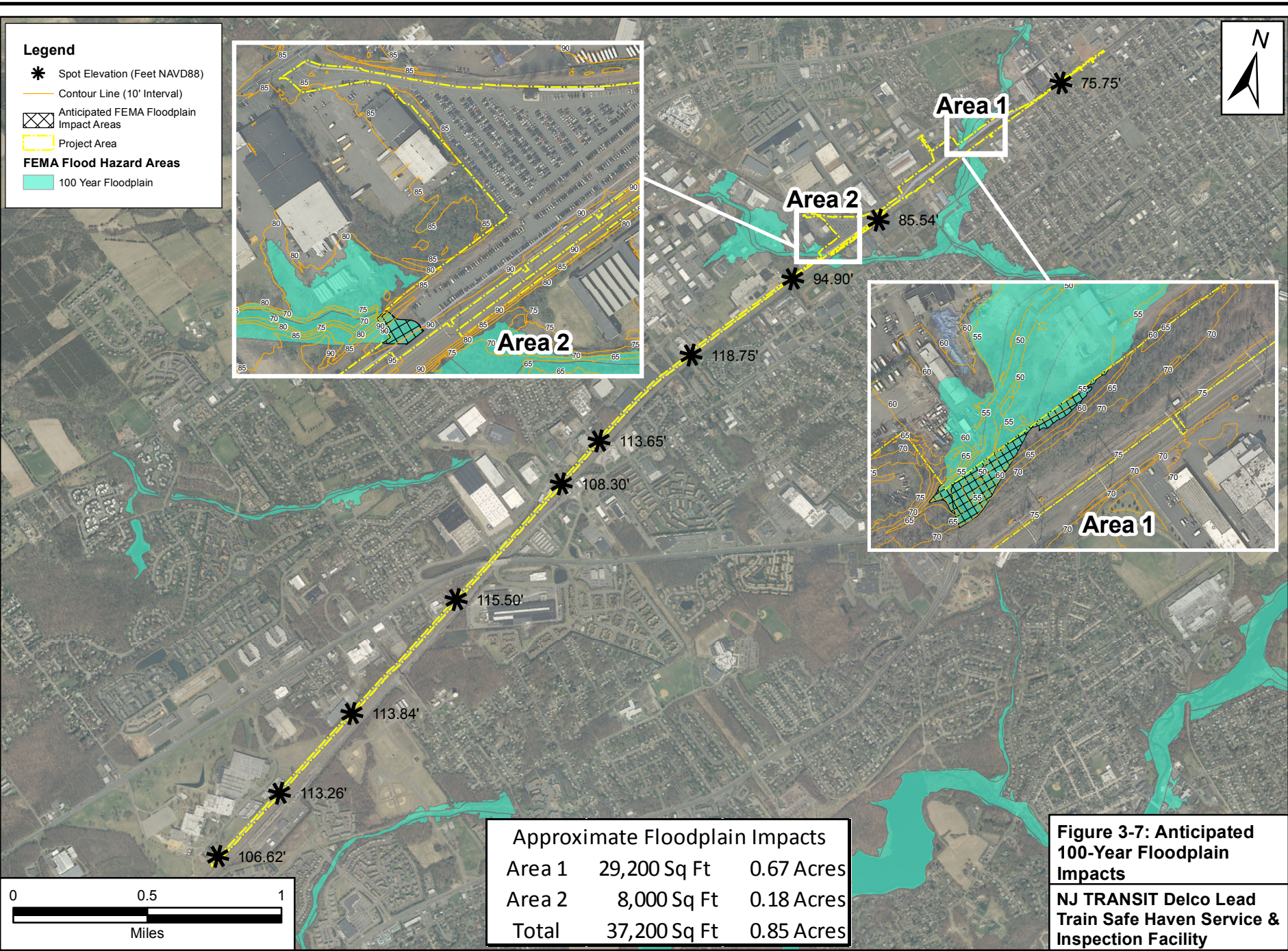
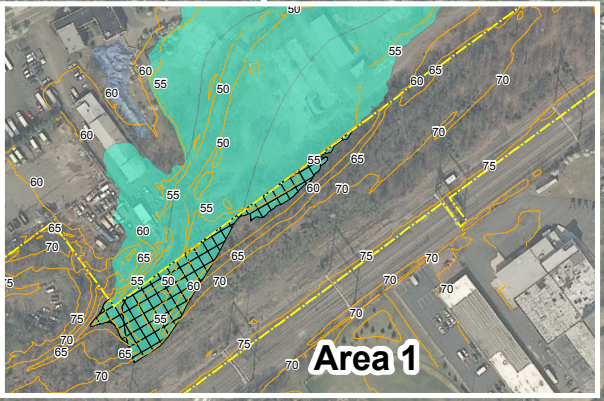
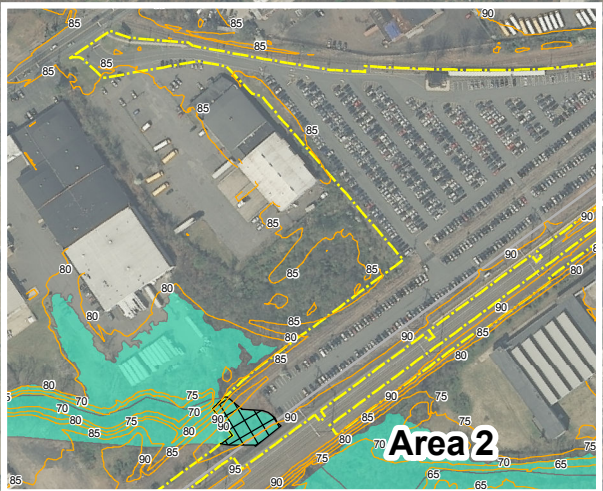


**Legend**

- \* Spot Elevation (Feet NAVD88)
- Contour Line (10' Interval)
- ▨ Anticipated FEMA Floodplain Impact Areas
- ▭ Project Area

**FEMA Flood Hazard Areas**

- 100 Year Floodplain



Approximate Floodplain Impacts		
Area 1	29,200 Sq Ft	0.67 Acres
Area 2	8,000 Sq Ft	0.18 Acres
<b>Total</b>	<b>37,200 Sq Ft</b>	<b>0.85 Acres</b>

**Figure 3-7: Anticipated 100-Year Floodplain Impacts**  
**NJ TRANSIT Delco Lead Train Safe Haven Service & Inspection Facility**



### **Wetlands/ Vernal Pools**

The anticipated impacts to previously altered freshwater wetlands and transition areas, which provide minimal functional wildlife habitats, will occur predominately along the northwest side of the Delco Lead right-of-way. Approximately 1.75 acres of man-made linear stormwater ditches with emergent freshwater wetland vegetation will be filled to accommodate the construction of the proposed tracks. These linear wetlands drain water from the existing right-of-way. In addition, in County Yard, approximately 0.25 acres of fragmented interior scrub shrub and forested wetlands associated with Mile Run will be filled to construct the S&I facility and retaining walls. No impacts to vernal pools are expected to result from the Build Alternative since there are no vernal pools in the proposed Project area.

### **Forested Areas**

In accordance with the State of New Jersey No Net Loss Reforestation Act (the Reforestation Act), NJ TRANSIT has consulted with the NJDEP Division of Parks and Forestry and has evaluated the proposed Project area to determine the impacts of the Build Alternative on existing forested areas. The Build Alternative will require removal of approximately 12 acres of forested area, 7 acres from County Yard and 5 acres from the Delco Lead. A reforestation plan is presented in Appendix E and identifies the general location of tree clearing and associated dominant tree species. The Reforestation Act requires projects resulting in deforestation greater than one acre to conduct a public forum to present information concerning the level of deforestation resulting from the proposed Project. NJ TRANSIT conducted a public forum on April 16, 2015 in New Brunswick. No comments on the loss of trees or the reforestation process were received in the 60 day period following the public forum (see Appendix E).

### **Threatened and Endangered Species**

The Build Alternative is not anticipated to adversely affect T&E species since no T&E species have been identified in the proposed Project area.

It is not anticipated that the noted raptor species or migratory birds identified in Section 3.7.1 will utilize the active rail corridor or adjoining fragmented resources within the proposed Project area with any level of frequency and will focus their activities on more expansive contiguous resources beyond the rail corridor to the south within Pigeon Swamp or to the East within Farrington Lake for foraging and breeding.

## **3.7.4 Mitigation**

### **Watercourses/ Flood Hazard Areas/ Riparian Zones**

Approximately 0.7 acres and 0.2 acres (of impervious surface) in the 100-year floodplain associated with Mile Run in County Yard and along the Delco Lead, respectively, will be filled to meet NJ TRANSIT Flood Design Criteria. The Build Alternative incorporates an extension to the Mile Run culvert in County Yard, to maintain the existing streambed and minimize impacts to stream banks, and significant adverse floodplain impacts are not anticipated. NJDEP's Flood Hazard Area Individual

Permit will be obtained for excavation and filling in the regulated floodplains and riparian zones, and permit conditions will be followed to minimize impacts to the maximum extent practicable. The design of the Build Alternative will ensure that all elements adhere to the Flood Hazard Area Design Standards, Uniform Construction Code Standards and the NJ TRANSIT Flood Elevation Design Criteria for inland facilities, which designs critical operational infrastructure at a determined elevation of BFE +1.5 for inland fluvial flood subjected areas. As indicated in Section 3.12, any temporarily disturbed areas will be restored and stabilized in accordance with Soil Erosion Sediment Control (SESC) requirements. In addition, the design of the Build Alternative will comply with New Jersey's Stormwater Management Rules to address the increase in the amount of impervious surface at the site.

### **Wetlands/Vernal Pools**

Approximately 0.25 acres of wetland impacts will occur in the County Yard Project area and 1.75 acres in the Delco Lead Project area. NJDEP Freshwater Wetlands Individual Permits, required for any clearing or filling of State open waters or freshwater wetlands will be obtained and permit conditions will be followed to minimize impacts to the maximum extent practicable. Since permanent wetland impacts are anticipated to exceed the ¼ acre threshold as permitted by the NJDEP under their Freshwater Wetlands General Permit Program, mitigation will be required for permanent impacts to wetlands. As per N.J.A.C. 7:7A-15, mitigation for these impacts will be addressed in the form of a wetland mitigation bank credit purchase or a monetary contribution to the Wetland Mitigation Fund, to support ecological/wetland restoration efforts in this watershed.

Compliance with the conditions of all anticipated land use permits will ensure that the impacts to natural resources and their functions and values will be minimized and/or mitigated to the maximum extent practicable, and that construction and operation of the Build Alternative will not result in any additional downstream flooding or impacts to resources that support localized flora and fauna, transient species or human life.

The design will be based on regulatory consultation and compliance with the NJDEP Flood Hazard Area Control Act (FHACA) and Freshwater Wetland Rules. In addition, the improvements within the regulated flood hazard (floodway/flood fringe) area such as the proposed retaining wall and extension of the existing Mile Run culvert will continue to be coordinated during the design process with the NJDEP, as required to obtain permit approval and meet regulatory compliance.

### **Threatened and Endangered Species**

No significant impacts to T&E species are expected to result from the construction or operation of the Build Alternatives; therefore no mitigation is required.

### **Forested Areas**

In accordance with the State of New Jersey Reforestation Act, NJ TRANSIT must develop and submit a Compensatory Reforestation Plan for specimen trees to the NJDEP Division of Parks and Forestry

for review and approval. The New Jersey Forestry Council will assist in the review of the reforestation plan. Per the Reforestation Act, specimen trees will be replanted on the planting site closest to the deforested area in this order:

1. On the proposed Project site;
2. Adjacent to the construction site;
3. State or municipal property within the municipality;
4. Sites maintained by the State, county, or other municipalities within 5 miles; and
5. Anywhere in New Jersey on State-owned land.

There will be very limited opportunity to plant replacement trees on or adjacent to the proposed Project site due to the nature of the proposed railroad development. NJ TRANSIT will coordinate with the City of New Brunswick and North Brunswick Township to determine if the municipalities have appropriate areas where they wish to plant trees. After limited tree planting on site and any additional plantings are approved in the proposed Project-area municipalities, NJ TRANSIT's reforestation plan will propose that remaining mitigation take the form of a cash payment to the New Jersey Forest Service's dedicated tree planting fund. The Forest Service uses these funds to plant trees in areas throughout New Jersey. Per Forest Service rules, the amount of money required to be transferred to the fund will be determined by a formula that takes into account the type and area of forest area lost.

### **3.8 UTILITIES AND INFRASTRUCTURE**

This section identifies the utilities in the area that could be affected by the proposed Project. Potential impacts to existing utilities that will result from the proposed Project's construction and the provisions needed to mitigate any conflicts with local utilities are identified.

#### **3.8.1 Affected Environment**

Amtrak leases space to the following four third party fiber optic carriers along the right-of-way in County Yard: Verizon Business (formerly MCI), Century Link (Qwest), AT&T Fiber and the Zayo Group. Verizon, Century Link and AT&T have existing underground fiber optic cables that run parallel to the Northeast Corridor on the northwest side of the mainline tracks throughout the entire proposed Project site. The Zayo Group (Formerly Above-Net) has fiber cables attached to the catenary structures throughout the entire proposed Project site. PSE&G ELECTRIC has two sets of 138 kilovolt overhead cables running parallel to the Northeast Corridor. In addition, there are underground water mains, gas mains, and sanitary and stormwater pipes in the proposed Project area maintained by the New Brunswick Water Utility Department, New Brunswick Public Works Department, and North Brunswick Water and Sewer Department.

#### **3.8.2 No Action Alternative**

Under the No Action Alternative, utilities in the proposed Project area would be unaffected.

### **3.8.3 Build Alternative**

As part of the work associated with construction of the Build Alternative, utilities that are in conflict with proposed construction activities will be relocated in the first construction stage. This includes the relocation of an existing 36 inch sanitary gravity line sewer, which runs under the Northeast Corridor tracks, traverses County Yard near the existing culvert, and continues along the northern border of the Yard. The fiber optic cables located in and around County Yard will be protected and maintained during construction. All necessary agreements regarding the temporary or permanent relocation of utilities will be executed with each utility company. These agreements will outline the responsibility for and coordination of the actual work, and the method of reimbursement, as appropriate.

### **3.8.4 Mitigation**

The Build Alternative will not result in significant impacts to utilities in the area. As a result, no mitigation measures are required.

## **3.9 CONTAMINATED MATERIALS**

This section reviews the potential for contaminated materials to be encountered during the proposed Project's construction. Contaminated materials are potentially harmful substances that may be present in soil, groundwater, or building materials and may pose a threat to public and worker health or the environment. These materials are frequently encountered during construction activities in areas that have been subject to past disturbance from construction, excavation, filling and industrial and railroad uses.

### **3.9.1 Affected Environment**

Investigations at County Yard have indicated the presence of polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), metals, and constituents of oil or fuel (petroleum products). The PCBs detected at the site are thought to be the result of its historic rail use and the PCB-containing transformers that were used at the yard. PAHs and metals are typically found in historic fill materials. Petroleum contamination was likely a result of diesel fuel leaks/spills that occurred during the maintenance of rail cars.

The elevated levels of PCBs in County Yard are in the vicinity of the County Interlocking Tower. NJ TRANSIT performed initial PCBs sampling in 1999 and subsequent sampling in 2001, 2002, 2004, 2006, and 2014. Amtrak conducted follow-up delineation sampling in 2014 and 2015. PCBs have been detected in subsurface soils at concentrations above the Toxic Substances Control Act (TSCA) hazardous level for PCBs (50 ppm).

