

Northeast Corridor Capital Investment Plan

Fiscal Years 2020-2024

March 2019 (amended July 2020)





Congress established the Northeast Corridor Commission to develop coordinated strategies for improving the Northeast's core rail network in recognition of the inherent challenges of planning, financing, and implementing major infrastructure improvements that cross multiple jurisdictions. The expectation is that by coming together to take collective responsibility for the NEC, these disparate stakeholders will achieve a level of success that far exceeds the potential reach of any individual organization.

The Commission is governed by a board comprised of one member from each of the NEC states (Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, and Maryland) and the District of Columbia; four members from Amtrak; and five members from the U.S. Department of Transportation (DOT). The Commission also includes non-voting representatives from freight railroads, states with connecting corridors and several commuter operators in the Region.



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¹ On December 9, 2019, the Commission amended select project pages in the FY20-24 Capital Investment Plan to ensure alignment with applications to be submitted for the Federal-State Partnership for State of Good Repair Grant Program. The grant eligibility requirements state that NEC projects must be contained in the NEC five-year Capital Investment Plan. Text and figures in all other parts of this plan reflect data as originally published in March 2019.



Letter from the Co-Chair

The Northeast Corridor is the nation's busiest and most complex passenger railroad. It serves four of the nation's largest regional economies, connecting hundreds of thousands of workers to jobs, students to schools, and friends and family to each other every day. Some of the infrastructure supporting NEC passenger rail service is well over 100 years old. Routine inspections ensure day-to-day safety, but we live with the looming risk that one of those inspections uncovers the need for an emergency repair. Without warning, NEC service could be severed for days, weeks, or longer. Commuters and businesses would be left scrambling. Overburdened highways and airports would experience even greater levels of congestion.

The Northeast Corridor Commission brings together the region's state governments, transit agencies, Amtrak, the District of Columbia, and the federal government to collaborate on plans to reinvest in the railroad and avoid these potentially disastrous outcomes. Though much work remains, the Commission continues to make strides in developing a resource-constrained capital plan that could begin to reverse decades of neglect if necessary funding is secured.

The funding gap in the Capital Investment Plan is slowly narrowing for two key reasons. One, stakeholders are continuing efforts to scrutinize their own plans for feasibility, accounting for project readiness, workforce availability, and track outage limitations. Second, for some major projects, such as Portal North Bridge and the Hudson Tunnel Project, credible funding and financing strategies are coming into focus and operating agencies are locking in their local matches in the pursuit of federal funding support.

However, key projects are still unfunded in fiscal years 2020-2024. Pages 11 and 12 of this report highlight the six major assets most at risk of failure. Some replacement projects, such as the B&P Tunnel in Maryland, urgently need additional funding over the next five years to complete final design and/or advance construction. The funding needed to fully address the now-estimated \$45.2 billion state-of-good-repair backlog will grow beyond the five-year window as other large projects enter construction.

The Commission would like to acknowledge that through funding for the Federal-State Partnership for State of Good Repair program and the Amtrak NEC Account, Congress has signaled its support for addressing this problem. The Commission looks forward to continuing to work with our members and Congress to secure the funding needed to restore the corridor to a state of good repair and build a foundation for growth.

Kevin S. Corbett
Executive Director, NJ TRANSIT
Co-Chair, Northeast Corridor Commission

Executive Summary

Significant investment planned during FY20-24, but NEC state-of-good-repair backlog will remain

The NEC Capital Investment Plan for federal fiscal years 2020-2024 documents the funding requirement (i.e., the funding available and needed) during the five-year time frame for planned and ongoing capital investments on the NEC. Two types of capital investments are included in this document:

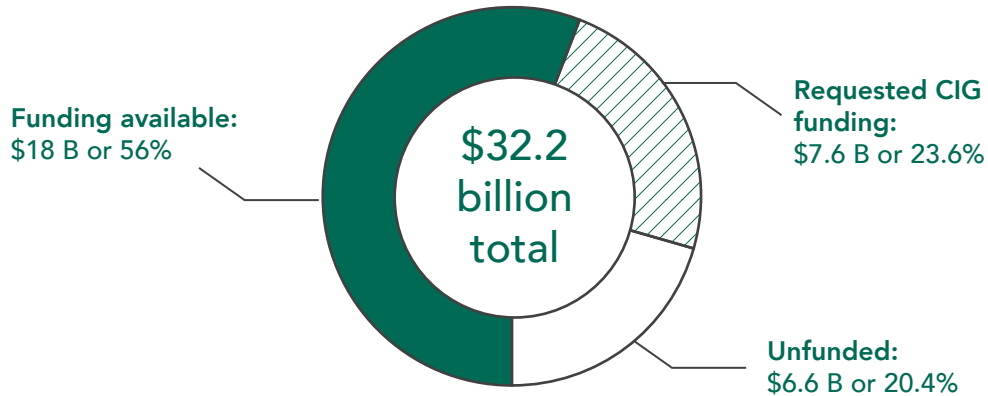
- Capital renewal of basic infrastructure, which represents the routine repair or replacement of existing basic infrastructure assets to keep the NEC safe for train operations; and
- Special projects, including: (1) “major backlog projects” which represent the complete overhaul or replacement of the NEC’s century-plus-old bridges and tunnels that are deteriorating and at risk of severing service; and (2) “improvement projects” aimed at creating new infrastructure above and beyond existing assets or replacing existing assets with markedly superior ones.

NEC stakeholders have identified a total funding requirement of \$32.2 billion for FY20-24. Of the \$32.2 billion total, approximately \$18 billion is available or likely to be available to stakeholders for NEC capital investments in FY20-24. Stakeholders plan to use approximately \$4.3 billion of the available funding for capital renewal of basic infrastructure activities, which provide the foundation for reliable train service, and approximately \$13.7 billion to advance special projects on the NEC. For instance, \$9.4 billion in funding is committed by the states and Amtrak to initiate construction in the next five years for Portal North Bridge and the Hudson Tunnel Project. Additionally, Connecticut DOT has committed \$1.2 billion to complete construction for the Walk Bridge Program and early design work for the replacement of both Devon and Saugatuck River Bridges.

According to NEC stakeholders, approximately \$6.6 billion is needed to undertake planned investments for which no funding is identified, including NEC-wide and regional priorities. For example, the Baltimore & Potomac Tunnel in Maryland—which opened in 1873—is beyond the end of its useful life and requires constant monitoring and maintenance at a high cost. In FY20-24, if \$821 million in funding became available, the replacement project could complete most early action construction items and final design of the replacement tunnel. The remaining \$7.6 billion of the \$32.2 billion funding requirement for FY20-24 is funding requested from the Federal Transit Administration’s Capital Investment Grants Program for projects that have been accepted into the Project Development phase of the program.

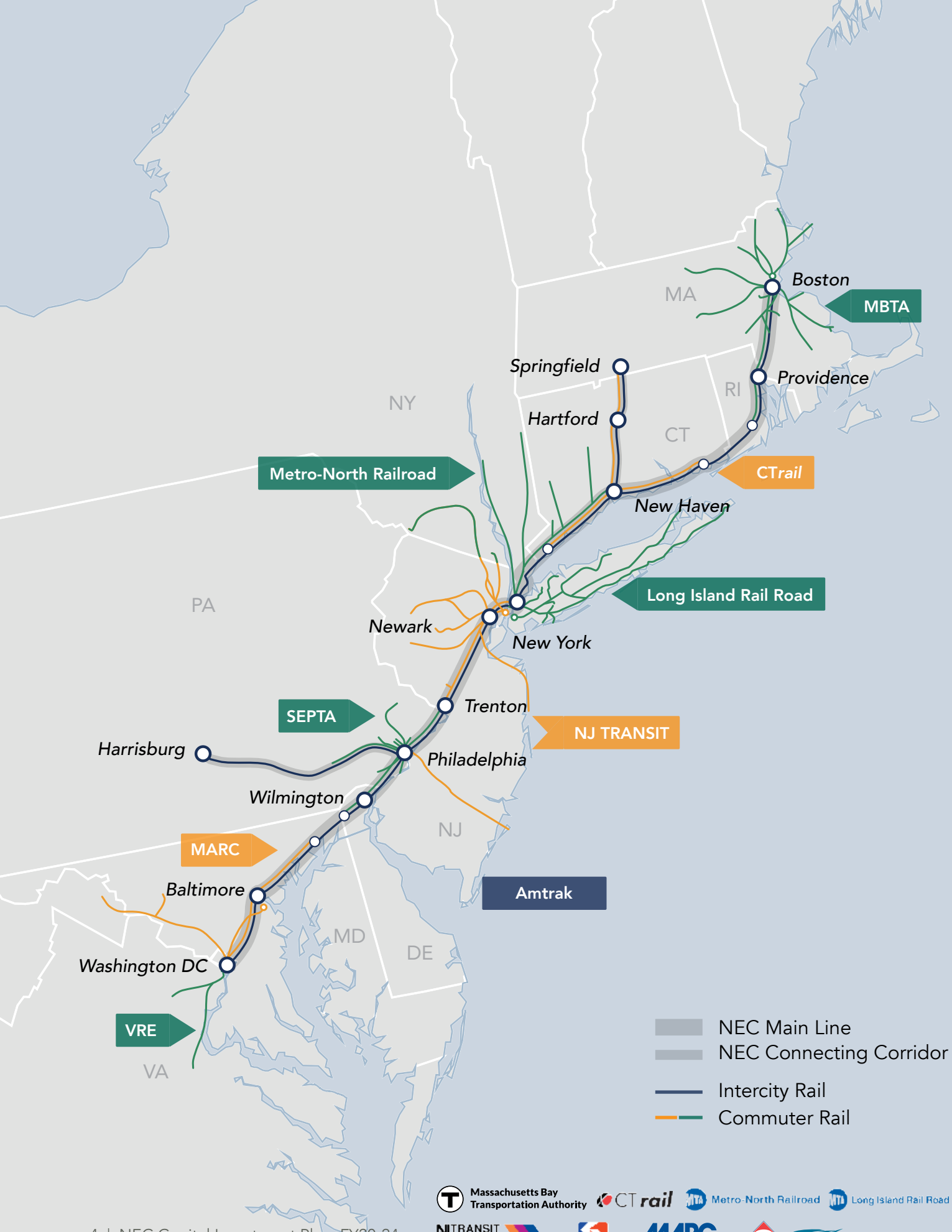
In the near-term, some opportunities exist to address the \$6.6 billion of unfunded capital investments in the plan, as well as the NEC’s overall state-of-good-repair backlog, which is currently estimated at \$45.2 billion. For example, in FY19, \$400 million will be provided to the Federal-State Partnership for State of Good Repair Program. In addition, similar to FY18, Amtrak will receive \$650 million in appropriations to its Northeast Corridor account in FY19 signifying a commitment from federal stakeholders to address the needs of the corridor. However, in the longer-term, additional funding and financing programs combined with sustained and consistent funding from all parties will be needed to bring the Corridor to a state of good repair and ensure its safety and reliability for future generations.

FY20-24 NEC Capital Investment Plan funding summary



Program/Project Type	FY20-24 Funded (Available or Committed)	Requested CIG funding	FY20-24 Unfunded (Amount Needed)	FY20-24 Total
Capital Renewal of Basic Infrastructure	\$4,273 M	Not applicable	TBD	\$4,273 M
Baseline Capital Charge (BCC) Program ¹	\$2,828 M	Not applicable	\$0	\$2,828 M
Above BCC Obligations	\$1,445 M	Not applicable	TBD	\$1,445 M
Special Projects^{2, 3}	\$4,324 M	\$0	\$5,733 M	\$10,057 M
Major Backlog	\$1,200 M	\$0	\$998 M	\$2,198 M
Improvement	\$3,124 M	\$0	\$4,735 M	\$7,859 M
Special Projects: Gateway Program²	\$9,422 M	\$7,580 M	\$828 M	\$17,830 M
Total	\$18,019 M	\$7,580 M	\$6,561 M	\$32,161 M

Notes: (1) Assumes \$565.6 M per year equivalent to 100% normalized replacement based on the approved FY19 Cost Allocation Model with existing asset data. Total MNR Capital Renewal of Basic Infrastructure assumes an approved MTA FY20-24 Capital Program will be in place to secure funding for the BCC Program. (2) Funding available, requested Capital Investment Grant program funding, and unfunded figures are reported by the agencies. The reported values for each special project can be found in the Project Information Appendix. (3) Special project figures provided by Connecticut DOT represent budgets, not planned expenditures.



Metro-North Railroad

MBTA

CT rail

Long Island Rail Road

SEPTA

NJ TRANSIT

MARC

Amtrak

VRE

- NEC Main Line
- NEC Connecting Corridor
- Intercity Rail
- Commuter Rail

1. Introduction

The Northeast Corridor

Each day, the Northeast Corridor—both the NEC main line and connecting corridors to Harrisburg, PA; Spuyten Duyvil, NY; and Springfield, MA—hosts over 800,000 railroad trips on eight commuter railroads and Amtrak’s intercity services. The 457-mile main line railroad still includes many bridges and tunnels that date back to the period between the Civil War and the New Deal.

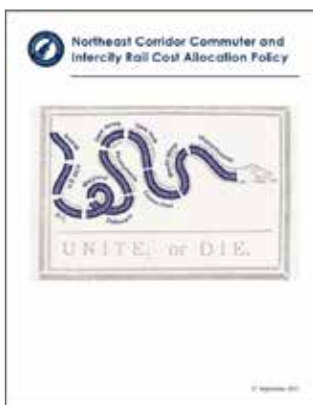
Service disruptions caused by infrastructure failures, rail traffic congestion, and other factors already cost the economy \$500 million per year in lost productivity. Without higher levels of capital investment, those losses are likely to grow. A loss of all NEC services for just one day would cost the economy an estimated \$100 million.

The Northeast Corridor Commission

Congress established the Northeast Corridor Commission to develop coordinated strategies for improving the Northeast’s core rail network in recognition of the inherent challenges of planning, financing, and implementing major infrastructure improvements that cross multiple jurisdictions. The expectation is that by coming together to take collective responsibility for the NEC, these disparate stakeholders will achieve a level of success that far exceeds the potential reach of any individual organization.

The Commission is governed by a board comprised of one member from each of the NEC states (Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, and Maryland) and the District of Columbia; four members from Amtrak; and five members from the U.S. Department of Transportation. The Commission also includes non-voting representatives from freight railroads, states with connecting corridors and several commuter operators in the Region.

The NEC Commuter and Intercity Rail Cost Allocation Policy



In September 2015, the Commission adopted the NEC Commuter and Intercity Rail Cost Allocation Policy. The Policy outlines a partnership built on three pillars.

First, it established a framework for allocating approximately \$1 billion annually in shared operating and capital costs among the NEC’s four infrastructure owners and nine passenger rail operators. The agencies’ financial obligations are calculated annually through the NEC Commission’s Cost Allocation Model and are based on their relative use of NEC infrastructure. Infrastructure owners use agencies’ capital obligations, referred to as Baseline Capital Charges (BCCs), to fund the normalized replacement of basic infrastructure assets (i.e., replacing basic infrastructure assets on a regular schedule to maintain NEC infrastructure components and facilities within lifecycle and sustain a state-of-good-repair).

Second, the Policy established a framework for transparency, collaboration, and accountability, including a first-ever corridor-wide capital planning process. The five-year Capital Investment Plan is a key component of that NEC-wide planning process and, like many recommendations from the Policy, was incorporated into the most recent federal transportation law, Fixing America's Surface Transportation (FAST) Act (49 U.S.C. §24904(a)).

To complement increased NEC funding commitments from Amtrak, states, and commuter railroads, the final pillar of the Policy called for a strong Federal role in providing dependable and consistent funding so that the NEC could be restored to a state-of-good-repair.

The NEC Capital Investment Plan

The NEC Capital Investment Plan was developed in collaboration with eight states, the District of Columbia, the United States Department of Transportation, Amtrak, and eight commuter rail agencies. The plan combines anticipated investments based on available funding and resources with capital investments that could occur with additional funding to restore and improve the condition of the NEC.

In the fall of 2018, NEC stakeholders were invited to participate in regional meetings to collaboratively discuss regional and NEC-wide priorities, as well as review specific capital investment data submitted for the plan. As a result of this collaboration and iterative review of project data, the plan seeks to transparently document the investments required over the next five federal fiscal years to reverse decades of deterioration and begin to modernize the NEC for future economic growth.

Other NEC Capital Plans and Reports

The Commission produces two other plans and reports on an annual basis to comply with the Policy and FAST Act requirements:

- **NEC One-Year Implementation Plan:** The One-Year Implementation Plan is a consolidated cross-agency record of the anticipated capital project activity in the upcoming federal fiscal year based on available capital funding.
- **NEC Annual Report:** The Annual Report summarizes train operations and performance on the NEC, documents the delivery of the Commission's NEC One-Year Implementation Plan, and identifies challenges and recommendations related to capital program delivery, as appropriate.

Download a copy of the Policy and all NEC plans and reports at: www.nec-commission.com.

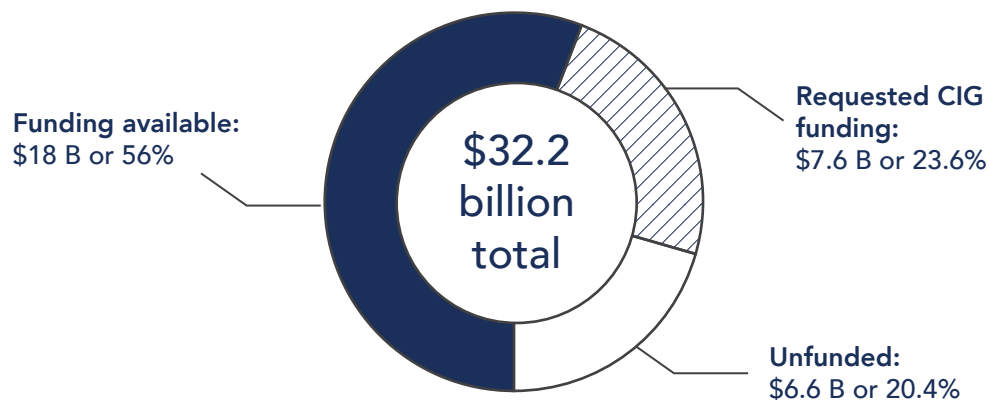
2. FY20-24 Capital Investment Plan

Significant investment planned, but state-of-good-repair backlog will remain

The NEC Capital Investment Plan for federal fiscal years 2020-2024 documents the funding requirement (i.e., the funding available and needed) during the five-year time frame for planned and ongoing capital investments on the NEC. It also specifies the activities that are expected to be completed with the available funding and those that could be completed if additional funding was made available.

As summarized in Figure 2-1, NEC stakeholders have identified a total \$32.2 billion funding requirement for FY20-24. Importantly, the \$32.2 billion funding requirement reflects the total amount that must be secured over the five-year time frame to ensure that NEC stakeholders can continue to advance critical projects and provide safe and reliable rail service; it does not represent the amount of funding that will be expended by NEC stakeholders during the five-year time frame.¹ Of the \$32.2 billion total, approximately \$18 billion in funding is available or likely to be available to stakeholders for NEC capital investments in FY20-24 and \$6.6 billion is needed, or unfunded. The remaining \$7.6 billion is funding requested from the Federal Transit Administration's Capital Investment Grants Program for projects that have been accepted into the Project Development phase of the program.

Figure 2-1. FY20-24 funding requirement for NEC capital investments



In addition to the funding requirement for FY20-24, significant investment will be needed after FY24 to continue to address the growing state-of-good-repair backlog on the NEC. The state-of-good-repair backlog is the population of assets beyond their useful life. Our current estimates indicate \$45.2 billion is needed to bring the corridor to a state of good repair over the next several decades. Every year the backlog goes unaddressed, it continues to grow. See page 16 for more information on the state-of-good-repair backlog.

¹ The Gateway Program's Hudson Tunnel Project and Portal North Bridge have applied for \$7.6 billion in Federal funding from the Capital Investment Grants Program. Together, these projects have \$17 billion required in the FY20-24 plan, with a portion anticipated to be spent during the five-year time frame and the remaining funds to be spent in subsequent years.

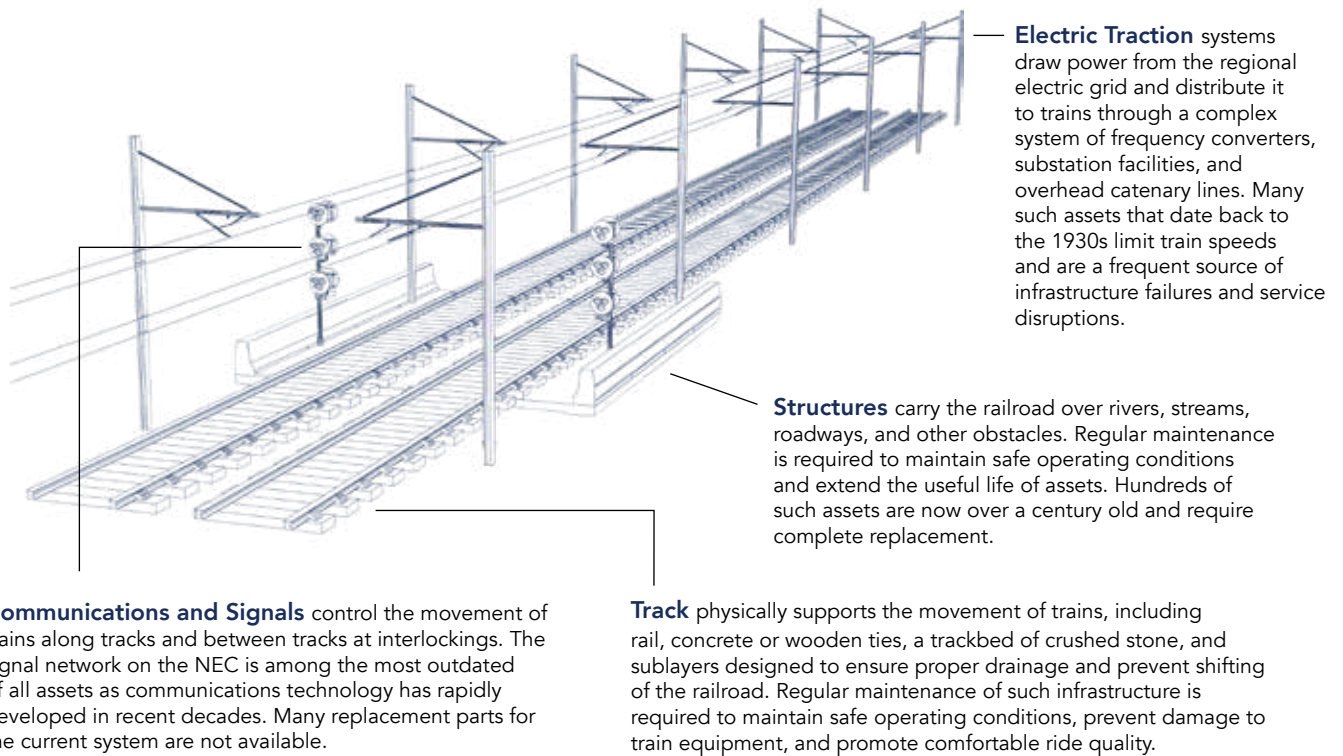
Capital renewal investments are the foundation for reliable train service

Capital renewal of basic infrastructure represents the routine repair or replacement of existing basic infrastructure assets to keep the NEC safe for train operations. Basic infrastructure assets include electric traction, structures, track, and communications and signal components (see Figure 2-2).

Recent data indicate that nearly one-third of all rail delays were caused by engineering-related incidents, including infrastructure failures.² Expanded and sustained investment in capital renewal of basic infrastructure has the potential to greatly improve the reliability of the NEC.

In FY20-24, NEC partners will jointly contribute approximately \$2.8 billion toward capital renewal investments through the Baseline Capital Charge Program (see Figure 2-5 on page 14 for more details). This investment will advance the steady-state normalized replacement of basic infrastructure assets. Some owners contribute above required obligations to help reduce the state-of-good-repair backlog of basic infrastructure assets but significant additional investment is needed to clear the backlog corridor-wide.

Figure 2-2. Basic infrastructure assets



² NEC Commission, FY18 NEC Annual Report, March 2019.



The Susquehanna River Bridge in Maryland

Special projects address critical major backlog needs and modernize the NEC

Special projects include two types of investments. First are “major backlog projects” which represent the complete overhaul or replacement of the NEC’s century-plus-old bridges and tunnels that are deteriorating and at risk of severing service. The second type are “improvement projects” aimed at creating new infrastructure above and beyond existing assets or replacing existing assets with markedly superior ones.

In FY20-24, approximately \$13.7 billion is available for special projects on the NEC (see Figure 2-5 on page 14). Special projects are funded through a mix of sources which may include, but are not limited to: appropriations to the Amtrak NEC account; federal grants such as FTA’s Capital Investment Grants Program and FRA’s Federal-State Partnership for State of Good Repair Program; funds from state and/or commuter railroad capital programs; and other sources of discretionary funding. With limited exceptions outlined in the Policy, most special projects are not eligible for BCCs.

NEC-wide priorities aim to rebuild assets most at risk of failure to prevent a loss of service

NEC stakeholders' priority is to ensure the long-term viability of the railroad, which means reducing the state-of-good-repair backlog. The backlog consists of assets large and small (see page 16 for more information) but what sets major bridges and tunnels apart is their formidable capital need. Their potential for failure threatens NEC-wide service viability and reliability. The Cost Allocation Policy calls for a federal-state partnership in funding such projects as no individual state, railroad, or transit agency can bear the costs of replacement alone.

Of the main line's fifteen major 100 to 150 year-old bridges and tunnels, six are considered most urgently in need of replacement. The existing assets, while all safe, pose a looming risk that a regular inspection could uncover the need for an emergency repair that could sever service on the NEC for days, weeks, or longer. Though at various stages of development, with additional funding all six replacement projects could be under construction within the next five years.

Gateway Program Projects



Portal North Bridge

Portal Bridge is a century-old, swing-span bridge over the Hackensack River between New Jersey and New York that routinely opens for maritime traffic. The functionally obsolete bridge is a major bottleneck and source of delay to 450 daily trains due to its limited vertical clearance and frequent mechanical failures while opening and closing. Routine maintenance cannot mitigate the risk of continued and increasing unplanned outages from malfunctions. This replacement project includes constructing a new high-level, fixed-span bridge that would eliminate openings and therefore the risk of malfunctions and service disruptions. Early action construction has begun, while NJ TRANSIT, Amtrak, and other state partners have budgeted their funding contribution toward full construction.



Hudson Tunnel Project

Every weekday, almost 200,000 passengers on 450 Amtrak and NJ TRANSIT trains use the North River Tunnel—originally built in 1910—to travel between New Jersey and Manhattan. While operationally safe, the tunnel systems continue to deteriorate due to corrosive minerals from Superstorm Sandy flooding in 2012. The Hudson Tunnel Project includes first constructing a new two-track tunnel beneath the Hudson River to maintain existing service; then rehabilitating and modernizing the existing two-track tunnel. Amtrak, NJ TRANSIT, and other state partners have budgeted their funding contribution toward full construction.

Figure 2-3. Benefits from investing in NEC-wide priorities

NEC-wide priorities for FY20-24	Advances state-of-good-repair	Prevents the potential severing of the NEC	Increases train capacity	Improves passenger access to rail services
Portal North Bridge	✓	✓		
Hudson Tunnel Project	✓	✓		
Walk Bridge Program	✓	✓		
Devon Bridge Replacement	✓	✓		
Baltimore & Potomac Tunnel Replacement	✓	✓	✓	
Susquehanna River Bridge Replacement	✓	✓	✓	

Connecticut Movable Bridges



Connecticut has five aging movable bridges, all of which require constant maintenance, are functionally obsolete, and well beyond their useful life. Failure of any one bridge would pose a risk of long-term major disruption of service.

Walk Bridge Program

The Walk Bridge Program will replace the 120-year Norwalk River Bridge, where all four tracks reside on one movable span. The bridge has experienced increased deterioration of electrical and mechanical components. The program also includes two additional capital projects in the vicinity to mitigate any negative impacts to track availability and reliability during construction.

Devon Bridge

Devon Bridge, a 111-year-old bridge that carries four tracks over the Housatonic River, has experienced serious deterioration and is the next most critical Connecticut movable bridge slated for replacement.

Maryland Major Backlog Projects



Baltimore & Potomac Tunnel

The Baltimore & Potomac Tunnel, built in 1873, runs underneath central Baltimore City and is a key chokepoint on the Corridor where the right-of-way is reduced from four to two tracks in the tunnel. In addition, high saturation of water in the soil beneath the tunnel causes its aging floor slabs to sink, forcing Amtrak to make extensive ongoing repairs. This project includes replacing the aging tunnel with a new four-track tunnel on an improved alignment to eliminate the current chokepoint for MARC and Amtrak trains near Baltimore Penn Station. The new tunnel would not only improve rail service reliability, speed, and safety, but also accommodate future growth and demand.



Susquehanna River Bridge

Built in 1906, the Susquehanna River Bridge is nearing the end of its useful life. The bridge constricts the NEC from four to two tracks and requires trains to reduce speeds for nearly one-mile due to the condition of the bridge. In addition, the current bridge is required to open approximately a dozen times per year for boats to pass, but its current design is not suited for the task. A crew of over 30 workers is required to manually open the bridge, essentially deconstructing and reconstructing the railroad each time. This project would replace the current bridge with two modern high-level, fixed structures, each with two tracks. The new bridge would improve service reliability, lower operating costs, accommodate future growth of commuter and intercity passenger rail, and increase speeds for intercity service.

Regional priorities aim to increase train capacity and improve access to rail

As part of the process of gathering data for this plan, the Commission convened regional meetings with NEC stakeholders to discuss NEC-wide and local priorities. Stakeholders agreed on the key priority to advance major backlog projects, but also discussed smaller priority projects aimed at improving the NEC and/or reducing the state-of-good-repair backlog.

The highlights below represent a sampling of such projects needed to support existing and future ridership growth on the NEC. They either seek to improve the NEC by increasing train capacity (such as alleviating speed restrictions or permitting greater service frequency) or improve passenger access to rail services at key stations.

Boston South Station and Tower 1 Interlocking (MA)



Boston South Station is the anchor of the northern half of the NEC, serving Amtrak and eight lines on the MBTA commuter rail system. With over 320 daily trains, South Station is Amtrak's third busiest station on the NEC and the busiest MBTA commuter rail station. South Station is currently operating at capacity, creating a significant bottleneck and a major obstacle to increasing service.

The project would expand Boston South Station to meet current needs and future growth. State funding and a High-Speed Intercity Passenger Rail grant are funding preliminary engineering and environmental review. The project is expected to dramatically increase capacity and may include new tracks and passenger facilities, as well as additional storage space for MBTA trains. In addition, early action items are underway to complete final design on Tower 1 Interlocking, which will address current reliability and resiliency issues. Additional funding is needed for construction of Tower 1 Interlocking and for final design and construction for the station expansion.

Providence Station (RI)



Providence Station was relocated in the 1980s to its current location which lacks strong intermodal connections to ensure passengers can seamlessly connect from Providence to destinations along the Corridor. The current station is also in need of reprogramming of interior space to better reflect the needs of today's travelers.

This project includes short-term interior layout changes, emergency platform egress, and pedestrian access improvements to the station. Long-term actions could include connections to adjacent retail centers, enhanced bus/intermodal connections, increased parking, and station expansion. Additional funding would advance final design and construction.

Figure 2-4. Benefits from investing in regional priorities

Regional priorities for FY20-24	Advances state-of-good-repair	Prevents the potential severing of the NEC	Increases train capacity	Improves passenger access to rail services
Boston South Station and Tower 1 Interlocking	✓		✓	✓
Providence Station	✓			✓
Mid-Line Loop			✓	✓
Harrisburg Line Interlocking Improvements	✓		✓	
Washington Union Station Long Term Station Expansion			✓	✓

Mid-Line Loop (NJ)



NJ TRANSIT's Northeast Corridor Line is the busiest line in its commuter rail system. Nearly half of peak commuter trains begin or end at a storage yard near North Brunswick, NJ. As trains leave the yard, they must complete a complex crossing of three tracks at grade, which causes long gaps in service. This configuration reduces capacity on the NEC and creates delays for both Amtrak and NJ TRANSIT trains. The Mid-Line Loop project would construct a new above-grade connection. This project will reduce delays for riders, open capacity for all users, and improve reliability for NJ TRANSIT services. The capacity created would also help enable the goal of 160-mph speeds on Acela, as well as support future express service patterns planned by NJ TRANSIT. If funding were to become available, the Mid-Line Loop could complete its design phases and initiate construction in the next five years.

Harrisburg Line Interlocking Improvements (PA)



The Harrisburg Line includes service from both Amtrak's Keystone Corridor and SEPTA's Paoli-Thorndale Regional Rail Line. SEPTA's service on this line has the system's highest ridership and serves over 7.9 million trips annually. The line's interlockings have far exceeded their useful life and are functionally obsolete, which prohibits the most efficient and timely use of the interlocking and creates challenges for reliability. The current configuration also no longer effectively supports ridership demands.

PennDOT, in coordination with SEPTA and Amtrak, is advancing this state-of-good-repair project to improve operational efficiencies by replacing or reconfiguring the functionally obsolete interlockings. If funding can be identified, this project could complete final design and initiate construction to support existing and future ridership growth.

Washington Union Station Long Term Station Expansion (DC)



Washington Union Station anchors the southern portion of the NEC and serves Amtrak, MARC, and VRE. The long-term expansion project will redevelop the Washington Union Station to meet growing demands for intercity and commuter rail by addressing capacity constraints and aging infrastructure, as well as including plans for Burnham Place, an air rights development project from Akridge over the tracks and platforms. FRA is currently leading the PE/NEPA process. Funding is needed for advanced design, program management, and construction.

Near-term capital investments will advance projects in FY20-24

As noted in Figure 2-5 below, the FY20-24 plan identifies a total funding requirement of \$32.2 billion over the next five years. Approximately \$18 billion (or 56%) of this total is considered to be available to NEC stakeholders during the five-year time frame, whereas \$6.6 billion is needed to undertake planned investments for which no funding is identified, including NEC-wide and regional priorities. For complete details on FY20-24 funded and unfunded investments, see Appendix Figure B-1 on page 29.

Figure 2-5. FY20-24 NEC Capital Investment Plan funding summary

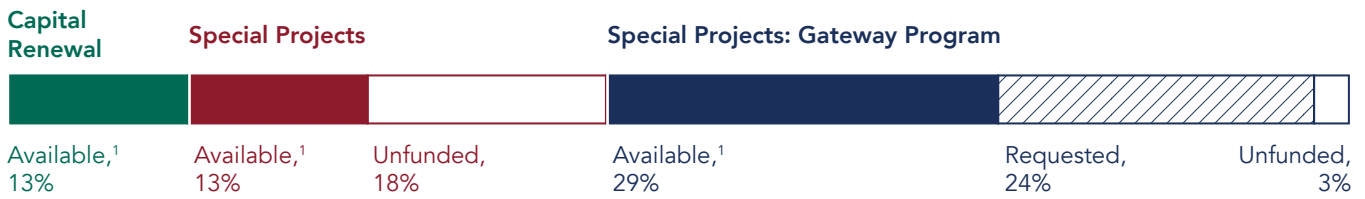
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Of the \$18 billion in available funding, approximately \$4.3 billion will fund capital renewal of basic infrastructure work, \$2.8 billion of that through the Baseline Capital Charge program. \$9.4 billion is funding committed by the states and Amtrak to initiate construction in the next five years for Portal North Bridge and Hudson Tunnel Project. Additionally, Connecticut DOT has committed \$1.2 billion to complete construction for Walk Bridge Program and early design work for the replacement of both Devon and Saugatuck River Bridges. While the funding available for these major backlog projects is expected to be secured or committed during FY20-24, it may be spent in the subsequent years. An additional \$3.1 billion in funding has been committed for improvement projects up and down the corridor.

The \$6.6 billion unfunded amount includes critical investments and state-of-good-repair needs on the NEC that loom ahead in the not-so-distant future. For example, the Baltimore & Potomac Tunnel in Maryland—which opened in 1873—is nearing the end of its useful life and requires constant monitoring and maintenance at a high cost. In FY20-24, if \$821 million in funding became available, the replacement project could complete most early action construction items and complete final design of the replacement tunnel.

Figure 2-6. FY20-24 NEC Capital Investment Plan funding summary



Note: (1) Available is defined as funding that is available or committed.

Some opportunities exist in the near-term to address the \$6.6 billion of unfunded capital investments in the plan. For example, in FY19, \$400 million will be provided to the Federal-State Partnership for State of Good Repair Program—a discretionary grant program that could advance key projects on the NEC. The program’s first notice of funding opportunity was released in early FY19 and will make funding available to selected projects in the United States.

