

Northeast Corridor Annual Report: Operations and Infrastructure

Fiscal Year 2018

March 2019





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.



Contents

Letter from the Executive Director	1
Executive Summary	2
1. Introduction	5
2. Operations	7
Performance	7
Ridership and Service	14
3. Infrastructure	18
Capital Renewal	20
Special Projects	22
Challenges and Recommendations	24
Technical Appendix	27
A. Operations	28
B. Capital Renewal of Basic Infrastructure	38
C. Special Projects	54



Track 7

Location E

↑ Locations F-G

Track 6

Location E

Letter from the Executive Director

In fiscal year 2018, the Northeast Corridor again hosted over 800,000 trips each day on eight commuter railroads and Amtrak's intercity services, connecting commuters, students, business travelers, families, and friends to their destinations. The NEC also welcomed a new commuter rail service, the Hartford Line, doubling train frequency in central Connecticut by supplementing existing Amtrak service thanks to infrastructure investment by the state and federal government.

However, last year also demonstrated the fragility of the NEC's core infrastructure. New York Penn Station made national news in 2017 when two slow-speed Amtrak and New Jersey Transit derailments made plain what transportation officials have been insisting for years – that our railroad infrastructure is badly in need of major rehabilitation. Despite emergency repairs and the initiation of a longer-term project to completely rebuild track, signal, and electrical systems, passengers at New York Penn Station experienced no shortage of infrastructure-related train delays.

Over the past year, the Commission initiated a process for identifying and quantifying the impact of major incidents, including infrastructure failures. Pages 12 and 13 (and an appendix on pages 31-35) show how one circuit failure, one downed electrical wire, or one movable bridge that does not lock into place can affect dozens of trains, causing hundreds of train delay minutes – which are multiplied across thousands of passengers. While the New York City region was particularly impacted given the condition of area infrastructure and the volume of train activity, similar infrastructure failures occurred throughout the corridor from Boston to Washington.

Capital investment to tackle these challenges did not fully advance at planned levels in fiscal year 2018. The reasons for this failure are varied. Some major projects with large planned expenditures, like the Hudson Tunnel Project, were not granted the environmental clearance by the federal government that would have allowed agencies to pursue early action activities like land acquisition, as was expected. Other projects scaled back scopes to address funding shortfalls. For special project capital investment, project-by-project explanations of variance from plan are available on pages 56 through 131.

For capital renewal of basic infrastructure, largely funded through the Commission's Cost Allocation Policy, investment levels fell short of the fiscal year 2018 plan but held flat compared to fiscal year 2017. Some of this failure to ramp up can be attributed to the fact that new Amtrak maintenance-of-way equipment has yet to be put into service. Some activities, such as track replacement, accomplished the planned scope more efficiently at lower cost. Much of the variance, however, cannot be explained because the improved location-based scopes, schedules, and budgets that Amtrak generated for the fiscal year 2019 plan were not yet available in the 2018 plan.

The Commission will continue to support Amtrak, states, and commuter rail operators to improve capital planning and project delivery. This will ensure that Commission member agencies can efficiently invest the higher levels of funding needed to restore the NEC to a state of good repair and improve service reliability into and out of the region's critical economic hubs.

Mitch Warren
Executive Director
Northeast Corridor Commission

Executive Summary

Operations

On-time performance on the NEC improved slightly over FY17

On-time train performance on the NEC improved slightly from 87.6% in FY17 to 88.0% in FY18. This improvement reflects an overall decrease in the number of trains NEC-wide that were late, annulled, or terminated, which decreased from 12.4% in FY17 to 12.0% in FY18. Amtrak and SEPTA experienced notable improvements to their on-time performance, while most commuter rail agencies experienced increases in trains late, annulled, or terminated.