The Phase I Environmental Site Assessment that was prepared for the Delco Lead<sup>11</sup> indicates that a VOC contaminated groundwater plume may be located along the Delco Lead. Monitoring wells were noted along the railroad right-of-way in the vicinity of the North Brunswick Coatings & Chemicals property located at 1430 Jersey Avenue. As part of this proposed Project, NJ TRANSIT will conduct a pre-construction subsurface investigation to determine if any contaminants are present along the Delco Lead.

### **3.9.2 No Action Alternative**

Under the No Action Alternative, the abandoned Delco Lead will continue to remain in its current state and no remediation of the elevated levels of PCBs would occur at County Yard. Any contaminated materials along the Delco Lead will remain unidentified.

### **3.9.3 Build Alternative**

Prior to construction of the Build Alternative, NJ TRANSIT will remediate the PCBs at County Yard and address other proposed Project site contaminants in accordance with all relevant federal and state requirements. The extent of contaminated materials that must be removed and disposed of will be identified in the field by the appropriate sampling method and laboratory analysis. It is estimated that in County Yard approximately 7,000 cubic yards of PCB-contaminated soil (some of which will be classified as TSCA hazardous waste) will be excavated at the site and transported to licensed disposal facilities.

An EPA-approved PCB Self-Implementation Cleanup Plan for County Yard will be implemented to excavate soils above 10 ppm and cap the remaining PCBs in accordance with EPA and NJDEP requirements. In addition, the PCB cleanup and other site improvements will include capping areas of the site impacted by PAHs and metals.

As required under the NJDEP Site Remediation Reform Act all work will be conducted under the supervision of the assigned Licensed Site Remediation Professional (LSRP). NJ TRANSIT will address any known contamination, as well as that uncovered by subsequent investigations during the design and construction phases of the Build Alternative, using NJDEP's Linear Construction Technical Guidance ("Guidance"). The LSRP will provide all notices and reports to the NJDEP Site Remediation Program as required and document site remediation activities in the final report that will be submitted to the NJDEP.

Per the Guidance, a Materials Management Plan (MMP) will be developed by the LSRP to manage any contaminated media encountered during construction. The LSRP or his/her designee will be on-site to ensure that handling, stockpiling, and disposal of contaminated soil, groundwater, or any other media is done in compliance with the MMP. The plan will include methods to minimize/avoid disturbance of contaminated soil, groundwater, or any other media and describe procedures for proper storage, disposal, or re-use of contaminated soil. If, based on the pre-construction sampling,

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<sup>11</sup> *New Jersey TRANSIT Delco Lead Phase 1 Environmental Site Investigation*, Hatch Mott MacDonald, January 2014



it is determined that free product or hazardous materials would be encountered along the Delco Lead or elsewhere in County Yard, or hazardous waste would be generated, additional specifications will be developed in the MMP to properly handle, remove and dispose of the materials/waste in accordance with applicable State and Federal regulations.

If unknown/unanticipated soil or groundwater contamination is encountered during construction, specifications will be in place to ensure that the extent of the previously unknown contamination is identified within the work zone and removal of contaminated soil or groundwater will be done in accordance with all applicable NJDEP regulations, under the direction of the LSRP. On-site temporary storage areas for stockpiling contaminated soil, where necessary, will be designated in advance as will the identification of licensed disposal facilities and transporters. A Health and Safety Plan will be developed to ensure that all workers are protected during handling and disposal of contaminated soil and groundwater.

### **3.9.4 Mitigation**

The Build Alternative is not expected to result in significant adverse impacts to the environment as a result of contaminated materials that are known to be present on the site or that may be encountered during construction. As a result, no mitigation is required.

## **3.10 INDIRECT EFFECTS AND CUMULATIVE IMPACTS**

To meet the requirements of the National Environmental Policy Act (NEPA), the proposed Project's potential to cause indirect or cumulative impacts must be evaluated.

Indirect effects are those that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR 1508.8). Generally, these effects are induced by a proposed project. These can include growth-inducing effects as well as changes in land use, economic vitality, neighborhood character, and traffic congestion, and their associated effects on air quality and noise, water resources, and other natural resources.

The Build Alternative will not result in an increase in train frequency, capacity, speed, or rail ridership. In addition, the Build Alternative will not result in new development or population or employment growth. As a result, adverse indirect effects related to the proposed Project's implementation are not expected to occur. An important goal of the proposed Project is to improve the resiliency of NJ TRANSIT's system. Improved resiliency will lead to beneficial indirect effects including sustained regional economic growth that is unaffected by severe weather events.

The Council on Environmental Quality's regulations for implementing NEPA define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). The cumulative effects of an action may be undetectable when viewed in the individual context of direct and even indirect effects, but when added to other actions can eventually lead to a measurable environmental change.

Several projects that NJ TRANSIT is contemplating could affect conditions in the study area. These projects are all in the early planning stages and a funding source for their construction has not been identified. First, NJ TRANSIT plans to build a new station in North Brunswick in conjunction with the new development under construction at the former Johnson & Johnson complex on Route 1. This new station would help to accommodate growth over the next decade and would divert some customers from the Jersey Avenue Station, thereby reducing automobile traffic in the study area.

Second, the Mid-Line Loop project would construct a NEC “flyover” track, reducing conflicts on the NEC, and improving NJ TRANSIT’s operating efficiencies by allowing trains to turn around just south of the North Brunswick Station to begin middle-zone NEC service. It would also permit greater use of the County Yard facility under normal operating conditions, facilitating even greater operational efficiencies within the NJ TRANSIT system.

Third, planned Jersey Avenue Station improvements include replacing low level platforms with Americans with Disabilities Act (ADA) accessible platforms that accommodate longer trains. Grade separated track would eliminate grade crossing conflicts.

In addition, Amtrak is currently undertaking its Raceway Project to upgrade electrical wiring and signals on a straight, high speed section of the Northeast Corridor from New Brunswick to just south of Trenton.

All of these projects, with the exception of Amtrak’s Raceway Project, are in the early planning stages, as discussed above, and would be subject to their own environmental reviews should they proceed. Nonetheless, NJ TRANSIT has qualitatively assessed the cumulative effect of these projects, based on information available to date, in conjunction with the proposed Project.

Adverse cumulative effects associated with the incremental combined effects of these projects are not anticipated; the combined effects would be improved operational efficiencies as a result of NJ TRANSIT’s centrally located new yard and S&I Facility and the “flyover” that would facilitate its use during normal operating conditions. Changes in both employee and customer traffic volumes and patterns expected to result from the construction of the North Brunswick Station, Mid-Line Loop, and/or Jersey Avenue Station improvements would be assessed by those projects in their respective environmental analyses.

### **3.11 ENVIRONMENTAL JUSTICE**

On February 11, 1994, President Bill Clinton signed Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." This Executive Order was designed to ensure that federal agencies “shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” Executive Order 12898 also requires federal agencies to work to ensure greater public participation in the decision-making process.

This section reviews the proposed Project's potential effects on minority and low-income populations, to determine whether there are any disproportionately high and adverse impacts on those populations. It follows:

- FTA Circular C.4703.1 Environmental Justice Policy Guidance for Federal Transit Administration Recipients, August 2012;
- U.S. Department of Transportation's *Final Order on Environmental Justice*, April 1997, and
- CEQ's *Environmental Justice Guidance Under NEPA*, December 1997.

As set forth in the U.S. Department of Transportation's Final Order, "In making determinations regarding disproportionately high and adverse effects on minority and low-income populations, mitigation and enhancement measures and all offsetting benefits to the affected minority and low-income populations may be taken into account, as well as the design, comparative impacts, and relevant number of similar existing system elements in non-minority and non-low-income areas."

### **3.11.1 Affected Environment**

Data on race, ethnicity, income and poverty levels for census tracts partially or wholly within ¼ mile of County Yard are presented below in Table 3-8. The study area for Environmental Justice encompasses the area that could potentially be affected by construction of the Build Alternative or its operation under normal operating conditions. The Delco Lead will only be used under emergency conditions for the storage of rail cars, and the environmental and community effects related to train movements in preparation for, and recovery from, severe weather events will be negligible. Additionally, construction-related effects will be minor since the work includes installation of two tracks and associated catenary and signals, which will progress along the 3.5 mile alignment and be noticeable for less than six months to those working at adjacent industrial properties. As a result, the study area for the Environmental Justice analysis presented below was limited to the area around County Yard. The study area for the Environmental Justice analysis presented below was limited to the area around County Yard. (Data on minority populations and income at the block group level along the entire alignment of the Build Alternative are presented graphically as Figures 3-8 and 3-9 for informational purposes only).

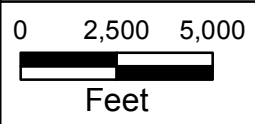
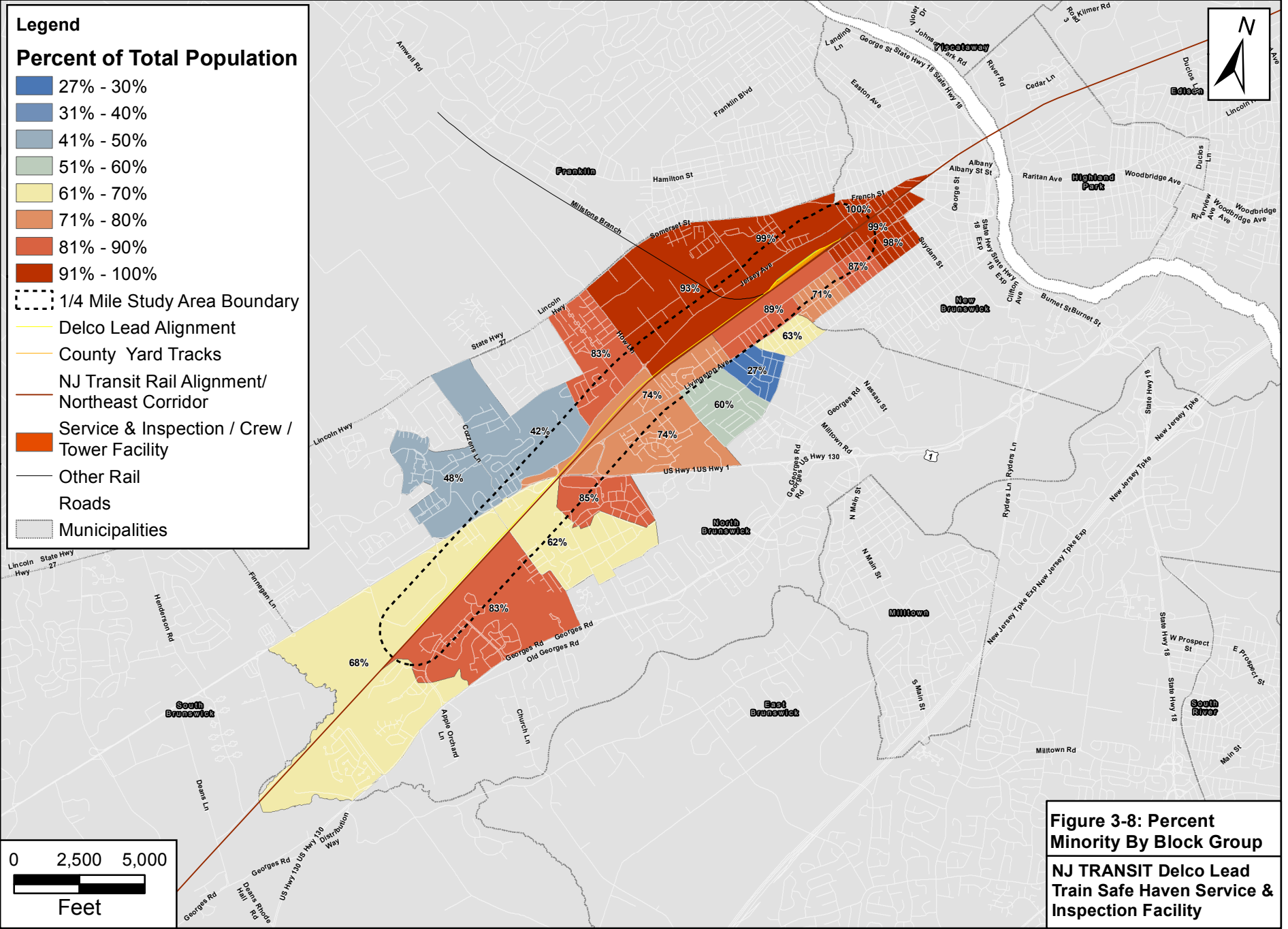
Study area census tract data were compared to data for New Jersey, Middlesex County and the City of New Brunswick to identify those areas with a high percentage of minority populations. Pursuant to Executive Order 12898, areas with high minority populations can be identified where the minority population exceeds 50 percent or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population. All four census tracts in the study area have minority populations in excess of 50 percent and they are meaningfully greater than the minority population percentages of New Jersey (28.7 percent) and Middlesex County (18.4 percent).

Low-income populations were identified by using poverty guidelines from the United States Department of Housing and Urban Development, defined as 80 percent or less of a county's median household income. The median household income of Middlesex County is relatively high at \$77,615

**Legend**

**Percent of Total Population**

- 27% - 30%
- 31% - 40%
- 41% - 50%
- 51% - 60%
- 61% - 70%
- 71% - 80%
- 81% - 90%
- 91% - 100%
- 1/4 Mile Study Area Boundary
- Delco Lead Alignment
- County Yard Tracks
- NJ Transit Rail Alignment/  
Northeast Corridor
- Service & Inspection / Crew /  
Tower Facility
- Other Rail
- Roads
- Municipalities

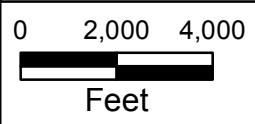
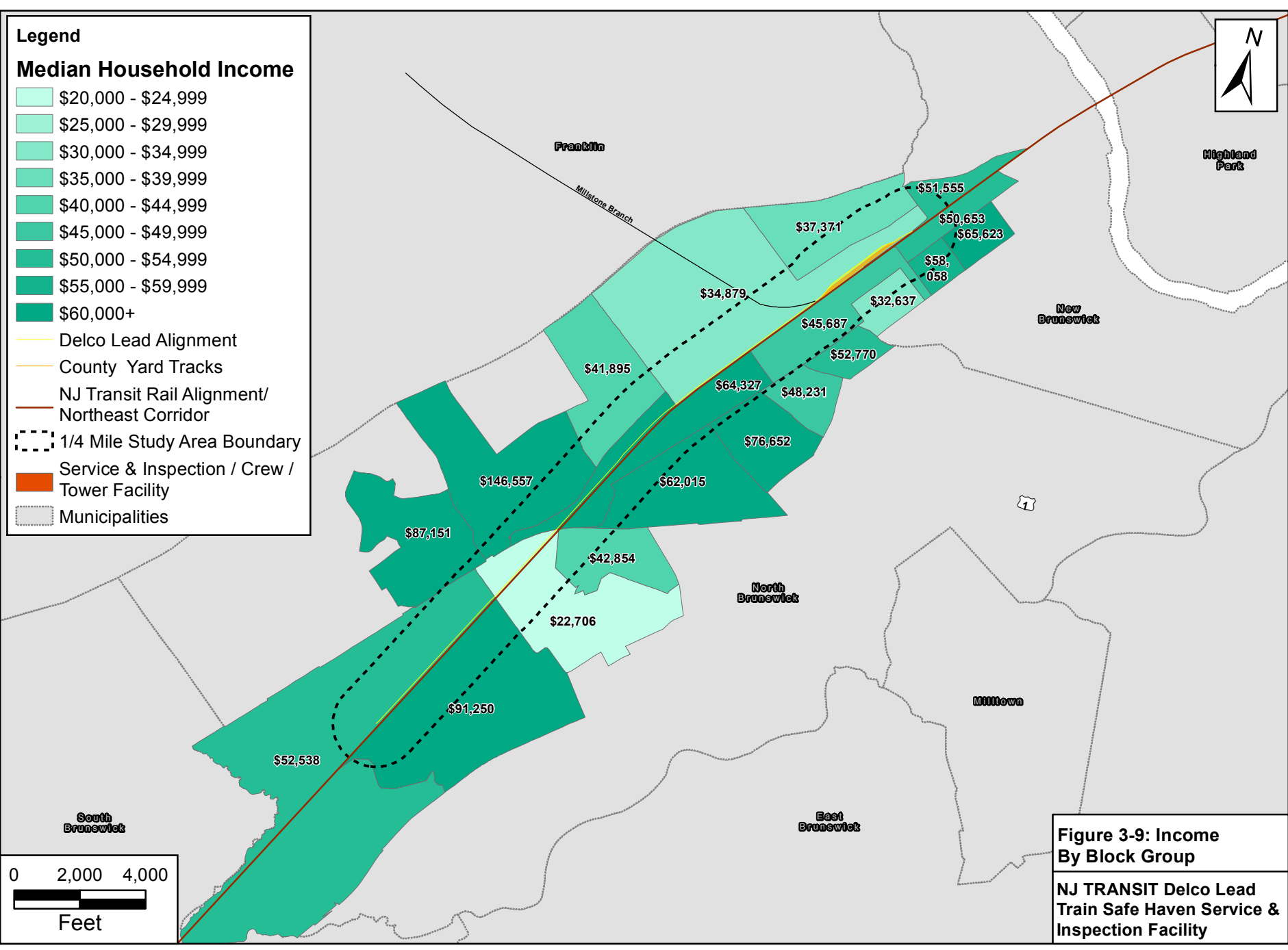