In addition, similar to FY18, Amtrak will receive \$650 million in appropriations to its Northeast Corridor account in FY19 signifying a commitment from federal stakeholders to address the needs of the corridor. Amtrak anticipates directing future NEC account appropriations, in part, towards its share of the \$4.3 billion in funded capital renewal investments identified for FY20-24. It is also likely that a portion of the NEC account will provide funding for the \$6.6 billion unfunded special projects; however, as shown in Appendix Figure B-1 on page 29, most special projects coordinated by Amtrak do not include assumptions on future funding available or committed during FY20-24.

Funding is not the only hurdle NEC stakeholders face in accomplishing this capital investment plan. Successful implementation of this plan also involves careful planning and advance coordination on track outages, service impacts, and workforce and equipment availability and will be subject to agencies’ resource constraints. For instance, the NJ TRANSITGRID project will create a backup power generation and distribution system for both the NEC and NJ TRANSIT’s main line; however, some track outages may occasionally be required to tie-in the new electrical grid system with the existing electric traction power system feeding both rail lines. Other complex projects, such as Baltimore & Potomac Tunnel Replacement project, will be undertaken outside of the existing NEC right-of-way, resulting in minimal impact to corridor operations.

Figure 2-7. Special project lifecycle funding by source

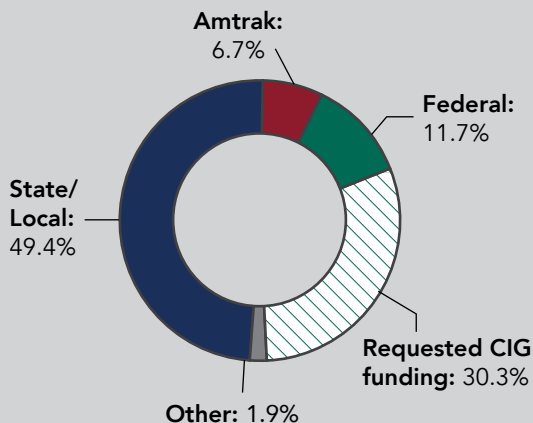


Figure 2-7 represents funding sources for special projects in this plan (as reported by coordinating agencies) and illustrates the relative contribution to special projects by each type of NEC stakeholder. The data includes funding sources for a special project’s entire lifecycle and not funding sources only available within the FY20-24 time frame.

State funding accounts for almost half of all funding sources. The federal contribution, while substantial, is mostly comprised of requested CIG funding. Because this figure represents special projects only, Amtrak’s contribution does not include its investment in capital renewal of basic infrastructure. Additionally, Amtrak’s contribution does not reflect future appropriated funds or NEC profits. Other sources include mostly funding from private entities.

Long-term capital investments and state-of-good-repair backlog needs require additional sustained funding

Infrastructure assets have a useful life, which can vary from a few years to many decades, after which they should be replaced. The state-of-good-repair backlog is the population of assets beyond their useful life and contains both basic infrastructure assets (like rail ties and electric wire) and major assets (like tunnels and large movable bridges). Some assets can operate safely beyond their useful life, though they become more expensive to maintain and more vulnerable to failures that cause service disruptions.

It would cost approximately \$45.2 billion to address the state-of-good-repair backlog across all NEC infrastructure owners. As summarized in Figure 2-8, the backlog includes basic infrastructure assets whose replacement values are \$11.6 billion and major backlog projects with total project costs of \$33.6 billion. Failure to address the state-of-good-repair backlog would make it impossible to sustain existing NEC services. Many of these funding needs are beyond the five-year time frame of the FY20-24 plan, but it is important to identify funding for near-term planning and design to enable future construction. For instance, the Baltimore & Potomac replacement tunnel has a \$4 billion construction cost. Funding needs to be identified and committed so that the project can move forward beyond the current five-year time frame. The cost of inaction in the near-term complicates the need to maintain this critical asset and could potentially put the NEC at risk of severing.

Figure 2-8. The NEC’s state-of-good-repair backlog

Basic Infrastructure Assets		Replacement Value ¹	Major Backlog Projects ²		Total Project Cost ³
Track		\$1,500 M		Connecticut River Bridge	\$759 M
Structures		\$8,200 M		Devon Bridge	\$1,500 M
Communications and Signals		\$700 M	CT	Saugatuck Bridge	\$1,100 M
Electric Traction		\$1,200 M		Walk Bridge Program	\$1,170 M
Basic Infrastructure Backlog Total		\$11,600 M		Cos Cob Bridge	\$1,000 M
			NY	Pelham Bay Bridge	\$546 M
				East River Tunnel	\$1,209 M
			NJ	Gateway: Hudson Tunnel Project ⁴	\$15,215 M
				Gateway: Portal North Bridge ⁴	\$1,787 M
				Gateway: Sawtooth Bridge	\$1,600 M
				Gateway: Highline Renewal	\$300 M
			MD	Susquehanna River Bridge	\$1,885 M
				Bush River Bridge	\$400 M
				Gunpowder River Bridge	\$550 M
				Baltimore & Potomac Tunnel	\$4,595 M
			Major Backlog Total		\$33,616 M

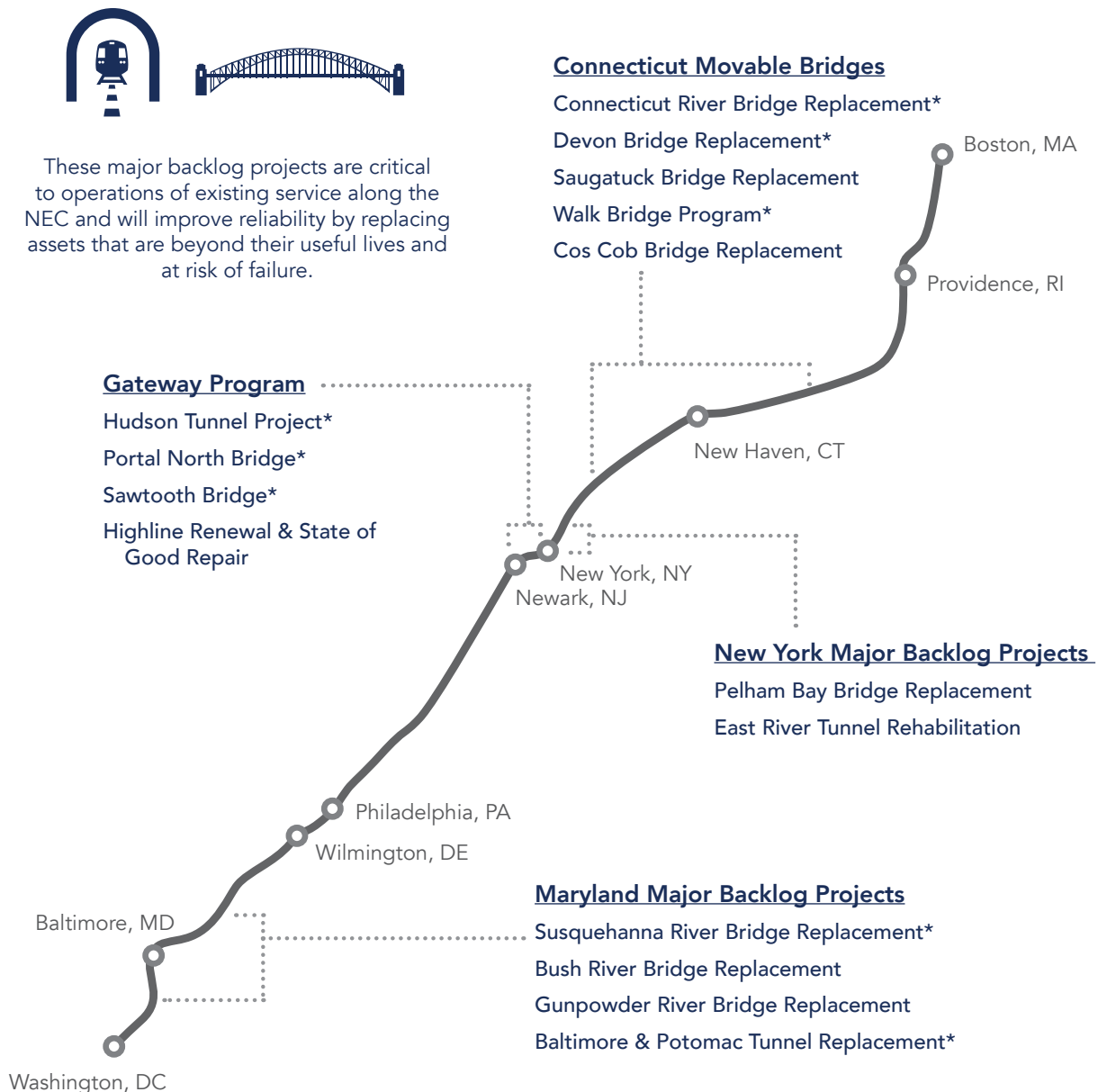
Note for basic infrastructure backlog: (1) Basic infrastructure backlog replacement values are provided by the right-of-way owners. For Amtrak, estimates are based on a 2013 State-of-Good-Repair Assessment; values are currently being updated.

Notes for major backlog projects: (2) Some major backlog projects combine elements of new capacity with the replacement of existing structures. Full details on these projects can be found in the Project Information Appendix, starting on page 28. (3) Total project cost as provided by the infrastructure owner/ coordinating agency. Figures are order of magnitude estimates, as some projects are in the early stages of development. Actual construction estimates may change substantially. (4) Total project costs includes financing charges.

The NEC Cost Allocation Policy calls on the federal government to play a significant role in funding the state-of-good-repair backlog. Congress memorialized many recommendations of the Policy in law when it passed the FAST Act in 2015, including the creation of a Federal-State Partnership for State of Good Repair Program.

In addition to a federal-state partnership to ensure the future success of the corridor, multiple funding and financing programs will be critical to bring the Corridor to a state of good repair. Every year the backlog goes unaddressed, it continues to grow. With a backlog of approximately \$45.2 billion as identified in this plan, sustained and consistent funding from all parties is needed to guarantee the safety and reliability of the Northeast Corridor for future generations.

Figure 2-9. Major backlog projects on the NEC



*Projects that could advance to construction within the next 5 years

Project Information Appendix

A. Capital Renewal of Basic Infrastructure

Capital renewal of basic infrastructure represents the routine repair, replacement, or renewal of existing basic infrastructure assets to keep the NEC safe for train operations. Basic infrastructure assets include electric traction, structures, track, and communications and signal components (see Figure 2-2 on page 8). Additionally, basic infrastructure may include individual, component parts of major bridges and tunnels. On the NEC, capital renewal is managed by the right-of-way owners: Amtrak, MBTA, Connecticut DOT, and Metro-North Railroad.

Requirements from the Cost Allocation Policy

The Cost Allocation Policy (further described in the Introduction on page 5) established a framework for allocating approximately \$1 billion annually in shared operating costs and capital normalized replacement values¹ to NEC agencies, which includes: Amtrak; MBTA; Rhode Island DOT; CTrail; Connecticut DOT; Metro-North Railroad; Long Island Rail Road; NJ TRANSIT; SEPTA; Delaware DOT; MARC; and VRE.

The agencies' financial obligations are calculated annually through the NEC Commission's Cost Allocation Model and are based on their relative use of NEC infrastructure. Right-of-way owners use agencies' capital obligations, referred to as Baseline Capital Charges, to fund capital renewal investments. The Policy requires owners to develop five-year capital renewal investment plans with sufficient geographic specificity to demonstrate that each agency's BCC can be expended in its operating territory during the upcoming two fiscal years. This demonstration of geographic specificity is intended to be a tool for anticipating BCC expenditures and potential investment shortfalls.

Capital renewal investments are shown in this document for 31 discrete geographic segments, which represent points on the NEC where the mix of operators changes:

BCC Segment	Owner	BCC Segment	Owner
1. Boston South Station to MA/RI State Line	MBTA	17. Girard to Philadelphia 30th Street	Amtrak
2. MA/RI State Line to Providence	Amtrak	18. Philadelphia 30th Street to Arsenal	Amtrak
3. Providence to Wickford Junction	Amtrak	19. Arsenal to Marcus Hook	Amtrak
4. Wickford Junction to New London	Amtrak	20. Marcus Hook to Bacon	Amtrak
5. New London to New Haven	Amtrak	21. Bacon to Perryville	Amtrak
6. New Haven to CT/NY State Line	CTDOT	22. Perryville to WAS	Amtrak
7. CT/NY State Line to New Rochelle	MNR	23. Washington Union Terminal	Amtrak
8. New Rochelle to Harold	Amtrak	24. WAS to CP Virginia	Amtrak
9. Harold to F Interlocking	Amtrak	25. Springfield to New Haven	Amtrak
10. F Interlocking to Penn Station New York	Amtrak	26. Poughkeepsie - Spuyten Duyvil*	MNR
11. Penn Terminal	Amtrak	27. Spuyten Duyvil to Penn Station New York	Amtrak
12. Penn Station New York to Trenton	Amtrak	28. Penn to 36th Street	Amtrak
13. Trenton to Morris	Amtrak	29. 36th Street to Thorndale	Amtrak
14. Morris to Holmes	Amtrak	30. Thorndale to Harrisburg	Amtrak
15. Holmes to Shore	Amtrak	31. Amtrak Systemwide	Amtrak
16. Shore to Girard	Amtrak		

*Segment 26 is exempt from the plan

Challenges with Baseline Capital Charge programs

Right-of-way owners are not yet meeting the requirements of the Policy in terms of providing capital renewal plans that include geographically specific information for the first two years of the five year period. The Commission's NEC Annual Reports have outlined challenges regarding NEC capital planning and reporting processes, with a particular emphasis on Amtrak's processes as the majority NEC right-of-way owner. In 2017, the Commission convened a multi-agency working group tasked with identifying a common view of Amtrak's planning and reporting challenges and developing a unified capital planning and reporting framework for NEC stakeholders. The working group identified the following challenges with respect to Amtrak's capital planning and reporting:

1. Capital plans have a weak relationship with reported spending;
2. Plans do not provide locational explanations of scope, schedule, or budget; and
3. Reports do not provide location explanations of progress, changes in schedule, or variance from budget.

In the FY18 Annual Report, the Commission recognized that Amtrak made initial reform efforts throughout FY18 and as a result, was able to provide geographically specific scope, schedule, and budget information for approximately 59 percent of its planned capital renewal investments for the FY19 NEC One-Year Implementation Plan. Despite this progress, improving capital planning and reporting processes remains a high priority for the Commission. For more information on progress and challenges, including the Commission's latest recommendations regarding capital planning and reporting, please refer to the FY18 Annual Report, which can be downloaded at www.nec-commission.com/documents/.

¹ Capital normalized replacement values are derived from basic infrastructure asset data provided by Amtrak and Metro-North Railroad, including asset counts, unit costs, and useful life estimates.

Figure A-1. Amtrak FY20-24 Baseline Capital Charge Program

NEC Main Line

(Washington, DC to New Rochelle, NY; New Haven, CT to Rhode Island/Massachusetts state line)

Connecting Corridors

(Philadelphia to Harrisburg, PA; New Haven, CT to Springfield, MA; and NY Penn Station to Spuyten Duyvil, NY)

Amtrak Territory/ Discipline	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY20-24 Total
NEC Track	\$339,321,250	\$342,575,387	\$405,839,027	\$439,167,435	\$369,405,616	\$1,896,308,715
NEC Structures	\$35,850,000	\$28,600,000	\$27,550,000	\$27,050,000	\$27,100,000	\$146,150,000
NEC Communications and Signals	\$48,901,340	\$41,907,000	\$31,762,000	\$33,525,000	\$40,230,000	\$196,325,340
NEC Electric Traction	\$145,101,051	\$152,808,036	\$142,062,178	\$127,821,533	\$73,685,000	\$641,477,798
NEC Branch Lines (Connecting Corridors) Track	\$11,834,500	\$10,024,535	\$10,220,272	\$10,421,879	\$10,629,535	\$53,130,721
NEC Branch Lines (Connecting Corridors) Structures	\$9,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$15,500,000
NEC Branch Lines (Connecting Corridors) Communications & Signals	\$7,690,000	\$7,750,000	\$8,750,000	\$7,250,000	\$6,250,000	\$37,690,000
NEC Branch Lines (Connecting Corridors) Electric Traction	\$11,549,950	\$33,445,864	\$21,716,617	\$3,300,000	\$3,300,000	\$73,312,431
TOTAL AMTRAK CAPITAL RENEWAL OF BASIC INFRASTRUCTURE	\$609,748,091	\$618,610,822	\$649,400,094	\$650,035,847	\$532,100,151	\$3,059,895,005
Baseline Capital Charge (BCC) Program (Based on FY19 Cost Allocation Model v2 at 100% NR)	\$461,720,000	\$461,720,000	\$461,720,000	\$461,720,000	\$461,720,000	\$2,308,600,000
Above BCC Obligations	\$148,028,091	\$156,890,822	\$187,680,094	\$188,315,847	\$70,380,151	\$751,295,005

Figure A-2. Metro-North Railroad FY20-24 Baseline Capital Charge Program

NEC Main Line: New Haven Line, NY

Funded amounts reflect programmed dollars to be spent over multiple years, not expenditure forecasts. The MTA 2015-2019 Capital Program includes some expenditures forecast for FY20. Unfunded amounts are estimates based on planned capital investments and historic funding levels to be refined during the MTA 2020-2024 Capital Program development process.

Metro-North Discipline	FY20 Estimate	FY21 Estimate	FY22 Estimate	FY23 Estimate	FY24 Estimate	FY20-24 Total
COMMUNICATIONS & SIGNALS	\$1,931,598	\$2,180,000	\$922,000	\$1,178,000	\$704,000	\$6,915,598
Funded	\$1,931,598	\$0	\$0	\$0	\$0	\$1,931,598
Unfunded	\$0	\$2,180,000	\$922,000	\$1,178,000	\$704,000	\$4,984,000
ELECTRIC TRACTION	\$1,220,000	\$22,036,000	\$49,036,000	\$49,036,000	\$35,036,000	\$156,364,000
Funded	\$1,220,000	\$0	\$0	\$0	\$0	\$1,220,000
Unfunded	\$0	\$22,036,000	\$49,036,000	\$49,036,000	\$35,036,000	\$155,144,000
STRUCTURES/STATIONS SHARED	\$11,573,333	\$11,312,000	\$15,507,000	\$16,846,000	\$17,766,000	\$73,004,333
Funded: Undergrade Bridge Rehabilitation	\$10,400,000	\$0	\$0	\$0	\$0	\$10,400,000
<ul style="list-style-type: none"> The Undergrade Bridge Rehabilitation Program continues the repair or replacement of bridges listed in serious to critical states of repair. Work in this segment includes the superstructure replacement and substructure rehabilitation of the Willet Avenue (MP 25.74) and Highland Road Bridges (MP 25.83) on the New Haven Line in Port Chester. Metro-North anticipates to award the construction contract in Q3 FFY19. 						
Funded: Other	\$1,173,333	\$0	\$0	\$0	\$0	\$1,173,333
<ul style="list-style-type: none"> Shared station work is only planned for New Rochelle. Other stations work is filed under Stations Sole 						
Unfunded	\$0	\$11,312,000	\$15,507,000	\$16,846,000	\$17,766,000	\$61,431,000
TRACK	\$3,087,730	\$4,207,483	\$5,176,763	\$5,056,763	\$4,483,904	\$22,012,643
Funded	\$3,087,730	\$0	\$0	\$0	\$0	\$3,087,730
Unfunded	\$0	\$4,207,483	\$5,176,763	\$5,056,763	\$4,483,904	\$18,924,913
SYSTEM WIDE SUPPORT	\$36,000	\$615,724	\$879,724	\$811,724	\$771,724	\$3,114,895
Funded	\$36,000	\$0	\$0	\$0	\$0	\$36,000
Unfunded	\$0	\$615,724	\$879,724	\$811,724	\$771,724	\$3,078,895
TOTAL METRO-NORTH RAILROAD CAPITAL RENEWAL OF BASIC INFRASTRUCTURE¹	\$17,848,661	\$40,351,206	\$71,521,487	\$72,928,487	\$58,761,628	\$261,411,470
Baseline Capital Charge (BCC) Program (Based on FY19 Cost Allocation Model v2 at 100% NR)	\$14,960,000	\$14,960,000	\$14,960,000	\$14,960,000	\$14,960,000	\$74,800,000
Above BCC Obligations	\$2,888,661	\$25,391,206	\$56,561,487	\$57,968,487	\$43,801,628	\$186,611,470

Note: (1) Total MNR Capital Renewal of Basic Infrastructure assumes an approved MTA FY20-24 Capital Program will be in place to secure funding for the BCC Program.

STATIONS SOLE (Shared station work, listed above, is only planned for New Rochelle. Other stations work is filed here, under Stations Sole)

Funded	\$9,170,000	\$0	\$0	\$0	\$0	\$9,170,000
Unfunded	\$0	\$1,600,000	\$1,600,000	\$800,000	\$800,000	\$4,800,000

Figure A-3. Connecticut DOT FY20-24 Baseline Capital Charge Program

NEC Main Line: New Haven Line, CT

Funding figures reflect programmed dollars to be spent over multiple years, not expenditure forecasts. BCC-eligible expenditures are still likely in years that show no values.

CTDOT Program/ Project	FY20 Program	FY21 Program	FY22 Program	FY23 Program	FY24 Program	FY20-24 Total
SAFETY/MANDATES	\$35,000,000	\$35,000,000	\$20,000,000	\$15,000,000	\$5,000,000	\$110,000,000
Positive Train Control	\$35,000,000	\$35,000,000	\$20,000,000	\$15,000,000	\$5,000,000	\$110,000,000
<ul style="list-style-type: none"> DOT03000149PE and DOT03000149CN. Installation of Positive Train Control for the entire New Haven Line. MP 26 - MP 72. 						
TRACK REHABILITATION	\$20,000,000	\$22,000,000	\$24,000,000	\$26,000,000	\$28,000,000	\$120,000,000
NHL CT - Track Program (C Program)	\$20,000,000	\$22,000,000	\$24,000,000	\$26,000,000	\$28,000,000	\$120,000,000
<ul style="list-style-type: none"> C-32 (DOT03000206CN). Purchase and install wood ties, surface track, install 16 track miles of new 136lb rail for various curves, purchase and install switch at CP271, and drainage improvements at various locations. MP 26 - MP 72. C-31 (DOT03000190CN). Purchase and install wood ties, surface track, install 16 track miles of new 136lb rail for various curves, purchase and install switch at CP272. MP 26 - MP 72. C-30 (DOT03000182CN). Purchase and install concrete and wood ties, undercut tracks, surface track, purchase 16 track miles of new 136lb rail for various curve, purchase and install switch at CP234. MP 26 - MP 72. 						
BRIDGE REPLACEMENTS/REHAB	\$47,200,000	\$71,100,000	\$68,000,000	\$79,300,000	\$65,800,000	\$331,400,000
NHL S Program/Timber Program	\$6,000,000	\$7,500,000	\$9,000,000	\$9,800,000	\$10,800,000	\$43,100,000
<ul style="list-style-type: none"> DOT03000195CN (S-22). Major steel and masonry repairs on various bridges. MP 33.41, MP 59.01, MP 59.96. DOT03000XXXCN (S-23). Major steel and masonry repairs on various bridges. MP 26 - MP 72. DOT03000161CN (Bridge Timber Program). Replacement of bridge timber at various location on New Haven Line. MP 33.75, MP 40.89, MP 41.28, MP 56.20 and MP 59.96. 						
NHL CT - Bridges - Atlantic Street Bridge, Stamford including Yard/Platform/Catenary	\$20,000,000	\$15,000,000	\$5,000,000	\$0	\$0	\$40,000,000
<ul style="list-style-type: none"> DOT01350301CN (Atlantic Street Bridge Replacement) DOT01350326CN (Atlantic Street Bridge Replacement - Phase 1) There are three projects ongoing in the Stamford area. Project 301-163 involves the lowering of the catenary system to the standard configuration height, Project 135-301 involves replacement of Atlantic Street bridge and Project 135-326 is utility breakout project (phase 1) for Atlantic Street bridge. MP 33.15 - MP 34.00. 						
NHL CT - Bridge Design	\$3,200,000	\$3,600,000	\$4,000,000	\$4,500,000	\$5,000,000	\$20,300,000
<ul style="list-style-type: none"> DOT03000175PE (Bridge Design). This project is used for all engineering design related tasks carried out by the Office of Rail staff. 						
NHL CT - Bridge Replacement/Repair Program.	\$8,000,000	\$10,000,000	\$15,000,000	\$30,000,000	\$40,000,000	\$103,000,000
<ul style="list-style-type: none"> This program is used to program funding for rehabilitation/ repair or replacement of New Haven Line railroad bridges. 						
NHL CT - Bridges - East Ave, Osbourne and Fort Point Bridges	\$10,000,000	\$35,000,000	\$35,000,000	\$35,000,000	\$10,000,000	\$125,000,000

Figure A-3 continued on the next page >>

CTDOT Program/ Project	FY20 Program	FY21 Program	FY22 Program	FY23 Program	FY24 Program	FY20-24 Total
COMMUNICATIONS & SIGNALS	\$29,000,000	\$27,000,000	\$24,000,000	\$31,000,000	\$36,000,000	\$147,000,000
NHL CT - Signal System Replacement Phase 1	\$15,000,000	\$15,000,000	\$5,000,000	\$0	\$0	\$35,000,000
NHL CT - Signal System Replacement Future Phases	\$0	\$0	\$5,000,000	\$15,000,000	\$18,000,000	\$38,000,000
<ul style="list-style-type: none"> • DOT03010154CN (Signal System). Replacement of existing signal system from CP 229 to CP 240. MP 29 - MP 40. • DOT03010XXXCN (Signal System Phase 3/4). Replacement of existing signal system from CP 243 to CP 274 and New Canaan Branch. MP 43 - MP 73. 						
NHL CT - Network Infrastructure Upgrade - All Phases	\$14,000,000	\$12,000,000	\$14,000,000	\$16,000,000	\$18,000,000	\$74,000,000
<ul style="list-style-type: none"> • DOT03000150CN (Network Infrastructure Upgrade) • DOT03000178PE and DOT03000178CN (Network Infrastructure Upgrade Phase 2). Network infrastructure upgrade for security between Westport and Stratford. MP 47 - MP 59. • DOT03000202PE and DOT03000202CN (Network Infrastructure Upgrade Phase 3). Network infrastructure upgrade for security between Stamford and Westport. MP 33 - MP 47. • DOT03000XXXPE and DOT03000XXXCN (Network Infrastructure Upgrade Phase 4). Network infrastructure upgrade for security between Greenwich and Westport, and three branches. MP 26 - MP 33. 						
ELECTRIC TRACTION	\$25,000,000	\$10,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$50,000,000
NHL CT - Catenary Replacement - Segments C1A and C2 - Construction (DOT03010145CN)	\$10,000,000	\$5,000,000	\$0	\$0	\$0	\$15,000,000
<ul style="list-style-type: none"> • Replacement of existing catenary with auto-tension catenary CP241 to CP248 (C1A) and CP255 to CP261 (C2). 						
Substation Replacements	\$10,000,000	\$0	\$0	\$0	\$0	\$10,000,000
<ul style="list-style-type: none"> • DOT03010072CN (5 Substations). Substation replacements at Woodmont (Substation No. 964), Devon (Substation No. 865), East Bridgeport (Substation No. 814), Bridgeport (Substation No. 736), East Norwalk (Substation No. 537). • DOT03000153CN (6th Substation). Substation replacements at South Norwalk (Substation No. 524). • DOT03010169CN (Devon Substation) 						
Substation Repairs/Improvements	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$25,000,000
MOVABLE BRIDGES	\$12,000,000	\$12,000,000	\$15,000,000	\$15,000,000	\$20,000,000	\$74,000,000
NHL - ALL Movable Bridge Repairs	\$12,000,000	\$12,000,000	\$15,000,000	\$15,000,000	\$20,000,000	\$74,000,000
<ul style="list-style-type: none"> • ED WALK (DOT03010172CN) • Cos Cob Interim Repairs (DOT03010173CN). Installation of new miter rails and steel ties, structural steel repair, installation of new bridge timbers and rails on Track 1 and 3. MP 29 - MP 30. • SAGA Interim Repairs (DOT03010177CN). Installation of new miter rails and steel ties, structural steel repair, installation of new bridge timbers and rail on Track 4. • DEVON Repairs (DOT03010139CN). Installation of new miter rails and expansion joints, structural steel repair, installation of new bridge timbers on Track 4. 						
TOTAL CONNECTICUT DOT CAPITAL RENEWAL OF BASIC INFRASTRUCTURE	\$168,200,000	\$177,100,000	\$156,000,000	\$171,300,000	\$159,800,000	\$832,400,000
Baseline Capital Charge (BCC) Program (Based on FY19 Cost Allocation Model v2 at 100% NR)	\$62,110,000	\$62,110,000	\$62,110,000	\$62,110,000	\$62,110,000	\$310,550,000
Above BCC Obligations	\$106,090,000	\$114,990,000	\$93,890,000	\$109,190,000	\$97,690,000	\$521,850,000

Figure A-4. MBTA FY20-24 Baseline Capital Charge Program

NEC Main Line: Attleboro Line, MA

MBTA Program/ Project	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY20-24 Total
STRUCTURES AND FACILITIES	\$11,262,823	\$2,975,739	\$3,205,094	\$2,412,000	\$1,455,000	\$21,310,656
ROW Fence Upgrades						
• ROW Fence Upgrades. Install approx. 3,750 LF impass fencing per year.	\$1,250,000	\$900,000	\$1,250,000	\$1,400,000	\$1,250,000	\$6,050,000
Southwest Corridor Infiltration Remediation						
• Southwest Corridor Water Infiltration Remediation Construction. For construction work related to SW Corridor Infiltration Remediation.	\$750,000	\$769,000	\$788,000	\$812,000	\$0	\$3,119,000
Emergency Egress Stairway Upgrades						
• Upgrade Emergency Egress Stairways. For upgrades to six emergency egress stairway lights, heaters, and hatchways at 18 locations (6 per year).	\$750,000	\$768,750	\$787,969	\$0	\$0	\$2,306,719
South Station Upgrades						
• South Station Platform Tactile Upgrades. For study and to bring platform tactile warning strip to State of Good Repair.	\$2,100,000	\$0	\$0	\$0	\$0	\$2,100,000
Backbay Tunnel Ductwork Upgrades						
• Backbay Tunnel Ductwork Upgrades - Construction. For construction work related to Backbay Tunnel Ductwork Ventilation.	\$3,500,000	\$0	\$0	\$0	\$0	\$3,500,000
South Bay Transformer Upgrades						
• South Bay Transformer and Generator Upgrades. Upgrade the transformer at the South Bay I/L and install backup generators at Broad, Loop, Cabot, and South Bay.	\$701,393	\$0	\$0	\$0	\$0	\$701,393
Rt 128 Station Upgrades						
• Rt 128 HVAC and Mechanical Upgrades. For HVAC and mechanical system upgrades at Rt 128 Station, MA, MP 217.1.	\$1,000,000	\$0	\$0	\$0	\$0	\$1,000,000
Material Control Warehouse						
• Readville Material Control Warehouse - Construction. For the construction of a material control warehouse at Yard 5, Readville, MA.	\$600,000	\$0	\$0	\$0	\$0	\$600,000
Culvert Upgrades						
• Culvert Upgrades (4 Locations). For culvert upgrades or replacements - one location per year.	\$184,500	\$190,000	\$195,000	\$200,000	\$205,000	\$974,500
Undergrade Bridge Upgrades						
• Undergrade Bridge Upgrades. For upgrades and retirements of undergrade bridges.	\$426,930	\$347,989	\$184,125	\$0	\$0	\$959,044
COMMUNICATIONS & SIGNALS	\$8,254,662	\$7,655,807	\$7,024,740	\$6,580,857	\$5,127,329	\$34,643,395
TAMS Upgrade Program						
• TAMS - Forest Hills Sta - TAMS Upgrades. Upgrade TAMS system at Forest Hills Station (Boston, MA), MP 223.8.		\$371,969	\$0	\$0	\$0	\$371,969
• TAMS - Mansfield Sta - TAMS Upgrades. Upgrade TAMS system at Mansfield, MA, Station, MP 204.0.		\$447,927	\$0	\$0	\$0	\$447,927
• TAMS - Sharon Sta - TAMS Upgrades. Upgrade TAMS system at Sharon, MA, Station, MP 210.6.		\$0	\$459,453	\$0	\$0	\$459,453
• TAMS - South Attleboro Sta - TAMS Upgrades. Upgrade TAMS system at South Attleboro, MA, Station, MP 191.7.		\$0	\$381,599	\$0	\$0	\$381,599
• TAMS - Hyde Park Sta - TAMS Upgrades. Upgrade TAMS system at Hyde Park Station (Boston, MA), MP 220.4.		\$0	\$0	\$473,803	\$0	\$473,803
Interlocking Signal System Upgrades						
• Tower 1 Programmable Logic Controllers. For interlocking upgrades to Tower 1.	\$0	\$500,000	\$0	\$0	\$0	\$500,000
• South Bay INT - Microlok II and Comm Bldg Upgrades - LL Material. For interlocking upgrades to South Bay I/L - Long Lead Materials.	\$1,500,000	\$0	\$0	\$0	\$0	\$1,500,000
• South Bay INT - Microlok II and Comm Bldg Upgrades - Install. For interlocking upgrades to South Bay I/L - Install.	\$0	\$3,500,000	\$0	\$0	\$0	\$3,500,000
• Read INT - Signal System Upgrades - LL Material. For interlocking upgrades to Read I/L - Long Lead Materials.	\$0	\$1,537,500	\$0	\$0	\$0	\$1,537,500
• Read INT - Signal System Upgrades - Install. For interlocking upgrades to Read I/L - Install.	\$0	\$0	\$3,587,500	\$0	\$0	\$3,587,500
• Transfer INT - Signal System Upgrades - LL Material. For interlocking upgrades to Transfer I/L - Long Lead Materials.	\$0	\$0	\$1,575,600	\$0	\$0	\$1,575,600
• Transfer INT - Signal System Upgrades - Install. For interlocking upgrades to Transfer I/L - Install.	\$0	\$0	\$0	\$3,677,000	\$0	\$3,677,000

MBTA Program/ Project	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY20-24 Total
Interlocking Signal System Upgrades, continued						
• Plain INT - Signal System Upgrades - LL Material. For interlocking upgrades to Plain I/L - Long Lead Materials.	\$0	\$0	\$0	\$1,615,000	\$0	\$1,615,000
• Plain INT - Signal System Upgrades - Install. For interlocking upgrades to Plain I/L - Install.	\$0	\$0	\$0	\$0	\$3,770,000	\$3,770,000
Power and Express Cable Upgrades						
• Power and Express Cable Upgrades - Construction. Install approx. 21,120 ft of express and power cables between Read I/L & Forest I/L.	\$4,193,227	\$0	\$0	\$0	\$0	\$4,193,227
M3 Switch Machines Upgrades						
• M3 Switch Machine Upgrades. Upgrade eight M3 switch machines, including rods, attachments and head blocks.	\$336,103	\$344,505	\$353,118	\$361,946	\$370,994	\$1,766,666
Signal System Reliability Upgrades						
• Fuse Upgrade Program. For upgrades to slow burn fuses.	\$146,556	\$0	\$0	\$0	\$0	\$146,556
• Track Lead Replacement Program. For track lead replacements.	\$370,000	\$0	\$0	\$0	\$0	\$370,000
• Battery Bank Replacement Program. For battery bank replacements.	\$138,880	\$124,000	\$167,000	\$0	\$0	\$429,880
Switch Heater Upgrades						
• Gas Hot Air Switch Blower Install. For gas hot air blower switch heater installations.	\$400,000	\$450,000	\$500,000	\$550,000	\$600,000	\$2,500,000
• Switch Heater Cabinet/ Control Upgrades. For installation of switch heater cabinet/ control upgrades.	\$350,000	\$358,750	\$367,719	\$376,912	\$386,335	\$1,839,715
TRACK	\$13,653,967	\$14,065,506	\$14,727,473	\$17,307,415	\$3,875,112	\$63,629,472
Tie/Timber Program						
• Tie/Timber Program. Replace 800 ties per year.	\$669,939	\$686,687	\$703,855	\$721,451	\$739,487	\$3,521,419
Tower One INT - Slip Switch Upgrades						
• Tower One INT - Slip Switch Upgrades - 910/89. Replace the double slip turnouts 910/89 in FY20 at Tower One Interlocking.	\$1,800,000	\$0	\$0	\$0	\$0	\$1,800,000
• Tower One INT - Slip Switch Upgrades - 532/35. Replace the double slip turnouts 532/35 in FY21 at Tower One Interlocking.	\$0	\$1,840,000	\$0	\$0	\$0	\$1,840,000
• Tower One INT - Slip Switch Upgrades - 21/32. Replace the double slip turnouts 21/32 in FY22 at Tower One Interlocking.	\$0	\$0	\$1,885,000	\$0	\$0	\$1,885,000
Interlocking Steel Replacement Program						
• INT Steel Replacement Program. Upgrade 6 units in FY18-FY24 of interlocking rail, stockrails, switch points, frogs and assoc. attachments.	\$685,764	\$706,337	\$727,527	\$749,353	\$771,833	\$3,640,813
Interlocking Crossover Replacement Program						
• Placeholder Crossover Replacement. Renewal of a pair of crossovers each year in FY20-FY23.	\$3,817,397	\$3,911,833	\$4,009,902	\$0	\$0	\$11,739,132
CWR Replacement Program						
• CWR Upgrades. Replace 3,000 TF in FY20, 4,000 TF in FY21, 4,000 TF in FY22, 4,000 TF in FY23, and 4,000 TF in FY24.	\$520,000	\$715,000	\$730,000	\$745,000	\$760,000	\$3,470,000
Insulated Joint Upgrade Program						
• Insulated Joint Upgrades. Replace 20 insulated joints per year.	\$165,230	\$169,361	\$173,595	\$177,935	\$182,383	\$868,503
Joint Elimination Program						
• Joint Elimination Program. Provide joint elimination at 300 locations.	\$262,750	\$269,250	\$276,000	\$283,000	\$290,000	\$1,381,000
Tree Cutting Program						
• Tree Cutting. Provide tree cutting along the right of way.	\$1,025,000	\$1,050,625	\$1,076,891	\$1,103,813	\$1,131,408	\$5,387,737
Roadbed and Geometry Program						
• Out of Face Surfacing. Provide out of face surfacing for up to 100,000 PF per year from FY18-FY23.	\$762,168	\$776,738	\$792,075	\$807,557	\$0	\$3,138,537
• Spot Surfacing. Provide spot surfacing along the Attleboro Line.	\$814,332	\$838,762	\$863,925	\$889,843	\$0	\$3,406,863
• Spot Undercutting. Provide spot undercutting along the Attleboro Line.	\$154,500	\$159,135	\$163,909	\$168,826	\$0	\$646,370
Rail Grinding Program						
• Rail Grinding. Placeholder for rail grinding.	\$250,000	\$0	\$250,000	\$0	\$0	\$500,000
South Station Tie and Rail Upgrades. This project is to provide concrete guardrail ties, rail, clip, pads, insulators, and ballast for:						
• South Station Tie and Rail Upgrades. Tracks 1-2 at South Station.	\$2,726,887	\$0	\$0	\$0	\$0	\$2,726,887
• South Station Tie and Rail Upgrades. Tracks 3-4 at South Station.	\$0	\$2,941,778	\$0	\$0	\$0	\$2,941,778
• South Station Tie and Rail Upgrades. Tracks 5-6 at South Station.	\$0	\$0	\$3,074,795	\$0	\$0	\$3,074,795
• South Station Tie and Rail Upgrades. Tracks 7-8 at South Station.	\$0	\$0	\$0	\$3,176,420	\$0	\$3,176,420
• South Station Tie and Rail Upgrades. Tracks 9-13 at South Station.	\$0	\$0	\$0	\$8,484,218	\$0	\$8,484,218
TOTAL MBTA CAPITAL RENEWAL OF BASIC INFRASTRUCTURE	\$33,171,451	\$24,697,052	\$24,957,306	\$26,300,273	\$10,457,441	\$119,583,523
Baseline Capital Charge (BCC) Program (Based on FY19 Cost Allocation Model v2 at 100% NR)	\$26,780,000	\$26,780,000	\$26,780,000	\$26,780,000	\$26,780,000	\$133,900,000
Above BCC Obligations	\$6,391,451	(\$2,082,948)	(\$1,822,694)	(\$479,727)	(\$16,322,559)	(\$14,316,477)

B. Special Projects

Special projects include two types of investments. First are “major backlog projects” which represent the complete overhaul or replacement of the NEC’s century-plus-old bridges and tunnels that are quickly deteriorating and at risk of severing service. The second type are “improvement projects” aimed at creating new infrastructure above and beyond existing assets or replacing existing structures with markedly superior ones.

