

NJ-ARP NOTES:

NEC INFRASTRUCTURE PROJECTS OF RELEVANCE TO NEW JERSEY

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INTRODUCTION

This document is prepared based on material from the document entitled “*Critical Infrastructure Needs on the Northeast Corridor*”, published by the *Northeast Corridor Infrastructure and Operations Advisory Committee* in January 2013. That document contains a list of projects with cost estimates extracted below are sections of that document that are of direct relevance to the State of New Jersey. This is merged with additional material on projects already funded and in progress.

SECTION TRENTON TO NEWARK

TRENTON CAPACITY IMPROVEMENT

Cost Estimate \$350M

Overview

Trenton Transit Center forms the point of convergence of three major operators: Amtrak’s NEC operations, SEPTA’s Trenton Line, and NJ TRANSIT’s Northeast Corridor Line, as well as occasional Conrail freight service. Each day, the station serves over 5,500 riders. As service has grown, the station’s tracks and platforms have reached capacity. Their current configuration requires trains of either commuter operator to cross the entire NEC main line to access layover tracks or storage yards, or to switch service directions and serve opposite station platforms. In addition, SEPTA lacks overnight storage facilities and must send empty trains back on the Corridor, consuming scarce capacity.

Amtrak, NJ TRANSIT, and SEPTA have yet to formalize plans for improvements at the station. They will consider several investment strategies, which may include additional platforms and station tracks, a new storage yard, a flyover crossing, interlocking reconfiguration, and operational improvements.

NORTH BRUNSWICK LOOP

Cost Estimate \$200M

Overview

NJ TRANSIT’s Northeast Corridor Line is the busiest line in the NJ TRANSIT commuter rail system. Almost half of the commuter trains on the line during peak hours begin or end at an intermediate point just outside of North Brunswick, NJ, at the location of a large storage yard. As trains leave the yard and enter the NEC main line toward New York, however, they must cross three tracks at grade. Trains require long gaps in service to make this complex crossing which reduces capacity on the Corridor. This configuration can also create delays for NJ TRANSIT trains waiting to enter the NEC and for Amtrak trains that must provide space for NJ TRANSIT.

To address this problem, NJ TRANSIT and Amtrak hope to construct a grade-separated flyover that would carry NJ TRANSIT trains up and over the NEC main line, along with a new “loop” track that would connect the yard to the flyover and serve a new commuter station for North Brunswick. These investments would reduce delays for riders and support expansion of service to a new station.

TRENTON – NEW BRUNSWICK HIGH SPEED UPGRADE

Cost Estimate \$400M (Guesstimate of proportion of \$450M that is targeted for this segment)

Overview

This project consists of upgrading of all four tracks between Morrisville PA and Jersey Avenue NJ together with installation of Constant Tension Catenary allowing the raising of speed limit on the center tracks to 160mph and on the side tracks to 125mph. This also includes complete replacement and reconstruction of Midway Interlocking and installation of two new Interlockings connecting tracks and 2, and tracks 3 and 4 with high speed crossovers respectively at Delco and Aldene.

Completion is slated for 2017. Upon completion Acelas will be able to run at 160mph on the center tracks and all trains will be able to run at 125mph on all tracks. It will allow speeding up o NBJT trains to 125mph with suitable re-certification of the MLVs and ALP46As.

ELIZABETH AREA SECTION IMPROVEMENT

Cost Estimate \$600M

Overview

As the NEC traverses Elizabeth, NJ, the main line narrows from six tracks down to just four and follows a sharp reverse curve alignment through the downtown area. Currently, this stretch of track is at capacity, serving two NJ TRANSIT lines and all Amtrak NEC trains between New York and Philadelphia. It is one of the busiest portions of the NEC and, without additional capacity, no agency can add trains during peak hours.

A set of coordinated improvements to upgrade this section of the NEC through Elizabeth are under development. Proposed investments include a fifth NEC main line track and improvements to track alignment and interlockings. In addition, NJ TRANSIT plans to fund the construction of a new Elizabeth station facility that will dramatically upgrade passenger amenities and facilitate the future installation of a fifth NEC track. These investments would reduce delays and enable Amtrak and NJ TRANSIT to increase service.

HUNTER FLYOVER

Cost Estimate \$250M

Overview

At Hunter Interlocking, the NJ TRANSIT Raritan Valley Line joins the NEC just west of Newark Penn Station. Currently, peak-hour Raritan Valley Line trains headed east to Newark must cross three to four NEC main line tracks at grade to access the eastbound tracks at Newark Penn Station. With forty Newark-bound trains per day, Raritan Valley Line trains create conflicts on one of the busiest stretches of the entire NEC. During the morning rush, Raritan Valley Line trains are often delayed as they wait for a “slot” to make the complex crossing, while Amtrak trains must occasionally wait for the trains to complete the crossing. To solve these issues, Amtrak and NJ TRANSIT intend to partner to construct the Hunter Flyover, which would carry Newark-bound Raritan Valley Line trains up and over the six-track NEC main line. This new flyover would remove many directional conflicts between trains and dramatically reduce delays for NJ TRANSIT and Amtrak.