Engineering issues remain largest delay source, but weather-related delays increased significantly in FY18

Engineering-related delays—which include delays resulting from infrastructure issues, speed restrictions, and planned maintenance—were the largest source of delay on the corridor in FY18. Within the engineering-related delay category, infrastructure issues remained the largest source of delay; however, from FY17 to FY18, the total minutes of delay attributed to infrastructure issues decreased by 15.1%, while those associated with programmed maintenance increased by 2.7%. While engineering-related delays remained the largest delay category, there was a notable increase in weather-related delays in FY18 due to severe winter conditions and higher-than-average precipitation in the Northeast. From FY17 to FY18, weather-related delays increased by 25% in terms of the total number of incidents and 71% when measured by the total number of minutes. There can be overlap between weather and infrastructure issues, where a train delay is marked weather-related when weather caused an infrastructure issue.

Major service impacts often result from single infrastructure and third-party incidents

Major incidents are single events that can generate multiple train delays. The Commission identified at least 58 major incidents on the NEC in FY18. Of the top ten incidents identified based on a blended ranking on the total trains affected and total train delay minutes, four involved infrastructure issues and three of those four involved issues related to signal and electric traction power. This analysis also illustrates that on-track incidents—in particular, incidents involving trespasser strikes—resulted in significant and prolonged service impacts in FY18.

Ridership declined slightly in FY18, but Northeast Corridor remains the busiest rail corridor in the United States

Overall ridership on NEC decreased in FY18 to an estimated 808,000 trips a day, from an estimated 820,500 in FY17. Amtrak ridership decreased by less than 1,000 trips a day and has generally remained steady since FY16. Most commuter agencies' NEC ridership decreased slightly or remained steady in FY18, but some, including MARC and VRE, slightly increased over FY17. Among commuter agencies, NJ TRANSIT saw the largest decrease in estimated ridership; however, NJ TRANSIT's ridership submission for FY18 captured reductions in service that occurred during summer 2017 to accommodate the Penn Station Infrastructure Renewal Program.

Infrastructure

NEC stakeholders invested \$1.1 billion in infrastructure in FY18, but fell short from planned amount and prior year's investment

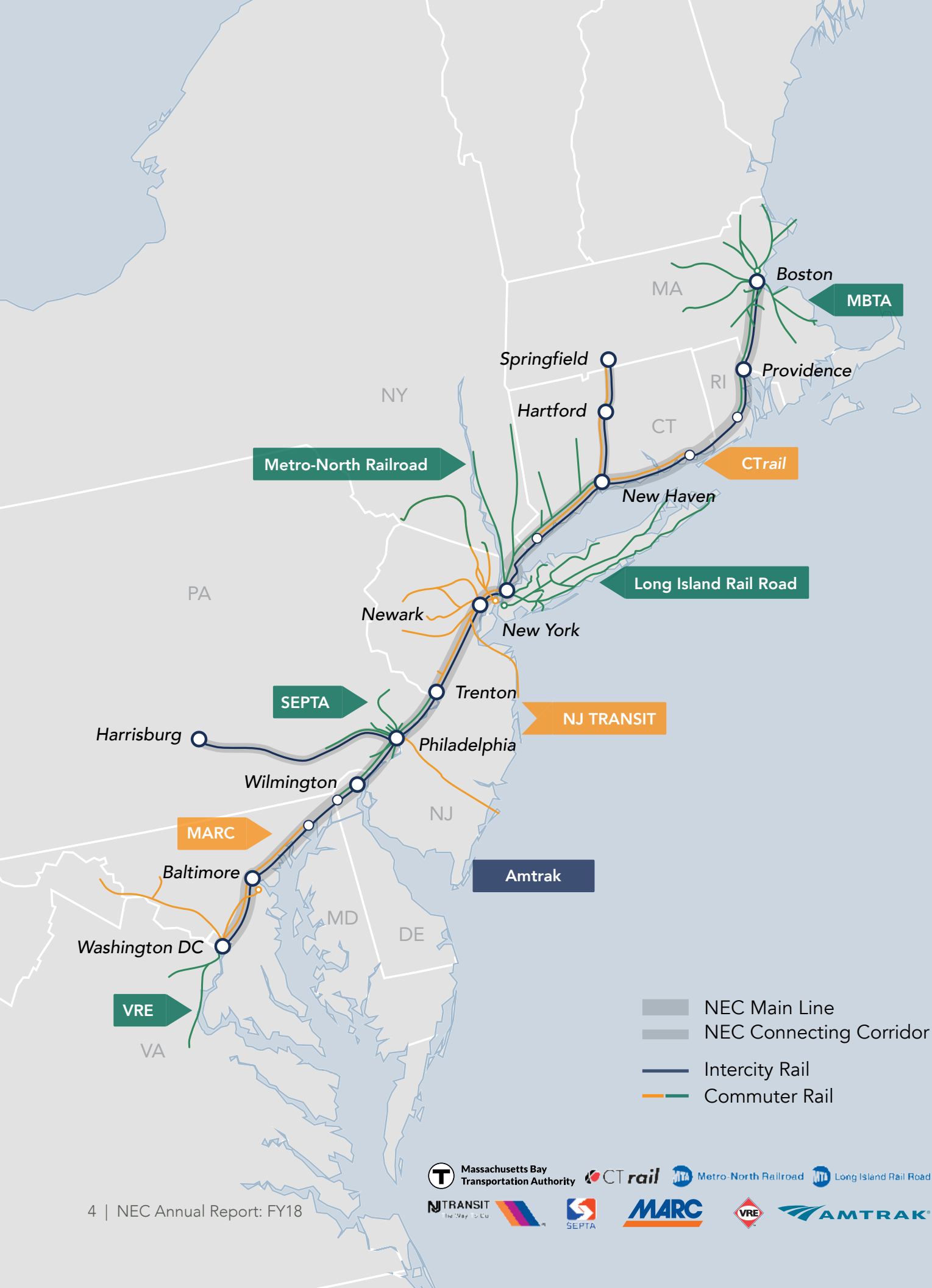
NEC stakeholders invested \$1.1 billion in infrastructure (i.e., capital renewal activities and special projects) in FY18. While substantial, this level of investment, further explained below, is \$400 million less than the \$1.5 billion reported investment in FY17 and significantly less than the investment stated in the FY18 NEC One-Year Implementation Plan.