Special projects are funded through a mix of sources which may include, but are not limited to: federal grants, funds from state and/or commuter railroad capital programs, and other sources of discretionary funding. With limited exceptions outlined in the Policy, most special projects are not eligible for BCCs.

Figure B-1. Summary of special project funding requirements

The following is a summary of the FY20-24 funding available or committed; requested CIG funding; and unfunded amounts for all special projects.

Special Project	Coordinating Agency	FY20-24 Funded (Available or Committed)	Requested CIG funding	FY20-24 Unfunded (Amount Needed)	FY20-24 Total
SPECIAL PROJECTS		\$4,323,690,279		\$5,733,442,718	\$10,057,132,997
Major Backlog		\$1,200,000,000		\$998,000,000	\$2,198,000,000
Baltimore & Potomac Tunnel Replacement: Enabling Components	Amtrak	\$0		\$355,000,000	\$355,000,000
Baltimore & Potomac Tunnel Replacement: The Tunnel Proper	Amtrak	\$0		\$466,000,000	\$466,000,000
Bush River Bridge Replacement	Amtrak	\$0		\$6,250,000	\$6,250,000
Connecticut River Bridge Replacement	Amtrak	\$0		\$21,000,000	\$21,000,000
East River Tunnel Rehabilitation	Amtrak	\$0		\$11,000,000	\$11,000,000
Gunpowder River Bridge Replacement	Amtrak	\$0		\$6,250,000	\$6,250,000
Pelham Bay Bridge Replacement	Amtrak	\$0		\$22,500,000	\$22,500,000
Susquehanna River Bridge Replacement	Amtrak	\$0		\$40,000,000	\$40,000,000
Cos Cob Bridge Replacement (Project to start in FY26)	Connecticut DOT			\$0	\$0
Devon Bridge Replacement	Connecticut DOT	\$15,000,000		\$70,000,000	\$85,000,000
Saugatuck River Bridge Replacement	Connecticut DOT	\$15,000,000		\$0	\$15,000,000
Walk Bridge Program	Connecticut DOT	\$1,170,000,000		\$0	\$1,170,000,000
Improvement		\$3,123,690,279		\$4,735,442,718	\$7,859,132,997
Baltimore Penn Station Infrastructure Improvements	Amtrak	\$40,700,000		\$0	\$40,700,000
Baltimore Penn Station Master Plan	Amtrak	\$0		\$77,000,000	\$77,000,000
Fitter Interlocking (formerly Yale Interlocking)	Amtrak	\$0		\$20,450,000	\$20,450,000
Hanson Interlocking	Amtrak	\$64,800,000		\$0	\$64,800,000
Hunter Yard Maintenance of Way Facilities Upgrades	Amtrak	\$0		\$35,000,000	\$35,000,000
Maryland Section Reliability Improvements	Amtrak	\$7,954,260		\$0	\$7,954,260
Moynihan Station (Phase 2)	Amtrak	\$106,000,000		\$0	\$106,000,000
New Carrollton Station - Acela 21	Amtrak	\$0		\$17,600,000	\$17,600,000
New Carrollton Station - SOGR & ADA	Amtrak	\$0		\$7,200,000	\$7,200,000
New England Interlocking Improvements	Amtrak	\$0		\$30,500,000	\$30,500,000
New Jersey HSR Improvement Program	Amtrak	\$5,259,000		\$0	\$5,259,000
Newark Penn Station Platform Rehabilitation	Amtrak	\$0		\$123,262,000	\$123,262,000

Figure B-1 continued on the next page >>

Appendix B. Special Projects

Special Project	Coordinating Agency	FY20-24 Funded (Available or Committed)	Requested CIG funding	FY20-24 Unfunded (Amount Needed)	FY20-24 Total
Next Generation High Speed Fleet Infrastructure: Ivy City/ Washington Terminal Yard Facility Improvements	Amtrak	\$13,000,000		\$0	\$13,000,000
Next Generation High Speed Fleet Infrastructure: Ride Quality Investment	Amtrak	\$53,067,186		\$0	\$53,067,186
Next Generation High Speed Fleet Infrastructure: Safety Mitigation	Amtrak	\$77,700,000		\$0	\$77,700,000
Next Generation High Speed Fleet Infrastructure: Southampton St. Yard Facility Improvements	Amtrak	\$0		\$10,312,000	\$10,312,000
Philadelphia 30th Street Station District Plan Implementation	Amtrak	\$0		\$32,500,000	\$32,500,000
Washington Union Station: Claytor Concourse Modernization Program	Amtrak	\$65,000,000		\$52,000,000	\$117,000,000
Washington Union Station: Long Term Station Expansion	Amtrak	\$0		\$130,670,000	\$130,670,000
Washington Union Station: Near Term Rail Program	Amtrak	\$0		\$66,000,000	\$66,000,000
Washington Union Station: Subbasement Program	Amtrak	\$31,000,000		\$72,000,000	\$103,000,000
CTrail Hartford Line Commuter Station Improvements	Connecticut DOT	\$0		\$80,000,000	\$80,000,000
CTrail Hartford Line Rail Program Phase 3B - 5	Connecticut DOT	\$100,000,000		\$150,000,000	\$250,000,000
New Haven Line Network Infrastructure Upgrade	Connecticut DOT	\$32,400,000		\$35,000,000	\$67,400,000
New Haven Line Stations Improvements: Stamford and New Haven Stations	Connecticut DOT	\$54,000,000		\$50,000,000	\$104,000,000
New Haven Yard Master Complex Improvements	Connecticut DOT	\$246,978,000		\$500,000,000	\$746,978,000
SLE Station Improvements	Connecticut DOT	\$0		\$70,000,000	\$70,000,000
Claymont Regional Transportation Center	Delaware DOT	\$42,041,045		\$0	\$42,041,045
Newark (DE) Regional Transportation Center	Delaware DOT	\$23,642,063		\$0	\$23,642,063
East River Tunnel - Right of Way Infrastructure Improvements	Long Island Rail Road	\$88,500,000		\$0	\$88,500,000
Penn Station New York - LIRR Projects	Long Island Rail Road	\$0		\$93,677,829	\$93,677,829
River-to-River Rail Resiliency Projects (R4)	Long Island Rail Road	\$108,100,000		\$0	\$108,100,000
BWI Thurgood Marshall Airport Station Improvements and 4th Track Project	Maryland DOT	\$0		\$544,000,000	\$544,000,000
MARC Storage Improvements - Martin Airport	Maryland DOT	\$12,760,000		\$0	\$12,760,000

Figure B-1 continued on the next page >>

Special Project	Coordinating Agency	FY20-24 Funded (Available or Committed)	Requested CIG funding	FY20-24 Unfunded (Amount Needed)	FY20-24 Total
Back Bay Station Platform Ventilation	MBTA	\$22,000,000		\$21,000,000	\$43,000,000
Boston South Station Expansion	MBTA	\$0		Unknown	Unknown
Boston South Station: Tower 1 Interlocking	MBTA	\$0		\$163,862,870	\$163,862,870
MBTA Layover Facilities - Pawtucket Layover Facility	MBTA	\$5,415,795		\$17,685,929	\$23,101,724
MBTA Station Improvements - Ruggles Street Station	MBTA	\$600,000		\$12,000,000	\$12,600,000
MBTA Station Improvements - South Attleboro Station	MBTA	\$3,728,770		\$0	\$3,728,770
Penn Station Access	Metro-North Railroad	\$695,000,000		TBD	\$695,000,000
Harold Interlocking	MTA Capital Construction	\$440,154,772		\$0	\$440,154,772
Delco Lead Project	NJ TRANSIT	\$278,545,910		\$0	\$278,545,910
Edison Station	NJ TRANSIT	\$395,000		\$6,677,000	\$7,072,000
Elizabeth Station	NJ TRANSIT	\$11,776,000		\$59,224,000	\$71,000,000
Hunter Flyover	NJ TRANSIT	\$0		Unknown	Unknown
Jersey Avenue Station	NJ TRANSIT	\$0		\$75,000,000	\$75,000,000
Metuchen Station	NJ TRANSIT	\$0		\$70,000,000	\$70,000,000
Mid-Line Loop	NJ TRANSIT	\$0		\$344,514,000	\$344,514,000
New Brunswick Station	NJ TRANSIT	\$6,790,000		\$13,513,000	\$20,303,000
NJ TRANSITGRID	NJ TRANSIT	\$45,374,000		\$531,979,000	\$577,353,000
North Elizabeth Station	NJ TRANSIT	\$350,000		\$0	\$350,000
Penn Station New York - NJ TRANSIT Projects	NJ TRANSIT	\$11,018,000		\$63,982,000	\$75,000,000
Princeton Junction Station	NJ TRANSIT	\$350,000		\$397,000	\$747,000
Harrisburg Line Automatic Block Signal System – Park to Paoli	Pennsylvania DOT	\$800,000		Not identified at this time	\$800,000
Harrisburg Line Interlocking Improvements: Bailey	Pennsylvania DOT	Not identified at this time		\$53,500,000	\$53,500,000
Harrisburg Line Interlocking Improvements: Paoli	Pennsylvania DOT	Not identified at this time		\$82,900,000	\$82,900,000
Harrisburg Line Interlocking Improvements: Potts	Pennsylvania DOT	Not identified at this time		\$28,000,000	\$28,000,000
Harrisburg Line Interlocking Improvements: Villa / Nova	Pennsylvania DOT	Not identified at this time		\$98,600,000	\$98,600,000
Harrisburg Line Interlocking Improvements: Wynnefield	Pennsylvania DOT	Not identified at this time		\$93,600,000	\$93,600,000
Harrisburg Line Interlocking Improvements: Zoo	Pennsylvania DOT	See special project page (pg. 121)		\$55,200,000	\$55,200,000

Figure B-1 continued on the next page >>

Appendix B. Special Projects

Special Project	Coordinating Agency	FY20-24 Funded (Available or Committed)	Requested CIG funding	FY20-24 Unfunded (Amount Needed)	FY20-24 Total
Harrisburg Line Station Improvements: Coatesville	Pennsylvania DOT	\$46,600,000		\$0	\$46,600,000
Harrisburg Line Station Improvements: Downingtown	Pennsylvania DOT	\$20,500,000		\$95,500,000	\$116,000,000
Harrisburg Line Station Improvements: Middletown	Pennsylvania DOT	\$35,000,000		\$0	\$35,000,000
Harrisburg Line Station Improvements: Parkesburg	Pennsylvania DOT	\$3,500,000		\$45,500,000	\$49,000,000
Pawtucket/ Central Falls Station	Rhode Island DOT	\$34,000,000		\$0	\$34,000,000
Providence Station	Rhode Island DOT	\$0		\$25,000,000	\$25,000,000
RIDOT Stations: Warwick/ T.F. Green Airport	Rhode Island DOT	\$0		\$109,000,000	\$109,000,000
30th Street West Catenary Replacement	SEPTA	\$72,410,854		\$0	\$72,410,854
Ardmore Station ADA Improvements	SEPTA	\$31,255,738		\$0	\$31,255,738
Ardmore Station Parking Improvements	SEPTA	\$0		\$26,051,090	\$26,051,090
Exton Station - Multimodal Improvements	SEPTA	\$0		\$39,500,000	\$39,500,000
Frazer Rail Shop and Yard Upgrade	SEPTA	\$73,930,715		\$0	\$73,930,715
Harrisburg Line - Paoli to Thorndale OCS Replacement & ROW Clearing	SEPTA	\$0		\$150,000,000	\$150,000,000
Harrisburg Line - Restore Track 2 from Paoli to Frazer	SEPTA	\$0		\$50,000,000	\$50,000,000
Harrisburg Line - Upgrade Track 2, Glen to Coatesville (MP 25.3 to 38.5) & Interlockings	SEPTA	\$0		\$9,250,000	\$9,250,000
Harrisburg Line - Zoo to Paoli Signal Upgrade	SEPTA	\$0		\$50,000,000	\$50,000,000
Malvern Station ADA	SEPTA	\$0		\$15,260,000	\$15,260,000
Paoli Transportation Center - Station & Intermodal Improvements	SEPTA	\$0		\$7,500,000	\$7,500,000
Phil Interlocking Replacement	SEPTA	\$0		\$80,000,000	\$80,000,000
Southwest Connection Improvement Project	SEPTA	\$21,126,663		\$0	\$21,126,663
Villanova Station ADA Improvements	SEPTA	\$500,000		\$10,450,000	\$10,950,000
West Barracks Yard	SEPTA	\$0		\$33,625,000	\$33,625,000
VRE Midday Storage Facility	VRE	\$89,666,508		\$0	\$89,666,508

Figure B-1 continued on the next page >>

Special Project	Coordinating Agency	FY20-24 Funded (Available or Committed)	Requested CIG funding	FY20-24 Unfunded (Amount Needed)	FY20-24 Total
SPECIAL PROJECTS: GATEWAY PROGRAM		\$9,422,274,147	\$7,580,124,853	\$828,000,000	\$17,830,399,000
Major Backlog		\$9,421,875,147	\$7,580,124,853	\$828,000,000	\$17,830,000,000
Gateway: Highline Renewal and State of Good Repair (Project to start after FY20-24)	Amtrak	\$0		\$0	\$0
Gateway: Hudson Tunnel Project	Amtrak	\$8,446,000,000	\$6,769,000,000	\$0	\$15,215,000,000
Gateway: Sawtooth Bridge	Amtrak	TBD		\$828,000,000	\$828,000,000
Gateway: Portal North Bridge	NJ TRANSIT	\$975,875,147	\$811,124,853	\$0	\$1,787,000,000
Improvement		\$399,000		\$0	\$399,000
Gateway: Harrison Fourth Track	Amtrak	TBD		TBD	TBD
Gateway: Penn Station Expansion	Amtrak	TBD		TBD	TBD
Gateway: Portal South Bridge	Amtrak	TBD		TBD	TBD
Gateway: Secaucus Station and Loop Tracks	Amtrak	TBD		TBD	TBD
Gateway: NJ TRANSIT Storage Yard	NJ TRANSIT	\$399,000		TBD	\$399,000
GRAND TOTAL (SPECIAL PROJECTS + GATEWAY)		\$13,745,964,426	\$7,580,124,853	\$6,561,442,718	\$27,887,531,997

Figure B-2. Special project listing by coordinating agency

The following is a list of NEC special projects organized by the coordinating agency and project type (which include Major Backlog Projects and Improvement Projects), listed alphabetically. Project pages which were amended in December 2019 to align with Federal-State Partnership for State of Good Repair Grant Program applications can be found in Figure B-3 on page 145.

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Special Projects: Amtrak (Major Backlog)

Baltimore & Potomac Tunnel Replacement: Enabling Components

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

This project page was amended in December 2019 to align with Federal-State Partnership for State of Good Repair Grant Program applications. The updated project page can be found on page 146.

Scope: The B&P Tunnel Replacement Project is located across three miles of the NEC in West Baltimore and consists of two major elements: the Tunnel Proper and Necessary Enabling Components. Necessary Enabling Components are numerous discrete components that can be individually managed and completed prior to and in anticipation of constructing the tunnel proper. These components are identified through an array of criteria including: third party infrastructure ownership/responsibility/coordination; stakeholder impacts; obligations associated with the Programmatic Agreement and Record of Decision; independent utility; contract size; long lead procurements; resource requirements; and specialty contractors. The list may be further modified as design development continues. Individual components may be combined in contract packages as appropriate to ensure cost and schedule efficiency. The components include, but are not necessarily limited to:

- Winans Interlocking Expansion and Track A Improvements from Winans to Bridge
- Electric Traction Substation 20 Relocation and Modernization
- Franklinton and Warwick Bridge Replacements
- Gwynns Interlocking Installation
- Utility Relocations
- Reprofilng Franklin Mulberry Streets
- Lafayette Avenue Bridge Modification
- Edmondson Avenue Bridge Reconstruction
- Property and Easement Acquisition
- Building Demolition
- CSX Bridge Pier Relocation
- BGE Jones Falls Transmission Tunnel Removal

Justification: By utilizing discrete components, the Project does not need to be funded all at once from a single source, but rather can be funded through numerous smaller investments that are more compatible with existing funding streams. Also, a project the size of the B&P Tunnel Replacement, located in a dense urban environment must coordinate with numerous infrastructure owners and stakeholders. Discrete components allow the Project to focus attention to individual stakeholder's requirements wherever the Project intersects with a third party. By coordinating, but not combining, the discrete components, large dollar contracts are not exposed to the multitude of competing stakeholders' interests, which reduce Project risks and allow the Project to proceed on a more predictable Delivery Schedule.

Total project cost: \$395,000,000

- Construction Cost Estimate (dated March 2017) was based upon Preliminary Engineering (nominally 30% design) using 2017 dollars. The estimate Work Breakdown Structure (WBS) has been prepared to conform to the Federal Transit Administration (FTA) Standard Cost Categories (SCC) for Capital Projects. The Cost Estimate is a Class 3 Estimate as defined by the Association for the Advancement of Cost Engineering (AACE International) Cost Estimate Classification System. Escalation is included in the estimate at a rate of three percent (3%) per annum to the midpoint of construction, which was assumed to be July 2024.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

- Federal
 - ARRA/HSPR Grant, \$4,350,000
- Amtrak
 - Non-BCC Amtrak Funds, \$575,000, Amtrak FY17 GCAP
 - Non-BCC Amtrak Funds, \$1,150,000, Amtrak FY18 GCAP
 - Non-BCC Amtrak Funds, \$5,000,000, Amtrak FY19 GCAP

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- At this funding level, the following phases could be initiated or completed in FY20-24: Not applicable.

FY20-24 additional funding needed: \$355,000,000

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Complete design and initiate construction.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Design	\$32,000,000	Oct 2011 - Sep 2024						
Construction	\$363,000,000	Mar 2020 - Sep 2025						

Baltimore & Potomac Tunnel Replacement: Tunnel Proper

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: The B&P Tunnel Replacement Project is located across three miles of the NEC in West Baltimore and consists of two major elements: the Tunnel Proper and Necessary Enabling Components. The Tunnel Proper will replace the functionally obsolete, low speed, two-track, mile and a half long B&P Tunnel with a modern four-track, two-mile long tunnel. The new tunnel will reduce trip-time by permitting speeds up to 100 mph, minimize operational conflicts among high-speed, intercity, and commuter passengers, and increase throughput capacity. The new tunnel will be constructed as four single track bores to provide an inherent resiliency and will provide robust Fire & Life Safety measures that meet contemporary standards. The increased throughput will allow for greater frequency as envisioned by NEC FUTURE to accommodate growing demand across all types of service. Although not a clearance project, infrastructure constructed as part of this project will not preclude the future passage of AAR Plate H (double stack equipment) if such clearances are provided on connecting segments.

Justification: The aging B&P Tunnel (opened 1873) is nearing the end of its useful life and is in need of constant monitoring and maintenance at high cost. With both tracks in the same structural envelope, it is a single point of failure for the NEC and it cannot be cost effectively rehabilitated while continuing operations. Even if rehabilitated, the tunnel cannot provide for redundancy during service disruptions and would remain as a key chokepoint, forcing trains to reduce speeds to 30 mph due to its tight curvature. The improvements defined by the FRA issued Record of Decision (d. March 24, 2017) are required in order to maintain operations through Baltimore and additional tracks are needed to meet future demand.

Total project cost: \$4,200,000,000

- Construction Cost Estimate (dated March 2017) was based upon Preliminary Engineering (nominally 30% design) using 2017 dollars. The estimate Work Breakdown Structure (WBS) has been prepared to conform to the Federal Transit Administration (FTA) Standard Cost Categories (SCC) for Capital Projects. The Cost Estimate is a Class 3 Estimate as defined by the Association for the Advancement of Cost Engineering (AACE International) Cost Estimate Classification System. Escalation is included in the estimate at a rate of three percent (3%) per annum to the midpoint of construction, which was assumed to be July 2024.

Total expenditure as of 9/30/18: \$47,457,364

Funding sources for entire project history:

Federal

- ARRA/HSPiR Grant, \$39,150,000
- Other Federal Grant, \$1,182,389, SAFETEA-LU funding for inspection of existing tunnel

Amtrak

- Non-BCC Amtrak Funds, \$5,175,000, Amtrak FY17 GCAP
- Non-BCC Amtrak Funds, \$10,350,000, Amtrak FY18 GCAP
- Non-BCC Amtrak Funds, \$5,000,000, Amtrak FY19 GCAP

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0.

- At this funding level, the following phases could be initiated or completed in FY20-24: Not applicable.

FY20-24 additional funding needed: \$466,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete design and preliminary construction activities.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Design	\$130,000,000	Oct 2011 - Sep 2024						
Construction	\$4,070,000,000	Oct 2022 - Sep 2032						

Bush River Bridge Replacement

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would replace the half-mile long Bush River Bridge connecting Edgewood and Perryman, Maryland that was completed in 1913 and currently carries Amtrak, MARC commuter, and Norfolk Southern freight trains. Planning and design for a replacement bridge would explore constructing a new fixed bridge with enough clearance to allow boats to pass below, significantly improving mobility for both maritime and rail traffic. Planning would also consider options for providing additional capacity for intercity, commuter, and freight railroad operations. No funding is available for advancing any aspect of this project.

Justification: Service reliability is under threat due to aging bridge components, which require continued maintenance. During the peak season, over twenty employees are required to open the bridge for passing boats using antiquated mechanisms to open and close the overhead power supply catenary wires and to manually unbolt the tracks. Bridge opening and closing failures can be highly disruptive. For example, a failed bridge closure in 2012 caused a 10-hour delay for all NEC traffic between New York and Washington, DC.

Total project cost: \$400,000,000

- Initial estimate derived from “Amtrak Bridge & Tunnel Conceptual Design Study,” FY2010.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$6,250,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Initiate: Feasibility/Conceptual Design and PE/NEPA

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Feasibility/Conceptual Design	\$5,000,000	2024 - 2025						
PE/NEPA	\$15,000,000	2024 - 2027						
Final Design	\$25,000,000	2027 - 2029						
Construction	\$355,000,000	2029 - 2033						

This project page was amended in July 2020 to align with Federal-State Partnership for State of Good Repair Grant Program applications. The updated project page can be found on page 147.

Connecticut River Bridge Replacement

- **Coordinating agency:** Amtrak
- **Partner agency:** Connecticut DOT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would replace the Connecticut River Bridge between Old Saybrook and Old Lyme, CT that carries Amtrak and Shore Line East trains. Completed in 1907, it is the oldest movable bridge between New Haven, CT and Boston, MA. The bridge has a movable span that is raised up to allow boats to pass. By law, the bridge must remain open from May through September for recreational boats to pass and closes only when trains approach. Plans would replace the Connecticut River Bridge with a new design that improves reliability and offers higher speeds for Amtrak and Shore Line East trains. FRA completed NEPA and issued a Finding of No Significant Impact (FONSI) for this project in January 2017. Preliminary design is underway, but no funding is available for final design or construction.

Justification: A century of operation in a marine environment, coupled with the age of the structure, has taken its toll and speeds are restricted to 45 mph. Many key elements of the bridge have reached the end of their design life and require extensive maintenance to remain in operable condition. The frequent opening and closing of the bridge – over 3,000 times per year – puts high demands on its aging components, increasing maintenance costs for Amtrak and reducing reliability for both railway and marine traffic.

Total project cost: \$759,000,000

- Initial estimate developed from “Inspection and Conceptual Engineering for the Reconstruction and Replacement of the Connecticut River Bridge Final Concept design Engineering Report,” FY2007

Total expenditure as of 9/30/18: \$1,987,450

Funding sources for entire project history:

- Amtrak
- Non-BCC Amtrak Funds, \$2,250,000, Amtrak FY17 & prior
 - Non-BCC Amtrak Funds, \$1,000,000, Amtrak re-programmed May 2018
 - Non-BCC Amtrak Funds, \$4,000,000, Amtrak FY19 GCAP

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0. Some level of funding will be available. However, funding amounts have not been determined for this time period.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$200,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete final design, initiate construction

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$21,000,000	2019 - 2022						
Construction	\$728,000,000	2024 - 2030						

East River Tunnel Rehabilitation

- **Coordinating agency:** Amtrak
- **Partner agency:** Long Island Rail Road, NJ TRANSIT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would rehabilitate East River Tunnel tubes 1 and 2 which connect Penn Station, NY to Queens, NY. Each tunnel is approximately 13,000 feet in length. Through this project, both tunnel tubes will be demolished down to the concrete liner and entirely rebuilt with new bench walls, communication systems, and modern electrical and signaling conduit. Rehabilitation of the track and drainage systems will require removal and replacement of track and ballast, new welded rail installations on a modern direct fixation track system, new impedance bond installations, new I joint installations, drainage system cleaning, and the removal and replacement of the third rail for the entire length of each tube. The tunnel renovations will also be designed to improve the safety and security (to the greatest extent practicable) in the tunnels. Some funding is available through FRA Superstorm Sandy recovery grants, but a significant funding gap remains.

Justification: The East River Tunnel tubes are in desperate need of rehabilitation and improvement, due to continually worsening conditions of the tunnel structure given both its age and damage related to Superstorm Sandy, to ensure continuation of operations for LIRR, NJ TRANSIT, and Amtrak.

Total project cost: \$1,208,900,000

- This cost estimate was originally produced using regional-relevant modifiers applied to the Hudson Tunnel Project and assuming an “as early as possible” start of 2021 (2023 midpoint of construction). That time frame is not reasonable given the required preparatory work packages to allow and accommodate a persistent 3-tube operation under the East River for the required ~4 year construction duration. Later construction windows will add escalation costs currently assumed at 3.5% per annum.

Total expenditure as of 9/30/18: \$8,566,181

Funding sources for entire project history:

Federal

- Other Federal Grant, \$19,600,000, Superstorm Sandy FRA Relief Funds and Insurance Claims

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$11,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete Final Design. It is not viable to initiate construction until preparatory projects (owned elsewhere in the program) are designed and executed to facilitate 3-tube operations and minimize transportation impacts to all impacted railroads.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
NEPA/Final Design	\$25,300,000	Oct 2017 - Mar 2021						Received NTP July 2017
Construction	\$1,180,000,000	Oct 2024 - Sep 2028						Plus escalation beyond 2023 midpoint of construction.

Notes

Limited access to NYC tunnels and facilities for investigative and geometric surveys has slowed the rate of design and associated Sandy Claim funding usage. The \$25M Final Design budget through mid-2021 is still applicable.

Gateway: Highline Renewal and State of Good Repair (Project to start after FY20-24)

- **Coordinating agency:** Amtrak
- **Partner agency:** NJ TRANSIT, Port Authority of NY & NJ, Gateway Program Development Corporation
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would include the replacement of assets between Newark, NJ and Penn Station, NY including short span bridges; electric catenary, aerial structures, and transmission lines; structural repainting and rehabilitation of Dock Bridge; and Newark Penn Station pedestrian facilities.

Justification: Much of the existing NEC infrastructure between Newark, NJ and Penn Station, NY is reaching the end of its useful life and must be replaced. Once new capacity is created under the Gateway Program and before service is expanded, elements of the NEC Highline would be upgraded to bring the infrastructure to a state of good repair.

Total project cost: \$300,000,000. Project in early stages of development; full cost information not yet available.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- At this funding level, the following phases could be initiated or completed in FY20-24: Not applicable. Outside of the FY20-24 time frame.

FY20-24 additional funding needed: \$0

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Not applicable. Outside of the FY20-24 time frame.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	TBD	TBD						
Construction	TBD	TBD						

Gateway: Hudson Tunnel Project

- **Coordinating agency:** Amtrak
- **Partner agency:** Gateway Program Development Corporation, Port Authority of NY & NJ, NJ TRANSIT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project will construct a new two-track rail tunnel beneath the Hudson River, rehabilitate and modernize the existing two-track North River Tunnel, and construct the third and final rail right-of-way preservation section beneath the extensive overbuild project that is planned to be constructed on a platform above the rail complex in Manhattan (immediately west of PSNY) known as "Hudson Yards." When complete, the project will provide increased reliability and operational flexibility for Amtrak and NJ TRANSIT on the NEC. The project has been accepted by the FTA into the Project Development phase of the Capital Investment Grant program.

Justification: Service reliability in the North River Tunnel has been compromised because of the damage to tunnel components caused by Superstorm Sandy, which inundated both tubes with seawater in October 2012. Chlorides from the seawater remain in the tunnel's concrete liner and bench walls, causing ongoing damage to the bench walls, imbedded steel, track, and signaling and electrical components, requiring an extended outage of the tunnel in order to completely replace damaged systems and rehabilitate the tunnel. These improvements must be achieved while maintaining uninterrupted commuter and intercity rail service. Existing service can only be maintained by the construction of a new, two-track tunnel connecting to the existing Penn Station that would carry existing rail traffic during the rehabilitation of the North River Tunnel. Taking one track out of service at a time without the new tunnel would reduce total capacity for Amtrak and NJ TRANSIT by as much as 75%, impacting roughly 200,000 passenger trips on 450 trains each weekday.

Total project cost: \$15,215,000,000 including financing charges / \$12,699,000,000 without financing charges

- The cost estimate is based on the 10% design of the new Hudson River Tunnel and rehabilitation of the North River Tunnel, and the 100% design of Section 3 of the Hudson Yards Concrete Casing. The \$15.2B cost estimate includes financing costs during the grant disbursement period; namely those associated with the proposed borrowing through federal financing programs. **Financing costs have not been finalized and remain subject to negotiation** between USDOT and the Gateway Program partners (Amtrak, Gateway Program Development Corporation, Port Authority of New York & New Jersey, and NJ TRANSIT).

Total expenditure as of 9/30/18: \$58,186,648

Funding sources for entire project history:

Federal

- FTA CIG, Requested, \$6,769,000,000, includes financing charges. Hudson Tunnel Project Financial Plan 09-07-18.

State/Local

- State/Local Funds, \$2,158,000,000, PANYNJ - RRIF loan support payments for capital costs; does not include financing charges. HTP Financial Plan 09-07-18.
- State/Local Funds, \$1,643,000,000, NJ TRANSIT RRIF loan support payments for capital costs; does not include financing charges. HTP Financial Plan 09-07-18.
- State/Local Funds, \$1,750,000,000, State of New York RRIF loan support payments for capital costs; does not include financing charges. HTP Financial Plan 09-07-18.
- State/Local Funds, \$765,000,000, Local Contribution RRIF loan support payments for capital costs; does not include financing charges. HTP Financial Plan 09-07-18.
- State/Local Funds, \$35,000,000, PANYNJ Design Contribution
- State/Local Financing Charges, \$1,391,000,000

Amtrak

- Amtrak/FRA Grants, \$704,000,000, capital cost only. As included in Hudson Tunnel Project Financial Plan 09-07-18. Funding is dependent on availability of future appropriations and successful applications to Federal competitive grant programs.

Gateway: Hudson Tunnel Project continued on the next page >>

Gateway: Hudson Tunnel Project continued

Funding Information

Funding available (or likely to become available) for the construction period: \$15.215 billion (includes associated financing costs)

- Major construction is scheduled to be underway and making substantial progress in FY20-F24.

The Hudson Tunnel Project is of major economic importance and an NEC-wide priority project. The Project Partners will continue to work with federal stakeholders on advancing the Project through the FTA Capital Investment Grant Program and obtaining the funds necessary to complete the Project (see “Federal Funding Sources” and “Amtrak Funding Sources” on the previous page). If a full funding grant agreement is obtained, no additional funding will be required other than the sources identified on the previous page.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	Cost included in \$11.1B below for New Tunnel and Concrete Casing	2016 - 2019						
New Tunnel and Concrete Casing	\$11,100,000,000	2019 - 2026						
Rehab of North River Tunnel: Construction	\$1,600,000,000	2027 - 2030						Design activities only
Financing for the entire project	\$2,514,000,000	2019 - 2030						

Gateway: Sawtooth Bridge

- **Coordinating agency:** Amtrak
- **Partner agency:** NJ TRANSIT, Gateway Program Development Corporation, Port Authority of NY & NJ
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would replace Amtrak Bridges No. 7.80 and No. 7.96, collectively referred to as the “Sawtooth Bridges.” The existing bridges are located in the Town of Kearny, Hudson County, New Jersey between Newark Penn Station and Secaucus Junction, and are located directly above or in close proximity to several important rail lines, including the NJ TRANSIT Morris and Essex Line, the former Conrail Center Street Branch, and the PATH WTC rail line. The proposed project would replace an approximately 1.1-mile long segment of existing transportation right-of-way along Amtrak’s Northeast Corridor with new structures that would result in a four-track segment of the NEC with improved design speeds.

Justification: The increasing age of the Sawtooth Bridges, their structural condition, and their two speed-restricted tracks (60 miles per hour) limit the efficiency and reliability of rail operations along this critical segment of the NEC. The Sawtooth Bridges were constructed in 1907 and are nearing the end of their functional life. Amtrak rehabilitated the bridges in the early 1980s yet despite this rehabilitation effort, recent inspections indicate that the Sawtooth Bridges continue to deteriorate. Amtrak conducted an inspection and condition survey in 2013 that found the Sawtooth Bridges to be in poor to very poor condition.

Funding Information

Total project cost: \$1,600,000,000

- Cost estimate is preliminary and based on conceptual planning. Conceptual cost estimate is shown in future dollars assuming a 2022 - 2027 construction period.