**Figure 3-8: Percent Minority By Block Group**  
**NJ TRANSIT Delco Lead Train Safe Haven Service & Inspection Facility**

**Legend**

**Median Household Income**

- \$20,000 - \$24,999
- \$25,000 - \$29,999
- \$30,000 - \$34,999
- \$35,000 - \$39,999
- \$40,000 - \$44,999
- \$45,000 - \$49,999
- \$50,000 - \$54,999
- \$55,000 - \$59,999
- \$60,000+
- Delco Lead Alignment
- County Yard Tracks
- NJ Transit Rail Alignment/  
Northeast Corridor
- 1/4 Mile Study Area Boundary
- Service & Inspection / Crew /  
Tower Facility
- Municipalities



**Figure 3-9: Income By Block Group**  
**NJ TRANSIT Delco Lead Train Safe Haven Service & Inspection Facility**



(as compared to New Jersey's median household income of \$69,811). Median household incomes for each census tract range from \$37,325 to \$51,618, below the 80 percent threshold when considering other State and County median household income, which indicates the presence of Environmental Justice populations in the study area. Three of the four census tracts have median household incomes higher than the City of New Brunswick (\$44,543). The percentage of persons living below the poverty level is also high in the study area (census tract data ranged from 20.3 percent to 39.4 percent) as compared to New Jersey (10.4 percent) and Middlesex County (8.5 percent). The percentage of persons living below the poverty level in New Brunswick is 33.8 percent.

The study area contains Section 8 Public Housing known as Schwartz Homes and Robeson Village owned and operated by the New Brunswick Housing Authority (259 units) and Fulton Gardens, which is managed by the Bruskin Agency (51 units).

### **3.11.2 No Action Alternative**

Under the No Action Alternative, the proposed Project would not be constructed and prolonged service disruptions would be expected occur as a result of severe weather events in the area. The community would not benefit from a more resilient public transportation system.

### **3.11.3 Build Alternative**

Based on the analyses contained in this EA, the Build Alternative will not result in any environmental impacts that cannot be mitigated (see Section 3.14). No significant adverse impacts on land use, zoning, parkland, community facilities, public policy, aesthetics, traffic, noise, vibration, or air quality are anticipated to result from the Build Alternative. As a result, no disproportionately high and adverse effects on the minority and low-income populations in the study area are expected. The proposed Project will enhance the resiliency of NJ TRANSIT service, and the local community will benefit from more consistent service at the Jersey Avenue Station during severe weather events. Under normal operating conditions, the Build Alternative will facilitate a more efficient operating plan and result in reduced energy demand and associated GHG emissions.

In accordance with U.S. Department of Transportation guidance, a public information session that targeted Environmental Justice Communities in the study area was held on April 16, 2015 (see Chapter 5).

### **3.11.4 Mitigation**

Since no significant adverse impacts will result from the operation or construction of the Build Alternative, and study-area minority and low-income populations will not experience disproportionately high or adverse social, economic, human health, or environmental impacts, no mitigation is required.

**Table 3-8: Study Area Population and Economic Characteristics**

Area	Population										Economic Profile		
	Total	Race And Ethnicity% <sup>2</sup>									Number of Households	Median Household Income	Persons Below Poverty Level
White		Black / African American	American Indian / Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Other (non-specified race)	Two or More Races	Total Minority <sup>3</sup>	Hispanic or Latino <sup>4</sup>				
State of New Jersey	8,791,894	68.6%	13.7%	0.3%	8.3%	0.0%	6.4%	2.7%	28.7%	17.7%	3,214,360	\$69,811	10.4%
Middlesex County	809,858	58.6%	9.7%	0.3%	21.4%	0.0%	7.0%	3.0%	38.4%	18.4%	281,186	\$77,615	8.5%
New Brunswick	55,181	45.4%	16.0%	0.9%	7.6%	0.0%	25.6%	4.4%	50.2%	49.9%	14,119	\$44,543	33.8%
County Yard Tracts <sup>1</sup>													
Census Tract 53 <sup>5</sup>	3,910	43.9%	8.8%	0.6%	8.5%	0.0%	33.7%	4.4%	51.6%	70.4%	711	\$48,651	39.4%
Census Tract 55	3,551	22.6%	42.4%	0.5%	2.3%	0.1%	27.3%	4.8%	72.5%	51.9%	1,094	\$49,622	20.3%
Census Tract 56.01	2,980	37.9%	14.1%	0.6%	1.6%	0.0%	41.2%	4.5%	57.6%	76.3%	823	\$37,325	23.3%
Census Tract 56.02 <sup>5</sup>	7,686	34.4%	12.6%	1.0%	1.0%	0.0%	45.3%	5.7%	59.9%	84.5%	1,584	\$51,618	26.1%

**Note:**

<sup>1</sup>The Census Tracts included in the section include all tracts within a 1/4th mile radius around the County Yard site

<sup>2</sup>Race: The 'White, Black / African American, American Indian / Alaska Native, Asian, Native Hawaiian and Other Pacific Islander and Other' categories include people who identified themselves under 'One Race'. This category is independent of Ethnicity (please see note #3)

<sup>3</sup>Minorities include - Black / African American, American Indian / Alaska Native, Asian, Native Hawaiian and Other Pacific Islander and Other (One Race)

<sup>4</sup>This category lists people who identified themselves as 'Hispanic or Latino' and can be of one or more race

<sup>5</sup>In Census tract 53, 63.3% of residents live in households of four or more people and in Census Tract 56.02, 62% of the households have four or more people. (In the State of New Jersey and Middlesex County, the average household size is about 2.7 persons per household.)

**Source:**

U.S. Census Bureau. U.S. 2010 Census SF 1 Data for Total Population, Race, Ethnicity and Number of Households. U.S. Census Bureau, 2009-2013 5-Year Estimates, American Community Survey for Poverty Levels Data. 2006-2010 Estimates, American Community Survey Data for Median Household Income.

### **3.12.1 Land Use**

Disruptions at adjacent land uses are not expected since the proposed Project site is large enough to stage construction activities and laydown areas. As indicated below, during construction there is the potential for increased levels of noise and dust, and trucks will be operating in the study area to cart away contaminated materials, and deliver regulated fill and other construction materials. Nuisance effects will be minimal due to the industrial nature of the study area, the relatively minor construction activities that are proposed, and the relatively short duration of the construction activities.

### **3.12.2 Noise and Vibration**

A General Noise Assessment was performed in accordance with FTA's guidance found in *Transit Noise and Vibration Impact Assessment*, May 2006 to determine whether construction activities associated with each construction stage would exceed FTA's noise impact criteria for residential, commercial, and industrial land uses during the day and night. The results of this assessment can be found in Appendix B. Significant noise and vibration impacts associated with construction of the Build Alternative are not anticipated due to the distance between the construction site and noise- and vibration-sensitive land uses.

The most common noise sources during all stages of construction will be from machine engines such as bulldozers, cranes, generators, and other earth- and material-moving equipment. Construction could occur up to 24 hours a day, 7 days a week. Sheet pile driving will be required in Stage 1 for a period of about four months for the relocation of the 30-foot-deep sanitary sewer. Impact pile driving will be required in Stage 3 for construction of the bridge abutments and the foundation of the S&I Facility. Approximately 60 trucks per day, or about four trucks per hour, will travel to and from the site between the hours of 7 AM and 10 PM to remove contaminated material and, during Stage 2, to deliver fill to the site. Noise levels will vary throughout each construction stage as the type and location of the construction activities change.

Construction activities during Stage 3 have the potential to be the noisiest, due to the need for concurrent activities that include impact pile driving, bridge and S&I Facility construction, and track installation. Noise levels were predicted at the nearest noise-sensitive receptor to the concurrent operations associated with Stage 3 to capture worst-case conditions. The results of the analysis indicate that construction noise, which captures the cumulative effects of the noisiest equipment operating simultaneously, could reach between 73 dBA and 78 dBA at residential properties, well below the FTA criterion of 90 dBA for daytime noise and below the 80 dBA criterion for nighttime noise. Noise levels at the recreational and institutional land uses in the study area could reach between 79 dBA and 86 dBA, below the 90 dBA daytime criterion. Noise levels at industrial properties are predicted to be 91 dBA, which is below the 100 dBA criteria that is established for daytime and nighttime noise.

In accordance with FTA guidance, construction-induced vibration was quantitatively assessed for the pile driving activities required in Stage 1 and 3. The results of the analysis, presented in Appendix B, indicate that within 45 to 75 feet of the pile driving operation (depending on the construction

stage), there is the potential for vibration-induced structural damage. However, there are no structures within these impact areas; therefore, structural damage is not anticipated to result from sheet driving or impact pile driving.

Vibration-induced annoyance to residential, institutional and commercial structures with quiet office spaces was also assessed. The results of the analysis indicate that vibration-induced annoyance to residential land use could occur between 170 and 291 feet from the sheet driving and pile driving operation, respectively, associated with Stage 1 and Stage 3. However, there are no residential land uses within those distances so vibration-induced annoyance impacts are not anticipated to occur at residential properties. Vibration-induced annoyance to institutional and commercial structures with quiet office spaces could occur within 135 and 232 feet from the sheet driving and pile driving operation, respectively. However, there are no institutional or commercial structures with quiet office spaces within the applicable distances.

### **3.12.3 Transportation**

Truck trips will increase in the study area during the day as a result of deliveries to the site and soil disposal. It is anticipated that approximately 600 truck trips, over a period of approximately two months, will be generated by removal of excavated contaminated soil early in the construction schedule. Over a longer period of time (two years), the need to import fill material to the proposed Project site to raise the elevation of the County Yard and Delco Lead will generate approximately 22,400 truck trips. These deliveries will use multiple access points along the Delco Lead, as well as the driveway entrance to County Yard. Most deliveries will access the proposed Project site from Jersey Avenue, with the possibility of some trucks entering directly from Route 1. Trucks will travel on designated truck routes and impacts to the roadway network will be temporary. The number of trucks will fluctuate on a daily basis but the greatest number of trucks per day is estimated to be 60 spread out during the workday, or approximately four trucks per hour.

The work will be staged to accommodate Amtrak, Conrail and NJ TRANSIT operations during construction. Some operations may be relocated based on agreements reached with Amtrak and Conrail. A limited number of track outages will be required to tie the new tracks into the existing Northeast Corridor. Track outages will be scheduled with NJ TRANSIT, Conrail and Amtrak forces for off-peak hours, in order to minimize any impact to public transportation or freight service.

### **3.12.4 Air Quality**

Construction-related effects will be short-term, over an approximate 3.5 year period, and include the potential for increased fugitive dust (from ground clearing and preparation, grading, stockpiling of materials, on-site movement of equipment, and transportation of construction materials), as well as exhaust emissions from material delivery and hauling trucks, construction equipment, and worker's private vehicles. Dust emissions typically occur during dry weather and periods of maximum demolition or construction activities or high wind conditions.

The construction management of the proposed Project will include general environmental measures imposed on contractors. Construction work will be planned and executed in a manner that will

minimize air emissions and will be accomplished in light of the site's proximity to users of the surrounding environment. Typical air quality control measures include:

- use of ultra-low-sulfur diesel fuel to power construction equipment;
- limiting idling times to less than three minutes on diesel powered engines;
- locating diesel powered exhausts away from local residential or building air intakes;
- limiting on-site equipment to operating speeds of 5 mph to reduce dust and particulate pollutants from tires and brakes;
- spraying a suppressing agent on any dust pile;
- utilizing water or appropriate liquids for dust control during demolition, land clearing, and grading; and on material stockpiles or surfaces;
- covering open-body trucks when transporting materials; and
- removing surface materials promptly.

### **3.12.5 Natural Resources**

There will be increased potential for on-site erosion, sedimentation and impacts to adjoining natural resources, which will be mitigated by development of a Soil Erosion and Sedimentation Control Plan, a Stormwater Management Plan, implementation of Best Management Practices (BMPs), and strict adherence to permit conditions.

Any temporary disturbance required for construction of the Build Alternative within natural resource areas will be restored and stabilized in accordance with NJDEP Soil Erosion Sediment Control requirements and permit conditions. Adherence to permit conditions and maintaining BMPs will minimize impacts to natural resources in the proposed Project area and adjoining areas and serve to maintain their associated functions and values, and water quality. Any limited temporary loss of vegetation in the riparian zones required for access will be mitigated by restoring in-kind, through seed stabilization and plantings to provide native species diversification and restore ecologic functions.

The proposed Project will procure the appropriate NJDEP Freshwater Wetland and Flood Hazard Area permits, which will address the construction footprint, and specify plans and protocols to minimize disturbance to wetlands and floodplain riparian zones. Adherence to permit conditions and maintaining BMPs will minimize impacts to adjoining natural resources and their associated functions and values. Any limited temporary loss of vegetation in the riparian zones required for access will be mitigated by restoring in-kind, through seed stabilization and plantings to provide native species diversification and/or other natural improvements to riparian zones and proposed limits of disturbance.

### **3.12.6 Water Quality and Sole Source Aquifer**

The proposed Project will comply with the applicable Stormwater Management Rules (N.J.A.C. 7:8), and adhere to BMPs for storm and surface water management to minimize the potential for downstream sediment deposition and impact to the Northwest NJ Sole Source Aquifer during



construction. These measures will include floating turbidity barriers, hay bales, silt fence and immediate soil stabilization and seeding measures where appropriate. In addition, a stream corridor impact assessment will be prepared and reviewed as part of the Delaware and Raritan Canal Commission (D&RCC) application.

### **3.12.7 Utilities**

As indicated in Section 3.8, some utilities will need to be relocated. All necessary agreements for the temporary or permanent relocation of any utility will be executed with each utility company to define the responsibility for and coordination of the actual work, and the method of reimbursement. Overall, utility service will be maintained throughout construction and no significant impacts will occur.

### **3.12.8 Contaminated Materials**

As indicated in Section 3.9, the proposed Project site will be remediated and contaminated materials encountered during construction will be handled, stored, transported and disposed of in accordance with all applicable federal, state, and local regulations. A Health and Safety Plan will be prepared to set limitations to site access and safe operating procedures to protect the public and the construction crew.

