

### A. INTRODUCTION

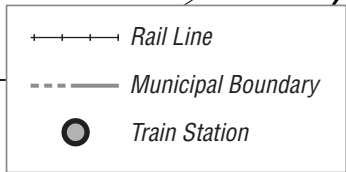
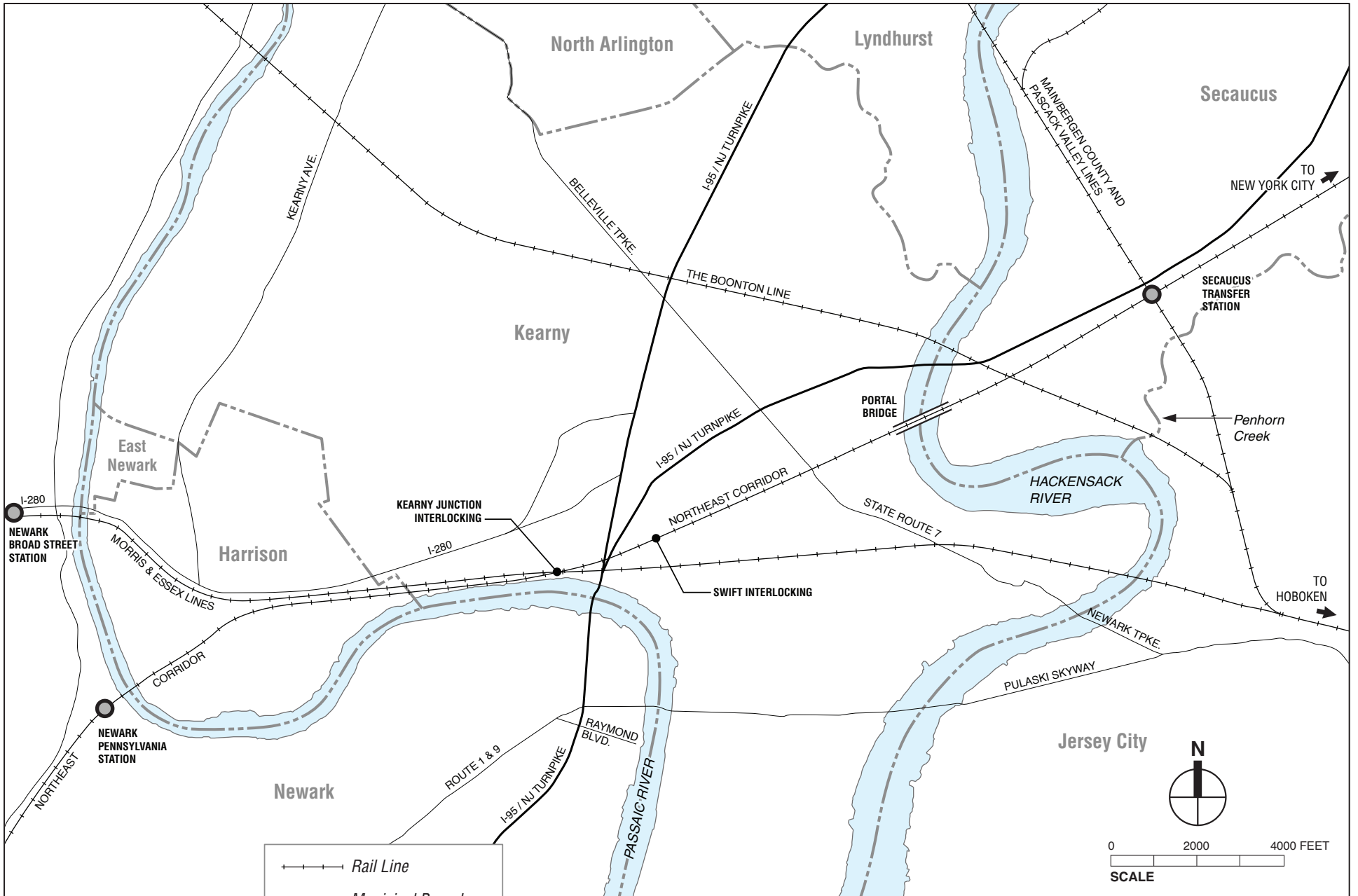
The National Railroad Passenger Corporation (Amtrak) and the New Jersey Transit Corporation (NJ TRANSIT) have proposed to enhance the capacity and improve the operation of the Portal Bridge, a rail crossing over the Hackensack River in Hudson County, New Jersey. The Federal Railroad Administration (FRA) and NJ TRANSIT have prepared this Final Environmental Impact Statement (FEIS) to analyze the potential environmental impacts from the proposed project. FRA is the lead federal agency for this EIS. The Federal Transit Administration (FTA), U.S. Environmental Protection Agency (USEPA), and the U.S. Coast Guard (USCG) are cooperating agencies for the environmental review.

The existing Portal Bridge is a two-track, moveable swing-span bridge that was constructed by the Pennsylvania Railroad (PRR) and began operation in 1910. The aging Portal Bridge, owned by Amtrak, is a bottleneck along the Northeast Corridor that conflicts with marine traffic and impedes efficient and reliable passenger rail service. The Portal Bridge Capacity Enhancement Project FEIS examines four build alternatives in addition to the “no build” scenario and identifies a preferred alternative. The build alternatives, which were identified through a comprehensive alternatives development and screening process, involve two new bridges to replace the existing bridge. They differ primarily with respect to the location of the southern bridge and the type of grade-separated crossing, either track fly-over or duck-under, included to improve railroad operations. Revenue service would begin between 2017 and 2019, depending on the build alternative. As shown in Figure S-1, the study area for the project extends east to west from Secaucus Transfer Station (also known as the “Frank R. Lautenberg Station” or “Secaucus Junction”) to Kearny Junction Interlocking and north to south 2,000 feet from the Northeast Corridor.

The Northeast Corridor is the most heavily used passenger rail line in the U.S., both in terms of ridership and service frequency.<sup>1</sup> The Northeast Corridor extends from Washington, D.C. in the south to Boston, Massachusetts in the north, serving the densely populated northeast region, including Pennsylvania Station in New York City (PSNY). Amtrak, the nationwide inter-city passenger rail operator, owns much of and operates over all of the Northeast Corridor. Amtrak carries approximately 15,700 passengers each day in each direction over the Portal Bridge, including 3,900 passengers per day on the time-sensitive premium Acela Express service. NJ TRANSIT carries an average of 150,000 passengers per day in both directions over the Portal Bridge on almost 350 trains (not including non-revenue trains that are not available to the public for transportation).

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<sup>1</sup> Source: BGL Rail Associates, for the Amtrak Reform Council, *A Recommended Approach to Funding the Estimated Capital Investment Needs of the Northeast Corridor Rail Infrastructure*, April 2002.



## **B. PURPOSE AND NEED**

The Portal Bridge is a critical infrastructure element for Amtrak and NJ TRANSIT, enabling movement between destinations east and west of the Hudson River. The existing Portal Bridge, however, poses reliability concerns, capacity constraints, and operational inflexibility. *The purpose of the project is to replace the nearly 100-year-old Portal Bridge and eliminate capacity constraints on the Northeast Corridor between Swift Interlocking and Secaucus Transfer Station.*

### **PROBLEM IDENTIFICATION AND NEED**

#### *AGING AND LIMITING INFRASTRUCTURE*

The existing Portal Bridge was constructed nearly a century ago. Given the Portal Bridge's age, the structure is nearing the end of its economic life. The existing Portal Bridge presents a considerable ongoing operation and maintenance expense for Amtrak because the mechanical and structural components are prone to failure due to age and wear.

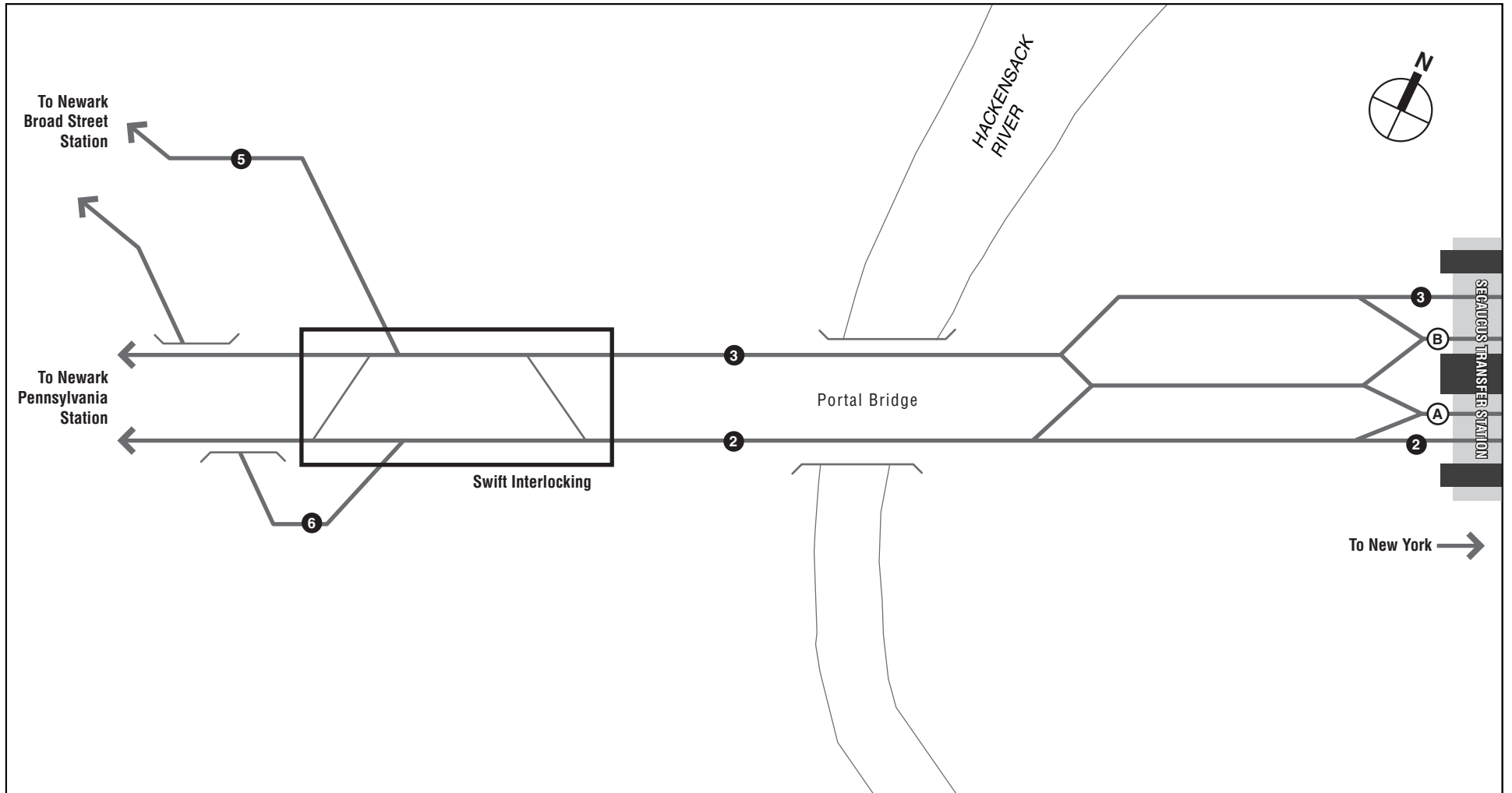
In addition to the age of the Portal Bridge, several aspects of the bridge's design are problematic. The middle span is a 300-foot-long moveable swing-span and is able to pivot to an open position to allow marine traffic to pass. When the swing-span is open, the bridge is closed to train traffic. Special rail connections, known as "miter rails," allow the rails to disengage and the bridge to open and close. The miter rail connections have been an ongoing problem since the Portal Bridge was constructed, and the connections have been replaced several times. While trains can operate at 90 miles per hour (mph) on adjacent portions of the Northeast Corridor, speeds on the Portal Bridge have been permanently restricted to 60 mph. The bridge openings required to accommodate marine traffic increase the likelihood of mechanical malfunctions, which have in the past caused the bridge to remain in the open position for long periods of time.