Total expenditure as of 9/30/18: \$1,252,975

Funding sources for entire project history:

- Amtrak
 - Non-BCC Amtrak Funds, \$1,105,860, Amtrak GCAP 2016-2017
 - Non-BCC Amtrak Funds, \$132,557, Amtrak Capital FY18
 - Non-BCC Amtrak Funds, \$8,245,000, Amtrak Capital FY19

FY20-24 Information

FY20-24 funding available (or likely to become available): As the project moves forward through the design phase, a funding and financing plan will be developed with the Gateway partners.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$828,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete preliminary engineering. Commence final design, property acquisition, and construction of Phase 1 of the project.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$28,000,000	2019 - 2020						
Final Design	\$82,000,000	2021 - 2022						
Construction	\$1,490,000,000	2022 - 2027						

Gunpowder River Bridge Replacement

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would replace the Gunpowder River Bridge, an approximately one-mile long crossing between Chase and Joppa, MD. It carries Amtrak, MARC commuter, and Norfolk Southern freight trains. Design options for consideration include a higher-capacity four-track bridge that would increase service potential and reliability for Amtrak, MARC, and freight service. Potential for a separate freight track would also be examined as part of the plan, which would facilitate freight service at all times of day. No funding is available for design or construction.

Justification: The existing Gunpowder River Bridge was completed in 1913. Worsening infrastructure conditions have led to more intensive maintenance and costs. Freight trains are restricted to nighttime operations over the bridge, as the two tracks are at capacity during normal passenger rail operating hours.

Total project cost: \$550,000,000

- Initial estimate derived from "Amtrak Bridge & Tunnel Conceptual Design Study," FY2010.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$6,250,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Initiate: Feasibility/Conceptual Design & PE/NEPA

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Feasibility/Conceptual Design	\$5,000,000	2024 - 2025						
PE/NEPA	\$15,000,000	2024 - 2027						
Final Design	\$25,000,000	2027 - 2029						
Construction	\$505,000,000	2029 - 2033						

Pelham Bay Bridge Replacement

- **Coordinating agency:** Amtrak
- **Partner agency:**
- **Type:** Major Backlog
- **Benefit:** Sole

Project Information

Scope: This project would replace the century-old movable Pelham Bay Bridge, which crosses the Hutchinson River in the Bronx, NY, with either a new mid-level movable bridge or a new low-level movable bridge with clearance for marine traffic. Additional funding is required for evaluation of these alternatives as well as the NEPA compliance for this project.

Justification: The Pelham Bay Bridge was built in 1907. The movable span consists of a two-track 82-foot long through truss. This bridge creates a bottleneck by constricting traffic down to speeds of 45 mph. The aging bridge still opens frequently for marine traffic and occasionally fails to properly close, creating delays for Amtrak service between Boston and New York as well as delays in freight and commuter service, which use the line. This asset will not provide the reliability needed for future expansion of train operations until the movable span is upgraded.

Total project cost: \$546,000,000

- Initial estimate developed from the report "Pelham Bay Bridge Replacement/ Reconstruction Project Conceptual Engineering and Inspection Services Final Feasibility Report FY2015"

Total expenditure as of 9/30/18: \$1,204,404

Funding sources for entire project history:

- Amtrak
 - Non-BCC Amtrak Funds, \$1,116,000, Amtrak FY17 & Prior
 - Non-BCC Amtrak Funds, \$1,000,000, Amtrak FY18

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0. Some level of funding will be available. However, funding amounts have not been determined for this time period.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Potentially NEPA and Preliminary Design

FY20-24 additional funding needed: Between \$21M and \$24M

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete Preliminary Engineering and initiate Final Design.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$7M - \$10M	Oct 2019 - Sep 2022						
Final Design	\$16,000,000	Oct 2022 - Sep 2025						
Construction	\$521,937,000	Oct 2025 - Sep 2030						

Susquehanna River Bridge Replacement

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would replace the existing two-track movable Susquehanna River Bridge with two modern high-level, fixed structures, each with two tracks. The project would benefit commuter and intercity rail as well as Norfolk Southern, which uses the segment to access the Port of Baltimore. Using a \$22 million High-Speed Intercity Passenger Rail (HSIPR) grant, preliminary engineering and environmental review were completed in FY17. Additional funding is required for final design and construction.

Justification: Built in 1906, the existing two-track bridge is nearing the end of its useful life. The current bridge requires trains to reduce speeds for almost a mile due to its condition. A new asset is required in order to maintain operations through this section of Maryland and additional tracks are needed to meet future demand.

Total project cost: \$1,885,000,000

- Project Cost Estimate was based upon Preliminary Engineering Design. The Draft Cost Estimate of \$1.885 Billion was initially prepared November 2016, updated November 2017 and is based on 2017 Dollars. The updates consisted of Contingency and Project Management Costs aligning with Amtrak Project Management Manual Criteria.

Total expenditure as of 9/30/18: \$15,993,889

Funding sources for entire project history:

- Federal
 - ARRA/HSPIR Grant, \$12,600,000
- Amtrak
 - Non-BCC Amtrak Funds, \$11,000,000, Amtrak GCAP (\$2.5M in FY17, \$4.5M in FY18, \$4M in FY19)

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable. PE and NEPA activities were completed in FY17 but there is only partial funding available for Final Design. The project could theoretically complete Design and advance to Construction during FY20-24 but the rate at which work could be accomplished would depend on when additional funding is secured, and the magnitude of the additional funding. Project schedule is subject to funding.

FY20-24 additional funding needed: \$40,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete Final Design and Bid Documents. Early action/enabling projects which could be completed before 2024 include the Lewis Lane OH Bridge Replacement (MDOT/track alignment), Ikea Access Road to MOW Perryville Base (phasing), Havre de Grace High School Athletic Field (ROW alignment), Jean S. Roberts Memorial Park Boat Ramp Relocation (ROW alignment), Demolition of abandoned ROW OH bridges (ROW alignment), and Furnace Bay Golf Course OH Bridge Raising (track geometry).

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$50,000,000	May 2017 - Jun 2024						Phase 2 proceeding with extremely limited Amtrak GCAP funding.
Early Action/Enabling Projects	\$21,200,000	2020 - 2024						
Construction	\$1,580,400,000	2024 - 2030						No funding available. Project in early stages of development. Cost estimates are preliminary.

Special Projects: Amtrak (Improvement)

Baltimore Penn Station Infrastructure Improvements

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will construct two additional platforms to support scheduled Acela overtakes of Northeast Regional and MARC trains. The scope includes a new Track 8 (F) platform, including new vertical access and canopy. The Track 3 existing low-level platform will be rebuilt as an accessible high-level facility, including repairs to the existing elevator and stairs. Additional track, signal, and electric traction improvements are also included to support the platform addition and improvement.

Justification: The reconstruction of the existing platform and the construction of a new platform are required to support scheduled increases to the high-speed rail service, specifically overtakes of Northeast Regional and MARC trains in both the southbound and northbound directions.

Total project cost: \$43,000,000

- Current overall project estimate was developed by the designer of Record; additional Amtrak ePMO estimates were provided at each phase of the project design submissions. The current estimate based on the 100% design submission is approximately \$43M.

Total expenditure as of 9/30/18: \$1,929,601

Funding sources for entire project history:

Amtrak

- Other, Amtrak, \$43,000,000, RRIF Loan

Other

- Other, Amtrak Electric Traction (ET) will be providing the funding for the catenary construction phase.

FY20-24 Information

FY20-24 funding available (or likely to become available): \$40,700,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Construction (and Project) is planned to be completed in approximately 2021.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$41,000,000	Jan 2019 - Sep 2021						

Baltimore Penn Station Master Plan

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would provide a comprehensive and integrated approach for Baltimore Penn Station to advance key near-term state-of-good-repair projects while establishing a development framework to leverage under utilized assets and accommodate future growth and redevelopment, potentially through a public private partnership. Additional funding is required for design and construction of improvements.

Justification: Baltimore Penn Station is Amtrak’s 8th busiest station serving nearly one million riders and an additional two million commuter passengers each year. The Station is challenged by aging infrastructure that is not conducive modern train operations. Both passenger and employee facilities are in need of improvement, and multimodal connectivity is strained by the station’s current configuration. Efforts to advance state-of-good-repair programs, improve rail operations to accommodate additional Acela service, and the pursuit of a private-public partnership for large-scale redevelopment will set the future course to realize Baltimore Penn Station as a vibrant transportation hub interwoven within an integrated mixed-use urban district.

Total project cost: \$95,000,000

- Total project cost estimate is derived from the scope of work required to bring Baltimore Penn Station into a state of good repair, as well as station facility improvements and modernization. The bulk of the costs estimated are based on a 2014 visual assessment of the building, and a 2016 statement of program needs. Additional cost information will be the result of continued scope refinement, specific project definition and design.

Total expenditure as of 9/30/18: \$3,705,493

Funding sources for entire project history:

- State/Local
 - State/Local Funds, \$300,000
- Amtrak
 - Non-BCC Amtrak Funds, \$17,351,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$77,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Full state of good repair construction, station modernization and expansion.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$9,970,000	Apr 2019 - Apr 2020						
Construction	\$72,379,000	Jan 2020 - 2023						

Notes

Until Amtrak has an executed Master Development Agreement for Baltimore Penn Station, these updates should assume only Amtrak capital funding is available and none of it is “committed” beyond 2019.

Fitter Interlocking (formerly Yale Interlocking)

- **Coordinating agency:** Amtrak
- **Partner agency:** Connecticut DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would include the construction of a new, wired universal interlocking in Clinton, CT that would split the current 16-mile long block between Guilford and View Interlockings. Construction would include the installation of #24 clothoidal turn-outs, rail, switch ties, sub-grade, ballast, components of the overhead catenary system, signal transformers, signal cables, signal masts, switch heaters, switch machines, switch houses, instrument houses, and interlocking lighting. Additional funding is necessary for construction.

Justification: A new interlocking in Clinton would increase the flexibility of Shore Line East and Amtrak operations. This new interlocking would enable SLE trains to flexibly service the existing and future platforms at Clinton and Madison stations and make greater use of the Clinton siding, a short stretch of third track along the south side of the NEC. By enabling SLE trains to use all platforms and tracks in the area, the interlocking would enable Amtrak and SLE to expand services while reducing train conflicts and their resulting delays.

Total project cost: \$34,100,000

- This interlocking reached Final Design, which included an engineer’s estimate, in December of 2017. Amtrak’s PM group then performed a “validation” effort with Division leadership to enhance the force account assumptions, resulting in the current estimate, in FY18 dollars, of \$32.4M. For this plan, some escalation was assumed for different tasks since this is a multi-year project.

Total expenditure as of 9/30/18: \$2,031,671

Funding sources for entire project history:

Amtrak

- Non-BCC Amtrak Funds, \$115,845, Amtrak FY15 GCAP
- Non-BCC Amtrak Funds, \$792,958, Amtrak FY16 GCAP
- Non-BCC Amtrak Funds, \$920,032, Amtrak FY17 GCAP
- Non-BCC Amtrak Funds, \$202,883, Amtrak FY18 GCAP

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$20,450,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Initiate and complete Construction. Funding needed amount also assumes CTDOT contribution of 35%.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$32,100,000	Oct 2018 - Dec 2021						Seeking an agreement under the CTDOT Master Agreement

Gateway: Harrison Fourth Track

- **Coordinating agency:** Amtrak
- **Partner agency:** NJ TRANSIT, Gateway Program Development Corporation, Port Authority of NY & NJ
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project includes the design and construction of approximately 2,000 ft. of additional main track along the Northeast Corridor through the city of Harrison, NJ on the western side of the corridor with new embankment and/or retaining structures, track, signal and third rail systems to allow shifting of the westbound PATH track to this new alignment. The project will identify and design changes necessary to connect the new track with the existing infrastructure and also be coordinated with PATH’s on-going Harrison Station replacement project.

Justification: This project would allow construction of a new fourth main track through Harrison, NJ using the former PATH track alignment. Currently, the NEC through Harrison consists of three shared commuter/ intercity rail tracks and two additional tracks operated on exclusively by PATH trains between Newark, NJ and Jersey City, NJ and other points east. Through the project site, the two PATH tracks lie immediately adjacent to the three NEC tracks and prevent adding additional NEC tracks due to this configuration. This is another increment in creating the full four-track Gateway Program alignment between Newark, NJ and Penn Station, NY.

Total project cost: TBD

- Project in early stages of development; cost information not yet available.

Total expenditure as of 9/30/18: \$4,263

Funding sources for entire project history:

- Amtrak
 - Non-BCC Amtrak Funds, \$4,263, Amtrak FY18 Capital
 - Non-BCC Amtrak Funds, \$1,000,000, Amtrak FY19 Capital

FY20-24 Information

FY20-24 funding available (or likely to become available): As project moves forward through design phase a funding and financing plan will be developed with the Gateway Partners.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: Will be developed during PE.

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Completion of preliminary engineering. Initiation of final design/ construction.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$766,000	2019 - 2020						
Final Design/Construction	TBD	2020 - 2024						Construction timeline dependent on outage availability.

Gateway: Penn Station Expansion

- **Coordinating agency:** Amtrak
- **Partner agency:** NJ TRANSIT, LIRR, Port Authority of NY & NJ, Gateway Program Development Corporation
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would expand Penn Station New York to add new tracks, platforms, and concourse space to facilitate a growth in rail service in coordination with other Gateway Program investments to expand capacity.

Justification: Penn Station New York is a pinch point at the center of the NEC, with 21 tracks accommodating some 1,300 average weekday train movements. The expansion of Penn Station tracks, platforms, and concourses is necessary to address growth in trans-Hudson demand and rail service that will be accommodated by additional elements of the Gateway Program.

Total project cost: TBD

- Project in early stages of development; cost information not yet available.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): As the project moves through design and NEPA a funding and financing plan would be developed with the Gateway partners.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: Project in early stage of development; cost information not yet available.

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	TBD	2020 - 2024						
Property Acquisition	TBD	2024 - 2025						
Construction	TBD	2025 - 2033						

Gateway: Portal South Bridge

- **Coordinating agency:** Amtrak
- **Partner agency:** NJ TRANSIT, Port Authority of NY & NJ, Gateway Program Development Corporation
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would construct approximately 2.4 miles of new Northeast Corridor tracks and systems on new embankment and/or viaduct immediately south of Secaucus Junction including a new high-level, two-track Portal South Bridge. This would complete the addition of two new tracks to the Northeast Corridor, building out the Gateway Program new capacity in this territory. A Record of Decision relating to Portal South Bridge was issued by the FRA in 2008. However, project partners would likely need to re-examine the NEPA phase in order to advance this project.

Justification: This project is another increment in completing a modern, four-track right-of-way on the NEC between Newark, NJ and Penn Station, NY. It is necessary to accommodate the ongoing and forecasted growth of services into Penn Station, NY.

Total project cost: TBD

- Project in early stages of development; cost information not yet available.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): As project moves forward through the design phase, a funding and financing plan would be developed with the Gateway partners.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: Project in early stages of development; FY20-24 funding information not yet available.

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA Update	TBD	2024 - 2026						
Final Design	TBD	2026 - 2028						
Construction	TBD	2028 - 2033						

Gateway: Secaucus Station and Loop Tracks

- **Coordinating agency:** Amtrak
- **Partner agency:** NJ TRANSIT, Port Authority of NY & NJ, Gateway Program Development Corporation
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would expand the Secaucus Station track and platform system to alleviate the bottleneck that the current center island platform design of the station creates for reverse peak moves on the Northeast Corridor in order to provide increased bidirectional capacity consistent with the Gateway Program. This project would also construct the “Bergen Loop” tracks at Secaucus Junction which would provide a physical track connection between the NEC on the upper level of Secaucus Station and existing NJ TRANSIT rail lines located on the lower level.

Justification: This project is another increment in completing a modern, four-track right-of-way on the NEC between Newark, NJ and Penn Station, NY. It is necessary to accommodate the ongoing and forecasted growth of services into Penn Station, NY and to create a one-seat ride for MTA Metro-North Port Jervis and Pascack Valley lines and NJ TRANSIT Main-Bergen services into Penn Station New York.

Total project cost: TBD

- Project in early stages of development; cost information not yet available.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): As the project moves forward through the design phase, a funding and financing plan will be developed with the Gateway partners.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: Project in early stages of development; FY20-24 funding information not yet available.

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	TBD	2022 - 2024						
Final Design	TBD	2024 - 2025						
Construction	TBD	2026 - 2032						

Hanson Interlocking

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would improve operational flexibility at New Carrollton station and reduce delays for Amtrak and MARC service. A new interlocking would allow universal moves and reduce conflicts that occur when trains must pass other trains stopped at New Carrollton. Construction of Hanson Interlocking would also advance a state of good repair by allowing for the retirement of aging Landover Interlocking.

Justification: This project will expand capacity and reduce congestion by enabling express and local trains to operate simultaneously in both directions.

Total project cost: \$90,000,000

- Total project cost was reassessed in 2017.

Total expenditure as of 9/30/18: \$20,086,288

Funding sources for entire project history:

- Federal
 - FTA Formula Grant, \$8,000,000, Additional funding spent in prior fiscal years.
- State/Local
 - State/Local Funds, \$2,000,000, Additional funding spent in prior fiscal years.
- Amtrak
 - Non-BCC Amtrak Funds, \$80,000,000, Balance of funding required is funded by Amtrak through written agreement for the cost sharing.

FY20-24 Information

FY20-24 funding available (or likely to become available): \$64,800,000

- At this funding level, the following phases could be initiated or completed in FY20-24: Complete construction.

FY20-24 additional funding needed: \$0

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$64,800,000	Oct 2011 - Dec 2023						

Notes

(1) MTA funded the 1st \$10.0 million under PI#09; (2) This contribution fulfills the MTA's obligation; (3) Amtrak's obligation under PI#09 is to complete the Scope of Work and make full payment for the remaining costs.

Hunter Yard Maintenance of Way Facilities Upgrades

- **Coordinating agency:** Amtrak
- **Partner agency:** NJ TRANSIT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would bring the maintenance of way facilities at Hunter Yard in New Jersey up to a state of good repair to meet operational needs. Currently, the facility is fragmentally used by the Track, B&B, C&S, Material Control within Amtrak. The intent would be to consolidate several engineering disciplines and other forces from nearby satellite locations at one facility. Various Amtrak Police units would also be relocated to this expanded facility as well. There would be a large relocation of disciplines currently located in the basement of Newark Penn Station. A phased construction would necessitate a temporary relocation of existing Amtrak forces at this location. Additional funding is required for construction.

Justification: The current facilities are at the end of their useful life and do not meet current operational needs. A new consolidated facility at Hunter would allow for more effective and efficient production activities, including a greater ability to store equipment for work gangs and staging for nearby projects. Resiliency is also an important element of this project with the intent to raise the entire facility by 5 feet to protect against flooding in the future and also serve as a base for emergency operations.

Total project cost: \$36,256,961

- The cost estimate was derived from 100% Construction Documents that were completed in 2016 and added Amtrak Force account.

Total expenditure as of 9/30/18: \$1,256,961

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$35,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Construction could be initiated and completed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$35,000,000	Oct 2020 - Jun 2023						

Maryland Section Reliability Improvements

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will upgrade 30 miles of existing Track 1 in Maryland and make associated signal system and track upgrades for higher speed operations on the Washington-to-Baltimore section of the NEC.

Justification: This section of the NEC operates at or near capacity today and is not able to reliably absorb increases in service without additional infrastructure improvements. This project targets reductions in congestion-related delays and provides new overtake capacity between different classes of service (high-speed, conventional, and commuter), allowing the faster, high-speed trains to pass slower trains. These improvements, along with structural and operational changes, optimize use of this infrastructure and provide the necessary capacity to meet the Service Plan requirements.

Total project cost: \$20,600,000

- The Order of Magnitude (OOM) estimate was developed based on a conceptual design. The design did not include any C&S work for signal system modification, Positive Train Control equipment changes or ET catenary wire realignment. There was a new approach developed by the project team to mitigate additional costs associated with the C&S and ET constructions costs.

Total expenditure as of 9/30/18: \$901,501

Funding sources for entire project history:

- Amtrak
 - Other Amtrak, \$20,600,000, RRIF Loan

FY20-24 Information

FY20-24 funding available (or likely to become available): \$7,954,260

- **At this funding level, the following phases could be initiated or completed in FY20-24:** The construction phase of the project shall be completed along with testing and commissioning in FY20.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$19,021,680	Mar 2019 - Dec 2019						

Moynihan Station (Phase 2)

- **Coordinating agency:** Amtrak
- **Partner agency:** Long Island Rail Road, Empire State Development Corporation, Moynihan Station Development Corporation, US Postal Service
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project expands Penn Station New York into the historic James A. Farley Post Office building, which will function as a joint Amtrak and Long Island Rail Road facility. Phase 1, which was completed in FY17, included the expansion and enhancement of the 33rd Street Connector between Penn Station and the West End Concourse; the extension and widening of the West End Concourse to serve nine of Penn Station’s eleven platforms; new vertical access points and passenger circulation space; new entrances into the West End Concourse through the 31st and 33rd Street corners of the Farley building; and installation of an emergency ventilation system to improve life safety. Phase 2 (currently underway and associated with the funding and schedule information below) includes the construction of a new train hall occupying a sky-lit atrium section in the Farley building; construction of an emergency platform ventilation system at the perimeter of the Farley building; and improvements to the 33rd Street sub-street corridor connecting Penn Station and Moynihan Station. Moynihan Station Development Corporation (MSDC), the building owner, is coordinating the design of non-train hall work in collaboration with Amtrak and Long Island Rail Road. The project is being managed by the MSDC, a subsidiary of the Empire State Development Corporation, a public benefit corporation of the state of New York and the Port Authority of New York New Jersey, in cooperation with Amtrak and Long Island Rail Road.

Justification: When Moynihan Station’s train hall construction project is complete, Amtrak will be in a position to move its primary operations into the new facility, which will improve passenger comfort and security, relieve congestion, and enhance accessibility for passengers with disabilities in the busiest train station in the nation.

Total project cost: \$1,600,000,000

- The total project cost estimate was not developed by Amtrak, it was developed by New York State’s Empire State Development Corporation (ESD).

Total expenditure as of 9/30/18: \$273,329,238

Funding sources for entire project history:

Federal

- Other Federal Grant, \$21,965,000, Federal CMAQ funding for Penn-Farley Complex; Farley Building Loading Dock
- Other Federal Grant, \$40,200,000, Federal CMAQ funding for Penn-Moynihan Station Complex Train-Shed Hardening Project

State/Local

- State/Local Funds, \$113,500,000, Long Island Rail Road
- State/Local Funds, \$150,000,000, PANYNJ
- State/Local Funds, \$475,300,000, ESD Corporation
- State/Local Funds, \$526,100,000, ESD Corporation TIFIA Loan

Amtrak

- Other Amtrak, \$106,000,000, RRIF Loan for Phase 2

Other

- Other, \$230,000,000, Developer payment

FY20-24 Information

FY20-24 funding available (or likely to become available): \$106,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** This project is slated for completion in FY21.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$1,594,000,000	May 2017 - Jan 2021						

New Carrollton Station - Acela 21

- **Coordinating agency:** Amtrak
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: The scope of work of the New Carrollton Station (NCR) Acela 2021 project includes: 1. New 1,050-foot side platform adjacent to an upgraded Track 1; 2. New vertical access (escalators, elevator and stairs) and required station modifications to access NCR at ground level below the elevated track; and 3. Reinstallation of a freight gauntlet along Track 2 to preserve wide load service through NCR, per Amtrak’s statutory freight railroad access requirements.

Justification: The New Carrollton Station (NCR) project is an integral component of required infrastructure investments to support the Acela 2021 Program and the 2020 NEC Service Plan, and will improve overall train performance, resulting in reduced trip times, as well as improve operational reliability of all rail services on the south end of Amtrak’s NEC. As a result, there would be an enhanced passenger experience.

Total project cost: \$35,837,881

- The Total Project Cost Estimate was last updated in October 2018 based on 90% design documents. This estimate includes cost for full design services (15% Design through Issued for Bid Documents); project management; construction phase; construction management; environmental; and contingency costs for Design and Construction phases.

Total expenditure as of 9/30/18: \$2,022,694

Funding sources for entire project history:

- Amtrak
 - Other Amtrak, \$18,200,000, RRIF Loan

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- At this funding level, the following phases could be initiated or completed in FY20-24: Not applicable.

FY20-24 additional funding needed: \$17,600,000

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Complete construction.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$33,700,000	Mar 2019 - Dec 2021						

New Carrollton Station - SOGR & ADA

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: The scope of work of the New Carrollton Station (NCR) State of Good Repair (SOGR) and Accessibility (ADA) project includes existing platform and station renovations to address SOGR and ADA deficiencies throughout the station. Scope includes: platform repairs; restrooms renovations; passengers’ path of travel and other station improvements.

Justification: As the owner of the NCR station (the structure, platform, and tracks), Amtrak is responsible for accessibility (ADA) and state of good repair (SOGR) compliance.

Total project cost: \$22,335,726

- The Total Project Cost Estimate is based on SOGR and ADA Assessments reports completed between 2017 and 2018.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

- Federal
 - Other Federal, \$1,200,000, FRA ADA Stations Program Grant

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$21,025,122

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete design and construction.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$21,025,122	Jul 2019 - Jan 2021						

New England Interlocking Improvements

- **Coordinating agency:** Amtrak
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project would design and install a new universal interlocking VELTRI at MP133 in Mystic, CT. Construction would include the installation of turn-outs, rail, ties, sub-grade, ballast, overhead catenary, signal transformers, signals cables, signal bridges, switch heater, switch machines, switch houses, instrument houses, and interlocking lighting. This new interlocking will be an Amtrak sole use asset.

Justification: This new interlocking will provide operating flexibility, improve reliability, allow for future maintenance outages and track possessions, and break an 18 mile block.

Total project cost: \$31,500,000

- Project cost estimate was derived as an order of magnitude from similar, recent projects. This project is currently in the RFP stage of acquiring a professional engineering firm to perform final design and construction phase services. The design process will include an engineer's estimate as well as a construction schedule.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

- Amtrak
 - Non-BCC Amtrak Funds, \$1,000,000, Amtrak FY19 GCAP

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** FY19 funding is adequate to initiate design of the interlocking, but not finish, as final design is a 12-16 month effort. Additional funding will be needed in FY20 to complete design.

FY20-24 additional funding needed: \$30,500,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Full funding would allow the project to be designed, obtain permits, procure material and be built and placed into service during this time period.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$1,900,000	Jan 2019 - Mar 2020						
Construction	\$29,600,000	Oct 2019 - Sep 2023						

New Jersey HSR Improvement Program

- **Coordinating agency:** Amtrak
- **Partner agency:** NJ TRANSIT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: With \$450 million in funding from the U.S. Department of Transportation, Amtrak is upgrading its rail infrastructure to support more frequent high-speed rail service and to improve the reliability of current service between New York and Washington. This project will upgrade electrical power, signal systems, tracks and overhead catenary wires along a 23-mile section of track between Trenton and New Brunswick, New Jersey. Amtrak is upgrading 24 miles of rail infrastructure to support faster, more reliable and more frequent service for all NEC users. The project will overhaul power supply systems, signal systems, track infrastructure, and overhead catenary wire between Trenton and New Brunswick, NJ. Modern infrastructure will allow Acela services to reach 160 mph, their highest speed anywhere on the NEC.

Justification:

Total project cost: \$499,100,000

- This cost was derived on construction costs in the current fiscal years – 2017, 2018, 2019. Total project cost includes NJ HSR Improvement Program Task 1 for upgraded rail infrastructure between Trenton and New Brunswick to support faster, more reliable service. Total project cost does not include Task 2 for improvements to the I-ladder in Penn Station.

Total expenditure as of 9/30/18: \$465,954,853

Funding sources for entire project history:

- Federal
 - ARRA/HSPIR Grant, \$449,944,000
- Amtrak
 - Non-BCC Amtrak Funds, \$49,203,200

FY20-24 Information

FY20-24 funding available (or likely to become available): \$5,259,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Project is slated for completion in FY20.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Demolition	\$5,259,000	Oct 2019 - Feb 2020						

Newark Penn Station Platform Rehabilitation

- **Coordinating agency:** Amtrak
- **Partner agency:** NJ TRANSIT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project involves improvements to the condition, appearance and functionality on Platforms A, B, C and D in Newark Penn Station. Both Amtrak and NJ TRANSIT have responsibility to maintain to a state of good repair. To date, work on Platform E has been completed. This scope of this project includes the design and rehabilitation of Platforms A, B, C, and D; their roof/ canopy structures; and any other repairs deemed necessary by the initial structure assessment. The structural assessment is complete. Once the final document is produced, Amtrak will prepare a “Make Safe Plan” for platform repairs.

Justification: The project would create a safer platform environment and boarding conditions for passengers by bringing station areas to a state of good repair and into compliance with USDOT regulations. Due to expansion issues that have occurred over time, the joints at level-boarding platforms are buckling. In many cases, the expansion joints correspond to skewed bearing locations on the viaduct below, complicating the issues at the expansion joints. This project would improve safety and accessibility for all commuters, including physically challenged customers that board and deboard both Amtrak and NJ TRANSIT trains.

Total project cost: \$123,262,000

- This estimate was created from the Structural Assessment in conjunction with the Force Account Estimate (it was Preliminary as of FY18).

Total expenditure as of 9/30/18: \$112,997

Funding sources for entire project history:

- Amtrak
 - BCCs--Variance Required, \$303,000, BCCs used for initial structural assessment of the platforms.

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** If funding is secured Construction will begin.

FY20-24 additional funding needed: \$123,262,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Initiate construction in FY20.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$120,000,000	Jun 2020 - May 2028						NJ TRANSIT and PATH proportional funding agreements pending.

Next Generation High Speed Fleet Infrastructure: Ivy City/ Washington Terminal Yard Facility Improvements

- **Coordinating agency:** Amtrak
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

- **Scope:** This project will satisfy the anticipated facility and infrastructure improvements and maintenance requirements of a new Tier III High Speed Rail (HSR) fleet, the existing Acela fleet and accommodate an increase in service operations. The Tier III train sets are configured differently from the current Acela trainsets and will require modifications to the existing HSR S&I facilities to adequately service both the existing Acela fleet and the Tier III train sets. Scope of Work for Modifications to Existing HSR S&I includes design and Construction Phase Services (CPS) related to: upper level platforms, 480 VAC wayside power, center platform, potable/wastewater water, Inspection pit, split rail system, Alstom office and material storage, nose access platform, monorail crane and sanding system.
- **Justification:** A new and expanded facility is necessary for commissioning, inspection, service, and maintenance of new HSR equipment, which is expected to be delivered between 2020 and 2022. The facility will improve equipment and operational reliability throughout the Northeast Corridor.

Total project cost: \$13,000,000

- Is factoring in: Final Design, Construction & Construction Management

Total expenditure as of 9/30/18: \$3,624,666

Funding sources for entire project history:

Amtrak

- Other Amtrak, \$95,600,000, RRIF Loan

FY20-24 Information

FY20-24 funding available (or likely to become available): \$13,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** We expect Final Design to finish in FY19 and Construction to finish in FY21.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$13,000,000	Mar 2019 - Oct 2020						

Next Generation High Speed Fleet Infrastructure: Ride Quality Investment

- **Coordinating agency:** Amtrak
- **Type:** Improvement
- **Partner agency:** This is a shared project on the NEC spine that will benefit all commuter rail operators.
- **Benefit:** Shared

General Project Information

Scope: This project, which consists of two parts, will establish the means and methodology for performing reference surfacing on the NEC main line with the potential for expansion to other lines and maintenance and construction operations. The first project element is the establishment of the positioning network and data management system. This will include a survey of all tracks on the NEC. The second element is the acquisition of three sets of equipment for the ongoing surfacing of the NEC. The purpose of this project is to improve current surfacing practices, which will result in more efficient maintenance operations and better ride quality.

Justification: This project is necessary in order to run trains at maximum authorized speeds of 160mph. Amtrak’s current surfacing methods are inconsistent throughout the NEC and do not put the track back to a designed position. These methods are outdated and cannot be sustained on a true high speed railroad. The expected result of this project is that all components of surfacing (survey, design, and solutions) will be connected by GPS positioning on the track. By tamping track to a design at a known location, maintenance practices will be reliable and repeatable. The time between tamping maintenance will increase and the wear and tear on track and vehicle components will decrease. This will result in desired track geometry and therefore higher ride quality and passenger comfort.

Total project cost: \$67,000,000

- The total project estimate was developed from a conceptual white paper called “Development of a Reference Surfacing System for the NEC.”

Total expenditure as of 9/30/18: \$275,518

Funding sources for entire project history:

- Amtrak
 - Other Amtrak, \$67,000,000, RRIF Loan

FY20-24 Information

FY20-24 funding available (or likely to become available): \$53,067,186

- **At this funding level, the following phases could be initiated or completed in FY20-24:** (1) Develop Reference Surfacing Data Management System & Baseline Survey. And (2) Purchase 3 Sets of Surfacing Equipment. Each set will include a GPS-enabled tamper, a BMS, and a stabilizer.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Survey, design and equipment purchase	\$53,067,186	Oct 2019 - Sep 2021						

Next Generation High Speed Fleet Infrastructure: Safety Mitigation

- **Coordinating agency:** Amtrak
- **Partner agency:** This is a shared project on the NEC spine that will benefit all / several of commuter rail operators.
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will make several investments to allow Amtrak to permit operation of Tier III Trainsets on the NEC at up to the maximum speed of FRA Tier III standards. Amtrak undertook a detailed and lengthy risk analysis that demonstrates that this standard can be met with a limited investment in infrastructure improvements designed to limit intrusions on to the right of way and/or high- speed tracks in designated high-speed zones expected to be used by Acela. These investments include 20 miles of security fencing, 1/2 mile of guardrails, and other provisions associated with the Tier III FRA Waiver. This project also includes ROW protection such as Positive Train Stop Override (PTSO) and adjacent track work to prevent intrusions of other rail equipment within 25 feet of the main line.

Justification: These investments will increase intercity travels speeds and reduce overall travel time.

Total project cost: \$90,000,000

- The total estimate of \$90M was provided by Amtrak Engineering prior to the RRIF funding authorization granted in August 2016.

Total expenditure as of 9/30/18: \$12,251,197

Funding sources for entire project history:

- Amtrak
- Other Amtrak, \$90,000,000, RRIF Loan

FY20-24 Information

FY20-24 funding available (or likely to become available): \$77,700,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Fencing, PTSO and Adjacent Track Work are estimated to be completed during FY2021.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$90,000,000	Sep 2017 - Mar 2021						

Next Generation High Speed Fleet Infrastructure: Southampton St. Yard Facility Improvements

- **Coordinating agency:** Amtrak
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: The project scope includes the design and construction of infrastructure improvements for Southampton Street Yard to support the Next Generation High-Speed Rail (HSR). This project will satisfy the anticipated facility and infrastructure improvements and maintenance requirements of a new Tier III High Speed Rail (HSR) fleet, the existing Acela fleet and accommodate an increase in service operations. The Tier III train sets are configured differently from the current Acela trainsets and will require modifications to the existing HSR S&I facilities to adequately service both the existing Acela fleet and the Tier III train sets. More specifically, Scope of Work includes: (1) a HSR Train Scanner (an 18’ x 28’ train diagnostic facility): foundation with support bungalow and electric and telecommunications located before the Train Wash; (2) new storage tracks for servicing operations; and (3) an office trailer shell with telecommunications and HVAC for a staff of 10 (Alstom).

Justification: A new and expanded S&I facility is necessary for commissioning, inspection, service, and maintenance of new Next Generation High-Speed Rail equipment, which is expected to be delivered between 2020 and 2022. The facility will improve equipment and operational reliability throughout the Northeast Corridor.

Total project cost: \$10,312,000

- This total project cost estimate factors in: Preliminary Engineering, Final Design, Construction, and Construction Management.

Total expenditure as of 9/30/18: \$112,033

Funding sources for entire project history:

- Amtrak
 - Other Amtrak, \$4,500,000, RRIF Loan

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- At this funding level, the following phases could be initiated or completed in FY20-24: Not applicable.

FY20-24 additional funding needed: \$10,312,000

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Complete construction

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$10,000,000	Apr 2019 - Nov 2020						

Philadelphia 30th Street Station District Plan Implementation

- **Coordinating agency:** Amtrak
- **Partner agency:** SEPTA
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project includes immediate and long-term improvements to passenger and rail facilities. Work currently underway includes the completion of a comprehensive assessment of state of good repair needs and focusing on design projects to enhance the customer experience advancing the and expanding capacity of concourse to accommodate anticipated growth in Amtrak ridership; conceptual design of key station improvement projects have now been completed. As established in the Philadelphia 30th Street Station District Plan, the plan for the station is multi-phased and incremental strategy designed to enable sustainable operational growth of 30th Street Station, while unlocking the development potential of the real estate assets over the course of a 35-year horizon. The next key project milestone is a two-phased master developer procurement process that will identify a master development partner to assist Amtrak with implementing state of good repair improvements, developing commercial assets, and maximizing the overall value of 30th Street Station.