SECTION NEWARK TO NEW YORK

HIGHLINE BRIDGE REPLACEMENT

Cost Estimate \$350M

Overview

The “Highline” is the segment of the NEC that runs from Newark to the entrance of the Hudson River Tunnels. The Highline owes its name to the elevated embankment that carries the NEC tracks high above the wet marshes of the New Jersey Meadowlands. Currently consisting of just two tracks, the Highline – along with the existing Hudson River Tunnels and Portal Bridge – forms part of the most significant capacity bottleneck on the NEC.

Along the Highline, four bridges carry the NEC over the streets and rail lines that cross below the NEC. Over 100 years old, these bridges carry roughly 80% of the 500 daily trains that touch on the segment. They are exhibiting fatigue, cracking, and must be replaced. Plans call for removing the existing two-track bridges and constructing new four-track bridges, including the replacement of the unique “sawtooth” bridge that carries the NEC over the NJ TRANSIT Morristown Line and the PATH rail line.

NEWARK TO NEW YORK FOURTH TRACK

Cost Estimate \$1,200M

Overview

Amtrak envisions completing a full four-track railroad along the length of the Highline by constructing two new tracks from Newark to the Hudson River Tunnels. A continuous third and fourth track would be essential to unlocking the full capacity gains promised by larger projects, including a new Portal Bridge and new Hudson River Tunnels. This additional capacity would enable both Amtrak and NJ TRANSIT to increase service and would greatly improve reliability by creating the flexibility to divert trains to alternative tracks when there are disruptions on the line.

PORTAL NORTH & SOUTH BRIDGE

Cost Estimates

North Bridge: \$720M

South Bridge: \$750M

Overview

Completed in 1910, the Portal Bridge carries the NEC over the Hackensack River between Kearny and Secaucus, NJ. The bridge earns the name “Portal” because it leads the NEC to the “portal” of the Hudson River Tunnels, located just three miles away. Portal is a movable swing bridge that is required by law to open for maritime traffic. Like most of the Newark to New York segment, the bridge carries only two tracks, creating a significant capacity bottleneck. The bridge is beyond the end of its design life, imposes high maintenance costs, and has become a major source of delays. Due to the advanced age of its components, the bridge will occasionally fail to lock into a

closed position after it has swiveled open 90 degrees to allow boats to pass. As a result, all trains are delayed on this critical NEC segment while Amtrak maintenance forces make repairs. Since a serious malfunction in 1996, Amtrak has restricted speeds on the bridge to 60 mph (compared to 90 mph on the surrounding tracks).

Two new bridges are planned or proposed to replace the existing Portal Bridge. The first new bridge, Portal North, is already in the final phase of design. In 2009, NJ TRANSIT completed environmental review, and in 2010, the agency was awarded a \$38-million HSIPR grant to complete final design and engineering of the new bridge. Portal North will be a fixed two-track span constructed high enough to allow boats to pass freely below. Trains will face no bridge-imposed speed restrictions and will not have to wait for bridge openings. Final design is expected to be complete in the first quarter of 2013, after which the start of construction would await the availability of funding.

A second new bridge, Portal South, is proposed by Amtrak to complement Portal North and to enable Amtrak and NJ TRANSIT to decommission the existing unreliable Portal Bridge. Plans for the bridge would include the construction of a third and fourth NEC track, helping complete a four-track railroad between Newark and New York. Portal South would expand capacity and improve reliability by building flexibility into the system for crossing the Hackensack River.

HUDSON RIVER TUNNELS

Cost Estimate \$7,200M

Overview

The biggest impediment to increasing service and improving reliability on the NEC is infrastructure crossing the Hudson River. The existing Hudson River Tunnels were an engineering marvel when they were completed in 1910. Over a century later, however, the current pair of one-track tunnels is woefully inadequate for current and future service.

Each of the two existing tunnels carry a maximum of twenty four trains per hour. During the morning and evening rush, there is simply no remaining capacity to add more trains. With just one track into New York and one track out, the current tunnels offer no system redundancy. When a train breaks down in one of the tunnels, service grinds nearly to a halt. Due to their age, the existing tunnels also require extensive maintenance and are in need of substantial repair. Without system redundancy, Amtrak is unable to make major investments in the tunnels without a major and ongoing disruption of service for both Amtrak and NJ TRANSIT.

Multiple planning processes, including those by Amtrak and NEC FUTURE, are looking closely at the long-term capacity needs on the NEC with regard to capacity across the Hudson River. Future options may include a new pair of single-track tunnels, as is proposed by Amtrak's Gateway program. These new tunnels would nearly double the rail capacity between New York and New Jersey, enabling a substantial increase in both intercity and commuter service over many years to come. In addition, new tunnels would provide much needed system redundancy, keeping service moving smoothly even if an existing tunnel is taken out of service for regular maintenance or because of an unexpected service disruption.