## **3.13 GREENHOUSE GAS EMISSIONS**

Greenhouse gas (GHG) emissions are closely related to energy/fuel consumption, and estimates of GHG emissions are calculated by applying emission factors to electrical and fuel energy use for a project's operational requirements and fuel used during a project's construction. Energy is consumed during construction to manufacture and transport materials, and operate construction equipment. Operational requirements include on-site heat and power sources for storing, servicing and inspecting trains, and consideration of changes in train vehicle miles travelled (VMT) that will result under the Build Alternative.

This section evaluates the potential GHG emissions that will be generated by the construction and operation of the Build Alternative. Following the approach provided in CEQ's *Revised Draft Guidance for GHG Emissions and Climate Change Impacts*, December 18, 2014 (draft CEQ Guidance), GHG emissions are evaluated as a proxy for evaluating the potential impact of the proposed Project, as part of the collective impact of all human activity, on global climate change.

In addition, the draft CEQ Guidance recommends assessing the potential impacts of climate change on the proposed Project. This has been addressed in the design of the Build Alternative. Regulated fill will be brought to the proposed Project site to elevate all proposed Project elements to meet NJ TRANSIT Flood Elevation Design Criteria for inland facilities, which is base flood elevation (BFE) + 1.5 feet. As indicated in Chapter 1, the purpose and need for the proposed Project is to enhance the resiliency of NJ TRANSIT's system in relation to future severe weather events. To reduce the impact of future storms, the proposed Project is a key component of NJ TRANSIT's system wide resiliency program, which is restoring damaged equipment and hardening infrastructure, focusing on

elements that will allow NJ TRANSIT to restore critical service as soon as possible after a storm event.

### 3.13.1 Pollutants of Concern

GHGs are those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. CO<sub>2</sub> is the primary pollutant of concern from anthropogenic sources. Although not the GHG with the strongest effect per molecule, CO<sub>2</sub> is by far the most abundant and, therefore, the most influential GHG. CO<sub>2</sub> is emitted from any combustion process (both natural and anthropogenic), from some industrial processes such as the manufacture of cement, mineral production, metal production, and the use of petroleum-based products, from volcanic eruptions, and from the decay of organic matter. CO<sub>2</sub> is removed ("sequestered") from the lower atmosphere by natural processes such as photosynthesis and uptake by the oceans. CO<sub>2</sub> is included in any analysis of GHG emissions.

The draft CEQ Guidance identifies six GHGs that could potentially be included in the scope of a NEPA document: CO<sub>2</sub>, nitrous oxide (N<sub>2</sub>O), methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). This analysis focuses mostly on CO<sub>2</sub>, N<sub>2</sub>O, and methane. There are no significant direct or indirect sources of HFCs, PFCs, or SF<sub>6</sub> associated with the proposed Project. To present a complete inventory of all GHGs, component emissions are added together and presented as carbon dioxide equivalent (CO<sub>2</sub>e) emissions—a unit representing the quantity of each GHG weighted by its effectiveness using CO<sub>2</sub> as a reference.

### 3.13.2 Project-Related Greenhouse Gas Emissions

The draft CEQ Guidance identifies 25,000 metric tons of CO<sub>2</sub>e emitted annually as a reference point below which detailed quantified analysis for disclosure of a project's emissions is not warranted. This section reviews and evaluates the expected emissions with the proposed Project to determine if that reference point might be exceeded.

The Build Alternative would result in GHG emissions from the following sources:

- Construction (Temporary Emissions):
  - Direct emissions from on-site non-road construction engines;
  - Indirect emissions from on-road trucks supporting construction; and
  - Indirect emissions from extracting, producing, and transporting construction materials and fuels.
- Operational (Annual Emissions):
  - Locomotive emissions; and
  - Indirect emissions from on-road vehicles (employee and other).

#### On-Site Non-Road Construction Engines

GHG emissions from non-road construction engines were estimated using a method common to estimating energy expenditure, which relies on the cost of construction. The construction cost

estimate for the Build Alternative is \$220 million. Based on the North Jersey Transportation Planning Authority's GHG Inventory<sup>12</sup> 109,483 metric tons CO<sub>2</sub>e were emitted in the 13-county region in 2006.<sup>13</sup> The latest construction expenditure data available from the U.S. Census Bureau is the 2007 Survey of Business Owners.<sup>14</sup> Based on this data, the construction expenditure in the NJTPA region in 2007 was 37,789 million dollars, resulting in an estimated emissions intensity of 2.897 metric tons CO<sub>2</sub>e per million dollars.<sup>15</sup> Assuming this intensity, the emissions over the roughly 3.5 year construction duration would be 637 metric tons CO<sub>2</sub>e. This would be an average of 187 metric tons CO<sub>2</sub>e per year, and would be emitted only for the duration of the construction.

While there may be differences in intensity when comparing any specific project to the average, even if a substantially higher value were applied the annual emissions from non-road engines associated with the construction of the Build Alternative would be much lower than the 25,000-tons per year threshold.

### **On-Road Trucks Supporting Construction**

During construction, on-road trips will emit GHG's. These include worker trips and trucks delivering and removing materials from the site. Additional on-road emissions occur during the production and transport of construction materials that are ultimately used for the proposed Project—these indirect emissions are discussed in the following section. Worker vehicle trips will be relatively minor, associated with workers commuting to and from the site. The larger component will be the trucks bringing fill to the site and carting away contaminated materials.

The precise origin and destination of the material has not yet been determined. As a rough, conservatively high estimate a distance of 100 miles per load was assumed, for a round trip of 200 miles per truck. Applying an estimated emission factor of 1,738 grams per mile,<sup>16</sup> the trips will result in the emission of less than 8,000 metric tons CO<sub>2</sub> total, and an average of about 2,300 metric tons per year, during the construction period only.

### **Indirect GHG Effects**

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<sup>12</sup> NJTPA. *NJTPA Regional Greenhouse Gas Emissions Inventory and Forecast—Final Report*. June 2011.

<sup>13</sup> Detailed data for the construction sector extracted from detailed files prepared by AKRF for NJTPA.

<sup>14</sup> U.S. Census Bureau. *2007 Survey of Business Owners*, Statistics for All U.S. Firms by Industry, Gender, Ethnicity, and Race for the U.S., States, Metro Areas, Counties, and Places: 2007; SB0700CSA01.

<sup>15</sup> While very minor growth was projected in emissions from the relevant sectors from 2006 to 2007, the specific data for construction is not readily available. However, this is expected to represent a very small change.

<sup>16</sup> This emission factor was taken from EPA MOVES model runs prepared for New York City's CEQR Technical Manual, and represent emissions for refuse trucks (equivalent to dump truck emissions) at an average speed of 30 miles per hour. These factors were produced using an older version of MOVES run for 2010 and adjusted to 2019 using the projected Corporate Average Fuel Economy (CAFÉ) standards available for the on-road fleet at the time, and are therefore conservative because current standards will result in lower emissions for 2019. Note that CO<sub>2</sub> emissions are not heavily affected by location and meteorology as is the case for other pollutants. Direct emission would include a negligible contribution of methane, not included here.

Construction of the Build Alternative will result in indirect GHG emissions, which are not released by on-site construction activities, but are nonetheless caused by the proposed Project. GHG's are emitted during the production and disposal of materials used for construction. For example, emissions will be released during the production of concrete and in the manufacture of construction equipment. Indirect emissions are also known as embodied and lifecycle emissions. At this time, there is no consistent and standardized method for calculating the embodied and lifecycle emissions for transportation projects. There are no tools currently available for clearly and meaningfully discerning which emissions are attributable to a specific project and which emissions would have occurred without the proposed Project. The Build Alternative will not be materials-heavy since it will not include substantial foundations, superstructure, or large infrastructure that requires large quantities of cement and steel. For these reasons, indirect GHG emissions have been excluded from this calculation.

### **Operational GHG Emissions**

Operational sources include on-site fuel and electric power consumption. Fuel will be consumed on-site for heat, hot water supply, and steam for the facilities, and electric power will be used for general operations, for air conditioning, and for some industrial use. These will all result in some GHG emissions (on- and off-site), but none will be major sources on the order of the CEQ reference point. Furthermore, they will be offset by the reduction in locomotive emissions. When compared to No Action conditions, County Yard will service seven additional trains, which would otherwise need to travel empty to and from Morrisville Yard, which is approximately 30 miles to the south of the Jersey Avenue Station/County Yard. Total savings in 12-car train miles will be 420 per day or a reduction of approximately 110,000 locomotive-miles. While these trains will be empty and relatively light, locomotive engines are large, therefore this represents a substantial savings which will occur every year.

### **3.13.3 Emission Reduction Measures**

While the estimate of GHG emissions that will result from the construction of the Build Alternative is well below the CEQ threshold that requires quantification, measures to reduce emissions to the maximum extent practicable have been reviewed, as per the draft CEQ Guidance. During construction, the largest emission sources will be truck trips, materials, and non-road engines.

- *Truck Trips.* While the above quantitative estimate assumed a worst-case of 200 miles round trip for delivering fill to the site, it is likely that this distance will be much shorter since it is in the proposed Project's interest to identify closer sources and thus reduce costs. Note that the material itself is also expected to be reused excavate that would otherwise need to be transported further and placed, avoiding the need for fresh fill material and the emissions associated with excavation and transport.
- *Materials.* The main materials with high carbon footprint associated with the construction will be cement and steel. Portland cement production is energy intense and also results in direct CO<sub>2</sub> emissions from the chemical process. Cement will be used for concrete for the facility and some infrastructure, including rail ties. As common practice, the cement mix will

include cement replacements such as slag and fly ash as practicable depending on the required cement specifications. The steel used for the construction of the Build Alternative will include some structural steel and rebar for the facility and utilities, and steel rail. The vast majority of steel used for general construction is typically fabricated primarily from recycled stock (e.g., structural steel is 90 percent recycled on average,<sup>17</sup> rebar may be higher), substantially reducing the potential emission from production of steel which is energy intense. It is therefore expected that a high fraction of the steel used will be from recycled stock, even if an explicit goal for recycled content is not set. New steel rail may include less recycled content due to load requirements, although mainline track can sometimes be reused as sidings and yard track.

- *Non-road Engines.* While the energy efficiency of non-road engines will be improving over time, the only way to further reduce emissions from these sources is the use of biodiesel for diesel non-road engines (the majority of construction engines and the largest engines are all diesel powered). Standard diesel is likely to be in the 2 to 5 percent biodiesel range, and biodiesel blends of up to 5 percent (B5) can be used without any special requirements. Up to 20 percent biodiesel blends (B20) can usually be used for construction as well.
- Operational emissions will include reductions associated with the reduced locomotive trips described above. The facility will be designed to meet current building code energy requirements.

The proposed Project is part of NJ TRANSIT's response to the need for increased resiliency in the face of severe weather events, which may occur more frequently or be more severe in the future. Approximately 444 rail cars, which would be stored elsewhere on the Northeast Corridor (e.g., Morrisville Yard, MMC) under normal operating conditions, will be stored on the new tracks at County Yard and on the Delco Lead in advance of the storm. Immediately following the storm, these trains will be inspected at the S&I Facility and returned to service on the Northeast Corridor. The co-location of the storage yard and S&I Facility will result in a more efficient operating plan, and allow trains to be returned to service immediately following a storm, thereby minimizing customer inconvenience and economic slowdown, and maintaining the continuity of service to job centers in New York. Overall, the Build Alternative is consistent with State and federal policies aimed at reducing GHG emissions.

### **3.14 SUMMARY OF FINDINGS, COMMITMENTS, AND MITIGATION MEASURES**

The Build Alternative will not result in significant adverse impacts to social, economic or environmental conditions in the proposed Project area and, as designed, is not expected to pose any permitting issues. The results of the environmental analyses indicate that the Build Alternative has no potential for adverse impacts in the categories of:

- Land Use and Zoning;
- Community Facilities, Parkland and Recreation Areas;

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<sup>17</sup> <http://www.recycle-steel.org/>. Includes 70 percent post-consumer.



- Aesthetic Conditions;
- Transportation;
- Air Quality;
- Noise and Vibration;
- Indirect and Cumulative Effects;
- Environmental Justice;
- Threatened and Endangered Species
- Coastal zone (the proposed Project area is not within the Coastal Zone); and
- Navigable waterways (there are no navigable waterways located in the proposed Project area).

The Build Alternative will require property acquisition, have an adverse effect on historic resources, and require work in and near regulated natural resource areas. The design of the Build Alternative includes extensions of the Mile Run and Six Mile Run culverts to support the new railroad infrastructure to minimize the proposed Project's footprint in regulated areas. The Build Alternative will have limited impacts to delineated wetland areas, which include vegetated stormwater ditches, some forested wetlands of low to medium value due to prior disturbance, and open waters that traverse the proposed Project alignment in culverts. Mitigation measures and measures to minimize construction effects are described below.

### **3.14.1 Property Acquisition, Leases and Easements**

The Build Alternative will not require the relocation of businesses, residences or individuals, or temporary property acquisition to construct the proposed Project. NJ TRANSIT will comply with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as required, for the properties that are needed for the proposed Project's construction and operation. Permanent property acquisitions will include:

- Approximately 12.4 acres from Amtrak for the County Yard facilities;
- A permanent easement of approximately 0.3 acre from the City of New Brunswick for the improved access driveway into County Yard;
- An approximate 1.8 acre parcel from the City of New Brunswick for employee parking at County Yard;
- Partial acquisition of approximately 0.2 acre from 120 Jersey Ave, LLC for the access track coming off the Northeast Corridor at the eastern end of County Yard;
- Partial acquisition of approximately 0.4 acres from Solvay USA Inc. for the access track coming off the Northeast Corridor at the eastern end of County Yard;
- Approximately 27 acres from Conrail for the Delco Lead improvements;
- A permanent access easements along Route 1 of approximately 0.3 acre from WOW Plaza IV, LLC for the Delco Lead improvements; and
- A permanent access easement along How Lane of approximately 0.2 acre from 1200 Jersey Avenue LLC for the Delco Lead improvements.

### **3.14.2 Historic Resources**

The Build Alternative's "adverse effect" on the historic Mile Run Yard and County Interlocking Tower, and its potential to unearth pre-historic and historic archaeological resources in the APE, will be mitigated via:

- Execution of the Programmatic Agreement between FTA, NJ TRANSIT, and NJ SHPO to resolve adverse effects to historic properties and define protocols for further archaeological investigation;
- Continued consultation with the NJ SHPO. The designs for all new structures within the boundaries of the Mile Run Yard, a contributing resource to the PRRHD, will be context-sensitive and submitted to NJ SHPO for review and comment; and
- Further archaeological investigations performed in consultation with NJ SHPO.

### **3.14.3 Natural Resources**

**Watercourses/ Flood Hazard Areas/ Riparian Zones:** Approximately 0.7 acres and 0.2 acres (of impervious surface) in the 100-year floodplain associated with Mile Run in County Yard and along the Delco Lead, respectively, will be filled to meet NJ TRANSIT Flood Design Criteria. The Build Alternative incorporates an extension to the Mile Run culvert in County Yard, to maintain the existing streambed and minimize impacts to stream banks, and significant adverse floodplain impacts are not anticipated. NJDEP's Flood Hazard Area Individual Permit will be obtained for excavation and filling in the regulated floodplains and riparian zones, and permit conditions will be followed to minimize impacts to the maximum extent practicable. The design of the Build Alternative will ensure that all elements adhere to the Flood Hazard Area Design Standards, Uniform Construction Code Standards and the NJ TRANSIT Flood Elevation Design Criteria for inland facilities, which designs critical operational infrastructure at a determined elevation of BFE +1.5 for inland fluvial flood subjected areas. As indicated in Section 3.12, any temporarily disturbed areas will be restored and stabilized in accordance with Soil Erosion Sediment Control (SESC) requirements. In addition, the design of the Build Alternative will comply with New Jersey's Stormwater Management Rules to address the increase in the amount of impervious surface at the site.