Justification: Philadelphia 30th Street Station is Amtrak’s third busiest station in the nation and Pennsylvania’s busiest intermodal station serving Amtrak, Southeastern Pennsylvania Transportation Authority (SEPTA) and NJ TRANSIT. Heavy utilization of the station coupled with deferred maintenance has left 30th Street Station in a state of disrepair. An estimated growth of 3.5 percent in annual ridership will stress state of good repair issues and push the station beyond its operating capacity unless the station is adapted to accommodate this growth.

Total project cost: \$517,000,000

- Total project cost estimate is based on a compilation various plans and reports, specifically the 2014 District Plan, an ongoing Penn Coach Yard Plan (2018), completed 10% concept designs for Station Plaza (2017), North Concourse Expansion (2016), and the West Underground Concourse (2017), in addition to the soon to be complete State of Good Repair Assessment (2018).

Total expenditure as of 9/30/18: \$7,775,964

Funding sources for entire project history:

- Amtrak
 - Non-BCC Amtrak Funds, \$11,964,433

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$32,500,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete Feasibility/Conceptual Design, initiate Final Design, complete SOGR work: roof, HVAC, mechanical, equipment, plumbing.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Finalize Feasibility/Conceptual Design	\$5,000,000	Oct 2018 - Dec 2020						
Final Design	\$150,000,000	Jan 2021 - Jan 2035						
Construction	\$350,000,000	Jan 2035 - Jan 2050						

Notes

Completing work on the Penn Coach Yard Master Plan, report will be finalized by November 2018.

Washington Union Station: Claytor Concourse Modernization Program

- **Coordinating agency:** Amtrak
- **Type:** Improvement
- **Partner agency:** Maryland DOT, VRE, Union Station Redevelopment Corporation, Federal Railroad Administration, WMATA
- **Benefit:** Shared

General Project Information

Scope: This program provides design and construction of immediate operational, safety, and passenger experience improvements to the existing passenger concourse at Washington Union Station, known as the Claytor Concourse. Prior to realizing the full Concourse Modernization, there are two predicate projects that need to be implemented. The Amtrak Police Department (APD) requires relocation from their current location in the station to a new, improved facility outside the Claytor Concourse. Design of the new APD 10,000 sf facility was completed in FY18 and construction is expected from FY19-20. In FY18, Amtrak completed the first predicate project – the relocation and replacement of critical Heating, Ventilation, and Air Conditioning (HVAC) infrastructure. The full Claytor Concourse Modernization will include the renovation of critical passenger areas, the installation of the new glass curtain wall as an entrance to the station from the platforms and the footprint for a new, expanded Metropolitan Lounge (formerly known as the ClubAcela lounge). The modernization will also include constructing back of the house uses on the First Street Level so as to relocate the existing support space from the concourse floor and the North Hangar Safety Improvements project, which will provide safety improvements and rehabilitate interior finishes in the North Hangar to complement the improvements in the concourse. It will also support the improvement of critical building infrastructure needed to enable the concourse expansion. This infrastructure includes a new emergency generator for the building as well as a new, expanded electrical substation.

Justification: These improvements are needed to correct safety egress issues as well as capacity limitations and to improve the overall passenger experience for Amtrak and commuter riders.

Total project cost: \$171,145,000

- APD project costs based on executed Construction Manager and General Contractor contracts and detailed cost estimates for project support. Concourse Modernization estimates based on 100% design in FY18.

FY18 Expenditure: \$3,439,154

Total project expenditure as of 9/30/18 is not available because this project was restructured in FY18.

Funding sources for entire project history:

Federal

- Other Federal Grant, \$2,350,000, FRA Rail Safety Grant

State/Local

- State/Local Funds, \$2,300,000, USRC (\$900K for Concourse Planning/Design; \$1.4M for HVAC construction pre FY19)
- State/Local Funds, \$993,000, Maryland MTA (\$525,000 for HVAC Construction; \$468,000 for Concourse Planning/Design pre FY19)
- State/Local Funds, \$125,000, VRE (For Concourse Planning/Design pre FY19)

Amtrak

- Non-BCC Amtrak Funds, \$15,600,000, Amtrak FY18 & Prior
- Non-BCC Amtrak Funds, \$22,600,000, Amtrak FY19
- Other Amtrak, \$65,000,000, RRIF Loan
- Non-BCC Amtrak Funds, \$2,350,000, Non-federal matching funds for FRA Rail Safety Grant

Other

- Other, \$150,000, Akridge (Concourse Planning / Design pre FY19)

Washington Union Station: Claytor Concourse Modernization Program continued on the next page >>

Washington Union Station: Claytor Concourse Modernization Program continued

FY20-24 Information

FY20-24 funding available (or likely to become available): \$65,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Renovation of the main level of the Claytor Concourse, construction of a new Metropolitan Lounge, construction of new restrooms, improvements to safety and egress.

FY20-24 additional funding needed: \$52,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Additional funding may be needed to construct new backup generators and substations, restoration of historic station features, improvements to station spaces and their uses, for both passengers and staff, new equipment for enhanced safety and passenger comfort.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction (APD and Electric Workshop Relocation)	\$12,000,000	Oct 2018 - Mar 2020						
Construction (Concourse Modernization Project)	\$140,000,000	Apr 2019 - Mar 2022						

Washington Union Station: Long Term Station Expansion

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT, VRE, Union Station Redevelopment Corporation, DDOT, Federal Railroad Administration
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: The Long Term Program builds on the 2012 Washington Union Terminal Master Plan which outlined a long-term vision to redevelop the station to address capacity constraints and aging infrastructure as well as coordinate with the air rights project known as Burnham Place. The Long Term Program consists of a large-scale station expansion including a complete redesign and reconstruction of the rail terminal. This will also include the construction of Burnham Place, which is Akridge’s air rights project over the tracks and platforms. This program has begun and is undergoing an Environmental Impact Statement (EIS), a process being led by the Federal Railroad Administration (FRA) and targeted to be complete in FY20. Once that process has concluded, the Long Term Program will require funding for advanced design and program management to begin implementation of the finalized concept followed by full construction. Currently specific projects within this program include: Terminal Infrastructure (concept design of reconstruction of tracks, platforms and related rail infrastructure at Washington Union Station); Station Expansion EIS; Geotechnical work; Constructability reviews; and H Street Bridge (a project being funded by District DOT) coordination.

Justification: The Washington Union Station complex, including passenger, operational, and train handling facilities and infrastructure, is not in a state of good repair. Long-term, the Washington Union Station Expansion Project is evaluating alternatives for station redevelopment to meet growing demand for commuter and intercity rail.

Total project cost: \$8,000,000,000

- This is a high level, order of magnitude estimate, based off concept level design.

FY18 Expenditure: \$2,900,000

Total project expenditure as of 9/30/18 is not available because this project was restructured in FY18.

Funding sources for entire project history:

State/Local

- State/Local Funds, \$8,300,000, USRC (\$1M in FY19 and \$7.3M in prior years)
- State/Local Funds, \$575,000, VRE (Prior to FY19)
- State/Local Funds, \$749,000, Maryland MTA (Prior to FY19)

Amtrak

- Non-BCC Amtrak Funds, \$9,700,000, Amtrak FY18 & Prior GCAP
- Non-BCC Amtrak Funds, \$1,400,000, Amtrak FY19

Other

- Other, \$4,400,000, Akridge (\$3.9M in FY19 and \$500K prior)

Washington Union Station: Long Term Station Expansion continued on the next page >>

Washington Union Station: Long Term Station Expansion continued

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- At this funding level, the following phases could be initiated or completed in FY20-24: Not applicable.

FY20-24 additional funding needed: \$130,670,000

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): FY20: EIS Record of Decision; procurement of Station Expansion design; geotechnical work; precedent infrastructure projects – design. FY21-24: Station Expansion Project full design and pre-construction activities; precedent infrastructure projects – construction. Partner funding will be needed to complete the Station Expansion project’s Full Design and pre-construction and also for the future precedent project construction since this work will likely be track-related and benefit more than just Amtrak.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$20,500,000	Nov 2015 - Jan 2020						Additional funding will come from Amtrak, USRC and Akridge to close out Phase 2.
Full Design	\$70,500,000	Dec 2020 - Dec 2024						
Future Precedent Projects	\$53,000,000	Dec 2020 - Dec 2024						
Construction	\$8,000,000,000	2025 - 2040						

Washington Union Station: Near Term Rail Program

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT, VRE, Union Station Redevelopment Corporation
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: The Near Term Rail program provides design and construction of critical rail and infrastructure projects needed to enhance current operational flexibility of the Washington Union Station rail terminal and to provide for the phasing and capacity expansion of the Long Term Program. Projects within the Near Term Rail Program include: (1) Electrification of Tracks 8 & 9 (slated for completion in FY19); (2) Substation 25A Relocation and Catenary Sectionalizing; (3) Crew Base Renovation; (4) Satellite Commissary Relocation; and (5) Raising platform at Tracks 15/16.

Justification: These projects are needed to bring operational infrastructure up to a State of Good Repair, fix safety and security deficits and allow for better and more efficient current and future operations at Washington Union Station.

Total project cost: \$78,500,000

- This cost includes design of the projects in previous fiscal years. Cost estimates are based on Amtrak and contractor cost estimates during design and into construction. All estimates based off at least 60% design except for Substation 25A which is currently close to 30% (October 2018).

FY18 Expenditure: \$2,166,981

Total project expenditure as of 9/30/18 is not available because this project was restructured in FY18.

Funding sources for entire project history:

- Amtrak
 - Non-BCC Amtrak Funds, \$12,500,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$66,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** This funding level will allow Amtrak to finalize design and construction of the current rail and infrastructure projects currently identified under this program. Amtrak needs \$66M in additional funding because we have not received any capital funding for this program past FY19.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction (Relocation of Satellite Commissary)	\$8,000,000	Jun 2019 - Jul 2020						
Construction (Crew Base Relocation)	\$15,000,000	Jun 2019 - Nov 2020						
Construction (Substation 25A Relocation)	\$30,000,000	Oct 2020 - Sep 2022						
Construction (Tracks 15/16 Platform Rehab)	\$15,000,000	Jan 2022 - Sep 2023						

Washington Union Station: Subbasement Program

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT, VRE, Union Station Redevelopment Corporation, Federal Railroad Administration
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This program includes two projects Track 22 and the Subbasement Reconstruction. The Track 22 project will not only provide Amtrak and VRE with an additional revenue track by which to board and alight trains, it is a necessary precursor to the Subbasement Structural Replacement project so as to provide an additional run-through track to remain open during the Subbasement project. The Subbasement Reconstruction project will replace the bridging structure at the north portal of the First Street Tunnel spans rail tracks over a back of house station area (known as the Subbasement). The structure is in a state of disrepair and requires replacement. The critical SOGR Project will replace the structurally deficient beams, girders and columns with a new structural support system. The track slab will be replaced and railroad infrastructure will be replaced in kind.

Justification: The Subbasement Reconstruction program is a necessary State of Good Repair project, as the Subbasement currently has temporary shoring to keep the track bed for the run-through tracks intact. Collapse of the Subbasement would have significant impacts to not only the NEC but the entire eastern rail network. Track 22 will allow the Subbasement Reconstruction to proceed without major cuts to current service levels.

Total project cost: \$163,600,000

- Subbasement cost is based off of 30% design estimates; Track 22 estimated was developed based off final design in 2017 and updated in 2018.

FY18 Expenditure: \$1,101,247

Total project expenditure as of 9/30/18 is not available because this project was restructured in FY18.

Funding sources for entire project history:

Federal

- Other Federal Grant, \$19,000,000, FRA THUD Grant for Track 22

State/Local

- State/Local Funds, \$6,300,000, VRE (Matching funds for FRA THUD Grant for Track 22)

Amtrak

- Non-BCC Amtrak Funds, \$6,480,000, Track 22 and Subbasement Design
- Non-BCC Amtrak Funds, \$12,700,000, Amtrak non-federal matching funds for FRA THUD Grant

Other

- Other, \$72,000,000, Undetermined funding source for Subbasement construction

FY20-24 Information

FY20-24 funding available (or likely to become available): \$31,000,000. Award of THUD Grant in FY18 for Track 22 secured construction funding for the project; no additional dollars anticipated to be requested. Subbasement FY20-24 additional funding need is \$72M.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** We hope to maintain the Project Schedule.

FY20-24 additional funding needed: \$72,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** We hope to maintain the Project Schedule. The Subbasement Reconstruction is expensive, and the cost may increase depending on the column removal and operating scenario Amtrak undertakes. Additional dollars will likely be needed from Amtrak's partners for this critical infrastructure project.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction (Track 22)	\$38,000,000	Jan 2019 - Jun 2021						
Construction (Subbasement)	\$125,000,000	Jan 2020 - Dec 2022						

Special Projects: Connecticut DOT (Major Backlog)

Cos Cob Bridge Replacement (Project to start in FY26)

- **Coordinating agency:** Connecticut DOT
- **Partner agency:** Amtrak
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would replace the existing Cos Cob Bridge that carries four tracks over the Mianus River in Greenwich, CT. Constructed in 1904, it is the busiest movable bridge on the New Haven Line. The bridge is comprised of twelve steel spans with a movable segment at its center that lifts to allow boats to pass below. The bridge received some rehabilitation in 1989. However, this bridge now requires substantial investment to address challenges caused by aging components and deferred maintenance. Recently, an engineering feasibility study was performed that identified near-term repairs to address service reliability and maintenance issues, as well as long-term alternatives for replacement or rehabilitation. Interim repairs will be conducted in the next few years that include replacing the miter rails and deck timber. These investments are included in the BCC Program. This project covers the design for a full replacement of the structure which should begin within the next 5 years.

Justification: Aging movable bridges pose a big risk of long-term major disruption of service along the NEC. These structures require constant maintenance, are functionally obsolete, and well beyond their useful life.

Total project cost: \$1,000,000,000

- Design not started. Estimate based on comparison with similar projects.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Design not scheduled to start

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Project can not start until WALK, DEVON, and SAGA are complete.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$50,000,000	2026 - 2028						
Construction	\$950,000,000	2028 - 2032						

Notes

All funding figures are budgets but not expenditures.

Devon Bridge Replacement

- **Coordinating agency:** Connecticut DOT
- **Partner agency:** Amtrak
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would replace the functionally obsolete 111-year-old Devon Bridge. The bridge, which carries four New Haven Line tracks over the Housatonic River, has experienced serious deterioration, and is the next most critical movable bridge for replacement on the New Haven Line portion of the NEC after the Walk Bridge Program. Additional funding is required for design and construction of a replacement bridge.

Justification: Aging movable bridges pose a big risk of long-term major disruption of service along the NEC. These structures require constant maintenance, are functionally obsolete, and well beyond their useful life.

Total project cost: \$1,500,000,000

- Project in early stages of development. Construction estimates are preliminary.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

- Federal
 - FTA Formula Grant, \$15,000,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$15,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Feasibility and Conceptual Design will start

FY20-24 additional funding needed: \$70,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** PE/NEPA and Final Design

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$50,000,000	End Apr 2021						
Final Design	\$10,000,000	End Apr 2023						
Construction (includes early construction activities)	\$1,450,000,000	2023 - 2027						

Notes

All funding figures are budgets but not expenditures.

Saugatuck River Bridge Replacement

- **Coordinating agency:** Connecticut DOT
- **Partner agency:** Amtrak
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: The Saugatuck River Bridge is a 458-foot-long bascule bridge constructed in 1904. The bridge is actually not one, but two parallel bridges, each carrying two tracks. Like the Norwalk River Bridge, its age and deferred maintenance have caused deterioration encompassing both its electrical and mechanical components. CTDOT is aiming to fully replace major components of the bridges, including the movable spans and the approach tracks. This work would also include the replacement of mechanical and electrical systems, new signal equipment, and a new operator's house. This new bridge would greatly improve reliability for Amtrak and Metro-North riders, as well as maritime traffic.

Justification: Aging movable bridges pose a big risk of long-term major disruption of service along the NEC. These structures require constant maintenance, are functionally obsolete, and well beyond their useful life.

Total project cost: \$1,100,000,000

- The total project cost of \$1.1B is the latest estimate for full replacement. The previous \$400M estimate is an old number and most likely an estimate for a major rehab, not replacement.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

- Federal
 - FTA Formula Grant, \$15,000,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$15,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Conceptual Design

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** This project can not start construction until DEVON is complete.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Feasibility/Conceptual Design	\$15,000,000	2017 - 2020						
PE/NEPA	\$45,000,000	2025 - 2026						
Final Design	\$60,000,000	2026 - 2028						
Construction	\$1,000,000,000	2028 - 2032						

Notes

All funding figures are budgets but not expenditures.

This project page was amended in July 2020 to align with Federal-State Partnership for State of Good Repair Grant Program applications. The updated project page can be found on page 150.

Walk Bridge Program

- **Coordinating agency:** Connecticut DOT
- **Partner agency:** Amtrak
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project will replace the functionally obsolete 120-year-old Walk Bridge which has experienced increasing deterioration of electrical and mechanical components. Connecticut DOT has committed to replace this asset with a combination of federal and state funds. Construction will require an extended continuous outage of two tracks where normally four are operational. This change in track availability could cause changes in schedule, decreases in reliability, or even reductions in service. Two additional capital projects in the vicinity of Walk Bridge will help address these concerns. The construction of CP243 interlocking will shorten the block length between Westport and Norwalk while increasing operational flexibility. Additionally, improvements at Dock Yard including the electrification of the lower Danbury Branch will allow for Metro-North trains to turn at Norwalk without increasing congestion on the main line of the NEC. FTA completed NEPA and issued a Finding of No Significant Impact (FONSI) for this project in July 2017.

Justification: Aging movable bridges pose a big risk of long-term major disruption of service along the NEC. These structures require constant maintenance, are functionally obsolete, and well beyond their useful life. The situation at Walk Bridge is made worse by the fact that all four tracks reside on one movable span. A failure of the span severs the entire NEC.

Total project cost: \$1,170,000,000

- Total project cost estimate is based on Final Design.

Total expenditure as of 9/30/18: \$241,784,217

Funding sources for entire project history:

Federal

- Other Federal Grant, \$160,979,022, Federal Emergency Relief Award
- FTA Formula Grant, \$282,606,925, Federal (FTA) Programmed

State/Local

- State/Local Funds, \$726,414,053, State Funding Programmed

FY20-24 Information

FY20-24 funding available (or likely to become available): \$1,170,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Project completion.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction (Phase 1 - CP243/ Dock Yard)	\$366,338,696	End Jan 2021						
Construction (Phase 2 - Walk)	\$560,969,300	Jun 2019 - Sep 2023						

Notes

All funding figures are budgets but not expenditures.

Special Projects: Connecticut DOT (Improvement)

CTrail Hartford Line Commuter Station Improvements

- **Coordinating agency:** Connecticut DOT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will add additional station stops between New Haven, CT to Springfield, MA including North Haven, Newington, West Hartford, and Enfield.

Justification: New and upgraded stations between New Haven and Springfield are needed to support the CTrail Hartford Line service which launched in June 2018. This project will increase ridership for the NEC and enhance regional rail travel in New England.

Total project cost: \$90,000,000

- Estimate based on Preliminary Design

Total expenditure as of 9/30/18: \$24,261,219

Funding sources for entire project history:

State/Local

- State/Local Funds, \$80,000,000, Let's Go CT

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- At this funding level, the following phases could be initiated or completed in FY20-24: Preliminary Design is already complete

FY20-24 additional funding needed: \$80,000,000

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Final Design, some construction

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$80,000,000	Apr 2019 - 2021						

Notes

All funding figures are budgets but not expenditures.

CTrail Hartford Line Rail Program Phase 3B - 5

- **Coordinating agency:** Connecticut DOT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: The program is being progressed in phases to rebuild and upgrade infrastructure between New Haven, CT and Springfield, MA. The final phases, not yet funded for construction, include adding a second track between Hartford and Enfield, rehabilitating or replacing many bridges and culverts, and improving stations at Windsor and Windsor Locks. The program also includes costs associated with replacing the elevated track structure through Hartford and the Connecticut River Bridge in Windsor Locks.

Justification: These investments will improve reliability and allow for increased service of up to 25 round trips per day between New Haven and Springfield on the CTrail Hartford Line service, which launched in June 2018. This project will increase ridership for the NEC and enhance regional rail travel in New England.

Total project cost: \$250,250,000

- Estimate based on Preliminary Design

Total expenditure as of 9/30/18: \$328,858

Funding sources for entire project history:

State/Local

- State/Local Funds, \$100,000,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$100,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Construction of Windsor and Windsor Locks Stations

FY20-24 additional funding needed: \$150,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Additional track work north of Hartford

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$250,250,000	2020 - 2023						

Notes

All funding figures are budgets but not expenditures.

New Haven Line Network Infrastructure Upgrade

- **Coordinating agency:** Connecticut DOT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will upgrade the communications network infrastructure along the New Haven Line segment of the NEC by installing fiber optic communication cable and equipment to support closed circuit television safety cameras at vulnerable passenger stations and bridges. This system will also be capable of supporting passenger information displays and other amenities at passenger stations.

Justification: This project is critical to passenger safety and to the resiliency of the overall system. By providing for security cameras that can be monitored off-site, this project allows railroad security and law enforcement personnel a vital tool for preventing crime and terrorist activity.

Total project cost: \$70,000,000

- Total project cost derivation details not available.

Total expenditure as of 9/30/18: \$21,171,273

Funding sources for entire project history:

- Federal
 - FTA Formula Grant, \$32,400,000, Mix of state and federal

FY20-24 Information

FY20-24 funding available (or likely to become available): \$32,400,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Phase 1 construction

FY20-24 additional funding needed: \$35,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Phase 2 construction

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction (Phase 1)	\$32,400,000	End 2021						
Construction (Phase 2)	\$35,000,000	2020 - 2022						

Notes

All funding figures are budgets but not expenditures.

New Haven Line Stations Improvements: Stamford and New Haven Stations

- **Coordinating agency:** Connecticut DOT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This program will upgrade and repair the Stamford Station to ensure continued safe operation and improve the passenger experience. Work will increase canopy and windscreen coverage, provide additional pedestrian paths, repair and replace platform sections that are failing due to their age, and ensure ADA compliance. The future program also includes the construction of a pedestrian bridge at Stamford Station as well as a new parking garage. Additionally, the program includes a new parking garage for New Haven Station and the installation of real time audio and video systems at all main line stations.

Justification: This program is critical not only to address passenger demands for enhancements at the stations, but also to provide repairs for aging platforms that are beginning to fail due to years of exposure salt and de-icing chemicals. This program allows for the continued safe operation of the stations.

Total project cost: \$320,000,000

- Projects are at different stages of design

Total expenditure as of 9/30/18: \$35,794,758

Funding sources for entire project history:

Federal

- Other Federal Grant, \$10,000,000, TIGER
- FTA Formula Grant, \$5,000,000,

State/Local

- State/Local Funds, \$39,000,000,

FY20-24 Information

FY20-24 funding available (or likely to become available): \$54,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Construction at Stamford Station

FY20-24 additional funding needed: \$50,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Construction of parking garages at Stamford and New Haven.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$50,000,000	2020 - 2022						

Notes

All funding figures are budgets but not expenditures.

New Haven Yard Master Complex Improvements

- **Coordinating agency:** Connecticut DOT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project is a multi-year initiative that receives funding on an annual basis to store and maintain the rail fleet and spare parts. Connecticut received \$9 million in FTA Emergency Relief funds to install a backup feeder as an alternative power source at New Haven Yard. Additional funding would design and construct other modernization elements, including new facilities to improve efficiency and allow for growth.

Justification: Continued funding for this project is vital to the ability of both the State of Connecticut and Amtrak to effectively store and maintain its passenger rail fleet. The upgrade of the Connecticut commuter fleet requires new facilities to maintain the vehicles and store parts. Lack of funding will jeopardize the significant investment that Connecticut has made in a state of the art rail passenger fleet.

Total project cost: \$750,000,000

- Total project cost estimate based on conceptual design

Total expenditure as of 9/30/18: \$172,960,574

Funding sources for entire project history:

Federal

- Other Federal Grant, \$8,978,750, Hurricane Sandy Resiliency
- FTA Formula Grant, \$38,000,000

State/Local

- State/Local Funds, \$200,000,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$246,978,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** East Side Access Construction, West End Yard Construction

FY20-24 additional funding needed: \$500,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** New Haven Yard Pedestrian Bridge, car wash facility, diesel shop expansion.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$100,000,000	Jan 2017 - 2020						
Construction	\$150,000,000	2019 - Feb 2023						

Notes

All funding figures are budgets but not expenditures.

SLE Station Improvements

- **Coordinating agency:** Connecticut DOT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project is a series of investments to expand and improve stations, constructing two high-level platforms, improved waiting areas, and expanded parking at several stations. Work is underway at Madison and New Haven State Street and will be complete at Clinton by 2020. In addition, the state will study the feasibility of constructing a new station in Niantic, CT.

Justification: When Shore Line East service was launched in the 1990s, most stations featured a single low-level platform along the eastbound track. As a result, westbound trains have been required to switch tracks to service these stations, which consumes capacity and creates conflicts with other trains. Two high-level platforms with a pedestrian bridge connection is critical to true bi-directional traffic for Shore Line East trains and has the added benefit of increasing capacity on this segment of the NEC.

Total project cost: \$70,000,000

- Total project cost derivation details not available.

Total expenditure as of 9/30/18: \$42,909,544

Funding sources for entire project history:

State/Local

- State/Local Funds, \$70,000,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable. Clinton will be complete by 2020.

FY20-24 additional funding needed: \$70,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Madison Station and Niantic Station.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$70,000,000	End Sep 2020						

Notes

All funding figures are budgets but not expenditures.

Special Projects: Delaware DOT (Improvement)

Claymont Regional Transportation Center

- **Coordinating agency:** Delaware DOT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will replace the existing Claymont, DE train station. The new station will be located north of the current site to the former Evraz Steel Site in Claymont, Delaware. It will meet all current ADA standards, with two high-level platforms and a pedestrian overpass over the NEC. The new station will be a multi-modal transportation center with improved access for bus transit, bicycles, and pedestrians as well as added parking capacity.

Justification: The current Claymont Station does not meet current accessibility standards although it is ADA compliant in the form of wheel chair lifts to a tunnel under the NEC and mini-high platforms. The tunnel has a flooding risk because of the high water table. The station is also located on a curve of the NEC causing trains to sit at an angle which is not an optimal situation for loading and unloading trains. In addition the 504 parking spaces at are capacity and vehicular and transit access to the station are congested. The project is also coordinated with redevelopment of the former industrial site and will spark economic activity.

Total project cost: \$71,000,000

- The project cost is based on the award value of the Design Build contract, which was awarded in January 2019.

Total expenditure as of 9/30/18: \$1,807,747

Funding sources for entire project history:

- Federal
- Other Federal Grant, \$10,000,000, TIGER 2016
 - FTA Formula Grant, \$16,830,000

- State/Local
- State/Local Funds, \$18,770,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$42,041,045

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Design and construction will be completed by FY21.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$42,600,000	Dec 2018 - Dec 2020						

Newark (DE) Regional Transportation Center

- **Coordinating agency:** Delaware DOT
- **Partner agency:** Amtrak, SEPTA
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will construct an updated Regional Transportation Center in Newark, DE that will increase capacity and support additional SEPTA service between Newark and Wilmington, DE. The project includes construction of a new station house, a new platform, a new freight track connection, and a new pedestrian bridge so passengers are not forced to cross an active track. The project will make the station ADA-compliant, eliminate conflicts with freight operations, and permit expansion of regional and commuter service. This project is funded by a combination of federal, state, and local sources.

Justification: Existing station is outdated, non-ADA-compliant, and Amtrak passengers are forced to board/disembark across an active track. The new station will remedy these flaws, serve an adjacent major commercial/industrial park, eliminate conflicts with freight operations, and permit expansion of regional and commuter service.

Total project cost: \$57,000,000

- Several of the contracts have been awarded, so the estimates are based on contract award amounts. The remaining contract estimate is based on final design plans. The estimate was updated in the Summer of 2018.

Total expenditure as of 9/30/18: \$18,502,847

Funding sources for entire project history:

Federal

- ARRA/HSIPR Grant, \$10,000,000, TIGER IV
- FTA Formula Grant, \$11,000,000

State/Local

- State/Local Funds, \$36,000,000, State, County, City

FY20-24 Information

FY20-24 funding available (or likely to become available): \$23,642,063

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Construction will be complete in FY21.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$57,000,000	Jul 2017 - May 2021						

Special Projects: Long Island Rail Road

East River Tunnel - Right of Way Infrastructure Improvements

- **Coordinating agency:** Long Island Rail Road
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project includes several initiatives in the East River Tunnels, including: Stray Current Study; Communications antenna replacement in lines 3 and 4; Total track replacement in line 4; and 1st Avenue substation replacement. Work would evaluate and mitigate stray current in the tubes, improve radio system infrastructure in the tunnels and on the platforms at Penn Station New York used by Amtrak and LIRR, renew track and track-bed infrastructure in East River Tunnels 3 & 4, and install a new fully operational AC-DC traction power substation to replace a substation that was damaged by Hurricane Sandy. These projects would improve reliability and reduce delays and maintenance costs by replacing and/or upgrading existing equipment. Some funding for these improvements is available. Additional funding is required for other improvements.

Justification: Track and antenna replacement are state-of-good-repair projects to resolve existing and identified deficiencies. The Stray Current Study will identify source of stray current causing base corroded rail and will identify means to contain it. The new substation will replace a traction power substation damaged during Hurricane Sandy.

Total project cost: \$88,500,000

- Total project cost derivation details not available.

Total expenditure as of 9/30/18: \$27,099,433

Funding sources for entire project history:

Funding and projects identified in MTA's 2015 - 2019 Capital Plan will extend into the 2020-2024 time frame.

Other

- Other, \$88,500,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$88,500,000

- At this funding level, the following phases could be initiated or completed in FY20-24: Complete construction.

FY20-24 additional funding needed: \$0

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Not applicable. This project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$88,500,000	Jan 2017 - Dec 2022						

This project page was amended in December 2019 to align with Federal-State Partnership for State of Good Repair Grant Program applications. The updated project page can be found on page 151.

Penn Station New York - LIRR Projects

- **Coordinating agency:** Long Island Rail Road
- **Partner agency:** Amtrak, NJ TRANSIT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will widen and raise the ceiling of the 33rd Street Corridor at Penn Station New York. This project will also repair and improve other assets at Penn Station New York. Work would include replacing elevators and escalators, upgrading customer service facilities, installing new HVAC equipment, improving lighting, and rehabilitating platforms. Elevators and escalators assets have reached the end of their useful life, stairways are in poor condition, and rehabilitation or upgrades are needed to HVAC, platforms, and lighting. Some funding for these improvements is available. Additional funding is required for other improvements.

Justification: It has been determined by an outside inspection agency that the 22 year old elevators and escalators have reached the end of the useful life. Stairways have been repeatedly repaired but are in a state of deterioration. HVAC equipment continuously fails and requires modernization. Platforms have become worn and require rehabilitation. The lighting has become dull over the years and the station requires better lighting.

Total project cost: \$315,677,829

- Total project cost derivation details not available.

Total expenditure as of 9/30/18: \$11,251,713

Funding sources for entire project history:

Funding and projects identified in MTA’s 2015-2019 Capital Plan.

State/Local

- State/Local Funds, \$222,000,000, 2015-2019 MTA Capital Plan Amendment No. 3

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- At this funding level, the following phases could be initiated or completed in FY20-24: MTA capital funding for the 2020-2024 period has not yet been identified.

FY20-24 additional funding needed: \$93,677,829

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Platform level construction, including platform surface, lighting, and staircases.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$93,677,829	Jan 2020 - Dec 2024						

River-to-River Rail Resiliency Projects (R4)

- **Coordinating agency:** Long Island Rail Road
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

- **Scope:** This program will protect the East River Tunnels and the West Side Yard against flood hazards to ensure connectivity at New York Penn Station for Amtrak, LIRR, and NJ TRANSIT. The program consists of multiple elements, including West Side Yard perimeter protection and drainage improvements, hardening the Queens Portals of the East River Tunnels, resiliency improvements within the East River Tunnels, including the installation of permanent emergency generators, and waterproofing of the entrances and manhole/conduit points of entry to two ventilation facilities.
- **Justification:** This project will enhance weather resiliency.

Total project cost: \$108,100,000

- Total project cost derivation details not available.

Total expenditure as of 9/30/18: \$2,326,664

Funding sources for entire project history:

Funding and projects identified in MTA's 2015 - 2019 Capital Plan will extend into the 2020-2024 time frame.

Federal

- FTA Sandy Grant for West Side Yard, \$31,797,472
- FTA Sandy Grant for LIC Queens Portals, \$16,331,462
- FTA Sandy Grant for ERT System Protection, \$19,398,192. Note \$13,478,978 was flexed from the FTA to FRA on 4/26/18.

State/Local. LIRR expects the 25% match will be shared by LIRR & Amtrak.

- State/Local Funds for West Side Yard, \$10,599,157
- State/Local Funds for LIC Queens Portals, \$5,443,821
- State/Local Funds for ERT System Protection, \$6,466,063

FY20-24 Information

FY20-24 funding available (or likely to become available): \$108,100,000

- At this funding level, the following phases could be initiated or completed in FY20-24: Complete construction.

FY20-24 additional funding needed: \$0

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Not applicable. This project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$108,500,000	Start 2019						

Special Projects: Maryland DOT (Improvement)

BWI Thurgood Marshall Airport Station Improvements and 4th Track Project

- **Coordinating agency:** Maryland DOT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would add a fourth track to nine miles of the NEC between the Odenton MARC Station and the Halthorpe MARC Station. Additional improvements would include the construction of a new station and the reconfiguration of the platforms to allow boarding from all four tracks. The current three track layout only allows boarding at the two outside tracks. Additional funding is required for final design and construction.

Justification: The BWI Rail Station is the eighth busiest Amtrak station on the NEC and serves approximately 148 Amtrak and MARC trains each day. The existing track capacity and station configuration do not meet current and future needs. The project would alleviate current and future operational and capacity constraints by doubling the platform capacity at the station and adding nine miles of fourth track in this heavily traveled section of the NEC between Baltimore and Washington, DC.

Total project cost: \$544,000,000

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$544,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete final design and construction.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$19,000,000	2018 - 2019						
Construction	\$525,000,000	2020 -						

This project page was amended in July 2020 to align with Federal-State Partnership for State of Good Repair Grant Program applications. The updated project page can be found on page 152.

MARC Storage Improvements - Martin Airport

- **Coordinating agency:** Maryland DOT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will construct additional storage tracks and related infrastructure at the Martin State Airport Facility. MARC trains lack adequate storage along the Penn Line and often are required to run empty trains between Perryville and Baltimore, MD, using up track capacity and increasing operating costs.

Justification: The new facility will accommodate current operational needs and projected ridership growth on the MARC system.

Total project cost: \$16,465,000

- Total Project Cost is based on combined Project Phase costs. Preliminary Planning/Preliminary Engineering allocation of \$1.5 MM for Planning and Design, ROW acquisition allocation of \$2.2 MM for purchase of required private property in fee and associated easements, Construction Phase allocation of \$12.76 MM. Combined project cost is estimated using Standard MTA methodology for the current status at 85% design.

Total expenditure as of 9/30/18: \$1,459,470

Funding sources for entire project history:

- Federal
 - FTA Formula Grant, \$7,832,000, Additional funding spent in prior fiscal years.
- State/Local
 - State/Local Funds, \$8,633,000, Additional funding spent in prior fiscal years.

FY20-24 Information

FY20-24 funding available (or likely to become available): \$12,760,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Construction Phase (if ROW is acquired)

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$14,951,000	Jun 2018 - Dec 2019						

Special Projects: MBTA (Improvement)

Back Bay Station Platform Ventilation

- **Coordinating agency:** MBTA / MassDOT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Back Bay Station serves passengers from four MBTA commuter rail lines and Amtrak’s Regional, Acela, and Lake Shore Limited trains. The ventilation project will provide for the design and construction of an advanced ventilation system at the track and platform level. This will help remove diesel fumes from the tracks and platforms 1, 2 and 3. The air flows are currently being modeled and will render a preferred design solution.

Justification: Environmental, safety, state of good repair.

Total project cost: \$14,400,000

- Total Project Cost is based on a new conceptual estimate.

Total expenditure as of 9/30/18: \$2,329,164

Funding sources for entire project history:

Federal

- Other Federal Grant, \$5,000,000, Recently applied for TIGER grant

State/Local

- State/Local Funds, \$12,000,000, Available funds from original ductwork project
- State/Local Funds, \$4,000,000, Potentially available funds from original ductwork project

Other

- Other, \$5,000,000, Private commercial contribution toward upgrades

FY20-24 Information

FY20-24 funding available (or likely to become available): \$22,000,000

- At this funding level, the following phases could be initiated or completed in FY20-24: Design phases 2 and 3.