#### *CAPACITY CONSTRAINTS AND OPERATIONAL INFLEXIBILITY*

The two-track configuration of the Portal Bridge and the speed restrictions discussed above limit the number of trains that can cross the Hackensack River, which is especially problematic during peak commuter hours. The Northeast Corridor has two tracks between Swift Interlocking (the point where MidTOWN Direct trains merge onto the Northeast Corridor, as shown in Figure S-2) and Secaucus Transfer Station (the point where six NJ TRANSIT lines intersect). Because multiple rail lines and different train types operated by NJ TRANSIT and Amtrak are merging onto a two-track bridge crossing, the window of opportunity for each train is reduced. This operational inflexibility means that a delay on one rail line can cascade to other rail lines. A January 2006 analysis revealed that, on average, an additional four to five trains were subsequently delayed due to an initial interruption in service. Frequent bridge openings exacerbate the current operational inflexibility.

#### *MAINTENANCE DIFFICULTIES*

The complexity of the swing bridge with the miter rail configuration and the level of train traffic require vigilant maintenance and inspection of the Portal Bridge, especially the connections between the bridge and adjacent track. The current level of train traffic over the bridge leaves few windows of opportunity for maintenance and inspection activities to be performed. Sections of track must be taken offline to perform these tasks. To avoid disruption to passenger service,



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Amtrak is forced to conduct maintenance and inspection during increasingly limited time periods, such as at night and on weekends. This results in high costs from increased labor premiums for night and weekend work, and reduced productivity rates due to the small work windows. Often, if a component fails during the day, trains are forced to operate slower than usual through peak period operations until the following night when a section of track can be removed from service.

#### *CONFLICTS WITH MARITIME USES*

The existing Portal Bridge has only 23 feet of clearance between mean-high-water (MHW) and the lowest steel elevation of the bridge. As a result, the Portal Bridge is opened frequently to accommodate individual marine vessels, thereby disrupting Northeast Corridor train traffic. To assess the existing marine traffic, Portal Bridge data logs from April 2004 to April 2006 were examined. During that two-year period, there were 663 bridge openings. The average vertical clearance needed for those vessels that required a bridge opening was 27 feet. The smallest vertical clearance required by a particular vessel was 18 feet and the greatest vertical clearance required was 49 feet. This conflict is currently managed by restricting the times during which the bridge is permitted to open. Additionally, bridge malfunctions can cause delays that cascade from the non-peak period into the peak period. As the most heavily traveled rail line in the U.S. (as measured by number of daily train movements), trains are carefully scheduled going into and out of New York City to correspond to the capacity of the existing track and signal system infrastructure and the platform capacity at PSNY. Delays to rail traffic (even as short as two to three minutes) can cause trains to fall irrecoverably behind schedule. This is because some trains are scheduled as closely as two minutes apart. Once a train falls behind schedule or “out of slot,” that delay can cascade to one or more following trains. Depending on the timing and duration of the delay, and the direction of the affected train(s), it can be impossible to fully recover from the delay until the peak period has ended. These delays have the potential to affect both Amtrak and NJ TRANSIT's most time-sensitive riders.

#### **PROJECT GOALS AND OBJECTIVES**

The purpose of the project is to replace the nearly 100-year-old Portal Bridge and eliminate capacity constraints on the Northeast Corridor between Swift Interlocking and Secaucus Transfer Station. To compare and contrast the project alternatives developed as part of the EIS process, specific project goals and objectives have been identified. Six goals have been established for the Portal Bridge Capacity Enhancement Project, relating to capacity, reliability, safety, compatibility, cost-effectiveness, and environmental considerations. The six project goals are as follows:

- GOAL 1: Enhance capacity to meet current and future demand—including new service—along the Northeast Corridor.
- GOAL 2: Improve service reliability and operational flexibility.
- GOAL 3: Provide a redundant Hackensack River crossing to facilitate maintenance and enhance passenger safety and security.
- GOAL 4: Minimize conflicts with maritime traffic.
- GOAL 5: Optimize existing infrastructure and planned improvements.
- GOAL 6: Minimize impacts on the surrounding environment.

## **C. PROJECT ALTERNATIVES**

The project alternatives include several build alternatives in addition to a “no build” scenario (the “No Action Alternative”), wherein none of the project elements would be constructed and the existing Portal Bridge would remain in place. The build alternatives for the Portal Bridge Capacity Enhancement Project were identified through a comprehensive alternatives development and screening process that included considerable input from stakeholders and the public. The Access to the Region’s Core (ARC) project is an independent rail infrastructure project undergoing a separate environmental review that is not included in the No Action Alternative for the Portal Bridge project. The ARC project was considered in the development of the feasible Portal Bridge build alternatives and is considered for its potential to cause cumulative effects.

### **NO ACTION ALTERNATIVE**

The No Action Alternative consists of the transportation facilities most likely to be in place by 2030. The No Action Alternative assumes that the existing two-track swing-span Portal Bridge would remain in place and would be subject only to regular maintenance. The No Action Alternative also takes into account planned improvements that have recently been completed or are programmed for completion in the near future, as well as planned improvements that are included in the long-range regional transportation plan.

#### *MAJOR PLANNED PROJECTS*

##### *Access to the Region’s Core (ARC)*

NJ TRANSIT, in partnership with the Port Authority of New York and New Jersey (PANYNJ) issued a Draft EIS in February 2007 and a Supplemental Draft EIS in March 2008 for the ARC project. This project is particularly relevant to the Portal Bridge project since the ARC project would result in additional trains traversing the Portal Bridge. Amtrak and NJ TRANSIT’s 2030 Operating Plan (which includes the ARC project), projects additional trains traveling to the combined New York Pennsylvania Station (PSNY)/New York Pennsylvania Station Expansion (NYPSE) in the AM peak hour, as compared to existing 2006 conditions. This will result in a total of 48 Amtrak and NJ TRANSIT trains traveling to PSNY/NYPSE in the AM peak hour and a net increase of 16 trains over the Portal Bridge (i.e., from 23 to 39). Because the Portal Bridge Capacity Enhancement Project is independent of the ARC project, the analysis of the proposed alternatives and their potential environmental effects reflect future conditions without the ARC project. However, the ARC project was considered in the development of the feasible Portal Bridge build alternatives and is considered for its potential to cause cumulative effects.

##### *Other Projects*

Other major projects in the No Action Alternative include: Newark Pennsylvania Station Improvements; Farley Post Office/Moynihan Station Development Project; New Yard Capacity in the Vicinity of New York Pennsylvania Station; New York Pennsylvania Station Capacity Enhancements; Introduction of Bi-Level Cars to NJ TRANSIT; and the Wittpenn Bridge Replacement.

## BUILD ALTERNATIVES

The *Scoping Document* (December 2006) presented general categories of project alternatives that were planned for consideration, including alternatives that would retain, replace, or modify the existing Portal Bridge. The results of the alternatives development process were presented in the *Alternatives Screening Report* (July 2007). The *Alternatives Screening Report* concluded with identification of two feasible alternatives: (1) construction of a two-track moveable bridge on a new southern alignment and construction of a three-track fixed bridge on a new northern alignment; and (2) construction of a two-track moveable bridge on the existing Portal Bridge alignment and construction of a three-track fixed bridge on a new northern alignment. Subsequent to the *Alternatives Screening Report*, these two alignment alternatives were evaluated more closely for engineering, operational, and environmental feasibility, as well as for connectivity with the ARC project.

All of the build alternatives would include the decommissioning and removal of the existing Portal Bridge, in addition to the following project elements:

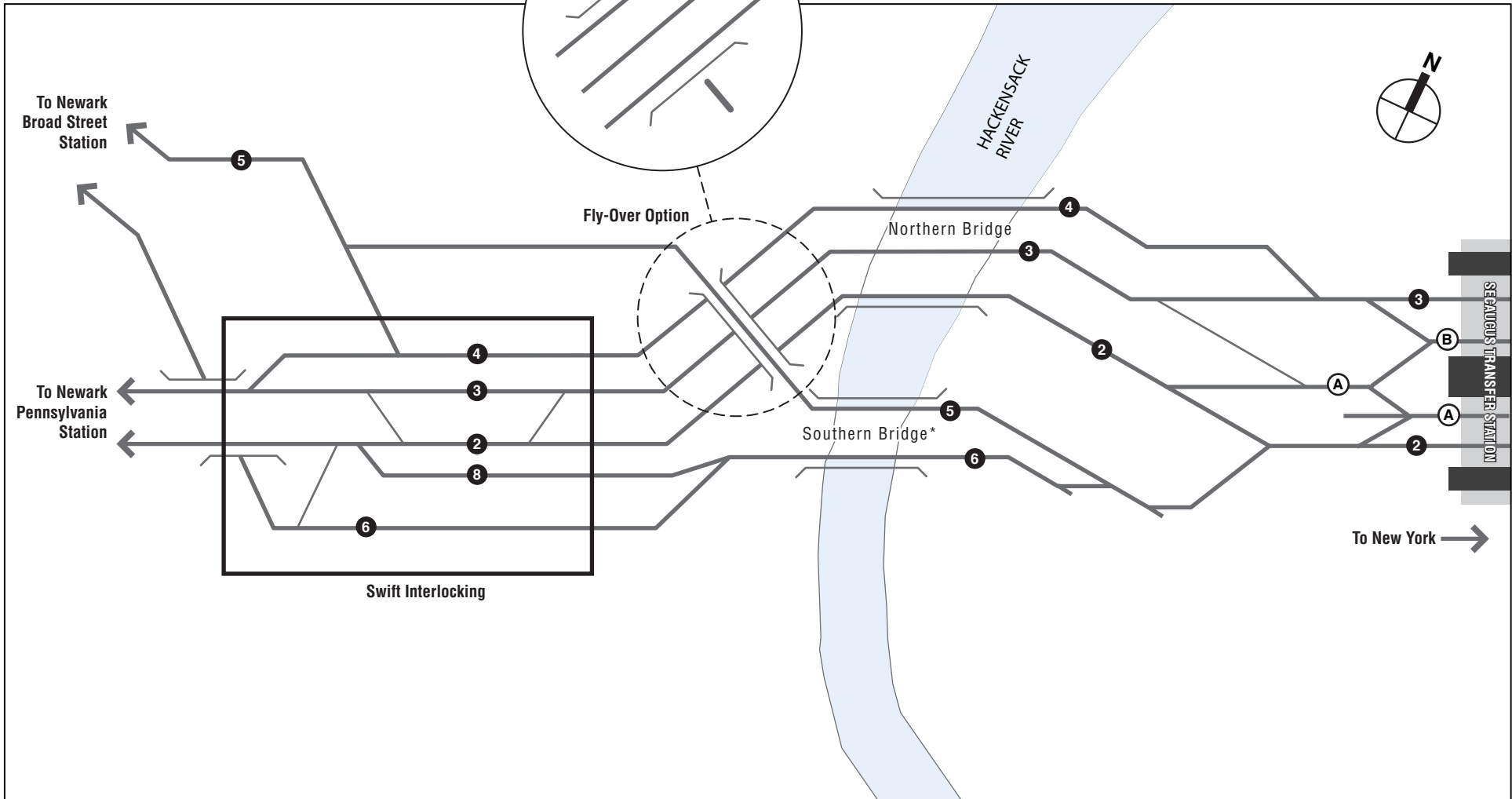
- Construction of a new three-track fixed northern bridge at a height of 50 feet above MHW and related approach structures. This 1,106-foot long bridge would consist of three spans with a 300-foot navigable channel.
- Construction of a new two-track moveable southern bridge at a height of 40 feet above MHW and related approach structures. The main span would be a vertical lift through truss and the two flanking side spans would be simply-supported fixed-span through trusses.
- A new track configuration between Swift Interlocking and Secaucus Transfer Station, including a grade-separated crossing of the Northeast Corridor.
- New ancillary equipment such as signal and communication systems, traction power supply and distribution, and catenary and communication support structures, as required.
- New rail bridges over Newark Turnpike, former Erie Newark-Paterson Branch right-of-way, Belleville Turnpike, former Erie Arlington Branch right-of-way, and the Boonton Line.<sup>1</sup>