**Wetlands:** Approximately 0.25 acres of wetland impacts will occur in the County Yard Project area and 1.75 acres in the Delco Lead Project area. A NJDEP Freshwater Wetlands Individual Permit, required for any clearing or filling of State open waters or freshwater wetlands will be obtained and permit conditions will be followed to minimize impacts to the maximum extent practicable. Since permanent wetland impacts are anticipated to exceed the ¼ acre threshold as permitted by the NJDEP under their Freshwater Wetlands General Permit Program, mitigation will be required for permanent impacts to wetlands. As per N.J.A.C. 7:7A-15, mitigation for these impacts will be addressed in the form of a wetland mitigation bank credit purchase or a monetary contribution to the Wetland Mitigation Fund, to support ecological/wetland restoration efforts in this watershed.

Compliance with the conditions of all anticipated land use permits will ensure that the impacts to natural resources and their functions and values will be minimized and/or mitigated to the

maximum extent practicable, and that construction and operation of the Build Alternative will not result in any additional downstream flooding or impacts to resources that support localized flora and fauna, transient species or human life.

The design of the Build Alternative will be based on regulatory consultation and compliance with the NJDEP Flood Hazard Area Control Act (FHACA) and Freshwater Wetland Rules. In addition, the improvements within the regulated flood hazard (floodway/flood fringe) area such as the proposed retaining wall and extension of the existing Mile Run culvert will continue to be coordinated during the design process with the NJDEP, as required to obtain permit approval and meet regulatory compliance.

**Forested Area:** The Build Alternative will require removal of approximately 12 acres of forested area, 7 acres from County Yard and 5 acres from the Delco Lead. In accordance with the State of New Jersey Reforestation Act, NJ TRANSIT must develop and submit a Compensatory Reforestation Plan for specimen trees to the NJ DEP Division of Parks and Forestry for review and approval. The New Jersey Forestry Council will assist in the review of the reforestation plan. Per the Reforestation Act, specimen trees will be replanted on the planting site closest to the deforested area in this order:

1. On the proposed Project site;
2. Adjacent to the construction site;
3. State or municipal property within the municipality;
4. Sites maintained by the State, county, or other municipalities within 5 miles; and
5. Anywhere in New Jersey on State-owned land.

There will be very limited opportunity to plant replacement trees on or adjacent to the proposed Project site due to the nature of the proposed railroad development. NJ TRANSIT will coordinate with the City of New Brunswick and North Brunswick Township to determine if the municipalities have appropriate areas where they wish to plant trees. After limited tree planting on site and any additional plantings are approved in the proposed Project-area municipalities, NJ TRANSIT's reforestation plan will propose that remaining mitigation take the form of a cash payment to the New Jersey Forest Service's dedicated tree planting fund. The Forest Service uses these funds to plant trees in areas throughout New Jersey. Per Forest Service rules, the amount of money required to be transferred to the fund will be determined by a formula that takes into account the type and area of forest area lost.

#### **3.14.4 Water Quality**

The design of the Build Alternative will comply with New Jersey's Stormwater Management Rules to address the increase in the amount of impervious surface at the site, and requirements for addressing water quantity and water quality as required under N.J.A.C. 7:8.

### **3.14.5 Construction**

To mitigate the effects of construction of the Build Alternative to the greatest extent practicable, best practices will be implemented and monitored in the field and the Build Alternative will be constructed in accordance with all applicable laws, regulations and permit conditions as follows:

- **Hazardous Materials:** NJ TRANSIT will prepare an EPA Self-Implementing Cleanup Plan for PCBs and a Material Management Plan as required under NJDEP's Linear Construction Technical Guidance dated January 2012. A site-specific Health and Safety Plan will be developed, excavated soil will be tested prior to disposal at a NJ TRANSIT-approved facility, exposed soil will be covered to help limit erosion to soil piles, and water will be used during construction on dry soils to reduce the amount of aerial dust released into the atmosphere.
- **Natural Resources:** There will be increased potential for on-site erosion, sedimentation and impacts to adjoining natural resources, which will be mitigated by development of a Soil Erosion and Sedimentation Control Plan, a Stormwater Management Plan, implementation of BMPs, and strict adherence to permit conditions. Any temporary disturbance required for construction of the Build Alternative within natural resource areas will be restored and stabilized in accordance with NJDEP Soil Erosion Sediment Control requirements and permit conditions. The proposed Project will procure the appropriate NJDEP Freshwater Wetland and Flood Hazard Area permits, which will address the construction footprint, and specify plans and protocols to minimize disturbance to wetlands and floodplain riparian zones. Adherence to permit conditions and maintaining BMPs will minimize impacts to adjoining natural resources and their associated functions and values. Any limited temporary loss of vegetation in the riparian zones required for access will be mitigated by restoring in-kind, through seed stabilization and plantings to provide native species diversification and/or other natural improvements to riparian zones and proposed limits of disturbance.
- **Water Quality and Sole Source Aquifer:** The proposed Project will comply with applicable Stormwater Management Rules, and adhere to BMPs for storm and surface water management to minimize the potential for downstream sediment deposition and impact to the Sole Source Aquifer during construction. These measures will include floating turbidity barriers, hay bales, silt fence and immediate soil stabilization and seeding measures where appropriate. In addition, a stream corridor impact assessment will also be prepared and reviewed as part of the Delaware and Raritan Canal Commission (D&RCC) application.

## Chapter 4

## Section 4(f) Evaluation

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### 4.1 INTRODUCTION

This chapter addresses the requirements of Section 4(f) of the U.S. Department of Transportation (DOT) Act of 1966. Section 4(f) applies to publicly owned parks, recreation areas, wildlife and waterfowl refuges, and public or private historic sites of national, State, or local significance. Section 4(f) requirements are set forth in 49 U.S.C. 303 as amended and 23 CFR 774.

Section 4(f) prohibits U.S. DOT agencies, such as FTA, from approving the use of any Section 4(f) property for a transportation project, unless a determination is made that:

- there is no prudent and feasible alternative that would avoid the use of the Section 4(f) resource; and
- the project includes all possible planning to minimize harm to that property.

“Use” of a Section 4(f) resource occurs when land is permanently incorporated into a transportation facility, when there is temporary occupancy of land that impairs its protected attributes, or when the proximity of impacts of the transportation facility are so severe that protected attributes are “substantially impaired.”

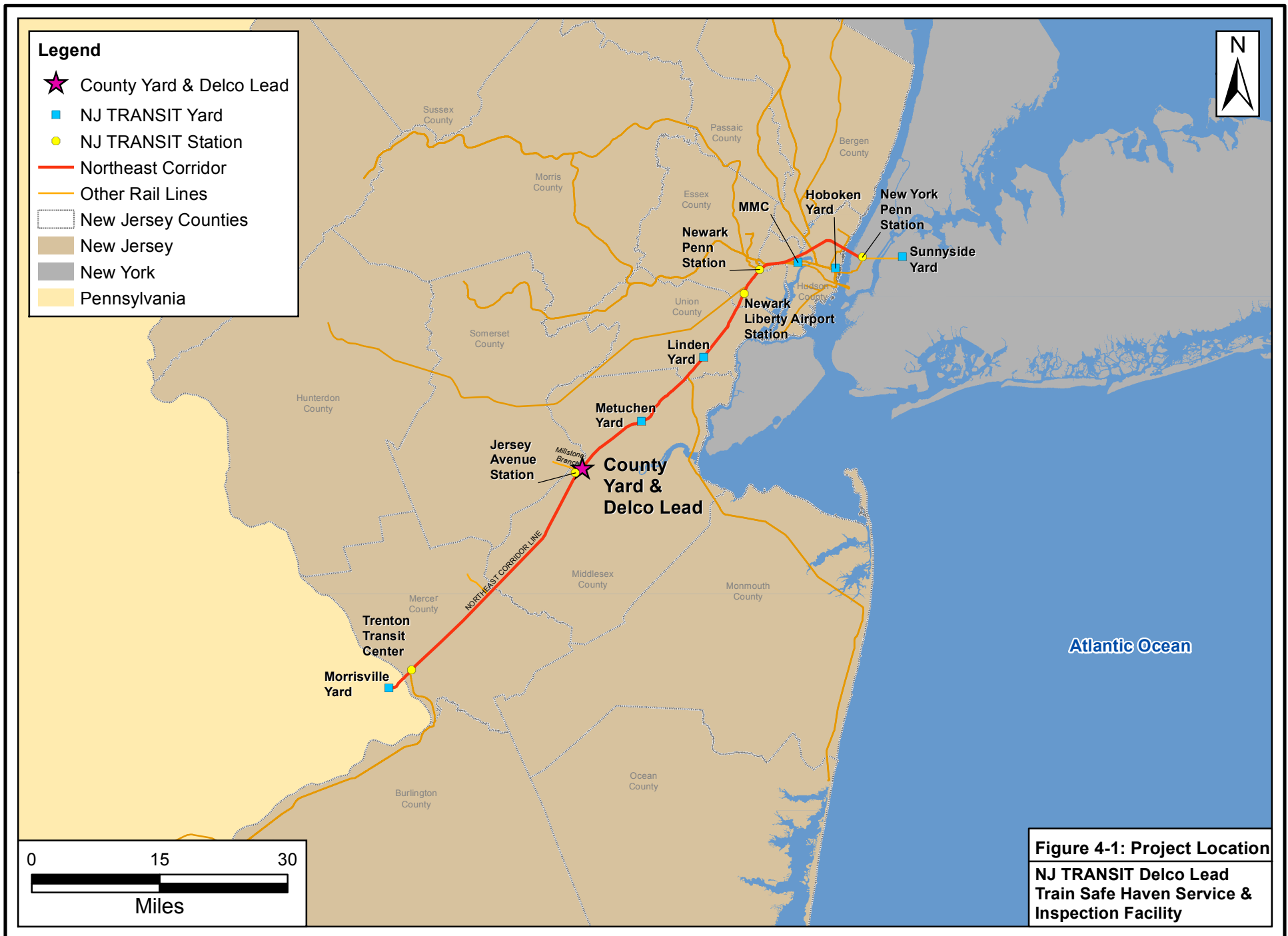
This Section 4(f) Evaluation has been prepared for the proposed Project, which includes construction of a Storage & Inspection (S&I) Facility and storage tracks in County Yard located within the National Register of Historic Places (NRHP)-eligible Pennsylvania Railroad Historic District (see figures 4-1 and 4-2). The Pennsylvania Railroad Historic District encompasses the entire Northeast Corridor in New Jersey within NJ TRANSIT’s service territory. County Yard, known historically as Mile Run Yard, a contributing resource to the NRHP-eligible historic district, will be fully incorporated into the proposed Project. The County Interlocking Tower, also a contributing resource to the railroad district, is proposed for demolition. Several other contributing resources will also be affected. The proposed Project does not have the potential to impact any regulated parklands or other recreational areas.

### 4.2 PROJECT DESCRIPTION

The proposed Project includes construction of the following elements:

1. Storage tracks in County Yard in New Brunswick, New Jersey;
2. A S&I Facility in County Yard; and
3. Storage tracks adjacent to the Northeast Corridor on the Delco Lead, extending approximately 3.5 miles between County Yard and North Brunswick Township.

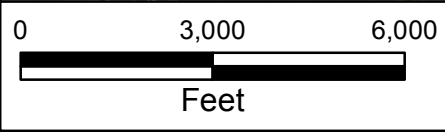
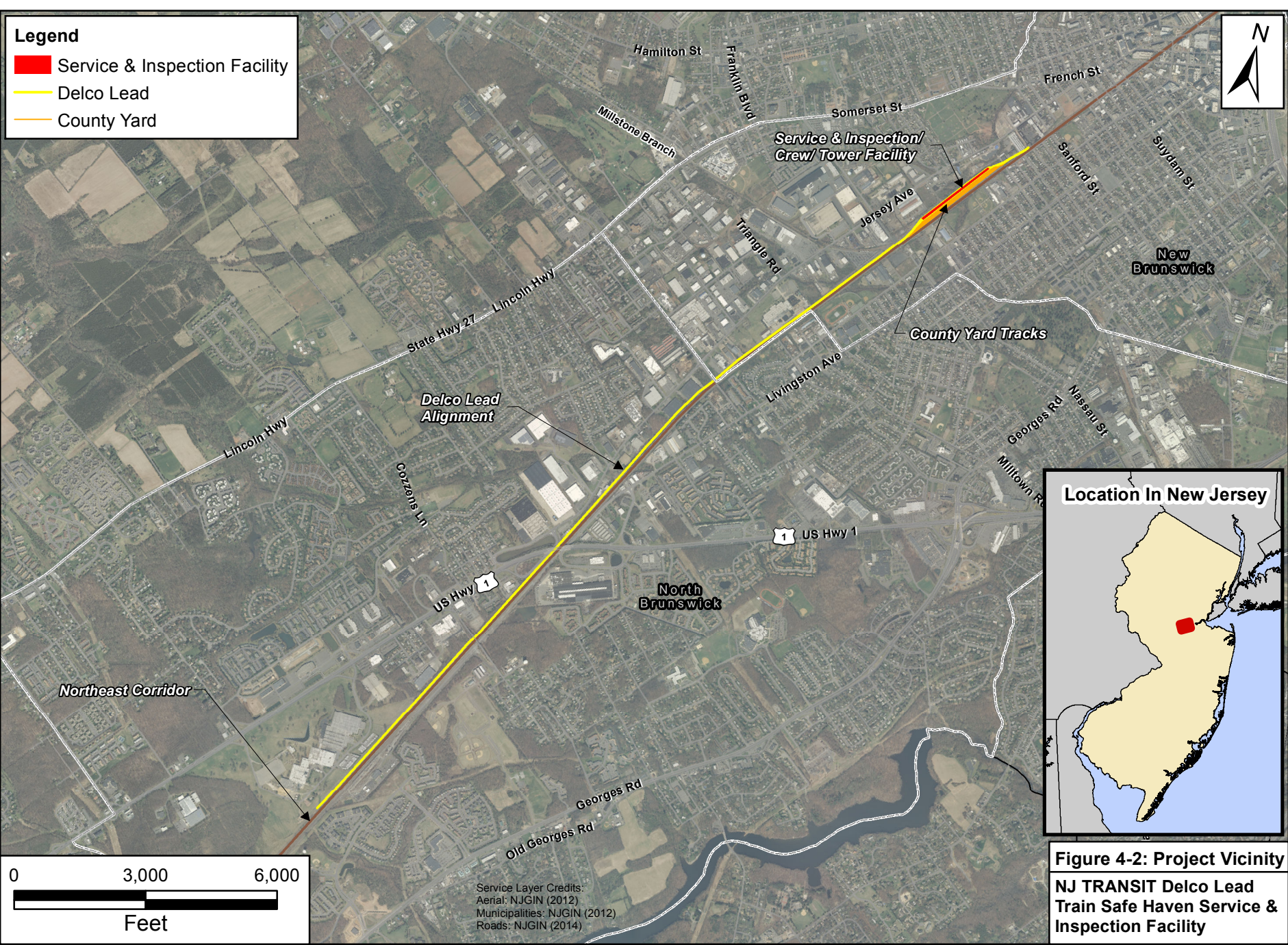