FY20-24 additional funding needed: \$21,000,000

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Complete phases 2 and 3.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Full Design and CPS	\$3,500,000	Oct 2018 - Dec 2019						
Construction	\$17,500,000	Jan 2020 - Dec 2020						

Boston South Station Expansion

- **Coordinating agency:** MBTA/MassDOT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: The purpose of the South Station Expansion project is to expand South Station Rail Terminal capacity and related layover capacity to meet current and anticipated future (2035) high-speed, intercity, and commuter rail service. State funding and a HSIPR grant are funding preliminary engineering and environmental review. The Federal Railroad Administration and MassDOT issued the Final Environmental Assessment and Section 4(f) Determination and the Finding of No Significant Impact (FONSI) for the South Station Expansion project on October 27, 2017. Additional funding is required for final design and construction.

Justification: The project will enable growth in passenger rail transportation; improve service reliability through updates to rail infrastructure and related layover capacity; improve the passenger capacity and experience of using South Station; promote city-building in a key area of Boston; and allow for Dorchester Avenue to be reopened for public use and enjoyment.

Total project cost: TBD

Total expenditure as of 9/30/18: \$30,627,766

Funding sources for entire project history:

- Federal
 - ARRA/HSIPR Grant, \$27,574,659, Federal Aid PARS #FRHSR0073
- State/Local
 - State/Local Funds, \$8,908,734, MassDOT Program #X124020

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** No funding is available for final design or construction to be initiated during the five-year time frame.

FY20-24 additional funding needed: Unknown. The MBTA is currently undertaking the Rail Vision study to identify strategies to transform the MBTA's existing Commuter Rail system to better support improved mobility and economic competitiveness in the Boston region. Through this process, the MBTA will identify up to eight alternative visions for the future system, several of which include the South Station Expansion Project. The MBTA's Rail Vision study will provide a thorough evaluation of the costs, ridership potential, and operational feasibility of these alternatives, that will inform the ultimate vision and infrastructure requirements needed for the future of the MBTA rail system.

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding became available, this project could begin final design.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	TBD	TBD						
Construction	TBD	TBD						

Boston South Station: Tower 1

- **Coordinating agency:** MBTA/MassDOT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: The complete redesign of Tower 1 Interlocking is part of the Boston South Station Expansion project. Tower 1 Interlocking is the railway “intersection” that provides operational flexibility for trains converging on South Station. It distributes each train to and from its platform track at the station. The goal of the Tower 1 Early Action project is to address current reliability and resiliency issues. Potential elements of the project may include: replacing the existing signal system with a state-of-the-art microprocessor system; addressing settling that has occurred at switch points; providing conduits to allow easier access to wires and cables; evaluating the ability to raise the tracks to remove an existing dip caused by ground settlement; addressing ways to make Tower 1 more resilient to effects of climate change (flooding, extreme rain/snow events, heat stress, etc.); upgrading existing communications and providing redundancy; and evaluating the ability to host longer trains by extending the platforms. The Federal Railroad Administration and MassDOT issued the Final Environmental Assessment and Section 4(f) Determination and the Finding of No Significant Impact (FONSI) for the South Station Expansion project on October 27, 2017.

Justification: Several issues now limit Tower 1’s efficiency, such as physical constraints, more demands for service, and outdated equipment. MassDOT has prioritized redesigning Tower 1 as an improvement with immediate benefits for operating the current and future system.

Total project cost: Cost information included in Boston South Station Expansion project.

Total expenditure as of 9/30/18: Cost information included in Boston South Station Expansion project.

Funding sources for entire project history:

Funding information included in Boston South Station Expansion project.

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** No funding is available for construction to be initiated during the five-year time frame.

FY20-24 additional funding needed: \$163,862,870 (assuming 2021 start). This cost estimate is based on 30% design and an updated estimate will be completed as part of future design submittals.

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding became available, this project could begin construction.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	See Boston South Station project.	Mar 2018 - Dec 2019						
Construction	\$163,862,870	Jun 2021 – Jun 2025						

MBTA Layover Facilities - Pawtucket Layover Facility

- **Coordinating agency:** MBTA / MassDOT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will implement improvements to the existing Pawtucket Layover Facility, where the MBTA stores and services some trains for the Providence/Stoughton Line. Enhancements will allow MBTA to perform fueling and some light equipment maintenance in Pawtucket, relieving pressure on other MBTA facilities. Phase 1, completed in 2013, included a 700 feet inspection pit. Phase 2 is to install layover fluid handling equipment and other associated equipment. It includes systems for dispensing of diesel fuel, sanding, anti-freeze, and lube oil, some electrical work, and fencing. Future project is Roof Shelter over existing pit from Phase 1.

Justification:

Total project cost: \$21,985,929

Total expenditure as of 9/30/18: \$1,809,519

Funding sources for entire project history:

- Federal
 - FTA Formula Grant, \$4,300,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$5,415,795

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Phase 2 would be completed and the Roof Shelter would have to be funded.

FY20-24 additional funding needed: \$17,685,929

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding became available, this project would complete construction.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$17,685,929	2018 - 2020						

MBTA Station Improvements - Ruggles Street Station

- **Coordinating agency:** MBTA
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will construct a new platform and make other improvements at Ruggles Station to enable all inbound and outbound MBTA trains to serve the station and to increase system capacity along this segment of the NEC. The project will improve accessibility by upgrading the existing elevators and adding one new elevator in the lower busway, and make interior and exterior repairs to bring the station to code. A TIGER grant partially funds this project, which is part of a larger initiative to modernize the Ruggles Station which requires additional funding for full construction.

Justification: Today, more than 30 percent of inbound trains bypass Ruggles Station, requiring more than 500 inbound passengers to transfer from MBTA Commuter Rail to the MBTA Orange Line at Back Bay then backtracking to Ruggles, commonly known as the “Back Bay Detour.” The new platform will provide service improvements for the MBTA Commuter Rail passengers and add operational flexibility for MBTA Commuter Rail and Amtrak. With full service to Ruggles Station, Commuter Rail ridership to the area surrounding the station will grow as station area employment and Boston region population grows.

Total project cost: \$36,500,000

Total expenditure as of 9/30/18: \$14,666,638

Funding sources for entire project history:

- Federal
 - Other Federal Grant, \$20,000,000, TIGER Grant
- State/Local
 - State/Local Funds, \$16,500,000, State/Bond funds

FY20-24 Information

FY20-24 funding available (or likely to become available): There is about \$600,000 in project contingency.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** There are some conceptual designs to address additional egress points to the Orange Line platform and emergency ramp to the busway ramp.

FY20-24 additional funding needed: Approximate \$10 million – to \$15 million to address the deteriorated commuter rail platforms and address code issues

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** A TIGER grant partially funds this project, which is part of a larger initiative to modernize the Ruggles Station which requires additional funding for full construction.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Feasibility/Conceptual Design	\$200,000	2020 - 2021						Ruggles Station will later undergo more construction under a modernization and improvement. RFP will be needed for the design.

MBTA Station Improvements - South Attleboro Station

- **Coordinating agency:** MBTA
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

Project Information

Scope: This project will improve South Attleboro Station including rehabilitation of stairways, pedestrian walkways, establishment of a new bus stop for RIPTA, accessible parking improvements, pedestrian crossings, and two side-by-side mini-high platforms. Emergency repairs currently are underway, but permanent improvements are needed.

Justification: This project is to ensure the safety of customers who use the station and will allow the station to remain open. The pedestrian bridge repairs across the tracks will ensure passengers can gain access to the inbound platform.

Total project cost: \$3,900,000

Total expenditure as of 9/30/18: \$11,319

Funding sources for entire project history:

Federal

- FTA Formula Grant, \$400,000

State/Local

- State/Local Funds, \$3,500,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$3,728,770

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Construction will be completed.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** This project will be completed. No additional funding is needed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$3,728,770	2018 - 2020						

Special Projects: Metro-North Railroad (Improvement)

Penn Station Access

- **Coordinating agency:** Metro-North Railroad
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

This project page was amended in July 2020 to align with Federal-State Partnership for State of Good Repair Grant Program applications. The updated project page can be found on page 153.

General Project Information

Scope: This project will open a new Metro-North Railroad link directly into Penn Station New York from the New Haven Line in Westchester and the State of Connecticut. Four new Metro-North stations will be built in the Bronx – near Co-op City, Morris Park, Parkchester/Van Nest, and Hunts Point. The project also includes upgrading the power and signal systems along the Hell Gate Line; adding new interlockings and tracks, and modifying existing ones and curves on a portion of the line; modifying existing over-the-street railroad bridges as necessary; and reinforcing the Bronx River Bridge.

Justification: Penn Station Access will add resiliency and redundancy to the existing Metro-North New Haven Line service to Manhattan, providing greater mobility, access, connectivity, and travel times savings for existing and new Metro-North customers and helping to address Grand Central Terminal (GCT) capacity issues. The project will substantially reduce travel times between Manhattan’s West Side and areas within Metro-North’s East-of-Hudson service territory; provide a new one-seat ride from NHL communities to jobs, shopping and other destinations on Manhattan’s West Side; and improve regional connectivity and mobility by completing direct connections at Penn Station among all of the New York area’s regional and intercity rail carriers—Metro-North, LIRR, New Jersey Transit, and Amtrak. Furthermore, the four new stations will increase access from East Bronx communities to employers on Manhattan’s West Side and along I-95 in Westchester and the State of Connecticut and access to East Bronx employers from the same areas. The benefits above will be cost-effective by largely using existing infrastructure.

Approved Project Funding: \$695,000,000

Total expenditure as of 9/30/18: \$6,419,737

Funding sources for entire project history:

- Federal
 - Other Federal Grant, \$450,000,000, CMAQ
- State/Local
 - State/Local Funds, \$245,000,000, MTA 2015-2019 Capital Program

FY20-24 Information

Project in the early stages of development. Information on funding and proposed schedule to be established at a later date.

FY20-24 funding available (or likely to become available): TBD

- At this funding level, the following phases could be initiated or completed in FY20-24: TBD

FY20-24 additional funding needed: TBD

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): TBD

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
TBD	TBD	TBD						

Special Projects: MTA Capital Construction (Improvement)

Harold Interlocking

- **Coordinating agency:** MTA Capital Construction
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will construct new conflict-free train routes through Harold Interlocking, the busiest switch point on the NEC. Located in Queens, NY, this interlocking sorts Amtrak, LIRR, and NJ TRANSIT trains as they travel north and east of Penn Station or access Sunnyside Yard for service and storage.

Justification: The project, which utilized HSIPR funds, will greatly improve reliability, on-time performance, and travel time for all rail services operating through the Harold Interlocking.

Total project cost: \$763,870,448

- Supporting total project cost information not yet received

Total expenditure as of 9/30/18: \$397,807,070

Funding sources for entire project history:

Federal

- ARRA/HSIPR Grant, \$294,781,579

State/Local

- State/Local Funds, \$469,088,869, Local match

FY20-24 Information

FY20-24 funding available (or likely to become available): \$440,154,772

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Continue construction.

FY20-24 additional funding needed: \$0

- With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages): Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$763,870,448	End Jul 2025						Schedule under review pending Amtrak staffing commitments

Special Projects: NJ TRANSIT (Major Backlog)

Gateway: Portal North Bridge

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak, Gateway Program Development Corporation, Port Authority of NY & NJ
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would replace the century-old swing-span Portal Bridge over the Hackensack River with a new two-track, fixed-span bridge, allowing a modest expansion of capacity. Amtrak and NJ TRANSIT have completed final design and environmental review. The project has been accepted by the FTA into project development for its Capital Investment Grant - Core Capacity grant program and is pending review by FTA. Once complete, the new bridge will save upwards of \$1.3 million annually in reduced maintenance and operating costs due to the replacement of a swing bridge with a fixed bridge.

Justification: The existing Portal Bridge is a major bottleneck and source of delay of train traffic. It has limited vertical clearance and must routinely be opened for maritime traffic. The bridge is functionally obsolete and experiences frequent mechanical failures, resulting in a single point-of-failure on the NEC and substantial delays. The risk of continued and increasing unplanned outages due to malfunctioning of the obsolete bridge cannot be mitigated by maintenance.

Total project cost: \$1,787,000,000

- The estimated cost of the Portal North Bridge (PNB) Project at \$1.787 billion is based upon a Spring 2018 re-evaluation of all project engineering, construction and vehicle procurement tasks. The Project is at a 100% level of design completion as the design phase was generally completed in 2013.

Total expenditure as of 9/30/18: \$1,666,005

Funding sources for entire project history:

The below is consistent with information in the FTA Section 5309 Capital Investment Grant Program Core Capacity Submission in June 2018.

Federal

- Other Federal Grant, \$81,591,373, CMAQ funding and FHWA Congestion Mitigation for Construction Phase 2
- Section 5309 Core Capacity, \$811,124,853, Requested for Construction Phase 2

State/Local

- State/Local Funds, \$20,397,843, NJ Transit contribution for CMAQ funding for Construction Phase 2
- State/Local Funds, \$208,439,753, NJ Transit - TTF for Construction Phase 2
- State/Local Funds, \$499,399,322, NJEDA Bond Proceeds for Construction Phase 2

Amtrak

- Non-BCC Amtrak Funds, \$21,000,000 for Construction Phase 2 toward public transit share
- Other FRA Grant/Non-BCC Amtrak Funds, \$145,000,000 for Construction Phase 2 toward intercity share

Gateway: Portal North Bridge continued on the next page >>

Gateway: Portal North Bridge continued

FY20-24 Information

FY20-24 funding available (or likely to become available): \$1,787,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** If NJ TRANSIT is able to enter into an FFGA with the FTA by FFY20, the entire “Construction Phase” scope of the Portal North Bridge Project will be undertaken using the dollars provided from the Project’s multiple funding sources. This would include all Hard Cost and Soft Cost expenditures.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** The Project’s most up-to-date Financial Plan is currently under review by the FTA. There is a tentative internal target to enter into an FFGA by FFY20. As a consequence, no additional funding will be required other than the amount that has been identified above covering Construction Phase - 2.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction Phase 2	\$1,787,000,000	4th Qrt. CY 2019 - 4th Qrt. CY 2025						

Special Projects: NJ TRANSIT (Improvement)

Delco Lead Project

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will construct a safe haven storage facility on the NEC south of the New Brunswick station to protect rail rolling stock against damage resulting from a storm surge. A service and inspection facility that is part of the project will facilitate the rapid return of equipment to service following a storm event. This project is supported by FTA Emergency Relief Program funds. Phase I of the Delco Lead Project is the County Yard project which will expand the existing County Storage Yard from its current footprint to include an unused part of an adjacent rail freight yard. The Delco Lead project, with County Yard improvements, will provide safe storage capacity for up to 444 rail cars in the event of flooding at other locations.

Justification: The project will provide resilient storage for rail cars and service and inspection (S&I) capabilities to facilitate the rapid return to service of stored rolling stock equipment following an extreme weather event. The S&I Facility will be utilized for daily inspections and required equipment service at County Yard. Furthermore, the Delco Lead tracks would potentially be used in the future in conjunction with the proposed Mid-Line Loop and North Brunswick Station projects.

Total project cost: \$245,992,000

- The project is currently at a 60% level of design completion, but will soon be at 90%. The estimate was prepared by the Engineer-of-Record, Jacobs Engineering Group, during its preparation of the design plans in 2016.

Total expenditure as of 9/30/18: \$14,715,000

Funding sources for entire project history:

Federal

- FTA Formula Grant, \$184,493,910, Multiple FTA Grants (7)

State/Local

- State/Local Funds, \$63,551,000, State of New Jersey’s Transportation Trust Fund (TTF)
- State/Local Funds, \$30,501,000, State of New Jersey’s Transportation Trust Fund (TTF)

FY20-24 Information

FY20-24 funding available (or likely to become available): \$278,545,910

- **At this funding level, the following phases could be initiated or completed in FY20-24:** As the project is generally fully funded with a mixture of state and federal funding, and as the project is tentatively scheduled to be completed by the end of December 2023, the entire “Construction Phase” scope will be completed within the 5-year time frame covering FY20-24.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** As no additional funding will be required given that the project is generally fully funded, and as the project is tentatively scheduled to be completed by the end of December 2023, the entire “Construction Phase” scope will be completed within the 5-year time frame covering FY20-24.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$267,284,910	Jul 2019 - May 2023						

Edison Station

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project would relocate an existing freight turn-out switch to a location north of Plainfield Avenue by Edison Station and then extend the existing outbound high-level platform by 425 feet for a total platform length of approximately 1,020 feet. Additional funding is required for design and construction.

Justification: The extended platform will result in smoother passenger boarding and deboarding as well as shorter dwell times.

Total project cost: \$7,072,000

- Due to the unavailability of funding, the project currently remains at a 0% - 5% level of design completion. The 2013 cost estimate was prepared by NJ TRANSIT’s Project Management staff as a ball-park estimate, and is based upon the scope of similar civil and railroad systems construction projects.

Total expenditure as of 9/30/18: \$174,209

Funding sources for entire project history:

State/Local

- State/Local Funds, \$395,000, State of New Jersey’s Transportation Trust Fund (TTF)

FY20-24 Information

FY20-24 funding available (or likely to become available): \$395,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Only \$395K has thus far been made available. However, \$167k has already been expended to date, leaving a balance of funding at \$228k. This sum of funding would only allow for a very limited advancement of the design of the Project.

FY20-24 additional funding needed: \$6,677,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** With additional funding made available it is conceivable that the Preliminary Design Phase, the Final Design Phase and the Construction Phase could be completed within the FY20-24 time frame.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$750,000	2019 - 2020						Dates and cost are TBD
Final Design	\$1,000,000	2020 - 2022						Dates and cost are TBD
Construction	\$5,072,000	2022 - 2024						Dates and cost are TBD

Elizabeth Station

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project would reconstruct two side high-level concrete passenger platforms and two station buildings including new elevators, stairs, ticketing offices, operational office spaces, and retail spaces. Additional funding is required for design and construction.

Justification: NJ TRANSIT plans to reconstruct the Elizabeth, NJ commuter rail station in its entirety with needed upgrades to bring the station up to current ADA compliance standards. The station activities will also accommodate a proposed future fifth track along the NEC planned to be built by Amtrak. The upgraded rail station will also provide longer platforms for NJ TRANSIT trains.

Total project cost: \$71,000,000

- This project is being advanced under a “Design/Build” concept. A 30% level design package was completed by NJ TRANSIT’s internal staff in 2015. The contractor/engineering team will complete the design as well as construct the project.

Total expenditure as of 9/30/18: \$2,953,000

Funding sources for entire project history:

Federal

- FTA Formula Grant, \$9,915,000, FTA Grant Nos. NJ-90-0023 and NJ-2017-020-00

State/Local

- State/Local Funds, \$1,861,000, State of New Jersey’s Transportation Trust Fund (TTF)

FY20-24 Information

FY20-24 funding available (or likely to become available): \$11,776,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** The current amount of funding available to the project will allow for the completion of the design phase activities.

FY20-24 additional funding needed: \$59,224,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** The project is currently scheduled to complete all “Construction Phase” activities by October 2022. Therefore, 100% of the project will have been completed within the FY20-24 time frame, or by June 30, 2024.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
100% Final Design	\$7,000,000	Jun 2018 - Dec 2022						Design/Build Contract
Construction	\$57,090,000	Oct 2018 - Dec 2022						Design/Build Contract

Gateway: NJ TRANSIT Storage Yard

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak, Gateway Program Development Corporation, Port Authority of NY & NJ
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would locate a new rail yard in New Jersey to support capacity and service increase goals of the Gateway Program. Additional funding is needed for design and construction.

Justification: A rail yard in New Jersey would provide the layover storage and maintenance facilities necessary to optimize the new capacity enabled by track and station expansion projects associated with the Gateway Program. Many of the existing NJ TRANSIT train storage or maintenance facilities have constraints that preclude further expansion and/or are located in outlying areas. However, the greatest need for increased train storage and maintenance capacity is in close proximity to terminal stations and major hubs such as Penn Station New York (PSNY), Hoboken, Secaucus, and Newark Penn Station.

Total project cost: TBD

- The project is in early stages of development, full cost information is not yet available.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

State/Local

- State/Local Funds, \$399,000, State of New Jersey’s Transportation Trust Fund (TTF)

FY20-24 Information

FY20-24 funding available (or likely to become available): \$399,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** A NJT planning study to evaluate needs and potential locations will be completed in FY 20. Pending outcome of the planning study, ROW preservation/acquisition could occur in the FY 23-24 time frame.

FY20-24 additional funding needed: TBD, pending outcome of planning study

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** PE/NEPA, Final Design, Full ROW acquisition

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Planning/Feasibility	\$399,000	2019 - 2020						
ROW	TBD	2023 - 2024						

Hunter Flyover

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would construct an elevated viaduct structure to allow for NJ TRANSIT’s Newark-bound Raritan Valley Line trains to cross over and above the NEC tracks to merge with the NEC’s eastbound local track in order to continue their movement towards Newark. Additional funding is required for design and construction.

Justification: Currently, Newark-bound Raritan Valley Line trains must travel along the westbound local track or cross the NEC at grade to reach the eastbound local track. NJ TRANSIT identified the need for a flyover that would eliminate at-grade crossings, thereby reducing conflict between trains, increasing capacity for NJ TRANSIT and Amtrak, and enabling NJ TRANSIT to improve Raritan Line service.

Total project cost: \$257,000,000

- Due to the unavailability of funding, the project currently remains at a 0% level of design completion. The 2012 cost estimate was prepared by NJ TRANSIT’s Project Management staff as a ball-park estimate, and is based upon the scope of similar civil and railroad systems construction projects.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

- State/Local
 - State/Local Funds, \$2,000,000, State of New Jersey’s Transportation Trust Fund (TTF)

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** This project remains on-hold due to the unavailability of funds.

FY20-24 additional funding needed: Unknown

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** With additional funding made available it is conceivable that the Preliminary Design Phase, the Final Design Phase and, a limited portion of the Construction Phase could be completed within the FY20-24 time frame.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Feasibility/Conceptual Design	\$1,000,000	TBD						Dates and cost are TBD
PE/NEPA	\$5,000,000	TBD						Dates and cost are TBD
Final Design	\$10,000,000	TBD						Dates and cost are TBD
Construction	\$241,000,000	TBD						Dates and cost are TBD

Jersey Avenue Station

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project would reconstruct the existing station including new eastbound and westbound platforms. These improvements would be complemented by the addition of a new commuter parking lot that would be connected to the station via a pedestrian overpass. This project is being coordinated with the construction of NJ TRANSIT’s Delco Lead Project. Additional funding is required for design and construction.

Justification: The purpose of the Jersey Avenue Station improvements is to make this station ADA accessible by installing new high-level platforms and elevators.

Total project cost: \$75,000,000

- Due to the unavailability of funding, the project currently remains at a 0% level of design completion. The 2012 cost estimate was prepared by NJ TRANSIT’s Project Management staff as a ball-park estimate, and is based upon the scope of similar civil and railroad systems construction projects.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** This Project is on hold due to the unavailability of funding.

FY20-24 additional funding needed: \$75,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** With additional funding made available it is conceivable that the Preliminary Design Phase, the Final Design Phase could be completed, but only a limited portion of the Construction Phase could be completed within the FY20-24 time frame.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Feasibility/Conceptual Design	\$1,000,000	TBD						Dates and cost are TBD
PE/NEPA	\$3,000,000	TBD						Dates and cost are TBD
Final Design	\$7,000,000	TBD						Dates and cost are TBD
Construction	\$64,000,000	TBD						Dates and cost are TBD

Metuchen Station

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project would extend the existing outbound high-level platform at Metuchen Station by 360 feet. Additional funding is required for design and construction.

Justification: The extended platform will result in smoother passenger boarding and deboarding as well as shorter dwell times.

Total project cost: \$70,000,000

- Due to the unavailability of funding, the project currently remains at a 0% level of design completion. The 2012 cost estimate was prepared by NJ TRANSIT's Project Management staff as a ball-park estimate, and is based upon the scope of similar civil and railroad systems construction projects.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** This Project is on hold due to the unavailability of funding

FY20-24 additional funding needed: \$70,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** With additional funding made available it is conceivable that the Preliminary Design Phase, the Final Design Phase could be completed, but only a limited portion of the Construction Phase could be completed within the FY20-24 time frame.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$1,500,000	TBD						Dates and cost are TBD
Final Design	\$5,000,000	TBD						Dates and cost are TBD
Construction	\$63,000,000	TBD						Dates and cost are TBD

Mid-Line Loop

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would construct a new above-grade connection between existing and planned train storage facilities and the NY-bound local track of the NEC. The crossover would eliminate at-grade movements that create conflicts between commuter and intercity trains. Preliminary engineering is currently underway. Additional funding is required for final design and construction.

Justification: The Mid-line Loop will eliminate at-grade movements that create conflicts between commuter and intercity trains. In doing so, this new infrastructure will open up capacity for all users while improving reliability for NJ TRANSIT services that today must wait for a slot to open before they can cross tracks to begin New York-bound service. The capacity created will help enable the New Jersey High-Speed Rail Program’s goal of 160-mph speeds on Acela, as well as support future express service patterns planned by NJ TRANSIT.

Total project cost: \$350,000,000

- Due to the unavailability of funding, the project is currently at a 0% level of design completion. The 2012 cost estimate was prepared by NJ TRANSIT’s Project Management staff as a ball-park estimate, and is based upon the scope of similar civil and railroad systems construction projects.

Total expenditure as of 9/30/18: \$5,461,000

Funding sources for entire project history:

State/Local

- State/Local Funds, \$5,375,000, State of New Jersey’s Transportation Trust Fund (TTF)
- Other State/Local Funds, \$111,000, NJ TRANSIT Operating Funds

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** The Preliminary 30% Design activities on the project were terminated in 2014. If funding is eventually allocated to the project the Preliminary Engineering and Final Design activities will commence again.

FY20-24 additional funding needed: \$344,514,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** With the current cessation of all activities on the project, a schedule has not been prepared that would project the completion of either the Design or the Construction Phase. However, assuming that some funding could become available, it is conceivable that the Design Phase could be completed and, a portion of the Construction Phase over the 5-year FY20-24 period.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$44,539,000	2019 - 2021						Dates and cost are TBD
Construction	\$299,975,000	2022 - 2025						Dates and cost are TBD

New Brunswick Station

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

Project Information

Scope: This project would extend the current eastbound platform at New Brunswick Station by approximately 230 feet. Additional funding is required to design and construct an extension of the westbound platform and upgrade customer amenities at the station. The station is slated to undergo significant rehabilitation of its exterior brick façade; installation of new lighting, windows, HVAC system, and escalator; and painting.

Justification: This major commuter rail station on NJ TRANSIT’s NEC Line is in need of repairs in order to lengthen the useful life of the facility and to contain the cost to maintain the station.

Total project cost: \$20,303,000

- This is a multi-tiered project consisting of 8 different components. Each component was cost estimated by NJ TRANSIT staff or by a Task Order Consultant (TOC) under contract to NJ TRANSIT. And, each has a separate start and completion date for each phase of the Project; New Elevator Tower; Pedestrian Walkway Overpass; Elevator Rehabilitation; Escalator Replacement; Escalator Rehabilitation; NEC Eastbound Extension; Station Repairs and, Soft Costs. The total estimated cost is in 2017 dollars.

Total expenditure as of 9/30/18: \$4,486,000

Funding sources for entire project history:

- State/Local
 - State/Local Funds, \$20,303,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$6,790,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** It is estimated that only about 33% of the required Construction Phase activities could be started, given the current funding available for the project, within the 5-year time frame covering FY20-24.

FY20-24 additional funding needed: \$13,513,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** The 8 components of the Project are all scheduled to be completed between February 2019 and March 2022. Therefore, all of the required Construction Phase activities could commence and be completed within the 5-year time frame covering FY20-24.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$17,703,000	Sep 2010 - Mar 2022						

NJ TRANSITGRID

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will create a microgrid power generation and distribution system as a backup to the regional power network, allowing transit systems to function during storms or other times when the centralized power grid is compromised. NJ TRANSITGRID will incorporate renewable energy, distribution generation, and other technologies to provide resilient power to key NJ TRANSIT stations, maintenance facilities, bus garages, and other buildings. The project will also provide resilient electric traction power to NJ TRANSIT trains on critical corridors, including portions of the NEC, to continue to operate even when the traditional power grid fails.

Justification: Superstorm Sandy highlighted the need for infrastructure improvements to increase the resilience of the region’s transit system to withstand another major climatological event. NJ TRANSIT partnered with the U.S. Department of Energy and other agencies to evaluate opportunities to develop an independent power generating system to permit the operation of core train services in the event of power outages. This collaboration resulted in the NJ TRANSIT GRID Project with the intent on constructing a “Microgrid Electric Power Generating System” that will provide a resilient power source to energize portions of the NEC, NJ TRANSIT’s Morris & Essex rail line, and the Hudson-Bergen Light Rail. The completion of this project will also provide resilient power at selected rail stations and bus maintenance facilities.

Total project cost: \$577,353,000

- The project is currently at a 20% level of design completion. The 2016 cost estimate was prepared by the Engineers-of-Record, Jacobs Engineering Group and AECOM.

Total expenditure as of 9/30/18: \$23,003,000

Funding sources for entire project history:

Federal

- FTA Formula Grant, \$409,764,814, Two FTA Section 5324 Grants

State/Local

- State/Local Funds, \$100,252,000, State of New Jersey’s Transportation Trust Fund (TTF)

Other

- Other, \$67,336,186

FY20-24 Information

FY20-24 funding available (or likely to become available): \$45,374,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Of the \$45.3M currently available, approximately \$21.7M has been expended to date, leaving a current balance of \$21.6M. This remaining balance will be used to continue funding the design phase activities which includes the completion of the DEIS, permit acquisition and other related design activities.

FY20-24 additional funding needed: \$531,979,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** The project is currently scheduled to complete all “Construction Phase” activities by December 2026. Therefore, it is estimated that approximately 75% of the project will have been completed by June 30, 2024. This would require, at a minimum, approximately \$400M to fund this portion of the Construction Phase. However, as contracts must be executed with the full amount of funding being available, the entire \$532M would be required to be allocated to the Project.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$549,806,000	May 2019 - Oct 2026						

North Elizabeth Station

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project would rehabilitate the existing high-level concrete platform and replace the tactile warning edge material on both the eastbound and westbound platforms at North Elizabeth Station. Additional funding is required for construction.

Justification: An inspection indicated that there is advanced deterioration of the expansion joints, rub rail, and the concrete deck on both the eastbound and westbound high-level platforms.

Total project cost: \$2,400,000

- The project is currently at a 100% level of design completion. The 2018 cost estimate was prepared by NJ TRANSIT's Project Management staff.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

State/Local

- State/Local Funds, \$2,400,000, State of New Jersey's Transportation Trust Fund (TTF)

FY20-24 Information

FY20-24 funding available (or likely to become available): \$350,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** With funding finally being made available the entire Construction Phase activities are expected to be completed by July 2020.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** No additional funding is anticipated to be needed to complete this Project.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$2,150,000	Aug 2018 - Jul 2020						

Penn Station New York - NJ TRANSIT Projects

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would make much needed improvements to Penn Station New York. Among the projects being advanced are extending the existing Central Concourse to allow for more vertical access to existing train platforms, improving the existing Hilton Corridor so it better connects between vertical access points to platforms, and improving signage and wayfinding to facilitate the safe and efficient movement of passengers and visitors. While some funding is programmed for this work, additional funding is needed to make all the necessary improvements.

Justification: Construction of the multiple planned improvement projects at Penn Station New York will primarily be targeted on improving commuter safety and convenience. These projects will address serious vertical access and egress issues that currently exist between platforms and the various other levels of the station in an effort to increase capacity and improve the passenger experience.

Total project cost: \$75,000,000

- The repairs proposed to be undertaken for Penn Station New York currently include multiple projects, including Refurbishing and Expanding the Hilton Corridor; a Unified Signage Program, and; Relocation of the 7th Avenue Artwork. As each project has a different start and completion time, the design completion levels range from 0% to 100%. The 2018 cost estimate was prepared by NJ TRANSIT's Project Management staff.

Total expenditure as of 9/30/18: \$24,000

Funding sources for entire project history:

- Federal
 - FTA Formula Grant, \$11,018,000, Federal Transit Administration

FY20-24 Information

FY20-24 funding available (or likely to become available): \$11,018,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** The current amount of available funding will partially allow for a continuation of the Design Phase activities into the FY20-24 time frame.

FY20-24 additional funding needed: \$63,982,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** With additional funding being made available it is assumed that the entire Construction Phase activities could be completed within the FY20-24 time frame.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$63,982,000	Sep 2018 - Jul 2022						Dates and cost are TBD

Princeton Junction Station

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

Project Information

Scope: This project will install a tactile edge panel at each of the three platforms where passengers load onto trains bound for Trenton and Newark as well as the local Dinky to Princeton. Interim repairs to the platforms will also be undertaken as needed.

Justification: An inspection indicated that there is advanced deterioration of the tactile warning surface in addition to the three platforms themselves. This work will bring the station up to a state of good repair for the benefit of the stations users.

Total project cost: \$747,000

- The project is currently at a 100% level of design completion. The 2018 cost estimate was prepared by NJ TRANSIT’s Project Management staff.

Total expenditure as of 9/30/18: \$494,000

Funding sources for entire project history:

State/Local

- State/Local Funds, \$350,000, State of New Jersey’s Transportation Trust Fund (TTF)

FY20-24 Information

FY20-24 funding available (or likely to become available): \$350,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Approximately 50% of the Construction Phase activities could be completed with the FY20-24 time frame.

FY20-24 additional funding needed: \$397,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** With funding finally being made available the entire Construction Phase activities are expected to be completed by February 2020.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$647,000	Apr 2019 - Dec 2019						

Special Projects: Pennsylvania DOT

Harrisburg Line Automatic Block Signal System – Park to Paoli

- **Coordinating agency:** Pennsylvania DOT
- **Partner agency:** Amtrak, SEPTA, Federal Railroad Administration
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Recognizing that the signal system on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Regional Rail Line is functionally obsolete, PennDOT, in coordination with Federal Railroad Administration, SEPTA and Amtrak, are proposing to upgrade the signal system. Currently, the Keystone Corridor has ABS signals between Harrisburg and Park interlocking. Between Park Interlocking and Philadelphia, train traffic is controlled with single direction wayside signals. This project is to design and construct / install new automatic Block Signal System between Park Interlocking and Paoli Interlocking. The ABS signal system is already designed between Paoli Interlocking and Philadelphia. PennDOT and Amtrak are coordinating the installation of the signals between Paoli and Philadelphia.

Justification: This project is a state of good repair initiative and safety of the system. Train traveling in the opposite direction must have manual written orders for the movement. The automatic block control will enhance the safety on the corridor.

Total project cost: \$10,000,000

- The cost estimate was developed based on conceptual estimates in 2018.

Total expenditure as of 9/30/18: Not yet received

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$800,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Design can be completed in FY 2020-2024.

FY20-24 additional funding needed: Not identified at this time.

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is identified and Amtrak support is available, this project can be completed in FY 2020-2024.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$800,000	Oct 2018 - Dec 2019						
Construction	\$9,200,000	Jan 2020 - Dec 2021						

Harrisburg Line Interlocking Improvements: Bailey

- **Coordinating agency:** Pennsylvania DOT
- **Partner agency:** Amtrak, SEPTA
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Recognizing that the interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Regional Rail Line have far exceeded their useful life and are functionally obsolete, PennDOT, in coordination with SEPTA and Amtrak, advanced a comprehensive conceptual design effort to evaluate and reconfigure the system of interlockings along the Line. The purpose of the conceptual design was to determine how to address the infrastructure condition and functionality to achieve both a state of good repair and optimal service performance on the highly utilized segment of the Keystone Corridor. Through an advanced conceptual design effort, which was last updated in 2015, PennDOT, Amtrak and SEPTA agreed that the following infrastructure replacements or reconfiguration would best support current and future growth along the corridor, as described below. Following the conceptual design phase, PennDOT led preliminary engineering of all interlockings and final design of Zoo Interlocking in coordination with Amtrak and SEPTA. Additional funding is needed to advance these critical infrastructure projects to construction. Bailey Interlocking: New interlocking to replace Thorn and Caln Interlockings. Preliminary engineering complete.

Justification: This project is a state of good repair initiative that will improve operational efficiencies by replacing or reconfiguring the functionally obsolete interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Line. Having far exceeded their useful, the interlockings currently in operation are outdated, which prohibits the most efficient and timely use of the interlocking and challenges reliability. The current interlocking configuration is no longer able to effectively support the ridership demands on the Line. SEPTA’s Paoli-Thorndale Line is the highest ridership line on SEPTA’s Regional Rail Network. Ridership has continually increased and trains are frequently operating at capacity or over capacity. To support existing and future ridership growth, SEPTA must enhance service. SEPTA’s ability to enhance or alter service is stymied by the limitations of the existing interlockings. In order to address the ridership demand faced by both SEPTA and Amtrak, new interlockings are needed

Total project cost: \$53,500,000

- The cost estimate was developed based on the 30% design submission submitted in 2014. The budget amount is subject to change based on timing and Amtrak’s final budget for support costs

Total expenditure as of 9/30/18: Not yet received

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): Not identified at this time.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Final Design.