Any of the four build alternatives would require reconfiguration of the existing track connections between Swift Interlocking and Secaucus Transfer Station. As shown in Figure S-3, the reconfiguration would include:

- Removal of the current two-track bottleneck by providing a minimum of four tracks between Secaucus Transfer Station and Swift Interlocking.
- A grade-separated crossing of Track 5 over or under the Northeast Corridor, to be used temporarily for construction staging and permanently for additional connectivity between the Morris & Essex Line and the Northeast Corridor. The grade-separated crossing is also required so as not to preclude ARC, which would require westbound Morris & Essex Line trains to platform on the south side of Secaucus Transfer Station.
- New track and crossovers that would allow for the normal operation of trains through the corridor.

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<sup>1</sup> The Boonton Line, which is owned by Norfolk Southern, is also known as NJ TRANSIT's former Boonton Line or the Erie Railroad's Greenwood Lake Line. Apart from historic references in Chapter 5.2, "Historic Resources," it will be referred to as "the Boonton Line" in this document.



\*Southern bridge is shown on existing alignment. In alternatives where the southern bridge is built off-alignment, it would be located farther to the south.

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## **DESCRIPTION OF ALTERNATIVES**

The four build alternatives differ primarily in two respects: the location of the southern bridge and the type of grade-separated crossing provided for Track 5. For purposes of nomenclature, the four build alternatives are referred to in this EIS as follows:

- **Preferred Alternative DS.** This alternative, discussed below as the preferred alternative, includes a three-track fixed northern bridge, a two-track moveable southern bridge built on a new southern alignment, and a duck-under structure for Track 5;
- **Alternative DE.** This alternative includes a three-track fixed northern bridge, a two-track moveable southern bridge built on the existing alignment, and a duck-under structure for Track 5;
- **Alternative FE.** This alternative includes a three-track fixed northern bridge, a two-track moveable southern bridge built on the existing alignment, and a fly-over structure for Track 5;
- **Alternative FS.** This alternative includes a three-track fixed northern bridge, a two-track moveable southern bridge built on a new southern alignment, and a fly-over structure for Track 5.

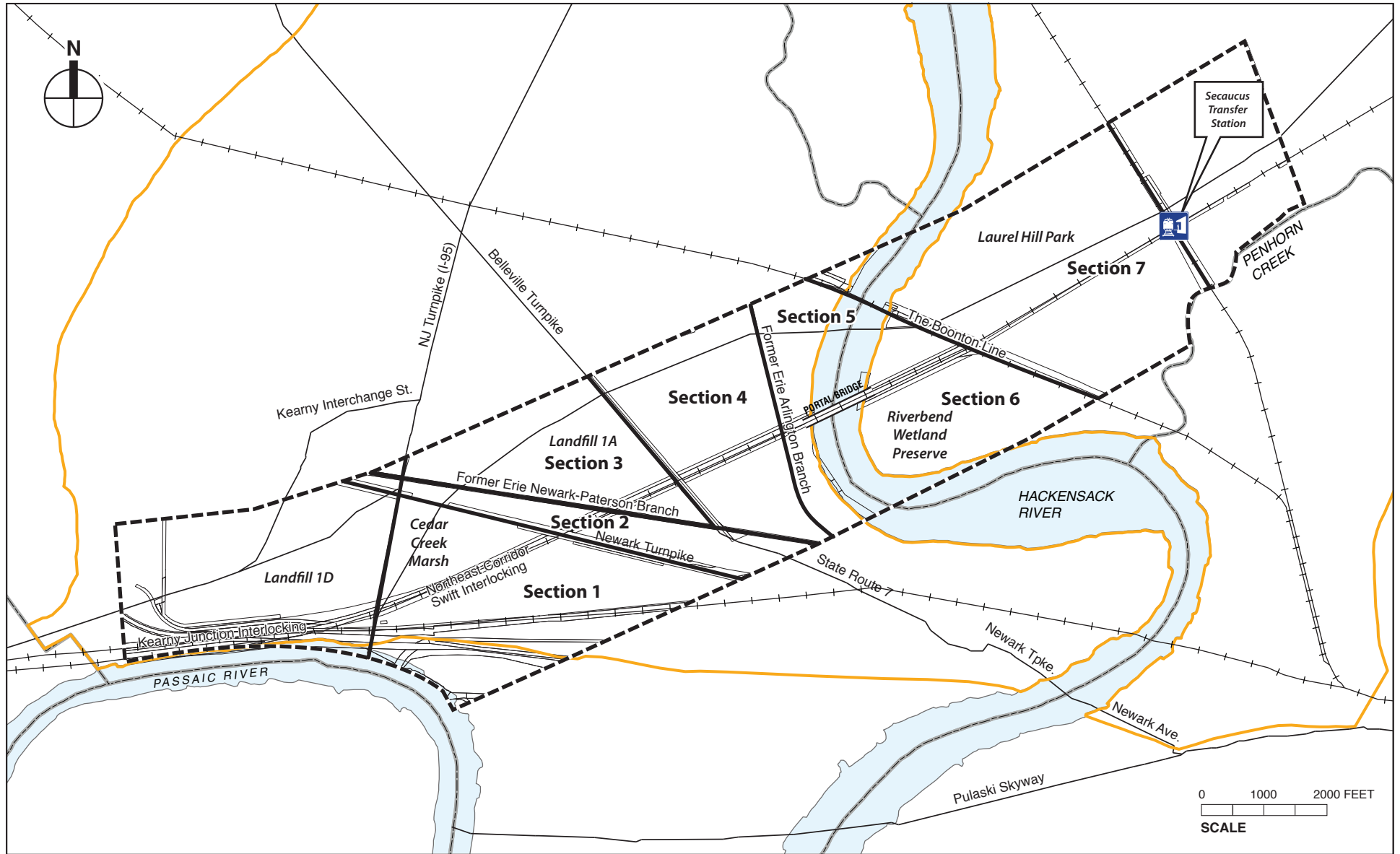
As described in Chapter 3, “Project Alternatives,” the tracks would be supported by different methods depending upon local conditions. A variety of methods is proposed including earthen embankments, retaining walls, short span girder bridges, and long span truss bridges. Wherever feasible and cost-effective, the support methods along each segment were selected to minimize the potential environmental and property impacts. The build alternatives are described below by geographic section, as shown in Figure S-4.



### *SECTION 1 – NEW JERSEY TURNPIKE TO NEWARK TURNPIKE*

All four build alternatives would have the same track alignment in this section. This section would comprise five main tracks—Track 5 to the north, Track 6 to the south, and Tracks 2, 3, and 4 in the center. All tracks would be constructed on a retained embankment to reduce the effects on wetlands north and south of the existing Northeast Corridor. The majority of work in Section 1 would occur within the existing Amtrak right-of-way.

### *SECTION 2 – NEWARK TURNPIKE TO FORMER ERIE NEWARK-PATERSON BRANCH*

Similar to Section 1, this section would include Track 5 to the north, Track 6 to the south, and Tracks 2, 3, and 4 in the center. Alternatives FE and FS would extend farther to the north in this section due to the approach required for the fly-over structure. Between the DEIS and the FEIS, the track alignment in this area was revised so as not to preclude the possible future extension of Track 4 west of Swift Interlocking. This resulted in a shift of the Alternatives DE and DS alignments further north in this section. Therefore, all four alternatives would extend beyond the northern boundary of the right-of-way and require property acquisition (discussed further in Chapter 5.1, “Land Use and Social Conditions”) of an industrial building between Newark Turnpike and the former rail right-of-way. Alternatives FE, FS, and DS would extend beyond the northern boundary of the right-of-way and require property acquisition. Alternative DE may require use of this property to the north of the existing Northeast Corridor for construction staging. To the south, the embankment would remain within the existing right-of-way, although it would encroach upon an area currently leased by Amtrak to a private entity.



-  Study Area
-  NJMC District Boundary

*SECTION 3 – FORMER ERIE NEWARK–PATERSON BRANCH TO BELLEVILLE TURNPIKE*

Similar to Sections 1 and 2, this section would include Track 6 to the south and Tracks 2, 3, and 4 in the center. Track 8, a pocket track (which allows trains merging from one track to another to wait for an available space without impeding other traffic) connecting the Northeast Corridor to the southern bridge, would also be constructed between Tracks 6 and 2 in this section. The grade-separated crossing for Track 5 would be partially located within this section. Alternatives FE and FS would include an embankment to the north and a bridge across the open water area to the east of the landfill. To the south, Alternatives FE and FS would include an embankment with a retaining wall in the area near the Belleville Turnpike to avoid property impacts.

Alternatives DE and DS would include an embankment to the north (and would also require acquisition of a portion of the former landfill), and an embankment with a retaining wall along the open water area. To the south, Alternative DE would include an embankment, while Alternative DS would include a combination of embankment and embankment with a retaining wall. For all four alternatives, property acquisitions would be required for the former landfill and open water areas. To the south, construction would be confined to the existing Amtrak right-of-way, but may affect existing lessees of Amtrak property.