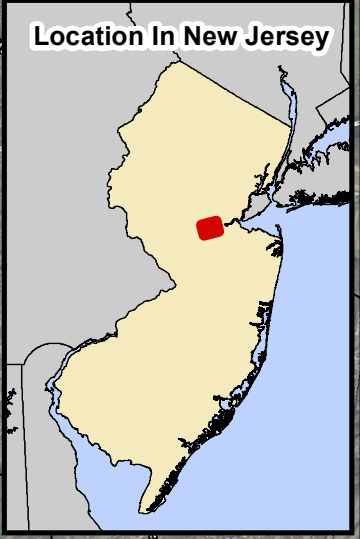


**Legend**

- Service & Inspection Facility
- Delco Lead
- County Yard



Service Layer Credits:  
Aerial: NJGIN (2012)  
Municipalities: NJGIN (2012)  
Roads: NJGIN (2014)



**Figure 4-2: Project Vicinity**  
NJ TRANSIT Delco Lead Train Safe Haven Service & Inspection Facility

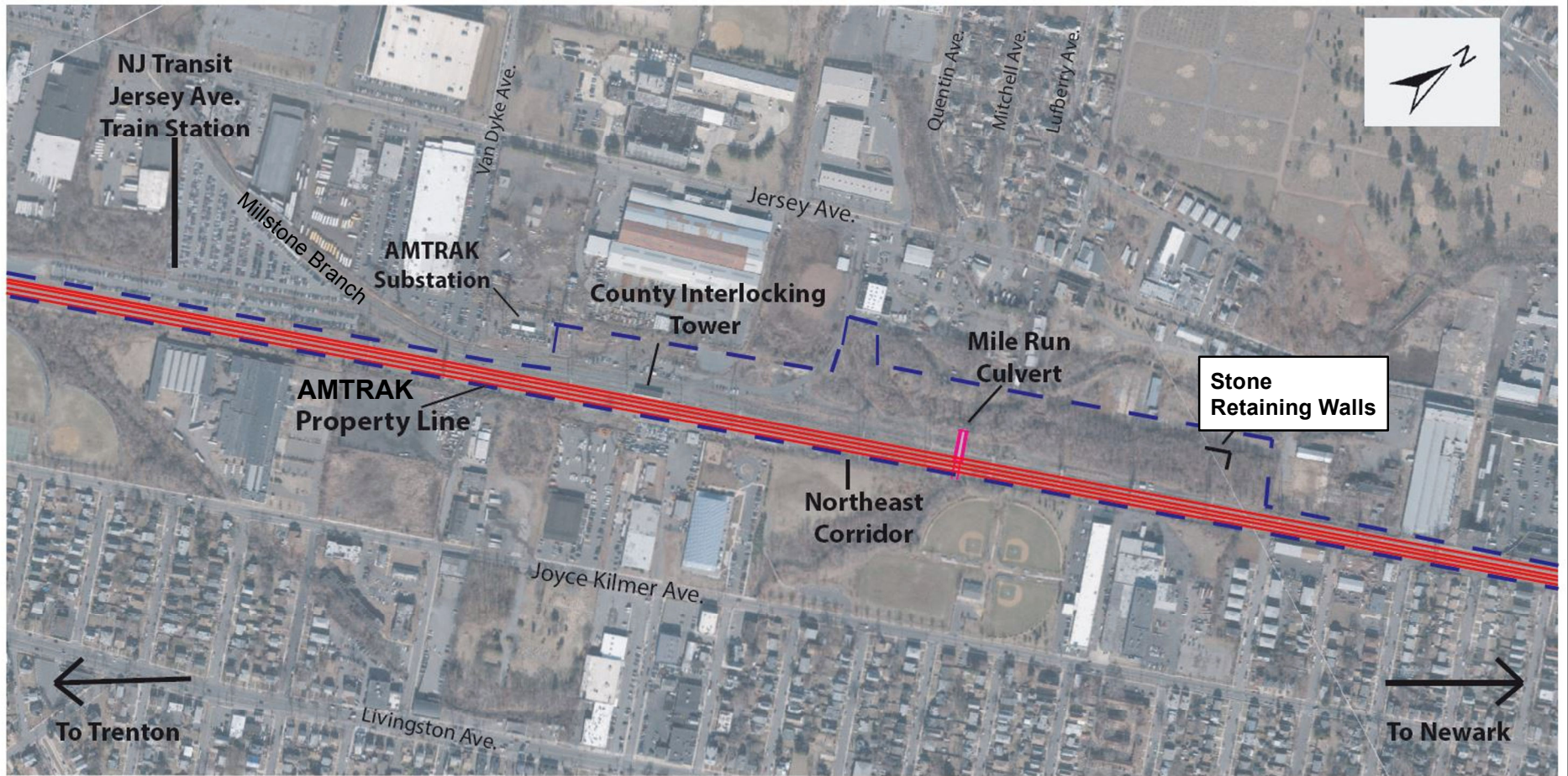


The 13-acre County Yard (see Figure 4-3) will be reconfigured and expanded by two acres to accommodate five storage tracks; each with the capability of storing two 12-car trains (see Figure 4-4). The five tracks of County Yard will therefore have the capacity to store a total of ten 12-car trains or 120 rail cars. Two 8-foot wide cart paths for NJ TRANSIT employees are required to service the trains within the yard. The County Interlocking Tower will be demolished and Amtrak's Communications and Signals Facility will be housed in a new building near the existing Amtrak Substation. Parking for 17 Amtrak employees will also be provided to accommodate Amtrak's work force at County Yard. The yard will be equipped with hydrants, dumpsters, compressed air, wayside power, cart storage, air compressors, sanding facilities and sanitary dump station(s). Fill will be brought on site to elevate all proposed Project elements to meet NJ TRANSIT Flood Elevation Design Criteria for inland facilities. The site elevation will require construction of three retaining walls of varying lengths within the yard to contain the fill.

A 1,250 foot-long S&I Facility will be constructed in a currently unused portion of the Amtrak-owned County Yard. Its construction will require extending an existing culvert that conveys Mile Run, a tributary of the Raritan River, beneath County Yard. The S&I Facility will accommodate two parallel tracks (two 12-car trains total) for the routine inspection and light maintenance of NJ TRANSIT equipment under normal operations. In the event of severe weather, the S&I Facility will facilitate the rapid return to service of the trains stored on the Delco Lead by permitting FRA-mandated inspections to occur where the trains are stored. It will include crew quarters, spare parts storage and sanding facilities, and a 183-space parking lot able to accommodate the increased staff that would be needed in the event of severe weather. Under normal operating conditions, only about 30 parking spaces will be used during any given shift.

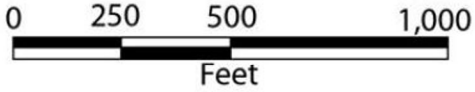
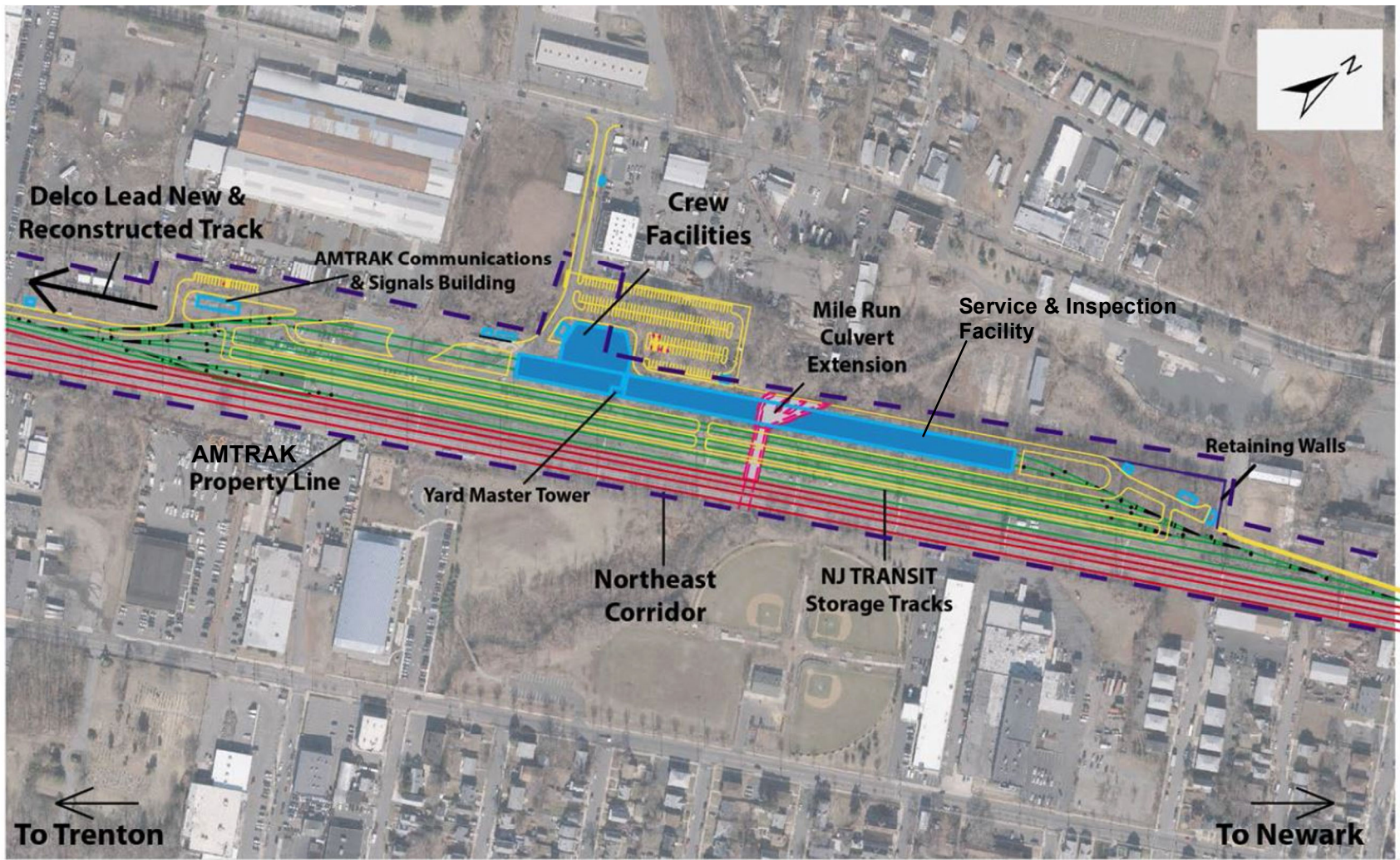
The existing freight track on the Delco Lead will be removed and two new tracks will be installed within the existing railroad right-of-way, except in the vicinity of How Lane, where a single track bridge will remain. The combined storage capacity on the Delco Lead and in County Yard is 444 rail cars (as illustrated below), which will be accommodated by:

- Five storage tracks in County Yard (120 rail cars);
- Yard lead track to County Yard (12 rail cars);
- S&I Facility tracks (24 rail cars); and
- Delco Lead (288 rail cars).



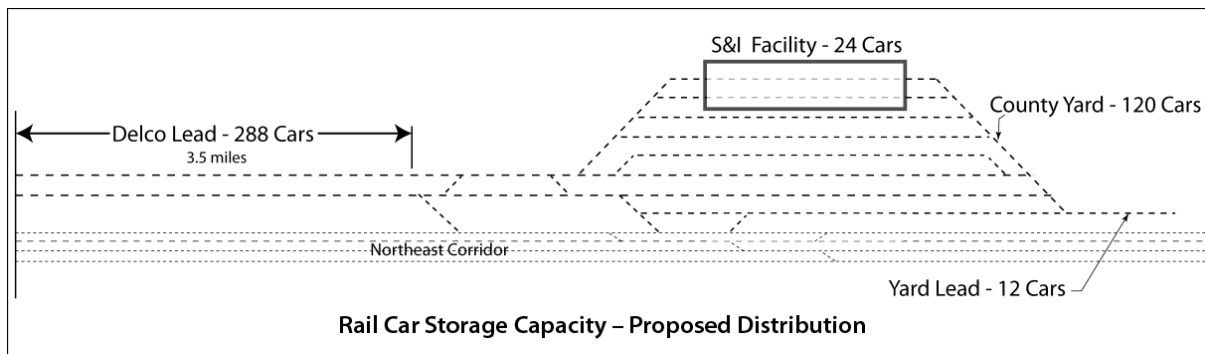
**Figure 4-3:  
County Yard Existing Conditions**  
NJ TRANSIT Delco Lead  
Train Safe Haven Service &  
Inspection Facility





**Figure 4-4:**  
**Proposed Layout for County Yard**  
 NJ TRANSIT Delco Lead  
 Train Safe Haven Service &  
 Inspection Facility





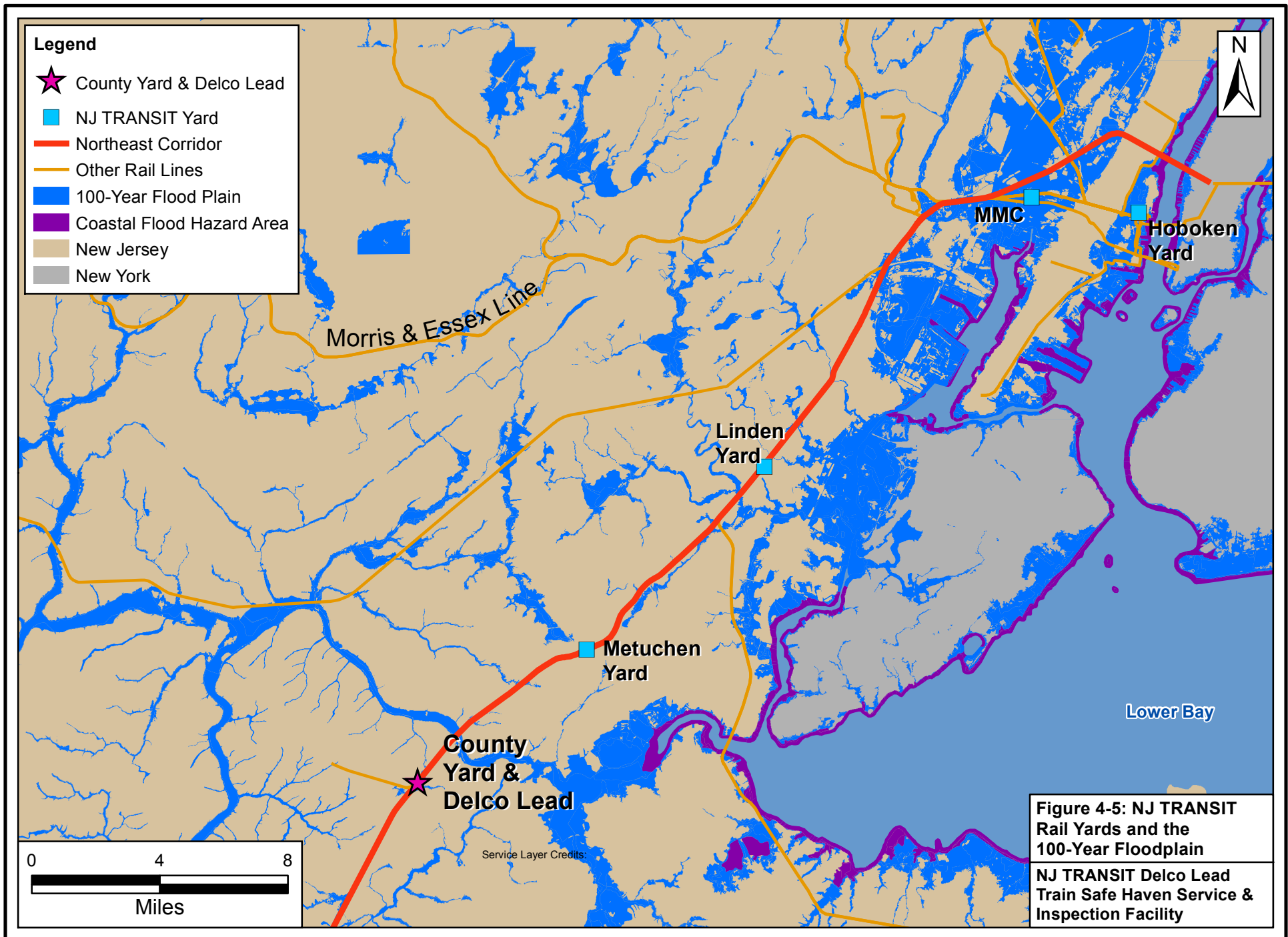
### 4.3 PURPOSE AND NEED

Sandy, with its extraordinarily high tidal surge resulted in damage to over 300 rail cars that were stored at NJ TRANSIT's Meadowlands Maintenance Complex (MMC), which is in a low lying area on the Morris & Essex Line (see Figure 4-5). Morrisville Yard in Pennsylvania, at the western end of NJ TRANSIT's Northeast Corridor service, was cut off from the rest of the system due to flooding of tracks in Trenton, New Jersey. As a result of this flood prone infrastructure, NJ TRANSIT's ability to restore service after the storm was severely impeded and service was disrupted for weeks after the storm. Sandy and other storms like Hurricane Irene have clearly demonstrated the need for an alternative rail storage facility that is not susceptible to future flooding events or other potential weather-related hazards such as tree falls.