FY20-24 additional funding needed: \$53,500,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is identified and Amtrak support is available, final design can be initiated in FY 2020-2024.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$8,800,000	Oct 2024 - Dec 2026						
Construction	\$44,700,000	Apr 2027 - Dec 2030						

Harrisburg Line Interlocking Improvements: Paoli

- **Coordinating agency:** Pennsylvania DOT
- **Partner agency:** Amtrak, SEPTA
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Recognizing that the interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Regional Rail Line have far exceeded their useful life and are functionally obsolete, PennDOT, in coordination with SEPTA and Amtrak, advanced a comprehensive conceptual design effort to evaluate and reconfigure the system of interlockings along the Line. The purpose of the conceptual design was to determine how to address the infrastructure condition and functionality to achieve both a state of good repair and optimal service performance on the highly utilized segment of the Keystone Corridor. Through an advanced conceptual design effort, which was last updated in 2015, PennDOT, Amtrak and SEPTA agreed that the following infrastructure replacements or reconfiguration would best support current and future growth along the corridor, as described below. Following the conceptual design phase, PennDOT led preliminary engineering of all interlockings in coordination with Amtrak and SEPTA. Additional funding is needed to advance these critical infrastructure projects to construction. Paoli Interlocking: Modernize and reconfigure. Preliminary engineering complete.

Justification: This project is a state of good repair initiative that will improve operational efficiencies by replacing or reconfiguring the functionally obsolete interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Line. Having far exceeded their useful, the interlockings currently in operation are outdated, which prohibits the most efficient and timely use of the interlocking and challenges reliability. The current interlocking configuration is no longer able to effectively support the ridership demands on the Line. SEPTA’s Paoli-Thorndale Line is the highest ridership line on SEPTA’s Regional Rail Network. Ridership has continually increased and trains are frequently operating at capacity or over capacity. To support existing and future ridership growth, SEPTA must enhance service. SEPTA’s ability to enhance or alter service is stymied by the limitations of the existing interlockings. In order to address the ridership demand faced by both SEPTA and Amtrak, new interlockings are needed

Total project cost: \$82,900,000

- The cost estimate was developed based on the 30% design submission submitted in 2014. The budget amount is subject to change based on timing and Amtrak’s final budget for support costs

Total expenditure as of 9/30/18: Not available

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): Not identified at this time.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Final design

FY20-24 additional funding needed: \$82,900,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is identified and Amtrak support is available, final design can be initiated in FY 2020-2024.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$13,800,000	2024 - 2026						
Construction	\$69,100,000	2027 - 2030						

Harrisburg Line Interlocking Improvements: Potts

- **Coordinating agency:** Pennsylvania DOT
- **Partner agency:** Amtrak, SEPTA
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Recognizing that the interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Regional Rail Line have far exceeded their useful life and are functionally obsolete, PennDOT, in coordination with SEPTA and Amtrak, advanced a comprehensive conceptual design effort to evaluate and reconfigure the system of interlockings along the Line. The purpose of the conceptual design was to determine how to address the infrastructure condition and functionality to achieve both a state of good repair and optimal service performance on the highly utilized segment of the Keystone Corridor. Through an advanced conceptual design effort, which was last updated in 2015, PennDOT, Amtrak and SEPTA agreed that the following infrastructure replacements or reconfiguration would best support current and future growth along the corridor, as described below. Following the conceptual design phase, PennDOT led preliminary engineering of all interlockings and final design of Zoo Interlocking in coordination with Amtrak and SEPTA. Additional funding is needed to advance these critical infrastructure projects to construction. Potts Interlocking: New interlocking. Preliminary engineering complete.

Justification: This project is a state of good repair initiative that will improve operational efficiencies by replacing or reconfiguring the functionally obsolete interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Line. Having far exceeded their useful, the interlockings currently in operation are outdated, which prohibits the most efficient and timely use of the interlocking and challenges reliability. The current interlocking configuration is no longer able to effectively support the ridership demands on the Line. SEPTA’s Paoli-Thorndale Line is the highest ridership line on SEPTA’s Regional Rail Network. Ridership has continually increased and trains are frequently operating at capacity or over capacity. To support existing and future ridership growth, SEPTA must enhance service. SEPTA’s ability to enhance or alter service is stymied by the limitations of the existing interlockings. In order to address the ridership demand faced by both SEPTA and Amtrak, new interlockings are needed

Total project cost: \$28,000,000

- The cost estimate was developed based on the 30% design submission submitted in 2014. The budget amount is subject to change based on timing and Amtrak’s final budget for support costs

Total expenditure as of 9/30/18: Not available

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): Not identified at this time.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Final design

FY20-24 additional funding needed: \$28,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is identified and Amtrak support is available, final design can be completed in FY 2020-2024.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$4,600,000	Oct 2023 - Jun 2025						
Construction	\$23,400,000	Aug 2025 - 2028						

Harrisburg Line Interlocking Improvements: Villa / Nova

- **Coordinating agency:** Pennsylvania DOT
- **Partner agency:** Amtrak, SEPTA
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Recognizing that the interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Regional Rail Line have far exceeded their useful life and are functionally obsolete, PennDOT, in coordination with SEPTA and Amtrak, advanced a comprehensive conceptual design effort to evaluate and reconfigure the system of interlockings along the Line. The purpose of the conceptual design was to determine how to address the infrastructure condition and functionality to achieve both a state of good repair and optimal service performance on the highly utilized segment of the Keystone Corridor. Through an advanced conceptual design effort, which was last updated in 2015, PennDOT, Amtrak and SEPTA agreed that the following infrastructure replacements or reconfiguration would best support current and future growth along the corridor, as described below. Following the conceptual design phase, PennDOT led preliminary engineering of all interlockings in coordination with Amtrak and SEPTA. Additional funding is needed to advance these critical infrastructure projects to construction. Villa / Nova Interlockings: Build new split Interlocking that replaces the existing Bryn Mawr Interlocking. Preliminary engineering complete.

Justification: This project is a state of good repair initiative that will improve operational efficiencies by replacing or reconfiguring the functionally obsolete interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Line. Having far exceeded their useful, the interlockings currently in operation are outdated, which prohibits the most efficient and timely use of the interlocking and challenges reliability. The current interlocking configuration is no longer able to effectively support the ridership demands on the Line. SEPTA’s Paoli-Thorndale Line is the highest ridership line on SEPTA’s Regional Rail Network. Ridership has continually increased and trains are frequently operating at capacity or over capacity. To support existing and future ridership growth, SEPTA must enhance service. SEPTA’s ability to enhance or alter service is stymied by the limitations of the existing interlockings. In order to address the ridership demand faced by both SEPTA and Amtrak, new interlockings are needed

Total project cost: \$98,600,000

- The cost estimate was developed based on the 30% design submission submitted in 2014. The budget amount is subject to change based on timing and Amtrak’s final budget for support costs

Total expenditure as of 9/30/18: Not yet received

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): Not identified at this time.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Final Design

FY20-24 additional funding needed: \$98,600,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is identified and Amtrak support is available, final design can be completed and construction can begin in FY 2020-2024.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$16,400,000	Jan 2022 - Dec 2023						
Construction	\$82,200,000	Apr 2024 - Dec 2028						

Harrisburg Line Interlocking Improvements: Wynnefield

- **Coordinating agency:** Pennsylvania DOT
- **Partner agency:** Amtrak, SEPTA
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Recognizing that the interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Regional Rail Line have far exceeded their useful life and are functionally obsolete, PennDOT, in coordination with SEPTA and Amtrak, advanced a comprehensive conceptual design effort to evaluate and reconfigure the system of interlockings along the Line. The purpose of the conceptual design was to determine how to address the infrastructure condition and functionality to achieve both a state of good repair and optimal service performance on the highly utilized segment of the Keystone Corridor. Through an advanced conceptual design effort, which was last updated in 2015, PennDOT, Amtrak and SEPTA agreed that the following infrastructure replacements or reconfiguration would best support current and future growth along the corridor, as described below. Following the conceptual design phase, PennDOT led preliminary engineering of all interlockings in coordination with Amtrak and SEPTA. Additional funding is needed to advance these critical infrastructure projects to construction. Wynnefield Interlocking: Build new interlocking to replaces the existing Overbook Interlocking. Preliminary engineering complete.

Justification: This project is a state of good repair initiative that will improve operational efficiencies by replacing or reconfiguring the functionally obsolete interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Line. Having far exceeded their useful, the interlockings currently in operation are outdated, which prohibits the most efficient and timely use of the interlocking and challenges reliability. The current interlocking configuration is no longer able to effectively support the ridership demands on the Line. SEPTA’s Paoli-Thorndale Line is the highest ridership line on SEPTA’s Regional Rail Network. Ridership has continually increased and trains are frequently operating at capacity or over capacity. To support existing and future ridership growth, SEPTA must enhance service. SEPTA’s ability to enhance or alter service is stymied by the limitations of the existing interlockings. In order to address the ridership demand faced by both SEPTA and Amtrak, new interlockings are needed

Total project cost: \$93,600,000

- The cost estimate was developed based on the 30% design submission submitted in 2014. The budget amount is subject to change based on timing and Amtrak’s final budget for support costs

Total expenditure as of 9/30/18: Not available.

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): Not identified at this time.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not identified at this time.

FY20-24 additional funding needed: \$93,600,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is identified and Amtrak support is available, the project can be substantially completed in FY 2020-2024.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$15,000,000	Oct 2020 - Dec 2021						
Construction	\$78,600,000	Apr 2022 - Dec 2025						

Harrisburg Line Interlocking Improvements: Zoo

- **Coordinating agency:** Pennsylvania DOT
- **Partner agency:** Amtrak, SEPTA
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Recognizing that the interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Regional Rail Line have far exceeded their useful life and are functionally obsolete, PennDOT, in coordination with SEPTA and Amtrak, advanced a comprehensive conceptual design effort to evaluate and reconfigure the system of interlockings along the Line. The purpose of the conceptual design was to determine how to address the infrastructure condition and functionality to achieve both a state of good repair and optimal service performance on the highly utilized segment of the Keystone Corridor. Through an advanced conceptual design effort, which was last updated in 2015, PennDOT, Amtrak and SEPTA agreed that the following infrastructure replacements or reconfiguration would best support current and future growth along the corridor, as described below. Following the conceptual design phase, PennDOT led preliminary engineering of all interlockings and final design of Zoo Interlocking in coordination with Amtrak and SEPTA. The total project cost for Zoo Interlocking is an estimated \$119.5M.

Given the importance of this project, PennDOT has worked with Amtrak and SEPTA to identify an early action scope of work for completing the Zoo Interlocking state of good repair improvements. The Project will first include the replacement of two stone masonry retaining walls, totaling 1,400 feet of new infrastructure. The current retaining walls are listing or leaning significantly and at risk of failure that could cause damage to track, signal, and electrification infrastructure and destabilize the slope. The first phase of track work will modernize the Track 2 through track, including the replacement of wooden ties with concrete ties and continuous welded rail. The second phase of the Project will require track reconfiguration and state of good repair updates on the western end of the ZOO Interlocking, including the construction of new concrete tie tracks, the removal of one turnout and 500 feet of existing track, and various signal and OCS improvements to create a through movement for westbound trains. The retaining wall construction and first and second phase of track work can begin in the early calendar year 2020 and can be fully completed by 2024. These projects have the potential to save 45 – 70 seconds per train. The cost of this early action scope of work is \$55.2M.

Justification: This project is a state of good repair initiative that will improve operational efficiencies increase train speed and capacity and decrease travel time, by replacing or reconfiguring the functionally obsolete interlockings on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Line. Having far exceeded their useful, the interlockings currently in operation are outdated, which prohibits the most efficient and timely use of the interlocking and challenges reliability. The current interlocking configuration is no longer able to effectively support the ridership demands on the Line. Including SEPTA and Amtrak service, over 8 million passenger pass through Zoo Interlocking annually. Ridership has continually increased and trains are frequently operating at capacity or over capacity. SEPTA and Amtrak have limited ability to enhance or alter service because of the limitations of Zoo Interlocking.

Total project cost: \$119,500,000

- The cost estimate was developed based on the 90% design submission. The budget amount is subject to change based on timing and Amtrak’s final budget for support costs

Total expenditure as of 9/30/18: Not available.

Funding sources for entire project history: None

FY20-24 Information

FY20-24 funding available (or likely to become available): PennDOT is applying for a Federal-State Partnership grant to support this project. If this project is selected for Federal funding then PennDOT is committed to providing the local match.

- **At this funding level, the following phases could be initiated or completed in FY20-24:**

FY20-24 additional funding needed: \$55,200,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** PennDOT is applying for a Federal-State Partnership grant to support this project. If this project is selected for Federal funding then PennDOT is committed to completing the grant scope of work for this project in accordance with the schedule below.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design & Construction	\$55,200,000	Jan 2020 – Jan 2024						

Harrisburg Line Station Improvements: Coatesville

- **Coordinating agency:** Pennsylvania DOT
- **Partner agency:** Amtrak, Federal Railroad Administration, Federal Transit Administration
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will eventually modernize the Amtrak station at Coatesville, along the Harrisburg Line. PennDOT is leading construction. The new station will provide ADA access with high-level boarding platforms, improved/expanded parking, and multimodal connections. This project will improve the passenger experience and lead to community and economic development. Coatesville Station is fully funded.

Justification: These improvements will provide ADA access with high-level boarding platforms and improved parking.

Total project cost: \$46,600,000

- The cost estimate was developed based on the 90% design submission submitted in 2018. The budget amount is subject to change based on timing and Amtrak’s final budget for support costs

Total expenditure as of 9/30/18: Not yet received

Funding sources for entire project history:

Federal

- FTA Formula Grant, Funding Sources: FTA Section 5307 and Section 5337 grants with 20% match from Commonwealth of Pennsylvania

FY20-24 Information

FY20-24 funding available (or likely to become available): Fully funded.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** If Amtrak support is available, construction can be completed in FY 2020-2024.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$3,000,000	Oct 2015 - Aug 2019						
Construction	\$43,600,000	Oct 2019 - Oct 2022						

Harrisburg Line Station Improvements: Downingtown

- **Coordinating agency:** Pennsylvania DOT
- **Type:** Improvement
- **Partner agency:** Amtrak, Federal Railroad Administration, Federal Transit Administration
- **Benefit:** Shared

General Project Information

Scope: This project will eventually modernize the Amtrak station at Downingtown, along the Harrisburg Line. PennDOT is leading construction. The new station will provide ADA access with high-level boarding platforms, improved/expanded parking, and multimodal connections. This project will improve the passenger experience and lead to community and economic development. Downingtown Station still requires additional funding.

Justification: These improvements will provide ADA access with high-level boarding platforms and improved parking.

Total project cost: \$115,500,000

- The cost estimate was developed based on conceptual estimates in 2018.

Total expenditure as of 9/30/18: Not yet received

Funding sources for entire project history:

Federal

- FTA Funding

FY20-24 Information

FY20-24 funding available (or likely to become available): \$20,500,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** If Amtrak support is available, design can be completed in FY 2020-2024.

FY20-24 additional funding needed: \$95,500,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is identified and Amtrak support is available, construction can be initiated in FY 2020-2024.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$10,500,000	Feb 2019 - Feb 2022						
Construction	\$105,000,000	Apr 2021 - Apr 2026						

Harrisburg Line Station Improvements: Middletown

- **Coordinating agency:** Pennsylvania DOT
- **Type:** Improvement
- **Partner agency:** Amtrak, Federal Railroad Administration, Federal Transit Administration
- **Benefit:** Shared

General Project Information

Scope: This project will eventually modernize the Amtrak station at Middletown, along the Harrisburg Line. PennDOT is leading construction. The new station will provide ADA access with high-level boarding platforms, improved/expanded parking, and multimodal connections. This project will improve the passenger experience and lead to community and economic development. Middletown station is fully funded.

Justification: These improvements will provide ADA access with high-level boarding platforms and improved parking.

Total project cost: \$35,000,000

- The cost estimate was developed based on the 100% design submission submitted in 2015. The budget amount is subject to change based on timing and Amtrak’s final budget for support costs

Total expenditure as of 9/30/18: Not yet received

Funding sources for entire project history:

Federal

- FTA Formula Grant, Funding Sources: FTA Section 5307 and Section 5337 grants with 20% match from Commonwealth of Pennsylvania

FY20-24 Information

FY20-24 funding available (or likely to become available): Fully funded.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** At this funding level, if Amtrak support is available the project will be completed in FY 2020-2024.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$35,000,000	Sept 2018 - Aug 2022						

Harrisburg Line Station Improvements: Parkesburg

- **Coordinating agency:** Pennsylvania DOT
- **Type:** Improvement
- **Partner agency:** Amtrak, Federal Railroad Administration, Federal Transit Administration
- **Benefit:** Shared

General Project Information

Scope: This project will eventually modernize the Amtrak station at Parkesburg, along the Harrisburg Line. PennDOT is leading construction. The new station will provide ADA access with high-level boarding platforms, improved/expanded parking, and multimodal connections. This project will improve the passenger experience and lead to community and economic development. Parkesburg Station still requires additional funding.

Justification: These improvements will provide ADA access with high-level boarding platforms and improved parking.

Total project cost: \$49,000,000

- The cost estimate was developed based on conceptual estimates in 2018.

Total expenditure as of 9/30/18: Not yet received

Funding sources for entire project history:

Federal

- FTA Funding

FY20-24 Information

FY20-24 funding available (or likely to become available): \$3,500,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** If Amtrak support is available, design can be substantially completed.

FY20-24 additional funding needed: \$45,500,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is identified and Amtrak support is available, design can be finalized and construction can be initiated in FY 2020-2024.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Design	\$4,000,000	Oct 2020 - Dec 2023						
Construction	\$45,000,000	Mar 2024 - Mar 2027						

Special Projects: Rhode Island DOT

Pawtucket/ Central Falls Station

- **Coordinating agency:** Rhode Island DOT
- **Partner agency:** MBTA
- **Type:** Improvement
- **Benefit:** Sole

Project Information

Scope: This project will build a new infill commuter rail station along MBTA's Providence Line in Pawtucket, RI with an anticipated opening in 2021/2022. The scope includes station platforms, a pedestrian overpass, and associated pedestrian access points. The project was the recipient of a 2016 USDOT TIGER Award.

Justification: The new Pawtucket/Central Falls Station will provide Rhode Island's densest urban communities located between Providence and Attleboro with access to commuter rail service. This station will provide relief to overcrowded stations in Providence and South Attleboro, while attracting new riders from adjacent residential redevelopment areas that would take advantage of proximity to transit for access to jobs, educational opportunities, and medical options in Boston and Providence.

Total project cost: \$40,000,000

- The estimate is based on a 10% conceptual design developed in 2018 using 2018 dollars. It is based on a main line station stop.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

Federal

- Other Federal Grant, \$13,100,000, TIGER
- FTA Formula Grant, \$18,000,000, FTA 5307

State/Local

- State/Local Funds, \$3,000,000, Municipal
- State/Local Funds, \$5,900,000, State

FY20-24 Information

FY20-24 funding available (or likely to become available): \$34,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** RIDOT expects to complete construction during this five year time frame.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Project is fully funded.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$6,000,000	Nov 2018 - Nov 2019						
Construction	\$34,000,000	Apr 2019 - Jul 2022						

Providence Station

- **Coordinating agency:** Rhode Island DOT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

Project Information

Scope: This project would construct interior layout changes, emergency platform egress, and pedestrian access improvements to Providence Station. The PE/NEPA phase included a full assessment of the station's condition, development of short- and long-term improvements for both the station's interior and exterior, 30 percent design for recommended short-term improvements, and an environmental review on the preferred alternative. Long-term actions could include connections to adjacent retail centers, enhance bus/ intermodal connections, increased parking, and station expansion. RIDOT is pursuing a separate project to develop a transit hub adjacent and connected to Providence Station.

Justification: Providence Station was relocated in downtown Providence in the 1980s. The current station is in need of reprogramming of interior space to better reflect the needs of today's travelers. The relocation also created a need for new intermodal connections to ensure that passengers can seamlessly travel to Providence Station for destinations along the Corridor, including Boston, MA. Numerous companies in Boston have also decided to locate additional offices in Providence, thereby increasing the importance for service between the two cities.

Total project cost: \$28,750,000

- The cost estimate is based on 2017 30% design plans and is in 2017 dollars.

Total expenditure as of 9/30/18: \$3,750,000

Funding sources for entire project history:

- Federal
 - Other Federal Grant, \$3,000,000, FRA HSIPR/ARRA
- State/Local
 - State/Local Funds, \$750,000, Match to FRA/ARRA

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** There is currently no funding available during the five-year time frame for this project. Without additional funding, the project will be on hold until additional funding is identified.

FY20-24 additional funding needed: \$25,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Final design and construction

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$2,000,000	Oct 2019 - Sep 2020						Official Start/End dates are TBD pending funding.
Construction	\$23,000,000	Oct 2020 - Sep 2022						Official Start/End dates are TBD pending funding.

RIDOT Stations: Warwick/ T.F. Green Airport

- **Coordinating agency:** Rhode Island DOT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would expand Warwick/T.F. Green Airport rail station which opened in 2010. In that project, the Rhode Island Airport Corporation constructed a station house and a single high-level platform to support the introduction of MBTA commuter rail services to the Airport and to new communities south of Providence. For this project, RIDOT and Amtrak have proposed expanding the station with additional track and platform capacity to accommodate intercity rail.

Justification: This project would enable the introduction of Amtrak service at Warwick/T.F. Green Airport rail station.

Total project cost: \$110,000,000

- Capital cost estimates are from the 2017 Feasibility Study for Intercity Rail Service to TF Green Airport. The ongoing Track and Platform Conceptual Design effort between Amtrak and RIDOT is expected to refine this cost estimate.

Total expenditure as of 9/30/18: \$500,000

Funding sources for entire project history:

Federal

- Other Federal Funds, \$800,000

State/Local

- State/Local Funds, \$200,000, Match for federal grant

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** There is currently no funding available during the five-year time frame for this project. Without additional funding, the project will be on hold until additional funding is identified.

FY20-24 additional funding needed: \$109,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete final design and initiate construction

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$3,000,000	Oct 2019 - Sep 2020						Official Start/End dates are TBD pending funding.
Final Design	\$7,000,000	Oct 2020 - Sep 2021						Official Start/End dates are TBD pending funding.
Construction	\$99,000,000	Oct 2021 - Sep 2023						Official Start/End dates are TBD pending funding.

Special Projects: SEPTA (Improvement)

30th Street West Catenary Replacement

- **Coordinating agency:** SEPTA
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will replace and modernize the SEPTA overhead catenary system from 30th Street Station westbound to K and Zoo Interlockings, an area that includes SEPTA's Powelton Yard. Work also includes repairs to aging catenary support structures, foundations, retaining walls, tunnels, and site drainage.

Justification: The project will rehabilitate assets beyond their useful life and improve system reliability.

Total project cost: \$77,000,000

- The cost estimate was developed during the scoping phase of the project. The project design is currently 75% complete.

Total expenditure as of 9/30/18: \$4,596,854

Funding sources for entire project history:

- State/Local
- State/Local Funds, \$77,000,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$72,410,854

- **At this funding level, the following phases could be initiated or completed in FY20-24:** The project will be completed in FY20-24.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$71,001,875	Oct 2019 - Oct 2022						Funding is programmed in FFY20-24 but not fully obligated.

Ardmore Station ADA Improvements

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak, Pennsylvania DOT
- **Type:** Improvement
- **Benefit:** Shared

Project Information

Scope: This project will make ADA improvements to Ardmore Station on SEPTA’s Paoli-Thorndale Regional Rail Line and Amtrak’s Keystone Corridor to make the station fully ADA compliant. The project includes a new station building, high-level platforms, modifications to the existing pedestrian tunnel, new canopies and passenger shelters, and site and circulation improvements. There is a separate project for construction of a parking garage at the station (see Ardmore Station Parking Improvements in the FY20-24 NEC Capital Investment Plan). SEPTA currently leases this station from Amtrak.

Justification: The project will make the station fully ADA accessible as well as improve the customer experience and bring the station into a state of good repair.

Total project cost: \$36,290,000

- The cost estimate was developed based on the 100% design submission. A Project Agreement between SEPTA and Amtrak for Amtrak’s project support cost is being finalized.

Total expenditure as of 9/30/18: \$4,060,222

Funding sources for entire project history:

Federal

- Other Federal, \$5,800,670, FTA Earmark
- FTA Formula Grant, \$23,571,564

State/Local

- Other State/Local Funds, \$3,500,000, RCAP
- State/Local Funds, \$3,417,766

FY20-24 Information

FY20-24 funding available (or likely to become available): \$31,255,738

- **At this funding level, the following phases could be initiated or completed in FY20-24:** The project will be completed in FY20-24.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$30,674,385	Mar 2019 - Oct 2021						Construction funding is fully programmed and partially obligated.

Ardmore Station Parking Improvements

- **Coordinating agency:** SEPTA
- **Partner agency:** Pennsylvania DOT, Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will improve parking at Ardmore Station on SEPTA's Paoli-Thorndale Regional Rail Line and Amtrak's Keystone Corridor. The project includes the construction of a parking garage. SEPTA leases this station from Amtrak.

Justification: This project will enhance opportunities for use of SEPTA's Paoli-Thorndale Regional Rail Line and Amtrak's Keystone Corridor.

Total project cost: \$26,051,090

- The cost estimate was developed during the scoping phase in 2009.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$26,051,090

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is made available in FY20-24 then the project can be constructed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$23,551,090	Jun 2022 - Dec 2024						

Project schedule assumes funding is identified in FY20-24. Currently no funding is programmed for this project in the FY20-24.

Exton Station - Multimodal Improvements Project

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak, Pennsylvania DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: The Exton Station - Multimodal Improvements Project project includes the construction of a bus loop with shelters and a fully accessible, expanded parking with pathways to the station.

Justification: The project will promote multimodal connections by adding parking to the station, which is currently at capacity, and providing seamless access to the station for transit buses and circulator shuttles.

Total project cost: \$39,500,000

- The cost estimate was developed during the scoping phase in 2010.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$39,500,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is made available in FY20-24 then the project can be designed and constructed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$4,026,500	Oct 2019 - Mar 2021						
Construction	\$35,473,500	Jul 2021 - Jun 2024						

Project schedule assumes funding is identified in FY20-24. Currently no funding is programmed for this project in the FY20-24.

Frazer Rail Shop and Yard Upgrade

- **Coordinating agency:** SEPTA
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will make significant renovations and expand the Frazer Rail Shop and Yard facilities. SEPTA recently acquired new locomotives and is in the process of procuring a fleet of multi-level cars for the Regional Rail System and needs to accommodate the increased fleet size. The initial phase includes significant earthwork and stormwater improvements at the 40-acre site to create space for additional yard tracks. Additional phases of work will include extending three existing storage tracks and adding three new storage tracks; major upgrades to the repair shop and equipment, including the wheel truing machine and drop table; construction of a shop extension, new cleaning track, vehicle washer building, and yardmaster building; and utility upgrades. Also, the roof will be upgraded and mechanical equipment and electrical connections will be replaced.

Justification: The project will allow for the storage and maintenance of SEPTA’s new rolling stock to accommodate Southeastern Pennsylvania’s increasing demand for regional rail service, which has been consistently growing over the last decade.

Total project cost: \$139,000,000

- The project budget is based on the completion of design and construction for Phase 1, substantial completion of design and construction for Phase 2 and 30% design submission of Phase 3.

Total expenditure as of 9/30/18: \$65,131,949

Funding sources for entire project history:

- State/Local
 - State/Local Funds, \$139,000,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$73,930,715

- **At this funding level, the following phases could be initiated or completed in FY20-24:** The project will be completed in FY20-24.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$127,600,000	Mar 2016 - Sep 2022						FY20-24 funding is programmed but not fully obligated.

Harrisburg Line - Paoli to Thorndale OCS Replacement & ROW Clearing

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak, Pennsylvania DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would replace and upgrade the overhead contact system (OCS) and right-of-way (ROW) clearing along SEPTA's Paoli-Thorndale Regional Rail Line and Amtrak's Keystone Corridor from Paoli to Thorndale. This project is an estimated \$200 million unfunded need.

Justification: The project will rehabilitate assets beyond their useful life and improve system reliability.

Total project cost: \$200,000,000

- The project cost estimate was developed based on conceptual design and general cost estimating principals for track, catenary and signal work.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$150,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding and Amtrak forces are available in FY20-24 then the project can be designed and 75% of construction can be completed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Feasibility/Conceptual Design	\$2,000,000	Oct 2019 - Mar 2020						
PE/NEPA	\$1,000,000	Mar 2020 - Dec 2020						
Final Design	\$18,000,000	Jan 2021 - Jun 2022						
Construction	\$179,000,000	Jul 2022 - Dec 2025						

Project schedule assumes funding is identified in FY20-24 and Amtrak forces are available for design and construction. Currently Amtrak has programmed the Zoo to Paoli Catenary Structure Upgrade project (C.E.N. 201264), starting in FY 2019, using BCC funds. The Paoli to Thorndale project is the next phase of this work.

Harrisburg Line - Restore Track 2 from Paoli to Frazer

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak, Pennsylvania DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would reinstall a third track on the 4-mile segment from Paoli to Frazer. In addition to the track work, the project will include overhead contact system (OCS), signal, interlocking modifications, and right-of-way work all of which is needed to operate on the new track. All work will occur in the existing right-of-way. This project is an estimated \$50 million unfunded need.

Justification: The project will improve operational efficiency.

Total project cost: \$50,000,000

- The project cost estimate was developed based on conceptual design and general cost estimating principals for track, catenary and signal work.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$50,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding and Amtrak forces are available in FY20-24 then the project can be designed and constructed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$2,000,000	Jan 2019 - Dec 2019						
Final Design	\$3,000,000	Jan 2020 - Oct 2020						
Construction	\$40,000,000	Mar 2021 - Mar 2023						

Project schedule assumes funding is identified in FY20-24 and Amtrak forces are available for design and construction. Currently no funding is programmed for this project in the FY20-24 and Amtrak has not committed forces for this project.

This project page was amended in December 2019 to align with Federal-State Partnership for State of Good Repair Grant Program applications. The updated project page can be found on page 157.

Harrisburg Line - Track & Interlocking Improvements - Glen to Coatesville (MP 25.3 to 38.5)

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak, Pennsylvania DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will upgrade Track 2 on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Regional Rail Line from Glen to Coatesville (MP 25.3 to 38.5) and restore the track to FRA Class 3 standards with a maximum authorization speed minimum of 45 miles per hour. Interlocking improvements include the addition of a turnback that will allow for an eastbound move from Track 1 to Track 2 at Glen Interlocking and a new interlocking that will be constructed at Fleetwood (MP 38.5).

Justification: The upgrade of Track 2 and improvements to Glen and Coatesville Interlockings will reduce congestion on the corridor. SEPTA is in the process of expanding its Frazer Yard to accommodate additional trains, which will increase rail traffic on the heavily used corridor. Upgrading the track will return it to a state of good repair and allow for faster deadhead moves between Frazer and Thorndale thereby reducing the number of trains using Track 4. Improvements to Glen Interlocking will eliminate the need to deadhead trains to Downs Interlocking when accessing Frazer Yard.

Total project cost: \$9,250,000

- The project cost estimate was developed based on conceptual design and general cost estimating principals for track, catenary and signal work.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$9,250,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding and Amtrak forces are available in FY20-24 then the project can be designed and constructed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Design	\$989,250	Oct 2019 - Mar 2020						
Construction	\$10,260,750	Oct 2020 - Mar 2022						

Project schedule assumes funding is identified in FY20-24 and Amtrak forces are available for design and construction. Currently no funding is programmed for this project in the FY20-24 and Amtrak has not committed forces for this project.

This project page was amended in July 2020 to align with Federal-State Partnership for State of Good Repair Grant Program applications. The updated project page can be found on page 158.

Harrisburg Line - Zoo to Paoli Signal Upgrade

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak, Pennsylvania DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: PennDOT, Amtrak and SEPTA are coordinating on multi-phased signal improvements to Amtrak’s Keystone Line and SEPTA’s Paoli-Thorndale Line. Ultimately, this project will provide for implementation of bi-directional signaling (Rule 261 or 562 depending on the location) from Zoo to State Interlockings. The project budget below reflects the cost from Zoo to Paoli, which is SEPTA’s service area. PennDOT, in coordination with Amtrak and SEPTA, has completed or initiated design on the signal system from Zoo to Paoli. The cost to complete this project includes finalizing design and construction. This is \$50 million unfunded need.

Justification: The project will rehabilitate infrastructure that is beyond its useful life and functionally obsolete. In addition, the project will provide significant enhancements to operations by allowing for bi-directional train movements.

Total project cost: \$50,000,000

- The project cost estimate was developed based on conceptual design and general cost estimating principals for signal work.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

- None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$50,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding and Amtrak forces are available in FY20-24 then the project can be designed and construction can be completed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$2,000,000	Oct 2019 - Mar 2020						
Final Design	\$2,500,000	Mar 2020 - Jan 2021						
Construction	\$45,500,000	May 2021 - Jun 2024						

Project schedule assumes funding is identified in FY20-24 and Amtrak forces are available for design and construction. Currently no funding is programmed for this project in the FY20-24 and Amtrak has not committed forces for this project. Amtrak has programmed BCC funding in FY 2019 for the Park to Zoo Upgrade Signal System to 562 (C.E.N. 101770). That project will be the first implementation of bi-directional signaling on the Harrisburg Line.

Malvern Station ADA

- **Coordinating agency:** SEPTA
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: Design and construction of high-level platforms and accessibility improvements at Malvern Station on SEPTA's Paoli-Thorndale Regional Rail Line. This station will receive new full length high-level platforms; new passenger shelters; accessible pathways, bike facilities; additional new signage and lighting; stormwater management systems and landscaping.

Justification: The addition of high-level platforms will improve accessibility at Malvern Station.

Total project cost: \$15,260,000

- The project cost estimate was developed based on conceptual design and general cost estimating principals for high-level platforms and accessibility improvements.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

State/Local

- State/Local Funds, \$15,260,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$15,260,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding and Amtrak forces are available in FY20-24 then the project can be completed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$860,000	Mar 2021 - Dec 2021						
Final Design	\$745,000	Dec 2021 - Jul 2022						
Construction	\$13,655,000	Jan 2023 - Jun 2025						

Paoli Transportation Center - Station & Intermodal Improvements

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak, Pennsylvania DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will reconstruct Paoli Intermodal Station on SEPTA's Paoli-Thorndale Regional Rail Line and Amtrak's Keystone Corridor. Work includes an intermodal station complex complete with an additional high-level platform on the outbound side, waiting area and passenger amenities; enhanced bus facilities; and a parking garage. Completion of the complementary Darby Road Bridge Improvements project by PennDOT is required prior to advance construction. SEPTA will lease the station from Amtrak.

Justification: The project will improve accessibility, passenger amenities and intermodal connections. In addition, the new parking garage will provide opportunities for more passengers to access SEPTA and Amtrak service.

Total project cost: \$51,200,000

- The project cost estimate was developed based on conceptual design and general cost estimating principals.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$7,500,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding and Amtrak forces are available in FY20-24 then the project can be designed and construction can be initiated.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
PE/NEPA	\$2,750,000	Jan 2021 - Dec 2021						
Final Design	\$2,250,000	Jan 2022 - Dec 2022						
Construction	\$46,200,000	Jun 2023 - Dec 2025						

Project schedule assumes funding is identified in FY20-24 and Amtrak forces are available for design and construction. Currently no funding is programmed for this project in the FY20-24 and Amtrak has not committed forces for this project.

Phil Interlocking Replacement

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak, Pennsylvania DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Replacement of the signal system, track and catenary at Phil Interlocking. Phil Interlocking is served by Amtrak's Northeast Corridor Line and SEPTA's Wilmington and Airport Regional Rail project.

Justification: This project will replace a critical interlocking, which has exceeded its useful life.

Total project cost: \$80,000,000

- Cost derivation not available.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$80,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding and Amtrak forces were available then the project could be designed and substantially completed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Design		Oct 2019 - Sep 2021						
Construction		Oct 2021 - Sept 2024						

Project schedule assumes funding is identified in FY 2020-2024. Currently no funding is programmed for this project in FY 2020-2024.

Southwest Connection Improvement Project

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Reconfiguration and rebuilding of Regional Rail signals, track, catenary, and interlockings from 30th Street Station to Phil Interlocking (in University City). Work includes new track special work, Overhead Contact Systems (OCS), and switch and lock mechanisms, as well as the addition of new Positive Train Control (PTC) systems. The existing signal block layout will be modified. Design and construction will progress in phases with construction outages scheduled for the summer of 2018, 2019 and 2020. As part of the project, SEPTA will assume maintenance responsibility for Amtrak’s tracks on a segment where SEPTA is the sole operator.

Justification: The project will repair assets that are beyond their useful life and improve system reliability.