*SECTION 4 – BELLEVILLE TURNPIKE TO FORMER ERIE ARLINGTON BRANCH*

In Section 4, the northernmost tracks would be Tracks 4, 3, and 2 (respectively from the north) and Track 6 would be the southernmost track. Track 5 would cross Tracks 4, 3, and 2 within this section via the fly-over or the duck-under structure. For all four alternatives, the portions of Tracks 4, 3, and 2 within this section would be built on a combination of embankment and retained embankment. Track 6 would be constructed on an embankment. Some construction within Section 4 would be outside of Amtrak's existing right-of-way. For all four alternatives, acquisition of an industrial property (to the north) would be required and a property leased from Amtrak to a private party may be affected. Alternatives DS and FS would also require acquisition of a portion of the vacant Diamond Shamrock property to the south.

*SECTION 5 – FORMER ERIE ARLINGTON BRANCH TO HACKENSACK RIVER*

All four alternatives would be largely the same within Section 5. Tracks 2, 3, and 4 would be built on a structure and connect to the northern fixed bridge. Tracks 5 and 6 would be constructed on an embankment and would connect to the southern moveable bridge. The northern tracks would be constructed within Amtrak's existing right-of-way. For Alternatives DE and FE, the southern tracks would be built within the existing right-of-way, although Alternative FE would require a portion of this property for construction staging. Alternatives DS and FS would require acquisition of a portion of the adjacent vacant Diamond Shamrock property for construction of a new embankment and related infrastructure.

*HACKENSACK RIVER*

In all alternatives, the northern tracks (Tracks 2, 3, and 4) would cross the Hackensack River on a fixed steel truss bridge 50 feet above MHW. The southern tracks (Tracks 5 and 6) would cross the river on a moveable lift bridge 40 feet above MHW located either on or south of the alignment of the existing bridge.

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### *SECTION 6 – HACKENSACK RIVER TO THE BOONTON LINE*

In Section 6, all alternatives would consist of three tracks to the north (Tracks 2, 3, and 4) and two tracks to the south (Tracks 5 and 6). Midway between the Hackensack River and the Boonton Line, there would be a crossover between Tracks 5 and 6. Approximately 150 feet west of the Boonton Line, a connecting track between Tracks 5 and 2 would diverge off of Track 2. Approximately 300 feet to the west of the Boonton Line, Track A would begin to diverge off of Track 2 in all alternatives. For all four alternatives, Tracks 2, 3, and 4 would be built on an elevated multi-span structure that would essentially be an extension of the main river crossing. For Alternatives DS and FS, Tracks 5 and 6 would be built on an elevated structure to minimize impacts to the adjacent wetlands. To further minimize impacts on the adjacent wetlands, the permanent access road would be located on the existing embankment (in the DEIS, this access road was located in the Riverbend Wetland Preserve). Alternatives DE and FE would not require a structure in this area since Tracks 5 and 6 would be located on a retained embankment within the existing Amtrak right-of-way. These alternatives would require some additional fill in the adjacent wetlands since the existing access road would be eliminated by the expanded embankment in this area. The permanent access road would be within Amtrak’s current right-of-way and no additional property would be required to the south.

All four alternatives would require property acquisition of a portion of the newly expanded Hudson County Park at Laurel Hill north of Amtrak’s existing right-of-way. In addition, Alternatives DS and FS would require property acquisition to the south of the existing right-of-way. All four alternatives would include new structures over the right-of-way of the Boonton Line.

### *SECTION 7 – THE BOONTON LINE TO SECAUCUS TRANSFER STATION*

The western portion of Section 7 would include Tracks 2, 3, 4, A, 5, 6 and a connecting track between Tracks 5 and 2. Tracks 4 and 3 would merge midway between the Boonton Line and Secaucus Transfer Station. Track A would continue into Secaucus Transfer Station. The connecting track between Tracks 5 and 2 would merge with Track 2 near Secaucus Transfer Station. Tracks 5 and 6 would continue a short distance over the Boonton Line and stub-end, providing for emergency storage of disabled trains. All four alternatives would include a retaining wall to the north and an embankment to the south within the existing right-of-way.

## **CAPITAL COSTS**

The estimated capital costs, which have been updated for the FEIS, for each build alternative are shown in Table S-1. Alternatives DS and FS are more expensive than Alternatives DE and FE due mostly to the increased costs associated with the additional structures required within the Riverbend Wetland Preserve.

## **PERMITS REQUIRED**

All of the build alternatives would require a number of permits and approvals at the federal, state, and local levels, as shown in Table S-2.

## **PREFERRED ALTERNATIVE**

As discussed in more detail in Section Q and Chapter 9, “Preferred Alternative,” the project sponsors have identified Alternative DS as the preferred alternative.

**Table S-1**  
**Capital Cost—Build Alternatives (in Millions)**

Cost Type	DS	DE	FE	FS
Guideway	\$551	\$503	\$515	\$549
Track	\$26	\$25	\$26	\$27
Site/Civil	\$152	\$150	\$160	\$159
Systems	\$66	\$63	\$65	\$68
ROW Costs	\$15	\$7	\$13	\$16
Soft Costs	\$317	\$295	\$303	\$319
Unallocated Contingency	\$159	\$148	\$153	\$160
Finance Charges	\$58	\$52	\$55	\$58
Total	\$1,344	\$1,243	\$1,290	\$1,356
<b>Notes:</b>	All costs in 2007 dollars with costs escalated to 2008 dollars under finance charges. Guideway includes all track support structures including bridges, abutments, and foundations but not embankment which is included in Site/Civil. Site/Civil includes transport and disposal of contaminated materials and wetland mitigation. Soft costs include engineering, project and construction management, insurance, legal and force account labor.			

**Table S-2**  
**List of Potential Federal, State, and Local Permits**

Permits/Certifications	Responsible Agency	Activity
<b>Federal</b>		
Section 404 Permit	USACOE	Discharge of dredged or fill material into the waters of the U.S.
Section 10 Permit	USACOE	Construction of structures in navigable waters
Section 9 Permit	USCG	Construction over navigable waters
Hazards to Navigation Assessment	USCG	Obstructions in navigable waters
<b>State</b>		
401 Water Quality Certificate	NJDEP	Discharges to surface waters
Waterfront Development/Coastal Wetlands Permit	NJDEP	Coastal development
<u>Flood Hazard Area Individual Permit</u>	<u>NJDEP</u>	<u>Construction in riparian zone and Flood Hazard Area</u>
Tidelands Conveyance	NJDEP	Activities that affect tidal wetlands
Diversion/Disposal of Parkland	NJDEP	Development in parkland
Sanitary Landfill Disruption Permit	NJDEP	Disturbance of a landfill
NJPDES	NJDEP	Discharge into Surface Waters
<u>Site Remediation Approval</u>	<u>NJDEP</u>	Approval of the remediation of <u>contaminated</u> sites
Soil Erosion and Sediment Control Plan Certificate	New Jersey Natural Resources Conservation Program	Land disturbance from construction activities
<b>Note:</b> Other permits and approvals from Hudson County and the New Jersey Meadowlands Commission may be required.		

## **D. TRANSPORTATION EFFECTS**

The Portal Bridge Capacity Enhancement Project considers multiple build alternatives for increasing trans-Hackensack River capacity and improving rail operations along the Northeast Corridor between Swift Interlocking and Secaucus Transfer Station. These alternatives would, for the most part, provide for similar transportation benefits to both NJ TRANSIT and Amtrak through the project area and improving travel between Newark Pennsylvania Station (NPS) and Secaucus Transfer Station. However, without an associated expansion of capacity from Secaucus Transfer Station to New York City, neither NJ TRANSIT nor Amtrak would be able to increase the number of trains they operate on the Northeast Corridor in peak periods.

### **INTERCITY RAIL**

With the proposed project, Amtrak service would no longer be affected by the reliability concerns that are presented by the existing Portal Bridge. Northeast Corridor train traffic would no longer be interrupted by bridge openings due to marine traffic or by mechanical or electrical failures to the existing bridge's machinery. Construction of a grade-separated junction between the Northeast Corridor and the proposed southern alignment at the current site of Swift Interlocking would improve operations through this area by greatly reducing the number of merging and diverging train movements that presently occur each day. Increased reliability and speeds for Amtrak on the Northeast Corridor would enable its service to become a more dependable option for short and medium distance trips in the region that are now being made by air. This would also to some extent relieve the region's heavily congested airports.

### **PUBLIC TRANSPORTATION**

Much like Amtrak trains, NJ TRANSIT service would no longer be subject to the reliability concerns presented by the existing Portal Bridge. Trains destined for New York City would operate via either a new fixed bridge, which would require no openings for marine traffic, or a moveable bridge, which would need to open for a small portion of the existing marine traffic. When openings would occur, the cycle time of an opening would be shorter and much more reliable than the current situation. Thus, the build alternatives would have a positive effect on Amtrak's and NJ TRANSIT's rail operations. Moreover, the construction of additional tracks between Swift Interlocking and Secaucus Transfer Station would eliminate certain existing merge points and improve the overall operations of the Northeast Corridor.

### **NAVIGABLE WATERS**

Construction of any one of the build alternatives would result in the removal of the existing Portal Bridge and its replacement with a new bridge 40 feet above MHW either on the existing alignment or to the south. The build alternatives would also result in the construction of a new fixed bridge at 50 feet above MHW to the north of the existing Portal Bridge. Construction of these two bridges at higher levels above MHW would reduce the number of instances when marine traffic would have to request a bridge opening. In all cases, the build alternatives would include the removal of the existing bridge and removal of its center pier, which would provide for a 300-foot-wide, uninterrupted horizontal clearance across the river channel. This would result in a substantial improvement over the existing Portal Bridge in terms of navigability of the river.

## REGIONAL HIGHWAY SYSTEM

The build alternatives would improve rail service but would not measurably reduce vehicle miles traveled (VMT) in the region. Thus the project would not impact the regional highway system.

## E. LAND USE AND SOCIAL CONDITIONS

### LAND USE

Overall, the build alternatives would not result in substantial adverse impacts to land use in the study area. All four build alternatives would continue an existing land use that is dominant through the center of the study area, the rail right-of-way. Upon completion of the new bridge, train service would continue to operate as it does today with projected improvements to train capacity and efficiency. The proposed project would increase reliability and would specifically improve the commute of area residents traveling to New York City. All four would require some widening of the right-of-way and construction of new bridges and other rail infrastructure, but this would not change the land use or land use patterns in the study area. The rail corridor would continue to be consistent with the heavy industrial, transportation, and intermodal uses common in the study area.

### PROPERTY ACQUISITIONS

All four build alternatives would require acquisition of some land adjacent to the existing Northeast Corridor right-of-way to accommodate the new construction. Most of the acquisition required would constitute only a small portion of each affected property. Alternative FS would potentially require the greatest amount of property acquisition (45.4 acres), followed by Alternative DS (41 acres), FE (29.2 acres), and DE (24.2 acres). Alternative DE would require the acquisition of far less property than the other build alternatives (20.1 acres). All four build alternatives would require acquisition in full of an 11.1-acre industrial parcel on the north side of the Northeast Corridor right-of-way, and all but Alternative DE would also require acquisition in full of a 4-acre industrial parcel on the north side of the right-of-way, although this property may be acquired for construction staging.

All property owners and tenants on the parcels of land to be acquired for the construction of the selected alternative would be fairly compensated for their property. The rights of owners and tenants of any real property acquired to implement the proposed project are protected under the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act, which provides for fair, uniform, and equitable treatment of people displaced from their businesses by federal and federally assisted programs.