PENN A INTERLOCKING

Cost Estimate \$50M (Guesstimate of the portion of \$450M High Speed Grant that will be used for this part)

Overview

This project which is already funded through the \$450 High Speed Rail Grant envisages to realign tracks in the A Interlocking are allowing higher speed ingress and egress from Penn Station towards New Jersey, reducing running times and conflict times.

MOYNIHAN STATION PHASE II

Cost Estimate \$1,000M

Overview

The existing New York Penn Station is the busiest passenger rail terminal in the United States, serving over 1,000 daily trains and almost 500,000 daily riders. Since the original Pennsylvania Station headhouse was demolished in the 1960s, the cramped design of the present-day underground Penn Station has been widely recognized as unfit to serve as the passenger rail gateway to America's most populous city. After the demolition of the original station, renowned architecture critic Vincent Scully famously remarked, "One entered the city like a god; one scuttles in now like a rat." Today, Penn Station's tracks, platforms, and waiting areas are regularly overwhelmed by the growing number of passengers boarding Amtrak, NJ TRANSIT, and LIRR trains.

Several complementary projects are planned or proposed to increase station capacity and upgrade the passenger experience in New York. First, the Port Authority of New York and New Jersey, in cooperation with Amtrak and LIRR, is leading the development of Moynihan Station, a new intercity passenger rail station that will dramatically improve the experience of boarding a train in New York. Located inside the historic Farley Post Office, just west of Penn Station and above the NEC tracks, the new station will offer a grand entrance to Manhattan and world-class facilities for intercity and commuter passengers. Phase One, already supported by state and federal funding, is expanding the site's underground concourse to improve track connections for Amtrak and LIRR. In Phase 2, above ground, the Farley Post Office will be converted into a full-scale, intercity passenger rail terminal, including the construction of ticketing facilities, waiting areas, retail amenities, and access points to tracks and platforms. When Phase 2 is complete, Amtrak's current station operations and primary boarding area would be relocated to Moynihan Station.

NEW YORK PENN STATION CAPACITY EXPANSION

Cost Estimate \$3,000M

Overview

As part of the larger Gateway program, Amtrak is proposing an expansion of New York Penn Station's track and platform facilities to increase capacity in New York. Plans under consideration include the construction of four new platforms and seven new tracks to accommodate the additional intercity and commuter services that would be made possible with new Hudson River tunneling.

Amtrak, LIRR, and NJ TRANSIT are considering architectural improvements to the existing New York Penn Station. The three agencies are currently completing a Penn Station master plan that could guide aesthetic and layout improvements aimed at upgrading and expanding the passenger waiting areas, creating new retail options, and making it easier to board trains and move through the station.

EAST RIVER TUNNEL TRACK REPLACEMENT & SIGNAL UPGRADES

Cost Estimate \$200M

Overview

The East River Tunnels form the connection between New York Penn Station, Long Island, and the northern half of the NEC. The tunnels are comprised of four single-track tubes between Manhattan and Queens, and are shared by scheduled Amtrak and LIRR passenger services, as well as empty Amtrak and NJ TRANSIT trains heading to and from Sunnyside Yard in Queens. Constructed in 1910, the tunnels carry over 600 daily trains, making the tunnels and the route to Sunnyside Yard the busiest stretch along the entire NEC.

Amtrak and LIRR are currently engaged in modernizing the East River Tunnels. Investments are needed to reline the drainage system and replace the track structure, which currently require extensive ongoing maintenance. Additional investments would replace its aging signal system, which is prone to failure and delays, with a modern high-density signal system that is capable of allowing higher-frequency service. The new system would increase capacity, reduce delays, and improve safety by supporting the implementation of positive train control technology.

SUNNYSIDE YARD FACILITIES RENEWAL AND SERVICE & INSPECTION EXPANSION

Cost Estimate \$550M

Overview

Sunnyside Yard is one of the most critical equipment servicing and storage yards on the entire NEC. Located in Queens, NY, the yard is the starting point for many of the Amtrak and NJ TRANSIT trains that begin their journey at New York Penn Station. On average, 47 Amtrak trains and 28 NJ TRANSIT trains are serviced, inspected, or stored in Sunnyside every day. The existing yard has no weather-protected facility for servicing conventional (non-Acela) trains and lacks the capacity necessary for the expected growth in train service on the NEC, including potential increases in high-speed service.

Amtrak is currently developing a master plan for Sunnyside Yard to assess the current and future needs of both Amtrak and NJ TRANSIT. Plans for Sunnyside include options for increased capacity for servicing high-speed trains, new high-speed and conventional train storage, and new service, inspection, and repair facilities for conventional trains. Investments would enable Sunnyside to support increased service for Amtrak, while continuing to support NJ TRANSIT storage and servicing needs.