Total project cost: \$45,900,000

- Based on the costs incurred during the 2018 outage and construction, SEPTA anticipates that this project budget will increase.

Total expenditure as of 9/30/18: \$24,845,273

Funding sources for entire project history:

State/Local

- State/Local Funds, \$45,900,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$21,126,663

- **At this funding level, the following phases could be initiated or completed in FY20-24:** The project will be completed in FY20-24.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$39,890,000	Mar 2017 - Dec 2020						Funding is programmed in FFY20-24 but not fully obligated.

Villanova Station ADA Improvements

- **Coordinating agency:** SEPTA
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will modernize Villanova Station on SEPTA's Paoli-Thorndale Regional Rail Line. Work includes high-level platforms with canopies, a new pedestrian underpass with ramps and stairs, station building exterior improvements, parking lot modifications, stormwater management, and new signage, lighting, passenger amenities, and landscaping. The improvements will make the station fully ADA accessible. The project will be advanced in phases. Phase 1 activities will improve station accessibility, through the construction of a new pedestrian tunnel with access ramps and stairs, and modify the parking lot to improve stormwater management. Phase 2 will build high-level platforms, canopies, and an improved station building. SEPTA currently leases this station from Amtrak.

Justification: The project will make the station fully accessible as well as improve the customer experience and bring the station into a state of good repair.

Total project cost: \$32,200,000

- The cost estimate was developed based on substantial completion of Phase 1 construction and 90% design submission of Phase 2.

Total expenditure as of 9/30/18: \$18,083,513

Funding sources for entire project history:

Federal

- Other Federal, \$5,400,000, FTA Earmark

State/Local

- State/Local Funds, \$16,350,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$500,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** At this funding level, minimal work will be advanced in FY20-24.

FY20-24 additional funding needed: \$10,450,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** With additional funding, Phase 2 construction can be initiated and completed in FY20-24.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction (Phase 2)	\$10,450,000	Oct 2019 - March 2023						

Project schedule assumes funding will be available in FY 2020. Currently, funding is programmed in FY24 for this project. No funding is currently obligated.

West Barracks Yard

- **Coordinating agency:** SEPTA
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project would construct West Barracks Yard, a new storage facility north of Trenton Station in New Jersey for SEPTA equipment. SEPTA is currently without a storage facility in Trenton. Trains are stored on station tracks and dead-headed between Trenton, NJ and Philadelphia, PA. A yard would increase storage capacity, reduce operating costs, and open track and platform space for SEPTA, NJ TRANSIT, and Amtrak.

Justification: This project would allow storage of rail cars outside of flood prone areas and is a cost-effective means to mitigate the risk of damage and allows a quicker turn around for trains, improving operational efficiency and reducing the operational cost of dead heading trains.

Total project cost: \$34,300,000

- The project cost estimate was developed based on conceptual design and general cost estimating principals.

Total expenditure as of 9/30/18: \$203,007

Funding sources for entire project history:

State/Local

- State/Local Funds, \$270,000, SEPTA funded the feasibility and conceptual design but no funding is identified for engineering and construction.

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$33,625,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding is available in FY20-24 then the project can be designed and construction can be initiated.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$325,000	Jan 2019 - Oct 2020						
Construction	\$33,300,000	Oct 2020 - Oct 2023						

Project schedule assumes funding is identified in FY20-24 for design and construction. Currently no funding is programmed for this project in the FY20-24 for this project.

Special Projects: VRE (Improvement)

VRE Midday Storage Facility

- **Coordinating agency:** VRE
- **Partner agency:** District DOT, Federal Railroad Administration, Amtrak
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: The Midday Storage Facility project will replace the current storage space leased from Amtrak at the Ivy City Coach Yard in the District of Columbia. The project will include planning, designing, and constructing a permanent midday storage facility for VRE trains that travel to the District. The proposed facility will be used to store commuter trains on weekdays between the inbound morning commute and the outbound afternoon commute.

Justification: Midday train storage in the Washington, DC metropolitan region is critical to VRE's continued operations and growth. VRE operates trains providing daily commuter rail service from as far as Manassas and Fredericksburg, Virginia, into Union Station. During the weekday midday, those trains need to be parked near Union Station and off the main line tracks. Currently, VRE stores trains in Amtrak's Ivy City rail complex in the District of Columbia. The current and future demand for train storage and maintenance functions within the existing Ivy City rail complex exceeds available space. To accommodate growth of intercity passenger rail service, Amtrak needs the tracks that VRE is using for maintenance and storage.

Total project cost: \$89,666,508

- Total project cost derivation details not available.

Total expenditure as of 9/30/18: Not available.

Funding sources for entire project history:

- Federal
 - FTA Formula Grant, \$57,360,638
- State/Local
 - State/Local Funds, \$32,305,870, Federal match

FY20-24 Information

FY20-24 funding available (or likely to become available): \$89,666,508

- **At this funding level, the following phases could be initiated or completed in FY20-24:** All phases: Development, Property Acquisition, Final Design and Construction.

FY20-24 additional funding needed: \$0

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Property Acquisition	\$13,310,000	May 2018 - Jul 2021						
Final Design	\$3,478,706	Sep 2019 - Feb 2021						
Construction	\$68,000,000	Mar 2021 - Jul 2023						

Notes

VRE continues to work with our partner agencies to develop the yard concept for Preliminary Engineering and proceed with NEPA documentation.

Amended Special Projects

Figure B-3. Amended special projects by coordinating agency

The following is a list of NEC special projects that have been amended or added to align with Federal-State Partnership for State of Good Repair Grant Program applications.

Coordinating Agency	Special Project	Last Date Amended	See Page
Amtrak	Baltimore & Potomac Tunnel Replacement: Enabling Components	Dec 2019	146
Amtrak	Connecticut River Bridge Replacement	Jul 2020	147
Amtrak	East River Tunnel Rehabilitation: Enabling Components	Jul 2020	148
Amtrak	Gateway: Dock Bridge Rehabilitation	Jul 2020	149
Connecticut DOT	Walk Bridge Program	Jul 2020	150
Long Island Rail Road	Penn Station New York - LIRR Projects	Dec 2019	151
Maryland DOT	MARC Storage Improvements - Martin Airport	Jul 2020	152
Metro-North Railroad	Penn Station Access	Jul 2020	153
NJ TRANSIT	Newark Penn Station Improvements	Jul 2020	154
NJ TRANSIT	Substation 41	Dec 2019	155
NJ TRANSIT	Trenton Transportation Center Improvements	Jul 2020	156
SEPTA	Harrisburg Line - Upgrade Track 2, Glen to Thorn (MP 25.3 to 35.0)	Dec 2019	157
SEPTA	Harrisburg Line - Zoo to Paoli Signal Upgrade	Jul 2020	158

Baltimore & Potomac Tunnel Replacement: Enabling Components

- **Coordinating agency:** Amtrak
- **Partner agency:** Maryland DOT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: The B&P Tunnel Replacement Project is located across three miles of the NEC in West Baltimore and consists of two major elements: the Tunnel Proper and Necessary Enabling Components. Necessary Enabling Components are numerous discrete components can be individually managed and completed prior to and in anticipation of constructing the tunnel proper. These components are identified through an array of criteria including: third party infrastructure ownership/responsibility/coordination; stakeholder impacts; obligations associated with the Programmatic Agreement and Record of Decision; independent utility; contract size; long lead procurements; resource requirements; and specialty contractors. The list may be further modified as design development continues. Individual components may be combined in contract packages as appropriate to ensure cost and schedule efficiency. The components include, but are not necessarily limited to:

- Winans Interlocking Expansion and Track A Improvements from Winans (MP 103.4) to Bridge (MP 98.2) Interlockings to replace timber ties with concrete ties
- Electric Traction Substation 20 Relocation and Modernization
- Franklinton and Warwick Bridge Replacements
- Gwynns Interlocking Installation
- Utility Relocations
- Reprofitting Franklin Mulberry Streets
- Lafayette Avenue Bridge Modification
- Edmondson Avenue Bridge Reconstruction
- Property and Easement Acquisition
- Building Demolition
- CSX Bridge Pier Relocation
- BGE Jones Falls Transmission Tunnel Removal

Justification: By utilizing discrete components, the Project does not need to be funded all at once from a single source, but rather can be funded through numerous smaller investments that are more compatible with existing funding streams. Also, a project the size of the B&P Tunnel Replacement, located in a dense urban environment must coordinate with numerous infrastructure owners and stakeholders. Discrete components allow the Project to focus attention to individual stakeholder's requirements wherever the Project intersects with a third party. By coordinating, but not combining, the discrete components, large dollar contracts are not exposed to the multitude of competing stakeholders' interests, which reduce Project risks and allow the Project to proceed on a more predictable Delivery Schedule.

Total project cost: \$395,000,000

- Construction Cost Estimate (dated March 2017) was based upon Preliminary Engineering (nominally 30% design) using 2017 dollars. The estimate Work Breakdown Structure (WBS) has been prepared to conform to the Federal Transit Administration (FTA) Standard Cost Categories (SCC) for Capital Projects. The Cost Estimate is a Class 3 Estimate as defined by the Association for the Advancement of Cost Engineering (AACE International) Cost Estimate Classification System. Escalation is included in the estimate at a rate of three percent (3%) per annum to the midpoint of construction, which was assumed to be July 2024.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

Federal

- ARRA/HSPIR Grant, \$4,350,000

Amtrak

- Non-BCC Amtrak Funds, \$575,000, Amtrak FY17 GCAP
- Non-BCC Amtrak Funds, \$1,150,000, Amtrak FY18 GCAP
- Non-BCC Amtrak Funds, \$5,000,000, Amtrak FY19 GCAP

FY20-24 Information

FY20-24 funding available (or likely to become available): \$4,500,000 is available in FY20.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Advance design for utility relocations, Substation 20, Franklinton Road and Warwick Avenue bridges, and other enabling components in FY20.

FY20-24 additional funding needed: \$355,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete design and initiate construction.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Design	\$32,000,000	Oct 2011 - Sep 2024						
Construction	\$363,000,000	Mar 2020 - Sep 2025						

Connecticut River Bridge Replacement

- **Coordinating agency:** Amtrak
- **Partner agency:** Connecticut DOT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project would replace the Connecticut River Bridge between Old Saybrook and Old Lyme, CT that carries Amtrak and Shore Line East trains. Completed in 1907, it is the oldest movable bridge between New Haven, CT and Boston, MA. The bridge has a movable span that is raised up to allow boats to pass. By law, the bridge must remain open from May through September for recreational boats to pass and closes only when trains approach. Plans would replace the Connecticut River Bridge with a new design along a new alignment parallel to and south of the existing bridge that improves reliability and offers higher speeds for Amtrak and Shore Line East trains. FRA completed NEPA and issued a Finding of No Significant Impact (FONSI) for this project in January 2017. Final design is underway, but no funding is available for construction. There are multiple preparatory activities that, due to this project’s size, can be initiated as standalone enabling projects, such as: submarine cable relocation and construction of retaining walls and new alignment embankment.

Justification: A century of operation in a marine environment, coupled with the age of the structure, has taken its toll and speeds are restricted to 45 mph. Many key elements of the bridge have reached the end of their design life and require extensive maintenance to remain in operable condition. The frequent opening and closing of the bridge – over 3,000 times per year – puts high demands on its aging components, increasing maintenance costs for Amtrak and reducing reliability for both railway and marine traffic.

Total project cost: \$432,470,000

- The estimate is based on 60% final design.

Total expenditure as of 9/30/18: \$1,987,450

Funding sources for entire project history:

- Amtrak
- Non-BCC Amtrak Funds, \$2,250,000, Amtrak FY17 & prior
 - Non-BCC Amtrak Funds, \$1,000,000, Amtrak re-programmed May 2018
 - Non-BCC Amtrak Funds, \$4,000,000, Amtrak FY19 GCAP

FY20-24 Information

FY20-24 funding available (or likely to become available): \$5,850,000 is available in FY20.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Proceed with final design in order to complete construction documents by FY21.

FY20-24 additional funding needed: \$200,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete final design, initiate construction. In particular, \$16 million could be used for enabling components such as the construction of new RoW and embankment, new piers for the fixed and movable spans, fender system, control and machine houses, catenary, signaling, submarine cables, and control systems if additional funding were available.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$21,000,000	2019 - 2022						
Construction	\$432,470,000	2024 - 2030						Enabling components may begin in FY22 if funding became available

East River Tunnel Rehabilitation: Enabling Components

- **Coordinating agency:** Amtrak
- **Partner agency:** Long Island Rail Road, NJ TRANSIT
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: The principal project will rehabilitate East River Tunnel (ERT) Line 1 and Line 2 which connect Penn Station to Sunnyside Yard in Long Island City, Queens, NY. Each tunnel is approximately 13,000 feet in length. The project consists of two major elements: the rehabilitation of the Tunnel proper and the necessary enabling components. There are several required enabling components that were identified to facilitate ERT Rehabilitation construction project. They include: (1) Traction Power Cable Relocation from Line 2 tunnel to Line 1 tunnel; (2) Sunnyside Yard Connection Sub4-Line2; (3) Sunnyside Yard Connection Sub3-Line4; and (4) Sunnyside Yard Loop Reversal Signaling. The necessary enabling components are discrete components that can be individually managed and completed prior to and in anticipation of the rehabilitation of the tunnel(s) proper.

Two enabling components identified for FY20 Fed-State partnership grant applications include: (1) Traction Power Sub-3 Cable Relocation; and (2) Sunnyside Yard Connection Sub 4-Line 2.

Traction Power: This enabling component project will replace an aging and vulnerable section of traction power cable that currently lies in Line 2 of the ERT, and install new cable in Line 1 (where the majority of the existing cable already resides). The work will be completed in two phases. The first phase involves inspecting, cleaning, proving and installing pull lines in the existing benchwall duct banks in Line 1 so as to both identify and prepare viable route options for the new section of cable to be installed. The second phase will install the new cable section in Line 1 and run the appropriate tests to bring the cable online.

Sunnyside Yard Connection: This enabling component will implement a connection to efficiently route trains from Sunnyside Yard into Penn Station. The project includes Signal System design and installations including track, switches, and catenary in the vicinity of F-Interlocking in Sunnyside Yard, Queens, NY. Benefits to Amtrak includes a high-speed bi-directional connection between Sunnyside Yard and East River Tunnel Line 2 which increases efficiency, redundancy and overall train capacity between the two facilities. This efficiency is especially critical during the ERT Line 1 tunnel outage during the rehabilitation of the Tunnel where this connection is most critical to maintaining operations.

Justification: The East River Tunnel tubes are in desperate need of rehabilitation and improvement, due to continually worsening conditions of the tunnel given both its age and damage related to Superstorm Sandy, to ensure continuation of operations for LIRR, NJ TRANSIT, and Amtrak.

Total project cost: \$21,000,000

- Traction Power S-3 Cable Relocation: \$6,000,000, (based on 90% design)
- Sunnyside Yard Connection Sub4-Line 2: \$15,000,000 (based on 30% design)

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history: None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$2,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Traction Power S-3 Cable Relocation – Phase 1, Sub4-Line 2 Design 60%

FY20-24 additional funding needed: \$19,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Complete design and construction of enabling projects with the required project schedule.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction (Enabling Components)	\$21,000,000	Oct 2020 – Oct 2024						

Gateway: Dock Bridge Rehabilitation

- **Coordinating agency:** Amtrak
- **Partner agency:** NJ TRANSIT, Port Authority of NY & NJ, Gateway Program Development Corporation
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Dock Bridge is a complex of three vertical lift structures located along one the busiest sections of the Northeast Corridor (Milepost 8.5), crossing the Passaic River in Newark, NJ. The bridge carries six tracks utilized by Amtrak, NJ Transit and PATH trains. Considerable repairs are needed to this critical asset to restore the bridge to a state of good repair, to maintain reliable operation of the structure, and to preserve safe passage for the more than 720 trains per day that utilize the structure. Required repairs include: (1) pier repairs; and (2) structural steel painting of towers and spans, repair to steel members, straight railing and counterweight adjustment, and cathodic protection system. This work will prolong the life of the bridge and minimize the risk of more costly rehabilitation in the future, as well as reduce delays associated with bridge openings, pending a permit modification by the U.S. Coast Guard.

Justification: The project would perform critical maintenance and rehabilitation work to bring an intensely used infrastructure asset in the busiest section of the Northeast Corridor to a state of good repair, avoiding service disruption, and maintaining its useful life.

Total project cost: \$52,008,000

- The cost estimate was developed in Summer 2020 after completing a detailed inspection and load rating of the three spans in January 2020. The estimate includes the \$3.9M in pier repairs and \$48.1 M for the remaining required repairs.

Total expenditure as of 9/30/18: Not available

Funding sources for entire project history:

- Amtrak
 - FY21 Non-BCC Amtrak Funds, \$3,908,000
 - FY22 Non-BCC Amtrak Funds \$4,366,000

FY20-24 Information

FY20-24 funding available (or likely to become available): \$8,274,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** \$3.9M in FY21 Amtrak funds are programmed for pier repairs; and \$4.3M is committed from Amtrak in FY22 for its match for a FY20 Federal-State Partnership for SOGR grant application.

FY20-24 additional funding needed: \$43,733,836

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Structural steel painting of towers and spans, repair to steel members, straight railing and counterweight adjustment, and cathodic protection system.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Design	\$622,000	Jul 2020 - Jun 2021						
Construction	\$51,386,000	Jul 2021 - Dec 2026						

Walk Bridge Program

- **Coordinating agency:** Connecticut DOT
- **Partner agency:** Amtrak
- **Type:** Major Backlog
- **Benefit:** Shared

General Project Information

Scope: This project will replace the functionally obsolete 120-year-old Walk Bridge which has experienced increasing deterioration of electrical and mechanical components. Connecticut DOT has committed to replace this asset with a combination of federal and state funds. Construction will require an extended continuous outage of two tracks where normally four are operational. This change in track availability could cause changes in schedule, decreases in reliability, or even reductions in service. Two additional capital projects in the vicinity of Walk Bridge will help address these concerns. The construction of CP243 interlocking will shorten the block length between Westport and Norwalk while increasing operational flexibility. Additionally, improvements at Dock Yard including the electrification of the lower Danbury Branch will allow for Metro-North trains to turn at Norwalk without increasing congestion on the main line of the NEC. FTA completed NEPA and issued a Finding of No Significant Impact (FONSI) for this project in July 2017.

Justification: Aging movable bridges pose a big risk of long-term major disruption of service along the NEC. These structures require constant maintenance, are functionally obsolete, and well beyond their useful life. The situation at Walk Bridge is made worse by the fact that all four tracks reside on one movable span. A failure of the span severs the entire NEC.

Total project cost: \$1,307,000,000

- Total project cost estimate is based on Final Design, November 2019. Estimate includes PE, construction, incidentals, contingencies, and railroad force account.

Total expenditure as of 9/30/18: \$241,784,217

Funding sources for entire project history:

Federal

- Federal-State Partnership for SOGR Grant, \$29,900,000, FY19 federal portion applied to Amtrak cost share under project based cost allocation
- Other Federal Grant, \$161,000,000, Federal Emergency Relief Award
- FTA Formula Grant, \$303,000,000, Federal (FTA) Programmed

State/Local

- State/Local Funds, \$663,700,000, State Funding Programmed

Amtrak

- Other Amtrak Sources, \$29,900,000, FY19 Amtrak match for Federal-State Partnership grant award
- Other Amtrak Sources, \$119,500,000, project based cost allocation methodology

FY20-24 Information

FY20-24 funding available (or likely to become available): \$1,157,600,000. CTDOT is committed to securing the funding required to complete the Walk Bridge Program. However, Amtrak has not yet identified a source of funding for its cost allocated share of the program.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Construction Phase 1.

FY20-24 additional funding needed: \$119,500,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Project completion.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction (Phase 1 - CP243/ Dock Yard)	\$366,000,000	End Jan 2021						
Construction (Phase 2 - Walk)	\$722,200,000	Jun 2019 - Sep 2023						

Notes

All funding figures are budgets but not expenditures.

Penn Station New York - LIRR Projects

- **Coordinating agency:** Long Island Rail Road
- **Partner agency:** Amtrak, NJ TRANSIT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will repair and improve various assets at Penn Station New York. This includes widening and raising the ceiling of the 33rd Street Corridor including construction of a new station entrance at 7th Avenue and 33rd Street, staircase renewal/ replacement, rehabilitation of elevators and escalators, upgrading customer service facilities, installing new HVAC equipment, improving lighting, and rehabilitating platforms. Elevators and escalators assets have reached the end of their useful life, stairways are in poor condition, and rehabilitation or upgrades are needed to HVAC, platforms, and lighting. In addition, there are state of good repair needs focusing on the replacement and rehabilitation of customer facilities on Platforms 7 and 8, both of which are utilized by LIRR and Amtrak, and includes elements to address staircase risers, deficient lighting and signage, remediation of lead and asbestos as well as other platform elements. Some funding for these improvements is available. Additional funding is required for some improvements.

Justification: The Penn Station platforms, stairs, ceiling and floors, general environment and infrastructure have been in service for more than 25 years and have reached the end of their useful life. Stairways have been repeatedly repaired but are in a state of deterioration. HVAC equipment continuously fails and requires modernization. Platforms have become worn and require rehabilitation. The lighting has become dull over the years and the station requires better lighting to comply with modern lighting standards.

Total project cost: \$315,677,829

- Total project cost derivation details not available.

Total expenditure as of 9/30/18: \$11,251,713

Funding sources for entire project history:

Funding and projects identified in MTA's 2015-2019 Capital Plan.

State/Local

- State/Local Funds, \$222,000,000, 2015-2019 MTA Capital Plan Amendment No. 3

FY20-24 Information

FY20-24 funding available (or likely to become available): \$239,500,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** \$222,000,000 has been programmed for the construction of new entrance and the ceiling raise inside the 33rd Street Corridor, replacement of selected staircases, renewal of LIRR-owned elevators and escalators, and replacement of the HVAC system (Level A). An additional \$17,500,000 is programmed starting in FY20 to undertake portions of the platform rehabilitation and staircase renewal/ replacement work.

FY20-24 additional funding needed: \$76,177,829

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Completion of work identified for Platforms 7 & 8, including platform surface, lighting, and staircases, and undertaking this work on Platforms 9, 10 and 11.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Design and construction	\$93,677,829	Nov 2020 - Dec 2024						

MARC Storage Improvements - Martin Airport

- **Coordinating agency:** Maryland DOT
- **Partner agency:**
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

Scope: This project will construct additional storage tracks and related infrastructure at the Martin State Airport Facility, including catenary to support two trainsets with electric locomotives.

Justification: MARC Trains currently occupy track at Baltimore Penn Station for overnight and weekend storage and layover. Amtrak plans to repurpose one of the tracks currently used by MARC Train into a through-running revenue track with a new platform edge. This improvement at Martin’s Yard will allow MARC Train to accommodate the trains displaced from Penn Station. The project will also result in additional seating capacity for MARC Penn Line Train service as well as reduced operating costs.

Total project cost: \$15,314,343

- Total Project Cost is based on combined Project Phase costs. Preliminary Planning/Preliminary Engineering allocation of \$1.4M for Planning and Design, ROW acquisition allocation of \$2.2 M for purchase of required private property in fee and associated easements, Construction Phase allocation of \$11.81M. Combined project cost is estimated using Standard MTA methodology for the current status at 85% design.

Total expenditure as of 9/30/18: \$1,459,470

Funding sources for entire project history:

- Federal
 - FTA Formula Grant, \$7,832,000, Additional funding spent in prior fiscal years.
- State/Local
 - State/Local Funds, \$8,633,000, Additional funding spent in prior fiscal years.

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** All on hold due to COVID-19 and funding.

FY20-24 additional funding needed: \$12,251,142

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Not applicable. Construction/Project Completion (note that \$12.3M is an estimate; awaiting completion of Final Design for final fully loaded cost estimate).

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$384,726	Jan 2021 - Mar 2021						
Construction Management/Support	\$3,335,767	Mar 2021 - Mar 2023						
Construction	\$8,476,375	Jun 2022 - Mar 2023						

Penn Station Access

- **Coordinating agency:** Metro-North Railroad
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will open a new Metro-North Railroad link directly into Penn Station New York from the New Haven Line in Westchester and the State of Connecticut. Four new Metro-North stations will be built in the Bronx – near Co-op City, Morris Park, Parkchester/Van Nest, and Hunts Point. The project also includes upgrading the power and signal systems along the Hell Gate Line; adding new interlockings and tracks, and modifying existing ones and curves on a portion of the line; modifying existing over-the-street railroad bridges, such as Eastchester Road Bridge, Bronxdale Avenue Bridge, and Pelham Lane Bridge, as necessary; and reinforcing the Bronx River Bridge. Early action items could include the replacement of antiquated power assets (including but not limited to catenary assets). This work will bring existing Amtrak assets to a state of good repair, as well as support the introduction of Metro-North commuter rail service between New Rochelle and Penn Station.

Justification: Penn Station Access will add resiliency and redundancy to the existing Metro-North New Haven Line service to Manhattan, providing greater mobility, access, connectivity, and travel times savings for existing and new Metro-North customers and helping to address Grand Central Terminal (GCT) capacity issues. The project will substantially reduce travel times between Manhattan’s West Side and areas within Metro-North’s East-of-Hudson service territory; provide a new one-seat ride from NHL communities to jobs, shopping and other destinations on Manhattan’s West Side; and improve regional connectivity and mobility by completing direct connections at Penn Station among all of the New York area’s regional and intercity rail carriers—Metro-North, LIRR, New Jersey Transit, and Amtrak. Furthermore, the four new stations will increase access from East Bronx communities to employers on Manhattan’s West Side and along I-95 in Westchester and the State of Connecticut and access to East Bronx employers from the same areas. The benefits above will be cost-effective by largely using existing infrastructure.

Approved Project Funding: \$695,000,000

Total expenditure as of 9/30/18: \$6,419,737

Funding sources for entire project history:

- Federal
 - Other Federal Grant, \$450,000,000, CMAQ
- State/Local
 - State/Local Funds, \$245,000,000, MTA 2015-2019 Capital Program

FY20-24 Information

Project in the early stages of development. Information on funding and proposed schedule to be established at a later date.

FY20-24 funding available (or likely to become available): TBD

- **At this funding level, the following phases could be initiated or completed in FY20-24:** TBD

FY20-24 additional funding needed: TBD

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** TBD

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
TBD	TBD	TBD						

Newark Penn Station Rehabilitation & Improvements

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Newark (NJ) Penn Station was constructed in various stages during 1929-1937. This aging, historic station requires replacement and/or upgrades of numerous infrastructure components throughout the facility. These components include, but are not limited to: additional platform replacements; new vertical circulation units (elevators, escalators, and staircases); roof replacement; restrooms upgrades; HVAC system improvements; replacement of Terrazzo flooring throughout the station; painting; LED lighting installations; waiting room bench repairs/refurbishment; bus passenger facilities refurbishment; and display board upgrades throughout the facility; as well as potential structural improvements to the facility.

Justification: Newark Penn Station is the most heavily utilized NJ TRANSIT owned facility. This multi-modal station is northern New Jersey's primary access point to Amtrak intercity services and the national rail network, while also serving as a critical hub for numerous NJ TRANSIT modes/routes and the PATH rapid transit system. A series of recent studies and analyses has resulted in a comprehensive program of proposed Newark Penn Station improvements. These improvements would provide an enhanced experience for customers and would allow the overall station facility to be brought up to a state of good repair. Among the improvements, the upgraded PA system, signage, Departure Vision boards, rail platforms, streetscape improvements, and bus passenger facilities areas would all benefit the majority of Newark Penn Station customers who transfer between multiple transportation services.

Total project cost: \$454,000,000

- Cost estimates are from multiple previously completed studies and analyses, including: Amtrak's *Newark Penn Station Train Shed Assessment Report (2018)*; Amtrak's *Newark Penn Station Structural Condition and Movement Assessment (2020)*; NJ TRANSIT's *Newark Penn Station Passenger Circulation Study (2017)*; and NJ TRANSIT's *5-Year Capital Plan (2020)*.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history: NJ TRANSIT and Amtrak are rehabilitating Platform D within Newark Penn Station with funds awarded under FY2019 Federal State Partnership for State of Good Repair. However, this Platform D work is shown within the specific Newark Penn Station Platform Improvements listing (separate from this item) in the NEC Five-Year Capital Improvement Plan. Consistent with the previous FRA Fed-State SOGR Partnership grant award, the total project cost for the Platform D Improvements is \$26.350MM, with NJ TRANSIT's and Amtrak's local match of \$7.905MM and a Federal share of \$18.445MM.

FY20-24 Information

FY20-24 funding available (or likely to become available): A tentative amount of \$11MM of NJ TRANSIT funds are likely to become available for this project.

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Design and construction of some components of these Newark Penn Station improvements could be completed, or funds could be used as match towards a fuller program of improvements.

FY20-24 additional funding needed: Approximately \$57.7MM is needed to complete a strategic package of Newark Penn Station improvements within the next five years. This may require an estimated \$46MM of additional federal and state funds beyond the tentative NJ TRANSIT funds that are likely to become available. However, project costs may increase upon completed design and engineering.

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** With \$57.7MM, a series of improvements that may include but not limited elevator/escalator rehab, new stairs from Platform D to the lower level, roof segment replacement, waiting area bench repairs, floor resurfacing, lighting upgrades, and bus lane refurbishment.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	TBD	TBD						Phasing and schedule details are currently being developed
Construction	TBD	TBD						

Substation 41

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Amtrak’s Substation 41 is a major electrical substation along the NEC in Kearny, NJ. It was heavily damaged during Superstorm Sandy in October 2012. Substation 41 supplies power to a critical segment of the NEC that includes the North River Tunnels and New York Penn Station. A complete reconstruction and full decommissioning of the existing substation is required. The project includes a rebuild of the substation at a higher elevation so that it can withstand the threat of storm surge and flooding. Another project element is a larger platform that will allow for additional electrical capacity to support future NEC Improvements. Project design is currently at 20%. Substation 41 is one component of the multi-faceted NJ TRANSITGRID project.

Justification: Substation 41 is essential to train operations on the NEC, as it provides power to the nation’s busiest passenger rail segment. With the high passenger volumes for both commuter and intercity passenger rail services in this area, failure of the substation would have a catastrophic effect on the region’s mobility and economy. This project will create greater reliability and resiliency, as well as provide additional electrical capacity.

Total project cost: \$73,010,000

- This cost estimate is derived from a 20% design completed in 2017 and includes project inflation costs for the proposed years of expenditure.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

- Federal
 - Other Federal Grant, \$21,000,000, Sandy Recovery Funds

FY20-24 Information

FY20-24 funding available (or likely to become available): \$21,000,000

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Some design work and refinements may continue until other funding sources are identified for final design and project construction and completion.

FY20-24 additional funding needed: \$52,010,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** Additional funds will ensure that this project will complete final design and project construction and completion.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	\$7,400,000	Mar 2021 - Sep 2022						
Update NEPA	\$600,000	Sep 2021 - Dec 2022						
Construction	\$65,010,000	May 2023 - Apr 2025						

Trenton Transit Center Improvements

- **Coordinating agency:** NJ TRANSIT
- **Partner agency:** Amtrak
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: Trenton Transit Center is a critical intermodal facility for New Jersey’s capital city and the central New Jersey region. Ten different Amtrak intercity routes serve the Trenton Transit Center, along with NJ TRANSIT’s Northeast Corridor (NEC) Line and the Southeastern Pennsylvania Transportation Authority’s (SEPTA) Trenton Line commuter rail services. The Trenton Transit Center also provides connections to/from NJ TRANSIT’s RiverLINE light rail service, 12 intrastate bus routes, one interstate Philadelphia-bound bus route, and one SEPTA bus route.

Recent analyses have resulted in a multifaceted improvement program proposed for Trenton Transit Center. The proposed work includes, but is not limited to: constructing a new high-level platform (replacing an existing low-level platform) to better accommodate increased high speed and intercity rail service; reconstructing existing island platform edges; removing wooden platform components and replacing them with concrete; replacing overhead canopies that have reached the end of useful life; modernization of escalators and elevators; and installing improved drainage systems. The canopy enhancements will incorporate energy-efficient LED lighting, new variable message sign boards, and a new public announcement system with enhanced speakers.

Justification: Trenton Transit Center is a high traffic and high-profile station in New Jersey’s capital city that is utilized by Amtrak, NJ TRANSIT and SEPTA customers. Platform and canopy improvements would reduce maintenance frequency and allow for more efficient and safe boarding for station customers. Modernized escalators and elevators will result in improved vertical circulation and lower maintenance costs. Enhanced communication systems and lighting will bring added comfort to the customer experience and improved passenger safety throughout the station.

Total project cost: \$49,000,000

- New analyses for various infrastructure components at the Trenton Transit Center were conducted as part of NJ TRANSIT’s recently completed 5-Year *Capital Plan* effort

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): A tentative amount of \$7MM of NJ TRANSIT funds are likely to become available for this project

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Design and construction of some components of these Trenton Transit Center Improvements could be completed, or funds could be used as match towards a fuller program of improvements.

FY20-24 additional funding needed: Approximately \$23.69MM is needed to complete a strategic package of Trenton Transit Center improvements within in the next five years. This would require approximately \$16MM of additional federal and state funds beyond the tentative NJ TRANSIT funds that are likely to become available.

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** With \$23.69MM, a series of improvements could be completed that includes canopy and platform rehab, elevator & escalator improvements, and replacement of a low-level platform with a new high-level platform.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Final Design	TBD	TBD						Phasing and schedule details are currently being developed
Construction	TBD	TBD						

Harrisburg Line - Upgrade Track 2, Glen to Thorn (MP 25.3 to 35.0)

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak, Pennsylvania DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will upgrade Track 2 on Amtrak’s Keystone Corridor and SEPTA’s Paoli-Thorndale Regional Rail Line from Glen to Thorn (MP 25.3 to 35.0) and restore the track to FRA Class 3 standards with a maximum authorization speed minimum of 45 miles per hour.

Justification: The upgrade of Track 2 will reduce congestion on the corridor. SEPTA is in the process of expanding its Frazer Yard to accommodate additional trains, which will increase rail traffic on the heavily used corridor. Upgrading the track will return it to a state of good repair and allow for faster deadhead moves between Frazer and Thorndale thereby reducing the number of trains using revenue tracks.

Total project cost: \$16,675,000

- The project cost estimate was developed based on conceptual design and general cost estimating principals for track, catenary and signal work.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** This project is currently unfunded due to the residual impacts to SEPTA’s capital budget from the Pennsylvania Turnpike lawsuit.

FY20-24 additional funding needed: \$16,675,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding and Amtrak forces are available in FY20-24, the entire project can be constructed and completed within the five-year timeframe.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
Construction	\$16,675,000	Oct 2020 - Jun 2022						

Harrisburg Line - Zoo to Paoli Signal Upgrade

- **Coordinating agency:** SEPTA
- **Partner agency:** Amtrak, Pennsylvania DOT
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

Scope: This project will replace the outdated and functionally obsolete, single-direction, signal system on Amtrak’s Keystone Line through a coordinated, multi-phased improvement program. Ultimately, this project will provide for implementation of bi-directional signaling (Rule 261 or 562 depending on the location) from Zoo Interlocking to State Interlocking. Amtrak is in the final states of completing the installation of bi-directional signaling from Park Interlocking to Paoli Interlocking.

The Zoo to Paoli Signal Upgrade project will continue the installation of bi-directional signals east from Paoli and provides benefits to SEPTA’s Paoli-Thorndale Regional Rail service as well as Amtrak’s Keystone service. PennDOT, in coordination with Amtrak and SEPTA, has completed or initiated design on the signal system from Zoo to Paoli. The cost to complete this entire project is \$50 million, which includes finalizing design and construction. SEPTA, Amtrak, and PennDOT have partnered to identify Paoli to Overbrook as the next segment of signaling to be upgraded. The Paoli to Overbrook segment will cost approximately \$21.9 million to complete.

Justification: The project will rehabilitate infrastructure that is beyond its useful life and functionally obsolete. Completion of this project will allow Amtrak to retire the manned signal towers currently in use on the line and will provide significant operational enhancements.

Total project cost: \$50,000,000

- The project cost estimate was developed based on conceptual design and general cost estimating principals for signal work.

Total expenditure as of 9/30/18: \$0

Funding sources for entire project history:

- None

FY20-24 Information

FY20-24 funding available (or likely to become available): \$0

- **At this funding level, the following phases could be initiated or completed in FY20-24:** Not applicable.

FY20-24 additional funding needed: \$50,000,000

- **With additional funding, the following phases could be initiated or completed in FY20-24 (given resource/workforce constraints and track outages):** If funding and Amtrak forces are available in FY20-24 then construction can be completed.

Proposed schedule starting from FY20:

Phase	Cost Estimate	Schedule	FY20	FY21	FY22	FY23	FY24	Note
NEPA/ Final Design	\$1,400,000	Nov 2020 - June 2021						
Construction	\$20,510,000	Oct 2021 - Oct 2024						

Project schedule assumes funding is identified in FY20-24.

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