The Green Acres Program is administered by NJDEP and was established to help ensure that there is access to and an adequate supply of public open space and conservation areas of natural resources in the State of New Jersey. In addition to adhering to the Green Acres Program regulations, appropriate mitigation of affected parkland will be developed in conjunction with Hudson County, the NY/NJ Baykeeper, the New Jersey Meadowlands Commission (NJMC), and other stakeholders. Similarly to other permits and regulatory approvals, the formal diversion process would begin after issuance of the FRA's Record of Decision.

## **ZONING AND PUBLIC POLICY**

All build alternatives would support one of the key goals of the NJMC Master Plan and other policies for the Meadowlands District: by improving public transportation infrastructure through the study area, the build alternatives would contribute to creation of a well-integrated multi-modal transportation network. At the same time, however, some of the property acquisitions required for the build alternatives would be inconsistent with public policies for the area. Specifically, the conversion of small areas of land designated for park and wetlands uses would be inconsistent with NJMC's policies to support and enhance open space and wetland areas within the Meadowlands District.

## **PARKLAND AND OPEN SPACE**

The build alternatives would require an increase to the size of the existing rail right-of-way through the study area and this would involve acquisition and conversion to transportation use of narrow areas of parkland and wetland preserve along the existing right-of-way. In addition, several of the affected parks and preserved areas would be encumbered by the Green Acres Program. NJ TRANSIT and Amtrak have initiated the process of mitigation of the affected parkland and open space through discussion with all involved parties. Effects on specific parks and preserve areas would be as follows.

- **Cedar Creek Marsh:** Alternatives FE and FS would require acquisition of a narrow strip of Cedar Creek Marsh immediately adjacent to the existing rail right-of-way to accommodate a track connection associated with the flyover. Based on discussions to date, this wetland preserve may be encumbered by the Green Acres Program.
- **Kearny Brackish Marsh (including Cayuga Dike):** All four build alternatives would also require acquisition of 2.5 acres of the Kearny Brackish Marsh/Cayuga Dike to accommodate bridge piers supporting a viaduct above the preserve.
- **Riverbend Wetland Preserve:** The two southern alignment alternatives, Alternatives FS and DS, would require acquisition of a 4.7-acre portion of this wetland preserve to accommodate an overhead viaduct supported on piers. The piers would be located within, but would not occupy all of, the 4.7 acres to be acquired. Based on discussions to date, this preserve would not be encumbered by the Green Acres Program.
- **Hudson County Park at Laurel Hill:** All four build alternatives would require the acquisition of 2.0 acres of the 14.9-acre area (which is conceptually planned for an expansion of Laurel Hill Park) to accommodate the approach to the new northern bridge. This parcel of land was purchased by Hudson County and the NY/NJ Baykeeper under the Green Acres Program, and therefore, mitigation of this loss of parkland requires special coordination with NJDEP. NJ TRANSIT and Amtrak have also initiated discussion with Hudson County and the NY/NJ Baykeeper on potential measures to mitigate the loss of this parkland including possible sites for compensatory parkland and/or open space as well as physical improvements (i.e., access, recreational or infrastructure facilities, etc) at the existing and future Laurel Hill Park. Other possible areas for open space mitigation include opportunities for the project to provide waterfront access to the west side of the Hackensack River. The project sponsors will continue to work with the county and other stakeholders on these various potential mitigation measures as the Portal Bridge Capacity Enhancement Project proceeds into preliminary engineering allowing for a more refined design of the areas surrounding the bridge structures.

## F. HISTORIC RESOURCES

### ARCHAEOLOGICAL RESOURCES

All of the build alternatives involve modification of portions of the Northeast Corridor within the archaeological Area of Potential Effect (APE). Portions of the area sensitive for human remains and funerary archaeological artifacts relating to the Historic Cemeteries of Hudson County could be disturbed by the proposed demolition and reconstruction of the Northeast Corridor in Secaucus. At this stage in the project, detailed plans for the extent of subsurface disturbance are not available, and therefore the potential effects of the construction on the Historic Cemeteries of Hudson County area of archaeological sensitivity cannot yet be fully determined. As described in Chapter 5.2, “Historic Resources,” a Memorandum of Agreement (MOA) among FRA, New Jersey Historic Preservation Office (NJHPO), Amtrak, and NJ TRANSIT has been prepared to address the next steps in the process. Since all four of the build alternatives (Alternatives DE, FE, FS, and Preferred Alternative DS) would result in the same adverse effects, the executed MOA applies to all of the alternatives. If it is determined that the project will affect the Historic Cemeteries of Hudson County, the project sponsors will prepare a disinterment/re-interment plan, make a reasonable and good faith effort prior to any excavation to disinter remains to locate and contact any lineal descendents, have a physical anthropologist/forensic archaeologist on site, and comply with the New Jersey Cemetery Act. Once the project sponsors determine that all remains have been properly exhumed, they will proceed with construction. Subsequent to disinterment and re-interment, Amtrak and NJ TRANSIT shall provide a technical report to FRA and NJHPO.

### ARCHITECTURAL RESOURCES

All of the build alternatives would have an adverse effect on the Portal Bridge (State Register [SR]-listed; National Register [NR]-eligible), since all of the alternatives would result in its decommissioning and removal. As set forth in the MOA, ongoing consultation would be undertaken among NJHPO, FRA, Amtrak, NJ TRANSIT, and the public as project engineering proceeds to identify measures to minimize or mitigate the adverse effects to the Portal Bridge.

All of the build alternatives are expected to result in modifications of the Northeast Corridor (a.k.a. Pennsylvania Railroad Historic District [S/NR-eligible]) within the APE. While the Pennsylvania Railroad Historic District retains historic integrity overall, it should be noted that the historic district in the study area has undergone extensive alterations since the time of its S/NR eligibility determination in 1978. In light of the extensive recent alterations to the fabric and appearance of the Pennsylvania Railroad Historic District in the study area, the anticipated effects of the proposed project would be adverse insofar as they would add to the cumulative alterations of the resource’s original fabric and appearance that have occurred in the study area in recent decades. As stated above, ongoing consultation would be undertaken among NJHPO, FRA, Amtrak, NJ TRANSIT, and the public as project designs progress, to identify measures to minimize or mitigate the potential for adverse effects to the Pennsylvania Railroad New York to Philadelphia Historic District (referred to herein as the Pennsylvania Railroad Historic District).

As part of all the build alternatives, construction would occur in the immediate proximity of the Jersey City Waterworks Pipeline (S/NR-eligible) and Substation 4 (S/NR-eligible), and therefore could result in accidental damage to the resources. Ongoing consultation will be undertaken among FRA, NJHPO, Amtrak, NJ TRANSIT, and the public as project designs progress, to avoid or minimize the potential for adverse effects on the Jersey City Waterworks Pipeline and

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Substation 4. Amtrak and NJ TRANSIT, in consultation with FRA and NJHPO, will develop a Construction Protection Plan for Historic Properties. The Construction Protection Plan would set forth the specific measures to be used, and specifications that would be applied, to protect these architectural resources during the construction period.

As mandated by Section 106 of the National Historic Preservation Act (NHPA) of 1966, FRA, Amtrak, and NJ TRANSIT have participated in an ongoing consultation process with the NJHPO with respect to potential effects on archaeological and architectural resources. As part of this ongoing process, measures will be explored to avoid or minimize to the extent practicable any significant adverse effects to archaeological and architectural resources. Development of these mitigation measures is set forth in an MOA, executed by FRA, NJHPO, Amtrak, and NJ TRANSIT and included in Appendix B.

### **G. VISUAL AND AESTHETIC RESOURCES**

The project would result in the removal of the Portal Bridge and its replacement with two new bridges of slightly larger size and greater height, as well as multiple alterations to the Northeast Corridor, some of which would involve changes to its height, alignment, and appearance. However, the new structures would not substantially block or alter important views to and from visual resources in the study area. Furthermore, because the project would replace existing rail infrastructure with new rail infrastructure, the overall visual character, atmosphere, and use of the study area would remain largely the same. Therefore, the project is not expected to substantially affect the visual character of the study area nor block important views to and from visual resources.

As discussed above, pedestrian traffic within the study area is limited, since the majority of the study area is not accessible to public foot-traffic. Among the few pedestrian-accessible locations within the study area at the present time are Laurel Hill Park and Secaucus Transfer Station. The Hackensack River View Corridor, which is also visible from Laurel Hill Park, would be slightly altered by the replacement of the Portal Bridge; however, the change in view from the park would be very minor because the Portal Bridge can only be seen from limited and distanced vantage points within Laurel Hill Park. Therefore, the replacement of Portal Bridge with two new bridges is not expected to cause substantial changes to the overall visual character of the Hackensack River View Corridor from Laurel Hill Park. In addition, the design of the new bridge would be undertaken in coordination with the NJHPO and an effort would be made to incorporate historically compatible designs. This process would further minimize any visual changes or intrusions along the Hackensack River View Corridor.

### **H. AIR QUALITY**

While all of the build alternatives would result in an increase in capacity over the Hackensack River and greatly improve operations between Swift Interlocking and Secaucus Transfer Station, the project would not increase the number of peak hour trains into PSNY. Therefore, the project would not substantially increase the number of new transit riders and would not measurably reduce VMT in the region. As a result, there would be no measurable effect on air quality due to the proposed build alternatives. While the proposed improvements would lead to an improvement in service along the Northeast Corridor that could increase passenger travel and reduce auto usage in the region, the air quality benefits would be modest. The Portal Bridge project would, however, allow other projects such as the ARC project to increase the number of trains to NYC, thereby providing substantial regional air quality benefits.

## I. NOISE AND VIBRATION

With all build alternatives, a portion of the planned expansion of Laurel Hill Park parcel that is within 419 feet north of the Northeast Corridor would be subject to moderate noise impacts. The portion of the parcel that is within 226 feet north of the Northeast Corridor would be subject to severe noise impacts. Due to the proximity of the Laurel Hill Park expansion to the existing rail corridor, the No Action Alternative would also result in moderate and severe noise impacts on this resource. Therefore, the impacts that would occur at the Laurel Hill Park would be similar under any of the project alternatives, including the No Action Alternative. Since there are no vibration-sensitive uses in close proximity to the rail line, none of the project alternatives would result in adverse vibration effects.

## J. ECOLOGY

### ESSENTIAL FISH HABITAT

Table S-3 lists the species for which Essential Fish Habitat has been designated in the estuary of Hudson River/Raritan Bay/Sandy Hook Bays in New York and New Jersey. The proposed action is located within the mixing zone (M) of the estuary. A full analysis of EFH species, their habitats, and potential impacts is provided in Appendix C.