NJ TRANSIT has identified the following inter-related goals for storm preparedness in advance of and following an event:

- maintain continuity of operations for as long as possible before and after a storm;
- minimize customer inconvenience and economic slowdown;
- maintain access to job centers and mobility within New Jersey and between New Jersey and New York; and,
- provide an effective evacuation capability from population and job centers.

The purpose of the proposed Project is to provide NJ TRANSIT with a location to store rail cars at an inland location along the Northeast Corridor that is not susceptible to flooding or tree fall, at an elevation that minimizes flood hazard risk. The S&I Facility will permit the rapid return to service of train sets after a storm by allowing Federal Railroad Administration (FRA) mandated inspections to occur in the same location as the emergency train storage. The purpose of the proposed Project is also to provide a yard within NJ TRANSIT's service territory on the Northeast Corridor to permit more efficient train movements under normal operating conditions. The central location of County Yard on the Northeast Corridor, adjacent to the Jersey Avenue Station where some trains begin and end revenue service to New York, will reduce the number of miles trains have to travel without passengers (deadhead miles).



#### 4.4 DESCRIPTION AND USE OF SECTION 4(F) PROPERTY

The proposed Project will not result in the “use” of any regulated parklands or other recreational areas. The properties that are subject to Section 4(f) protection are historic resources identified through consultation with the State Historic Preservation Office (NJ SHPO) in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA). The Section 106 review process requires consultation with NJ SHPO in order for FTA to make a determination of “adverse effect” when a project may directly or indirectly alter characteristics of a historic property that qualifies it for inclusion in the NRHP. Therefore, Section 106 of the NHPA is relevant to the analysis of Section 4(f) impacts because it leads to the identification of the historic properties that are subject to Section 4(f) protection.

The proposed Project will have an adverse effect on the Pennsylvania Rail Road Historic District, which is eligible for listing in the NRHP and is significant for its association with transportation and commerce, and its engineering features including cuts, embankments, over-grade and under-grade bridges, culverts, stations, interlocking towers, and overhead catenary system. The historic district within the proposed Project area incorporates the historic Mile Run Yard (currently known as the County Yard), the County Interlocking Tower, the Delco Lead, Mile Run culvert, and stone retaining walls, all of which are contributing resources to the railroad district. Therefore, the Section 4(f) resources evaluated in this document include:

- **Mile Run Yard** was developed to meet changing operational needs as the Pennsylvania Railroad evolved from a freight and passenger hauler into part of the nation’s preeminent high-speed passenger rail system. It is historically significant as it retains integrity of location and setting and continues to function for rail purposes, and conveys the essence of a rail yard despite the losses of related railroad maintenance facilities and track; and
- **County Interlocking Tower**, rebuilt in 1951 after a freight train derailment partly demolished a 1900-era building, is strictly utilitarian in form and designed for efficiency and economy. It currently serves as a crew quarters. The structure lacks the typical architectural details normally associated with interlocking towers in the historic district, such as brick construction, tile roofs, expansive windows, and two-story form. Closed off windows, replacement sash, and modern doors diminish the resource’s integrity for individual eligibility. However, the 1950s era electronic interlocking machine and associated equipment remain inside, and the building was re-constructed during the period of significance of the Pennsylvania Railroad. Therefore, it is historically significant as it retains sufficient integrity to convey its associations with the railroad and continues to function for railroad purposes.
- **Culvert 32.61 over Mile Run** was built as part of a major rebuilding of the Pennsylvania Railroad at the turn of the twentieth century, which included its expansion to four tracks and a major grade separation campaign through the City of New Brunswick. When new, the structure was typical of the kind of stone masonry work carried out across the PRR system at this time. The eastern portions of the original structure have been obscured by the application of a later concrete facing, which detracts from its ability to meet the criteria for

- individual eligibility for listing in the NRHP. However, the original stone structure survives beneath and remains visible on the western end and continues to serve the purpose for which it was intended.
- **Delco Lead** was built in the years during and immediately following World War II and epitomized the Pennsylvania Railroad's efforts to attract and capitalize on new industrial production. The Lead provided both the incentive and the means by which industries relocated to and accessed the railroad's vast transportation network. Accordingly, it acted as an important funnel for freight traffic, the railroad's financial life blood. The significance of the Delco Lead does not rise to the level of individual eligibility to the NRHP. However, the structure is a surviving example of the Pennsylvania Railroad's important industrial sidings designed to serve factory complexes constructed on lands assembled and marketed by the railroad.
  - **Stone Retaining Walls** were built as part of the railroad's grade separation program through the center of the City of New Brunswick and therefore are important examples of the railroad's technical and engineering output carried out all over the Pennsylvania Railroad's system at the turn of the twentieth century. The use of rusticated stone is characteristic of the construction practices at the time and, therefore, is easily identified with the historic rail corridor. Alone, the Stone Retaining Walls do not rise to the level of individual eligibility for listing in the NRHP, but date to the period of significance of the Historic District and retain integrity.

Mile Run Yard and its constituent historic parts, including the County Interlocking Tower, will be extensively altered, demolished, and/or covered in fill to create level ground on which to construct the new S&I building, tracks, yard master's tower and related infrastructure. The existing size and topography of the Mile Run/County Yard and Delco Lead properties provide insufficient building area and elevation to meet the proposed Project's purpose of providing safe haven storage for over 400 rail cars with a co-located S&I Facility above the 100-year floodplain. Extensive filling and grading at both the County Yard and Delco Lead properties will be required to elevate and expand a suitable buildable area, meet NJ TRANSIT's Flood Elevation Design Criteria, and provide rail connectivity with the Northeast Corridor. Because the following contributing historic properties are defined by and/or embedded within the existing topography, and because the extent of filling and grading is necessitated by the proposed Project's parameters, there are no feasible design alternatives at the proposed County Yard and Delco Lead locations that can avoid the use of these contributing resources, as follows:

- **Mile Run Yard.** The proposed Project includes full build out of the existing 13-acre yard, and the addition of fill to elevate all proposed Project elements above NJ TRANSIT's Flood Elevation Design Criteria. The existing County Yard lies within the boundaries of Mile Run Yard and the larger Pennsylvania Railroad Historic District. As a result, there are no alternative site layouts at County Yard that would avoid "use" of the Mile Run Yard or mitigate the visual effects to the character-defining features of the Mile Run Yard and the Pennsylvania Rail Road Historic District.

- **Culvert 32.61 over Mile Run Creek.** The proposed Project requires installation of a culvert extension to minimize impacts to the streambed and support the S&I Facility and associated infrastructure. The current stone culvert will be altered and obscured by the extension;
- **Stone Retaining Walls.** The walls will be buried by the fill in order to provide level ground for the new railroad infrastructure at the required elevation;
- **The Delco Lead.** The property will be graded and fill will be added where necessary to prepare level ground for the installation of tracks, signals and catenary.

Avoiding the use of any of these properties would require selection of a completely different site (see Sections 4.5.2 and 4.5.3, below).

The County Yard Interlocking Tower is located within Mile Run/County Yard at an elevation near the required safe haven elevation. County Interlocking Tower will be demolished to make room for storage tracks and associated railroad infrastructure. Alternatives that avoid the use of County Interlocking Tower include selection of a completely different site (Sections 4.5.2 and 4.5.3) and alternative site layouts in County Yard (see Section 4.5.4, below).

#### **4.5 AVOIDANCE ALTERNATIVES**

The Section 4(f) regulations refer to an alternative that will not require the use of any Section 4(f) property as an avoidance alternative and require FTA to determine whether there are feasible and prudent avoidance alternatives. Feasible and prudent avoidance alternatives are those that avoid using any Section 4(f) property and do not cause other severe problems of a magnitude that substantially outweigh the importance of protecting the Section 4(f) property (23 CFR 774.17). Feasible and prudent avoidance alternatives are those that do not compromise the proposed Project to an unreasonable degree in light of its purpose and need.

One of the two main purposes of the proposed Project is to mitigate the risks associated with storing and servicing trains at NJ TRANSIT's MMC during severe weather because that facility lies within the floodplain and cannot practically be raised to an elevation that would withstand impacts from future storms. The new yard will also need to serve as an alternative to Morrisville Yard, which is at the western end of the Northeast Corridor, since access to that yard can be cut off at the Delaware River due to flooding during a storm.

##### **4.5.1 Programmatic Requirements**

Criteria for the development and evaluation of alternatives to meet the needs of NJ TRANSIT's Resilience Program, and the goals and objectives established for the proposed Project, include:

- The yard must be located on the Northeast Corridor and permit the rapid and efficient movement of equipment to a safe haven location under emergency conditions. Using a yard elsewhere in the NJ TRANSIT system would cause unacceptable operating inefficiencies, would not permit passenger service to continue as long as possible prior to a system-wide shut down, and would delay getting the system up and running after a storm;



- The site selected must be inland and not prone to flooding or require crossing an area that typically floods during severe weather events. The site must be able to meet NJ TRANSIT's Flood Elevation Design Criteria for all new infrastructure elements;
- The site must be large enough to accommodate rail car storage for equipment stored at the MMC, and at least some of Morrisville Yard's capacity<sup>18</sup>; and provide room for a 1,250 foot S&I Facility to enable the rapid return of trains to revenue service after a storm. The yard must accommodate access routes between tracks and to the facility, and enough parking for employees under emergency conditions, estimated at 183 parking spaces;
- The yard must be in a central location on the Northeast Corridor to improve operating efficiencies under normal operating conditions. NJ TRANSIT operates zone service on the Northeast Corridor, which includes local trains operating between Jersey Avenue Station and New York Penn Station. An efficient operating plan minimizes the distance that trains must travel empty (i.e., deadhead miles). Locating the yard in the vicinity of the Jersey Avenue Station will reduce the number of deadhead miles that trains currently travel for nighttime storage at Morrisville Yard (see Figure 4-1).
- The site must be available and allow for expedited project delivery. Sandy underscored the need to prioritize and advance NJ TRANSIT's most critical projects to enhance the resiliency of the public transportation system to mitigate the increased risks of more frequent and severe weather events.

Due to the difficulty of siting a new yard in densely developed areas, only existing transportation facilities on the Northeast Corridor were considered. Community opposition related to real or perceived threats of increased noise, neighborhood traffic congestion, air and light pollution, and decreased property values, routinely delay projects that include storage and maintenance yards in new locations. As per U.S. DOT regulations, avoidance alternatives are not those that "cause severe problems of a magnitude that substantially outweigh the importance of protecting the property." Accordingly, only existing yards on the Northeast Corridor were considered.

The only train storage facilities located on the Northeast Corridor other than Morrisville and County yards, are Metuchen, Linden, and Sunnyside yards. These facilities are evaluated below for their ability to satisfy the programmatic requirements.

#### **4.5.2 Linden and Metuchen Yards**

Linden Yard is a 17-track yard owned by Conrail located inland, approximately ¼ mile west of Linden Station, on the Northeast Corridor (see Figure 4-1). This yard is in a location that is not prone to flooding, but it has the capacity to store only 242 rail cars. Expansion of this yard to accommodate additional storage tracks, an S&I Facility, and associated yard infrastructure would require displacement of a large substation and a number of active businesses.

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<sup>18</sup> Average overnight storage at the MMC includes 351 rail cars (i.e., 196 coaches, 80 locomotives, and 75 Multiple Units). Average overnight storage at Morrisville Yard includes 214 rail cars (i.e., 128 coaches, 14 locomotives, and 72 Multiple Units).

Metuchen Yard is a five-track yard owned by Amtrak with a capacity to store 110 rail cars. Expansion of this yard to accommodate additional storage tracks, an S&I Facility, and associated yard infrastructure would require displacement of active businesses.

Since neither of these yards are large enough to accommodate the average number of rail cars stored at the MMC without major and costly expansion, their combined use is evaluated as an avoidance alternative. The combined storage capacity of Linden and Metuchen Yard is approximately 350 rail cars. Thus, the combined capacity of Linden and Metuchen Yards would only accommodate the rail cars displaced from the MMC and not rail cars stored at Morrisville Yard.

Both Linden and Metuchen Yards are located to the south of the Northeast Corridor tracks (eastbound side), which requires crossing all four Northeast Corridor tracks when moving rail cars from the MMC. Due to the congestion of Amtrak and NJ TRANSIT's rail traffic on the Northeast Corridor, movement of NJ TRANSIT rail cars to these yards prior to a storm would require diminished service to Northeast Corridor customers several days ahead of the storm. After a storm, service restoration would also be slow due to the need for trains to be inspected either at the Morrisville Yard or the MMC prior to being returned to revenue service. Since both the MMC and the route to the Morrisville Yard are susceptible to flooding, there is a high probability that extended delays would occur. Regardless, the inefficient movement of equipment before and after a storm would result in prolonged customer inconvenience and reduced mobility in the region.

Under normal operating conditions, neither Linden nor Metuchen Yards would be used for overnight storage because trains that begin and end their revenue service at the Jersey Avenue Station would still need to be serviced and inspected at Morrisville Yard, at the western end of NJ TRANSIT's service territory.

While use of Linden and Metuchen Yards is currently part of NJ TRANSIT's Emergency Preparedness Program, their use over the long term for emergency storage is uncertain. Linden Yard is leased from Conrail for five years; however, the lease agreement is structured such that Conrail may terminate the lease if the yard is required for its normal business. Like Linden Yard, Metuchen Yard is also a leased facility, with uncertain prospects for long-term emergency storage. To protect NJ TRANSIT's rolling stock and provide continuity of passenger service, resiliency is dependent on reliable measures for providing safe haven for its fleet. The tenuous nature of leased properties without permanent usage rights presents a risk to long-term resiliency planning. Since the loss of availability of Linden Yard and Metuchen Yard, due to lease termination, will put approximately 350 pieces of equipment at risk, NJ TRANSIT has taken the initiative to act before a crisis arises to identify a permanent safe haven location.

Although use of Linden and Metuchen Yards would be feasible, it would not be prudent as it: 1) would not permit the rapid and efficient movement of equipment under emergency conditions due to its location to the south of the Northeast Corridor; 2) would not accommodate the S&I Facility and storage needs identified for the proposed Project without significant property acquisition and displacement of active businesses; 3) would result in a less efficient operating plan compared to the use of County Yard; and 4) would not offer expedited project delivery due to property acquisition

requirements and Conrail's and Amtrak's competing interest for the property. For these reasons, use of Linden and Metuchen Yards was eliminated from further consideration.