**Table S-3**  
**Essential Fish Habitat**

<u>Species</u>	<u>Eggs</u>	<u>Larvae</u>	<u>Juveniles</u>	<u>Adults</u>	<u>Spawning Adults</u>
<u>Red hake (<i>Urophycis chuss</i>)</u>		M,S	M,S	M,S	
<u>Winter flounder (<i>Pleuronectes americanus</i>)</u>	M,S	M,S	M,S	M,S	M,S
<u>Windowpane flounder (<i>Scophthalmus aquosus</i>)</u>	M,S	M,S	M,S	M,S	M,S
<u>Atlantic herring (<i>Clupea harengus</i>)</u>		M,S	M,S	M,S	
<u>Bluefish (<i>Pomatomus saltatrix</i>)</u>		-	M,S	M,S	
<u>Atlantic butterfish (<i>Peprilus triacanthus</i>)</u>		M	M,S	M,S	
<u>Summer flounder (<i>Paralichthys dentatus</i>)</u>		F,M,S	M,S	M,S	
<u>Black sea bass (<i>Centropristus striata</i>)</u>		-	M,S	M,S	
<u>King mackerel (<i>Scomberomorus cavalla</i>)</u>	X	X	X	X	
<u>Spanish mackerel (<i>Scomberomorus maculatus</i>)</u>	X	X	X	X	
<u>Cobia (<i>Rachycentron canadum</i>)</u>	X	X	X	X	
<u>Clearnose skate (<i>Raja eglanteria</i>)</u>			X	X	
<u>Little skate (<i>Leucoraja erinacea</i>)</u>					
<u>Winter skate (<i>Leucoraja ocellata</i>)</u>					
<b>Note:</b> Freshwater Zone (F), Mixing zone (M), Saltwater Zone (S)					

The potential effects of project construction on the EFH and measures to avoid, minimize or mitigate any adverse impacts including timing restrictions on in-water activities to protect anadromous fish spawning are discussed in Chapter 6 of the FEIS. Similarly, the operational effects of the build alternatives, including potential adverse effects from increased shading are discussed in Chapter 5.6 of the FEIS.

### AQUATIC IMPACTS

Two types of permanent impacts to the aquatic ecosystem (specifically, to the plants, microorganisms, and animals that inhabit the bed of the aquatic ecosystem, referred to herein as

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“benthic habitat”) would be anticipated to result from operation of the Portal Bridge Capacity Enhancement Project:

- Loss of benthic habitat from in-water caissons, pile footprints, embankments, and retaining walls;
- Shading of benthic habitat from new overhead structures.

### WETLAND IMPACTS

Three types of permanent wetland impacts would be expected from the build alternatives:

- Permanent loss of wetland habitat within caissons and/or pile footprints and from embankments and retaining walls;
- Shading of wetland habitat from new overhead structures; and
- Potential fragmentation of wetland habitat.

An estimate of wetland, open water, and benthic habitat impacts from each build alternative is presented in Table S-4. Between the DEIS and the FEIS, the wetland impacts have been refined in several respects as follows:

- The fill in the wetlands on the east bank of the Hackensack River for the approach structures has been reduced to account for the actual pier design that will be used to support the these elevated structures.
- The shading estimates were refined by taking into account the width of the proposed structure and its height above the ground elevation to more accurately depict these impacts.
- The permanent access road for the southern bridge in Alternatives DS and FS was moved from the Riverbend Wetland Preserve to the existing Northeast Corridor embankment, resulting in a reduction in impacts for these alternatives.
- The embankment for Alternatives DE and FE on the east side of the Hackensack River was widened to allow a new permanent access road to be constructed in lieu of the road that would be lost from increasing the elevation of the current embankment.

As shown in Table S-4, the changes resulted in a substantial reduction in the project’s impact on wetlands, both from a fill and shading perspective. The most substantial decrease in potential wetlands impacts is with Alternatives DS and FS. As discussed in the DEIS, total potential impacts to wetlands was 13.1 and 12.3 acres for Alternatives FS and DS, respectively. The changes discussed above substantially reduced the total potential wetland impacts for these alternatives by approximately 6.7 acres. Based on the current designs, the estimated wetland impact for Alternative DS has been reduced to 5.7 acres while Alternative FS is estimated to impact 6.4 acres. The difference in permanent impacts to wetlands from the placement of fill between Alternatives DS and DE is estimated to be approximately 0.3 acres, as compared to the 3.9 acres shown in the DEIS. The difference between Alternative FE and FS is approximately 0.4 acres, whereas the difference was 4.0 acres in the DEIS. Most of the change has occurred in the area of the Riverbend Wetland Preserve on the east side of the Hackensack River south of the existing Northeast Corridor right-of-way. As described above, the two major issues contributing to that reduction in impacts is the relocation of the permanent access road and the use of elevated structure within the preserve.

Much of the wetlands that would be impacted by the build alternatives consist of *Phragmites*-dominated coastal and interior wetlands, with the remainder consisting of scrub-shrub and

herbaceous wetlands. Based on the current design, the differences among the four build alternatives with respect to wetland impacts are relatively minor. All four alternatives would have the potential for fragmenting wetlands. However, the use of structure (as opposed to embankment) for the bridge approaches would allow for ecological and hydrologic connectivity and would minimize the potential for fragmentation, although the potential for long-term impacts from shading is difficult to predict. As appropriate based on consultation with the involved natural resource agencies, a monitoring program will be implemented following project completion to identify if habitat fragmentation has occurred. The direct effects to open water and benthic habitat would be largely the same for all of the build alternatives.

**Table S-4  
Ecological Impacts by Alternative**

		<u>FEIS Total (Acres)</u>	<u>DEIS Total (Acres)</u>
<b>DS</b>	Wetlands	<u>5.72</u>	12.32
	Benthic Habitat	<u>0.11</u>	0.12
	Open Water	<u>0.79</u>	0.86
	Shading	<u>1.95</u>	3.58
<b>DE</b>	Wetlands	<u>5.4</u>	8.4
	Benthic Habitat	<u>0.11</u>	0.12
	Open Water	<u>0.79</u>	0.86
	Shading	<u>1.51</u>	3.58
<b>FE</b>	Wetlands	<u>6.06</u>	9.1
	Benthic Habitat	<u>0.12</u>	0.13
	Open Water	<u>0.79</u>	1
	Shading	<u>1.46</u>	3.53
<b>FS</b>	Wetlands	<u>6.43</u>	13.1
	Benthic Habitat	<u>0.12</u>	0.13
	Open Water	<u>0.79</u>	1
	Shading	<u>1.9</u>	3.53

The impact assessment on wetlands by habitat type has been added to the FEIS and is summarized below for each build alternative in Table S-5. Impacts to different wetland habitats vary slightly with each alternative, with the greatest differences on the deciduous scrub/shrub wetland impacts between Alternatives FE/FS and DS/DE.

Differences in wetland impacts to *Phragmites*-dominated coastal and interior wetland habitat and herbaceous wetland habitat are small between the four alternatives. There would be 0.02 acres less impacts to *Phragmites*-dominated interior wetlands with Alternatives DS and DE. Alternatives FS and DS would have greater impacts on *Phragmites*-dominated coastal wetlands and herbaceous wetlands (0.2 and 0.12 acres, respectively) when compared with Alternatives FE and DE.

**Table S-5**  
**Probable Impacts on Wetland Habitat Type (in acres)**

	<u>DS</u>	<u>DE</u>	<u>FE</u>	<u>ES</u>
<u>Deciduous scrub/shrub wetlands</u>	<u>0.81</u>	<u>0.81</u>	<u>1.45</u>	<u>1.5</u>
<u>Phragmites-dominated interior wetlands</u>	<u>1.59</u>	<u>1.59</u>	<u>1.61</u>	<u>1.61</u>
<u>Phragmites-dominated coastal wetlands</u>	<u>2.43</u>	<u>2.23</u>	<u>2.23</u>	<u>2.43</u>
<u>Herbaceous wetlands *</u>	<u>0.89</u>	<u>0.77</u>	<u>0.77</u>	<u>0.89</u>
<b><u>TOTAL</u></b>	<b><u>5.72</u></b>	<b><u>5.40</u></b>	<b><u>6.06</u></b>	<b><u>6.43</u></b>
<b>Note:</b> * The total includes probable wetland impacts in Sections 4 and 7.				

A small portion of the project area lies within regulated wetland buffer area. Due to the highly developed nature of the project site and study area with a number of linear features—such as rail tracks, paved access roads, utility rights-of-way, and man-made earthworks—the value of the wetland buffer areas is low. For purposes of this impact assessment, any natural areas adjacent to wetlands were conservatively included in the total wetland impact area. The presence of wetland buffers that could be impacted by the proposed project will be confirmed during the permitting process and the need for mitigation measures will be coordinated with the project stakeholders.

### TERRESTRIAL IMPACTS

According to the NJDEP, regions within the project area have been identified as colonial waterbird foraging habitat. Areas within one half-mile of the project have been identified as potentially containing American coot (state status: declining species), peregrine falcon (state status: endangered species), and pied-billed grebe (state status: endangered/stable species). With the exception of peregrine falcons, the species identified are primarily wetland species but may occupy upland fringe areas. Furthermore, the terrestrial areas within the project alternatives are already developed with rail rights-of-way, roads, utility infrastructure, and industrial facilities. These areas have relatively little value as terrestrial habitat, and as such, permanent impacts to terrestrial natural resources are expected to be minor. The operational impacts of the proposed project could result in increased development and/or shading of terrestrial areas in proportion to each alternative’s area footprint. Lastly, changes in location of rail traffic and associated noise could have a minor impact on local reptile, bird, and mammal reproduction, foraging, and movement, although this impact would be only incrementally more than that of existing uses.

### WATER QUALITY

The build alternatives would not result in any long-term adverse effects to water quality or stormwater in the study area. The small increase in impervious surface would not substantially change stormwater pollutant loadings to nearby surface waters. Direct discharges of stormwater from impervious surfaces to surface waters would be avoided through implementation of a stormwater collection system for these structures. In addition, the additional in-water structures, when considered in conjunction with the removal of the existing pivot pier, would not alter the flow characteristics of the Hackensack River. The potential for the build alternatives to result in short-term adverse impacts to water quality from construction activities is discussed in Chapter 6, “Construction Impacts.”

## FLOODPLAINS

All build alternatives would require construction in the 100-year floodplain since the existing right-of-way is, for the most part, surrounded by floodplain along its length particularly to the north.

Since the current Northeast Corridor right-of-way is on an embankment that is outside the 100-year floodplain, the only alternative that would not require construction in the floodplain would be the No Action Alternative. To minimize the risks associated with this construction, the build alternatives have been developed to maximize the use of elevated structures and retaining walls rather than using filled embankment in a large portion of the project area. While this increases the project costs, substantial ecological benefits accrue to both wetlands and floodplain resources.

## MITIGATION

Due to the nature and location of the river crossing and the need for continuous operations along the Northeast Corridor, complete avoidance of wetland and open water areas would not be feasible for any of the build alternatives. Consistent with Executive Order 11990, it has been determined that there is no prudent and feasible alternative to avoid construction in wetlands and therefore measures to minimize harm have been considered. Efforts to minimize wetland impacts were incorporated into the alternative development and screening process and included selection of alignments that would minimize wetland takings, use of structure where practicable in lieu of unretained embankments for new rail lines, placement of retaining walls (to minimize fill) where feasible, and consultation and coordination with natural resource agencies. As discussed above, the potential impacts to wetlands from all build alternatives have been substantially reduced from those discussed in the DEIS. Measures to further minimize the potential for adverse ecological impacts will be considered as the project proceeds.

A preferred option for mitigation is to purchase credits from an established wetland mitigation bank. Currently, there are no approved banks available within the Meadowlands District. However, credits may become available from the Richard P. Kane Tract (referred to as the “Kane Tract” and previously known as the “Empire Tract”) prior to Portal Bridge construction commencement in December 2011. The Kane Tract is being developed by the Meadowlands Conservation Trust as a wetland mitigation bank specifically for transportation projects in the Meadowlands District. The Kane Tract is being established in accordance with the Request for Qualifications (RFQ) issued by the Meadowlands Conservation Trust on April 7, 2008. As per the RFQ, 254 acres of the Kane Tract (out of the total 584 acres) will be made available for compensatory mitigation exclusively for NJ TRANSIT, the New Jersey Turnpike Authority, the New Jersey Department of Transportation (NJDOT), and the Port Authority of New York and New Jersey (PANYNJ).

It is expected that the scaling of mitigation efforts will consider impact area calculations for benthic, wetland, open water, shading, and floodplain impacts, applied at appropriate compensation ratios. These ratios will be developed in coordination with natural resource management agencies and will be based on factors including, but not limited to value, function, and/type of wetland impacted, existing contamination within the project area, and the availability of appropriate in-kind restoration areas.

## **K. CONTAMINATED MATERIALS**

Subsurface disturbance, both within and in some cases beyond the existing right-of-way, would most likely occur in areas with a known degree of contamination. Construction of the proposed project would involve some demolition, relocation or other disturbance of existing structures; and excavation, disturbance, and likely removal for off-site disposal of some existing soil. Dewatering of groundwater would most likely also be required in specific locations, depending on the final determination of the types of foundations to be used for bridges, viaducts, and retaining walls, as well as the ultimate construction methods.

In order to prevent exposure pathways, the proposed project would include appropriate health and safety and investigative/remedial measures (conducted in consultation with the appropriate regulatory authorities). These measures would include:

- Procedures for pre-construction removal of asbestos and appropriate management of lead based paint and of PCB-containing equipment.
- Additional subsurface investigation, both to study sites not yet investigated and to better characterize soils to be disturbed by project construction.
- Development of a Construction Health and Safety Plan (CHASP) that would include detailed procedures for managing both known contamination issues (e.g., soil handling at known contaminated areas) and any unexpectedly encountered contamination issues. The CHASP would also include procedures for avoiding the generation of dust that could affect the surrounding community and the environment as well as the monitoring necessary to ensure that no such impacts are occurring.

Known contaminated sites would be affected by any of the proposed build alternatives, including chromite ore processing residue at (COPR) Sites 50, 103, and 131. While not expected based on the conceptual design, it is possible that COPR Sites 58 and 51 could also be affected. The Diamond Shamrock property (Site 113) would be affected to varying degrees in each alternative. In addition, there are other known contaminated properties and landfills in the vicinity of the proposed project site. All build alternatives would require substantial subsurface disturbance in specific areas such as the locations of bridge piers and abutments, retaining walls, catenary support structures, etc. Among the alternatives the only substantive difference with respect to contaminated materials is that Alternatives FS and DS would require subsurface disturbance within the Diamond Shamrock property, a vacant and contaminated property located south of the Northeast Corridor along the western shore of the Hackensack River. The construction for these alternatives would consist of embankment as well as the approach span for the river crossing and would therefore include subsurface disturbance. Therefore, these alternatives have a greater potential to disturb contaminated materials than the alternatives that use the existing Portal Bridge alignment for the southern bridge.

## **L. COASTAL ZONE MANAGEMENT**

NJDEP regulates coastal zone activities under N.J.A.C. Section 7:7E, Coastal Zone Management (CZM) Policies. Section 7:7E sets forth substantive rules of the NJDEP regarding the use and development of coastal resources including areas containing tidal wetlands and the Hackensack Meadowlands District. Therefore, consistency with applicable CZM policies was evaluated. In addition, the build alternatives would require review by NJMC, and all activities must comply with pertinent regulations as defined by the rule.

While generally consistent with the policies of the CZM, the build alternatives in certain instances require mitigation to be consistent with specific aspects of some policies. Construction of the build alternatives would require in-water activities that could result in some adverse impacts to the natural environment including temporary impacts on water quality, aquatic resources, wetlands, and floodplains. In addition, construction of the build alternatives could adversely affect the navigational channel including the temporary mooring of construction barges in the channel to deploy project components. Furthermore, the build alternatives would result in an adverse effect on historic and archaeological resources; impacts on public open space, including the Riverbend Wetland Preserve and Laurel Hill Park; and disturbance of contaminated soils and sediments.

While a bridge is not considered a “water dependent” use in regards to CZM policies, prudent and feasible alternatives for crossing the Hackensack River do not exist. The proposed project design was developed to minimize impacts from fill in wetlands and tidal circulation within them. To the extent feasible, the proposed project would minimize disturbance to aquatic and terrestrial habitats and would include appropriate mitigation measures. Measures to mitigate these impacts and minimize harm include wetland mitigation with appropriate ratios and consultation with the NJDEP. Impacts to flood hazard areas would be mitigated in accordance with applicable regulations. Lastly, ongoing consultation will continue with the NJHPO to investigate further the presence of significant cultural resources and to develop appropriate mitigation measures.

The DEIS included an analysis of NJDEP CZM Policies dated February 2008. The NJDEP released updated CZM regulations in April 2008; the FEIS has been revised to reflect these changes. A full analysis of the NJDEP CZM Policies with respect to Special Areas identified in the coastal zone—as described in New Jersey Administration Code (N.J.A.C. Subchapter 3: Special Areas, Section 7:7E)—and whether the project alternatives are consistent with these policies is located in Appendix C, “Ecology.” Only the policies that are relevant to the project alternatives are discussed in Appendix C.

## **M. ENVIRONMENTAL JUSTICE**

On February 11, 1994, President Clinton issued Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” This Executive Order is designed to ensure that each federal agency “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.”

There are no direct adverse effects on residential land uses in the study area, and there are few, if any, residents in the project study area. The potential for adverse impacts to open space, noise and vibration, cultural resources, ecological resources, and construction were identified and analyzed to determine if these adverse impacts would disproportionately affect minority communities. The only potential adverse effect on minority and/or low-income communities would involve Laurel Hill Park, which would also affect non-minority and/or non-low-income communities.

The Portal Bridge project would not result in adverse impacts to the existing park. All four build alternatives would, however, require the permanent acquisition of 2.0 acres of the 14.9-acre parcel to accommodate the approach to the new northern bridge. Additionally, all project

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alternatives (including the No Action Alternative) would have an adverse noise impact on a portion of the planned boardwalk in the new park parcel. NJ TRANSIT and Amtrak will coordinate with Hudson County, the NY/NJ Baykeeper, NJMC, and other stakeholders to develop appropriate mitigation measures for the loss of this planned open space area. Because the adverse open space impact would affect all users of the park, the project would not result in disproportionately high impacts to minority or low-income communities.

### N. CONSTRUCTION IMPACTS

The construction sequencing and methods would be largely the same for any of the four build alternatives. The primary determinant in the construction schedule is whether both bridges are constructed concurrently (as in Alternatives DS and FS) or whether they are constructed sequentially (as in Alternatives DE and FE). Between the DEIS and FEIS, the construction scheduling for the two options (i.e., concurrent or sequential) has been refined to reflect the unique circumstances involved with constructing any of the build alternatives in the project area. Based on direct past experience from the adjacent Secaucus Transfer Station, the construction duration of many tasks has been increased substantially from what was proposed in the DEIS. Unlike other highway or bridge projects, construction of any of the build alternatives involves additional complexity and delays due to the constraints of working within and adjacent to an operating railroad with no viable detour or runaround available. This is especially important for this segment of the Northeast Corridor, the busiest passenger rail line in North America with more than 550 daily scheduled trains.

The construction start date is estimated for late 2011. This is based on the current schedule for preliminary engineering, permits and approvals, and final design, including the necessary procurement and review time. As currently estimated, the concurrent and sequential options would require the following time to construct:

- Alternative DS and FS – 66 months (5 years, 6 months)
- Alternative DE and FE – 94 months (7 years, 10 months)

With a construction start date of November 2011, the concurrent alternatives (DS and FS) would provide revenue service by May 2017. The sequential alternatives (DE and FE) would not begin revenue service until October 2019. Alternatives DS and FS could be constructed more quickly since the southern bridge and its approaches could be constructed in advance of completion of the northern span. For Alternatives DE and FE, the tracks on the northern bridge must be in operation and the existing bridge removed before construction of the southern span and its approaches can begin. Because of the similarities in the duck-under and fly-over structures, the type of structure chosen would not substantially affect the construction schedule. The conceptual construction process has been developed to ensure continuous operations along the Northeast Corridor and at Secaucus Transfer Station. There is the potential for temporary adverse impacts during the construction period, including open space, wetland, cultural resources, noise, and contaminated material effects. Certain utility relocations would be required. All construction-related impacts would be minimized and of short duration.

## **O. SECONDARY AND CUMULATIVE EFFECTS**

### **SECONDARY AND INDIRECT EFFECTS**

#### *INDIRECT TRANSPORTATION EFFECTS*

An important goal of the Portal Bridge project is to improve reliability and provide additional rail capacity over the Hackensack River to allow enhanced Amtrak and NJ TRANSIT operations. This would lead to beneficial indirect effects including: sustained regional economic growth, more efficient transportation systems, and a reduction in automobile VMT, resulting in regional benefits to vehicular traffic and air quality. While the Portal Bridge project does not by itself result in additional train service to PSNY, it would allow future projects (such as the ARC project) to do so by expanding Hackensack River capacity. Therefore, the Portal Bridge project would indirectly lead to a greater reduction in regional auto VMT, as rail ridership increases in response to the increased rail service from the ARC project and Amtrak and NJ TRANSIT's 2030 Operating Plan.

#### *INDIRECT ECOLOGICAL AND ENCROACHMENT EFFECTS*

Other indirect effects that may result from the Portal Bridge project pertain to the filling of wetlands, encroachment upon ecological resources, and disturbance of contaminated sediment. Three possible mechanisms could result in adverse indirect effects. The first is the direct loss of wetland and upland habitat and the resulting displacement of the existing wildlife and avian populations in that habitat. This displacement could impact the existing wildlife populations in areas further removed from the project site. Temporary disturbances during construction could also result in the displacement of wildlife and avian species from neighboring habitats. The second mechanism would be related to the short-term effects to water quality from disturbances to sediments and stormwater runoff during construction. Potential indirect impacts could occur if contaminated sediments or other pollutants are transported to locations further removed from the zone of direct impact. The third mechanism involves the potential long-term effects on adjacent wetlands from alterations of the project site. These alterations could result in changes to the existing hydrology or vegetative characteristics, thereby negatively affecting the value and quality of the remaining wetlands over the long-term.

For all of the adverse indirect effects identified above, the indirect impacts stem from the direct impacts. Mitigation measures have been proposed that would substantially minimize the potential direct impacts on these resources and therefore any subsequent indirect impacts. With respect to the loss of habitat and the potential displacement of wildlife and avian species, the amount of loss would be small in comparison to the extensive habitat adjacent to and in the surrounding areas. In addition, the project proposes to replace and/or restore wetlands within the Meadowlands District, further minimizing any adverse indirect impacts.