#### **4.5.3 Sunnyside Yard**

Sunnyside Yard is located in the borough of Queens in New York City and is used by NJ TRANSIT for midday storage after passengers discharge at New York's Penn Station. Its location at the eastern end of NJ TRANSIT's service territory makes it unsuitable for use as a safe haven storage and S&I Facility. While Sunnyside Yard has adequate capacity and FRA-mandated inspections could be performed in the same location, given the level of congestion on the Northeast Corridor, and the constraints imposed by its various choke points (including the Hudson and East River tunnels) use of Sunnyside Yard would require reducing service to NJ TRANSIT customers well ahead of the storm in order to permit the additional train movements that would be required to store the equipment. Furthermore, the East River and Hudson River tunnels are subject to flooding. During severe weather events, rail cars stored at Sunnyside Yard would likely be cut off from the rest of the system, which would impede restoring service after the storm. Sunnyside Yard is not centrally located and it could not be used under normal operating conditions for night time storage of rail cars due to the level of congestion on the Northeast Corridor in general, and in the East and Hudson River tunnels in particular.

Although use of Sunnyside Yard would be feasible, it would not be prudent as it: 1) would not permit the rapid and efficient movement of equipment under emergency conditions 2) would be cut off from the rest of the system during storms due to flooding in the East River and Hudson River tunnels; and 3) could not be used for night time storage under normal operating conditions due to capacity constraints on the Northeast Corridor. Since Sunnyside Yard would not meet the programmatic requirements identified for the proposed Project, it was eliminated from further consideration.

#### **4.5.4 Alternative Site Layouts to Avoid Use of County Interlocking Tower**

Since there are no avoidance alternatives to the "use" of County Yard, alternative site layouts were examined to determine whether "use" of County Interlocking Tower could be avoided.

The proposed Project requires acquisition of approximately two acres of additional land, full build out of the existing 13-acre County Yard, and the addition of fill to elevate all proposed Project elements above NJ TRANSIT's Flood Elevation Design Criteria.

The planned site expansion and additional fill in County Yard represents the smallest possible footprint that is needed to accommodate the improvements to meet the proposed Project's purpose and need. County Interlocking Tower is located in the southwestern portion of the yard, in the path of three of the five proposed storage tracks. If demolition of County Interlocking Tower were to be avoided, only two storage tracks could be built reducing the proposed track capacity of the yard by 60 percent.

The size and shape of the existing County Yard site presents a challenge in the design of an adequate number of storage tracks. The yard is long and narrow and surrounded by facilities that cannot be relocated including the Northeast Corridor to the south; Jersey Avenue Station to the west; Amtrak Substation 37 to the northwest; New Brunswick's Department of Public Works facility to the north; and a private industrial facility to the east. The track layout needs to accommodate the operational movements of Conrail's freight operations, which must be able to access the Millstone Branch from County Interlocking. NJ TRANSIT trains must be able to access Jersey Avenue Station from all County Yard tracks. Both the Yard and the S&I Facility need to have "run through" capability which means that a train can enter from the east and exit to the west. This is required to minimize unnecessary train movements in the yard and is critical to running efficiently with high reliability to maintain and/or resume operation quickly. The length of the S&I Facility dictates its location on the north side of the yard above Mile Run and the Mile Run culvert needs to be extended to support the construction of the S&I Facility. As a result of these considerations, alternative layouts that would avoid the demolition of the County Interlocking Tower are not prudent.

#### **4.5.5 Summary**

The Delco Lead/County Yard has been determined to be the optimal location for NJ TRANSIT's storage and S&I Facility. Its location to the north of the Northeast Corridor (westbound direction), allows for service to continue for as long as possible prior to a storm, and expedites service restoration after a storm. The site permits the development of an adequate number of storage tracks and a co-located S&I Facility. Its central location adjacent to Jersey Avenue Station, where trains begin and end their revenue service, will permit an efficient operating plan under normal operating conditions. There are no avoidance alternatives that meet the programmatic requirements identified for the yard. Alternative site layouts to avoid the "use" of County Interlocking Tower are also not prudent due to site constraints. Alternative sites and alternative site layouts would compromise to an unreasonable degree, the ability of the proposed Project to meet its goals and objectives.

#### **4.6 LEAST OVERALL HARM ANALYSIS**

Since this Section 4(f) Evaluation concludes that there are no avoidance alternatives that are feasible and prudent, an assessment of "Least Overall Harm" has been undertaken. The assessment of least overall harm involves three activities:

1. Explore design modifications to avoid the "use" of each Section 4(f) property and determine whether these avoidance options are prudent and feasible.
2. Examine all possible planning to minimize harm, including reasonable mitigation measures.
3. After design modifications have been developed and all possible planning to minimize harm has been incorporated, compare the Section 4(f) uses along with impacts to other environmental resources to determine which option would result in the least overall harm.

#### **4.6.1 Minimization and Mitigation of Harm**

As indicated in Section 4.5.4 above, design modifications to avoid the “use” of each Section 4(f) resource are not feasible and prudent. As mentioned above, the properties that are subject to Section 4(f) protection are historic resources identified through consultation with the NJ SHPO. Section 4(f) approval requires the consideration and documentation of all possible planning to minimize harm to a Section 4(f) property. Mitigation consists of measures to compensate for the adverse effects to historic properties that cannot be avoided or minimized. A Programmatic Agreement has been executed by FTA, NJ TRANSIT and NJ SHPO, which includes protocols for new structures and demonstrates that all possible planning to minimize harm to a Section 4(f) property has been considered in consultation with the officials with jurisdiction (see Appendix A).

The mitigation protocols are as follows for each of the contributing properties listed in Section 4.4:

- **Mile Run Yard.** The entire Mile Run Yard and its constituent parts will be documented to the standards of the Historic American Building Survey/Historic American Engineering Record (HABS/HAER). This mitigation will include documentation of the County Interlocking Tower, Culvert 32.61 over Mile Run, Delco Lead, and Stone Retaining Walls and will address the full history of these resources within the overall context of the historic district in New Brunswick. Interpretive signs will be installed at locations mutually acceptable to all parties. Plans, a schedule of implementation, and the content of these signs will be developed in consultation with the NJ SHPO. Context-sensitive designs will be developed for all new structures in consultation with the NJ SHPO, as described above and more fully in the Programmatic Agreement<sup>19</sup>.
- **County Interlocking Tower.** Because this contributing resource will be demolished, as indicated above, HABS/HAER documentation will be prepared and the interpretive signs will address this resource.
- **Culvert 32.61 over Mile Run.** The proposed Project will retain the existing culvert structure, but necessitates a northern extension to support the S&I Facility and associated infrastructure. As part of the adopted design protocol, NJ TRANSIT will work with NJ SHPO to ensure that the new interface between the historic culvert over Mile Run and the proposed culvert extension preserves the original historic fabric of the existing culvert to the fullest extent practical, and the NJ SHPO shall have an opportunity to review and approve construction plans. The new culvert façade will be designed in accordance with the Secretary of the Interior’s “Standards for the Treatment of Historic Properties. In addition, as indicated above, HABS/HAER documentation will be prepared and the interpretive signs will address this resource.

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<sup>19</sup> The Programmatic Agreement also identifies mitigation measures that would be carried out if any significant archaeological resources are unearthed. The existence and historic value of undiscovered historic and prehistoric archaeological resources are unknown at this time. The Programmatic Agreement identifies protocols for the investigation of archaeological resources that will be followed.



- **Delco Lead.** Because this contributing resource will be altered, as indicated above, HABS/HAER documentation will be prepared and the interpretive signs will address this resource.
- **Stone Retaining Walls.** Since the Stone Retaining Walls will be buried in fill, HABS/HAER documentation will be prepared and the interpretive signs will address this resource.

#### **4.6.2 Comparison of Section 4(f) Use of Different Options**

Section 4(f) requires comparison of prudent and feasible alternatives or alternative alignments after all possible planning to minimize harm has been incorporated. Seven factors for this comparison are set forth in 23 CFR 774.3 (c) (1). These factors relate to the: 1) relative severity of remaining harm; 2) ability to mitigate adverse effects; 3) relative significance of each Section 4(f) property; 4) views of officials with jurisdiction; 5) degree to which the purpose and need is met; 6) the magnitude of any adverse impacts to environmental resources, after reasonable mitigation; and 7) substantial differences in costs among the alternatives.

With the exception of the No Action Alternative, there are no alternatives or alignment options that would avoid the “use” of Section 4(f) properties. The No Action Alternative is not a feasible and prudent alternative as it would not meet the purpose and need of the proposed Project. As a result, only the development of County Yard/Delco Lead with and without mitigation were compared by applying the seven factors, as follows.

Incorporating the NJ SHPO-recommended mitigation measures is superior to the “no mitigation” alternative with regard to criteria 1, 2 and 4, since the NJ SHPO has determined that the mitigation measures are appropriate to the relative significance of the Section 4(f) resources. The relative significance of each Section 4(f) property (factor 3) is the same for each alternative, because the same Section 4(f) resources are affected under both alternatives. Similarly, both the “no mitigation” and “mitigation” alternatives are rated equally with regard to criteria 5 and 6 as both would meet the proposed Project’s purpose and need and affect environmental resources to the same degree. The “mitigation” alternative requires a small increase in project cost, but does not add substantial or unreasonable cost.

The proposed use by NJ TRANSIT for County/Mile Run Yard is consistent with its historic use, and the measures to minimize harm and mitigate adverse effects have been developed in consultation with the NJ SHPO. NJ TRANSIT has determined that the design alternative with mitigation measures developed in cooperation the NJ SHPO will result in the Least Overall Harm and is therefore the preferred alternative.

#### **4.7 COORDINATION**

The proposed Project has been coordinated with NJ SHPO, the Advisory Council on Historic Preservation (ACHP), and consulting and interested parties. The record of consultation is provided in Appendix A.

The ACHP was notified of the Section 106 adverse effect finding for the proposed Project and was offered an opportunity to participate in the Section 106 consultation process. In correspondence dated July 6, 2015, ACHP chose not to participate.

This Draft Section 4(f) Evaluation will be made available to the Department of Interior (DOI) and other officials with jurisdiction for coordination and comment for a period of 45 days. Comments will be addressed in a Final Section 4(f) Evaluation.

#### **4.8 CONCLUSION**

Based on the above considerations, there is no feasible and prudent alternative to the “use” of land from the Pennsylvania Railroad Historic District, Mile Run Yard and County Interlocking Tower. The proposed Project includes all possible planning to minimize harm to the historic district and its contributing resources from such use.

## **Chapter 5** **Agency and Public Coordination**

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### **5.1 AGENCY COORDINATION AND REQUIRED PERMITS**

Agency coordination has occurred throughout the NEPA process and will continue during the proposed Project's design. The proposed Project team is coordinating with NOAA National Marine Fisheries Service (NMFS), United States Fish and Wildlife Service (USFWS) and the NJDEP Natural Heritage Program (NHP) to comply with the Endangered Species Act, and NJ Forest Service to comply with the New Jersey No Net Loss Reforestation Act for the proposed tree clearing activities. The proposed Project has also incorporated ongoing coordination with the NJ SHPO and has been evaluated in compliance with the Section 106 process. Appendix A contains the record of Section 106 consultation correspondence. Correspondence from agencies other than the NJ SHPO is provided in Appendix D.

The environmental permits and land use regulatory approvals required to construct and operate the proposed Project are described below. The list focuses on state requirements since the regulated proposed Project actions are not within federally regulated areas. NJ TRANSIT is exempt from municipal site plan approval requirements.

#### **State**

- NJDEP Flood Hazard Area Individual Permit, which is required for excavation or filling in regulated flood hazard areas, riparian zones;
- NJDEP Freshwater Wetlands Individual Permit, which is required for any clearing or filling of State open waters or freshwater wetlands;
- Compensatory Mitigation, which is required for clearing or filling of Riparian areas, open water areas or freshwater wetlands (including placement of structures);
- Soil Erosion and Sediment Control Certification, which is required for any disturbance greater than 5,000 square feet; and
- General Permit for Stormwater Discharge/NJDPEs. Stormwater Discharge Permits are issued limiting the mass and/or concentration of pollutants which may be discharged into ground water, streams, rivers, and the ocean.

#### **Local**

- Delaware and Raritan (D&R) Canal Review (Zone B) jurisdictional determination/ approval. The D&R Canal Commission administers a land-use regulatory program within the area where new development could have drainage, visual or other ecological impact on the Canal Park.

## 5.2 PUBLIC INVOLVEMENT

A public information session was held on April 16, 2015 to provide proposed Project information and respond to concerns and comments expressed by members of the local community. Full and fair participation by all potentially affected communities was encouraged in accordance with USDOT's Environmental Justice policies. Targeted outreach to Environmental Justice communities included:

- Coordination with the Housing Authority to identify the best ways to reach residents. Flyers were left in the Housing Authority offices where many residents go to pay their rent;
- Addresses of non-Housing Authority residents were obtained from the City of New Brunswick to generate an initial mailing list. A mailing with meeting information was sent to nearly 1,750 current residents and property owners with notification details in English and Spanish;
- Emails and fliers with meeting information in both English and Spanish were distributed to public libraries, schools/universities, government and community facilities, and houses of worship and supermarkets;
- Meeting advertisements were placed in the *El Especialito*, a Spanish publication in Middlesex County, as well as in the local newspaper, the *Home News Tribune*;
- An email notification was distributed to the local planning department, local municipalities, County officials, and elected officials serving in Congressional District 6, and New Jersey's Legislative District 17; and
- Project information on the NJ TRANSIT website was updated.

The meeting occurred in an ADA-compliant facility, and a Spanish interpreter was on-site. Information Boards were posted and proposed Project team members circulated among the boards, answering questions and describing the proposed Project to attendees. Comment Forms (in English and Spanish) were available. The Comment Forms could be completed on site, but also included mailing and email addresses so that meeting attendees could send in comments after the meeting if desired. Approximately 30 people attended the information session, and four comments were submitted each of which contained no objections to the proposed Project. A summary of the comments received and meeting materials can be found in Appendix E.

## **Chapter 6**

## **List of Preparers**

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### **FEDERAL TRANSIT ADMINISTRATION**

**Nancy Danzig, Director, Office of Planning and Program Development, Region II. EA/Section 4(f) Evaluation review and approval.**

**Dan Moser, Community Planner, Region II. EA/Section 4(f) Evaluation review and approval.**

**Helen Serassio, Attorney Advisor. EA/Section 4(f) Evaluation review and approval, legal sufficiency.**

### **NJ TRANSIT**

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**Dara Callender, P.E., Manager, Environmental Compliance, Environmental Services Unit; project manager and Section 106 oversight and coordination.**

**Nick Caiazza, Manager, Environmental Compliance, Environmental Services Unit; project manager.**

**John Geitner, CHMM, Senior Director, Environmental Services Unit; program manager.**

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**Damon Tvaryanas, Richard Grubb and Associates, Historic Architectural and Archaeological Resources and Section 106 Consultation.**

**Hillel Hammer, AKRF, Inc. GHG Emissions Analysis.**

**Sharon Paul Carpenter, Paul Carpenter Associates, Inc. Air Quality Assessment.**

**Dayna Bowen, Paul Carpenter Associates, Inc. Noise and Vibration Assessment.**

**Chitra Radin, Radin Consulting Inc. Support for Environmental Justice Analysis.**

**Krupti Kalbag, Radin Consulting Inc. Support for Environmental Justice Analysis.**

**Marlene B. Pissott, InGroup Inc. Public Participation.**

**Carmen R. Costa, InGroup Inc. Public Participation.**