#### *INDUCED GROWTH-RELATED EFFECTS*

The build alternatives would result in beneficial secondary effects including sustained regional economic growth, and increase in regional mobility, and a reduction in automobile use. Since the project would relieve a critical bottleneck on a well-established rail corridor, rather than develop a new rail corridor, the potential for induced growth-related effects is small. Most of the area served by the existing rail network is already highly developed. Future development is planned within some parts of the indirect effects study area; however, the project would be supportive of

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that development but would not cause it. Therefore, the project would further the goals of sustaining economic and population growth.

### **CUMULATIVE EFFECTS**

#### *TRANSPORTATION EFFECTS*

The Portal Bridge project build alternatives would improve rail service reliability and provide additional rail capacity over the Hackensack River. The project would enable enhanced Amtrak and NJ TRANSIT operations and, in conjunction with the ARC project, allow the implementation of the proposed 2030 Operating Plan. Of the additional 25 peak hour trains reaching Manhattan, 16 would cross the new Hackensack River crossing(s). Therefore, 39 out of the 48 total planned peak hour trains would cross the new Portal Bridge(s) and contribute to cumulative regional benefits to transportation including the reduction of trans-Hudson auto trips by over 20,000 vehicles.

#### *SOCIAL EFFECTS*

##### *Open Space, Parklands, and Recreation*

All build alternatives would require acquisition of a portion of the land recently acquired for the expansion of Laurel Hill Park. Alternatives DS and FS would also require acquisition of a portion of the Riverbend Wetland Preserve. The project sponsors would work with the NJMC, Hudson County, and the NY/NJ Baykeeper to avoid any adverse cumulative effects by providing mitigation to offset the project's contribution to the loss of open space and parkland. This effort would be in conjunction with the wetland mitigation measures proposed for the temporary and permanent loss of these resources.

##### *Historic Resources*

The build alternatives would result in adverse effects on several resources including the existing Portal Bridge and the Pennsylvania Railroad Historic District. While the District retains historic integrity overall, it has undergone extensive alterations since the time of its S/NR eligibility determination. In light of the extensive recent alterations to the fabric and appearance of the Pennsylvania Railroad Historic District in the study area, the proposed project (together with these past alterations) would constitute an adverse effect. Measures will be explored to avoid or minimize to the extent practicable any significant adverse effects to archaeological and architectural resources. Development of these mitigation measures is set forth in an MOA, included in Appendix B.

#### *ENVIRONMENTAL EFFECTS*

##### *Ecological Resources*

The proposed build alternatives would require the permanent filling of up to 6.5 acres of wetlands, wetland preserve, and planned wetland restoration areas within the Meadowlands District. The ARC project would impact up to 27 acres of wetlands, for which mitigation has been proposed. Other projects in the Meadowlands—such as Allied Junction, Secaucus Transit Village, Meadowlands Rail Link, Encap Golf Holdings and Meadowlands Xanadu Redevelopment project—would also impact wetlands and other ecological resources in the Meadowlands. However, part of NJMC's mission is to prevent adverse cumulative effects and

they have established mechanisms to control and coordinate ecological resource impacts and mitigation. For each project in the Meadowlands District that negatively affects wetlands, compensation is required.

#### *Noise*

Under the ARC project, additional NJ TRANSIT and Amtrak service is proposed. The cumulative effect on existing noise levels would cover a greater area than the direct effect of the proposed project alone. The cumulative effect within the expanded Laurel Hill Park would extend approximately 50 feet further than the direct effect of the Portal Bridge project alone.

#### *Air Quality and Energy*

The VMT reduction in the New York-New Jersey metropolitan area that would result from the build alternatives in conjunction with the ARC project would correspond to a cumulative regional air quality benefit. Energy savings resulting from a shift from auto-based travel to commuter rail would also accrue on a regional basis. On a local level however, the build alternatives (in conjunction with the ARC project) would contribute to the increased passenger levels and taxi demand at PSNY. This would have a measurable but less than significant effect on ambient pollutant concentrations in the vicinity of the station.

#### *Construction Impacts*

The greatest potential for cumulative construction effects is the overlap of the Portal Bridge and ARC project in the area south of the Northeast Corridor between the Boonton Line and the Secaucus Transfer Station. The area surrounding the project site is a mix of open space and wetlands, utility and transportation corridors, a rail station and a former landfill. These surrounding land uses would substantially reduce any potential for air quality and noise impacts on sensitive uses or populations. Therefore, the potential for cumulative construction impacts to noise levels and ambient air quality would be very small due to the lack of sensitive receptors. As discussed below, the cumulative noise is a concern with respect to possible wildlife in the area. The potential cumulative issues as they relate to construction of the two projects include:

- Adverse impacts on public transportation (i.e., Amtrak and NJ TRANSIT) along the Northeast Corridor and at Secaucus Transfer Station.
- The cumulative effect on wetlands and ecological resources including the potential adverse effects on existing wildlife in the Riverbend Wetland Preserve. These impacts could include both direct disturbance to the habitat as well as indirect disturbances due to elevated noise levels on nesting birds.
- Potential cumulative effects from disturbance and release of contaminated and/or hazardous materials into the surrounding environment including wetlands and open water such as the Hackensack River.

## **P. SECTION 4(f) EVALUATION**

Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 prohibits the Secretary of Transportation from approving any program or project that requires the use of: (1) any publicly owned land in a public park, recreation area, or wildlife and waterfowl refuge of national state, or local significance, or (2) any land from a historic site of national, state, or local significance (collectively "Section 4(f) resources"), unless there is no feasible and prudent

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alternative to the use of such land and the project includes all possible planning to minimize harm to the resource.

The Section 4(f) regulations were recently updated in March of 2008 by USDOT in conjunction with the Federal Highway Administration (FHWA) and FTA to modify the procedures for granting Section 4(f) approvals. The regulations were updated to clarify language in regards to the factors to be considered and the standards to be applied when determining if an alternative that would avoid the use of a Section 4(f) property is feasible and prudent, and in the case of selecting a project alternative when all alternatives would use some Section 4(f) property. In addition, the new regulations established procedures for determining that the use of a Section 4(f) property has a *de minimis* impact on the property.

The build alternatives would require the use of the following Section 4(f) resources:

- All build alternatives would require the decommissioning and removal of the existing Portal Bridge, NR-eligible and SR-listed historic structure.
- All build alternatives would require acquisition of a 2.0-acre portion of a newly purchased extension of the Laurel Hill Park.
- All build alternatives require construction and excavation in an area of sensitivity for the Historic Cemeteries of Hudson County.
- All build alternatives would result in the modification and/or removal of significant features of the Pennsylvania Railroad Historic District, including the decommissioning of the existing Portal Bridge, shifting the vertical and horizontal alignment of the Northeast Corridor to connect with the new northern and southern bridges, and replacement of portions of the railroad's physical fabric.

As described in detail in Chapter 8, "Section 4(f) Evaluation." there are no prudent and feasible alternatives to the use of the existing Portal Bridge, the Pennsylvania Railroad Historic District, and Laurel Hill Park. With respect to the Historic Cemeteries of Hudson County, there is a possibility that the project as proposed may not disturb remains in the area of sensitivity and additional engineering and investigations are necessary to determine the exact extent of the resource.

### **Q. PREFERRED ALTERNATIVE**

Since the build alternatives were developed in consideration of the project goals and objectives described earlier in this chapter, the differences among alternatives with respect to these goals and objectives are relatively minor. All four build alternatives would fully satisfy the first five goals described above. While there are some operational and engineering benefits to the duck-under as compared to the fly-over option, either group of alternatives would meet the stated goals relating to the operational, reliability, and capacity problems associated with the current rail infrastructure. The duck-under alternatives (Alternatives DS or DE) are cheaper than their fly-over counterparts (Alternative FS or FE), operationally superior, and require less right-of-way. Therefore, the selection of the preferred alternative becomes a choice between Alternatives DS and DE. These two alternatives were compared with respect to three issues: project cost; construction duration and risk; and environmental impacts.

In terms of project cost, when the year of expenditure and the time value of money are considered, the difference between the Alternatives DE and DS would be approximately \$52 million or about 3 percent of the inflated cost. With the refinements in design and analysis

between the DEIS and the FEIS, the differences in adverse environmental effects has also been substantially reduced. With respect to adverse environmental effects, the major difference among the alternatives was their potential to result in impacts to ecological resources. While the difference in the amount of wetlands to be filled by Alternatives DS and DE was nearly four acres in the DEIS, the refined design has reduced the difference to 0.3 acres. The difference in shading impacts is less than 0.5 acres.

The most substantial difference among the duck-under Alternatives DS and DE is the construction duration and the potential adverse effects related to prolonging the construction period. The additional 28 months of construction required to complete Alternative DE would prolong the number of seasons that terrestrial and aquatic resources would be subject to the temporary effects of project construction, as well as increase the potential for indirect or secondary effects on the ecological resources of the Meadowlands. The longer construction duration would also potentially result in greater adverse effects on NJ TRANSIT and Amtrak passengers by increasing the time that they may experience disruptions to service or inconvenience. After careful consideration and evaluation, the project sponsors have identified Alternative DS as the preferred alternative for the Portal Bridge Capacity Enhancement Project. The FRA concurs in the selection of a preferred alternative.

## **R. PUBLIC PARTICIPATION**

To initiate the plan for this project, FRA and NJ TRANSIT hosted agency and public scoping meetings in January 2007 to solicit comments on the purpose and need, alternatives to be considered and the technical evaluations to be undertaken and to receive input on the issues and concerns addressed in the DEIS. The public scoping meeting was supplemented with an open house with display materials and project staff available for one-on-one discussions.

Additionally, two committees were formed: the Technical Advisory Committee (TAC) comprised of agency and government representatives, and the Regional Citizens' Liaison Committee (RCLC), comprising members of the general public, interest groups, and associations. Meetings of both committees were held at key milestones during the EIS process. Beyond the scoping and committee meetings, a number of meetings were held with agencies and stakeholders on a topic-specific basis.

To augment these meeting opportunities, at the start of the scoping process, FRA and NJ TRANSIT launched a Web site dedicated to the project at [www.portalbridgenec.com](http://www.portalbridgenec.com). The site has been updated throughout the project's duration, making available to the public information about meeting opportunities, copies of meeting presentations, maps and charts, as well as newsletters. Newsletters are published at milestones in the study and disseminated to the entire project mailing list and to libraries and community centers in the study area.

Analysis and documentation has been prepared in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, and with the New Jersey Register of Historic Places Act. An initial meeting of Consulting Parties for Section 106 took place early on in the project. After the initial meeting it was agreed that Section 106 Consulting Parties would be invited to attend subsequent meetings of the TAC, where Section 106 was discussed for the duration of the project.

With the completion of the DEIS, a public hearing was held in accordance with the requirements of the National Environmental Policy Act (NEPA) on March 18, 2008. This hearing was publicized broadly through a project newsletter which was mailed to the entire project mailing

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list, as well as to local libraries and community centers to be publicly posted. A postcard was sent to the entire project mailing list to publicize the availability of the DEIS for public comment. The hearing provided attendees an opportunity to comment on the DEIS. All comments were documented and addressed in this FEIS in Chapter 11, "Response to Comments." The hearing was accompanied by an informational open house and comments on the DEIS were accepted via mail and e-mail until March 31, 2008. \*