Of the \$580 million NEC right-of-way owners invested in capital renewal, almost \$436 million was funded by Baseline Capital Charges paid to owners for their territories through the NEC Commuter and Intercity Cost Allocation Policy. Despite lower-than-anticipated total spending on capital renewal, most right-of-way owners, including Amtrak, met their spending obligations under the BCC Program. Similar to FY17, track investments comprised the majority of right-of-way owners' capital renewal spending in FY18. In addition, owners invested 135% more in communications and signals components in FY18 than in FY17. Included in the communication and signals category are owners' investments in positive train control (PTC) technologies on their respective systems, which totaled almost \$65 million in FY18.

NEC stakeholders' submissions to the FY18 plan indicated that, collectively, they planned to invest \$1.4 billion in special projects. NEC stakeholders' FY18 end-of-year submissions for this report showed a collective \$547 million in capital expenditures on special projects—a discrepancy of \$855 million. Half of that discrepancy results from Connecticut DOT's submission of programmed funding in FY18 rather than planned expenditures. These programmed funds are to be expended over several years, not just in FY18. Where planned expenditures for FY18 were provided, reasons for variance from plan are specified for each special project in the report's appendices. Despite the spending shortfall, NEC stakeholders made notable advancements in FY18 on several special projects including the Walk Bridge Program, Harold Interlocking, and Hudson Yards Concrete Casing.

Amtrak initiated capital planning and reporting reforms in FY18, but additional opportunities exist to strengthen capital planning and project delivery

Throughout FY18, Amtrak began to address previously identified capital planning and reporting challenges and provided a submission to the FY19 One-Year Implementation Plan that included improved scope, schedule, and budget information for approximately 59 percent of its planned capital renewal investments. In approving the FY19 Plan, Amtrak and other right-of-way owners committed to making additional improvements to one-year plans and reporting against those plans, including earlier and more frequent collaboration during plan development. Amtrak also seeks to improve its longer-term planning efforts as it shifts into a multi-year, cradle-to-grave project planning and delivery organization. The Commission is committed to supporting Amtrak and other infrastructure owners as needed as they work to refine and improve their capital planning—on both an annual and multi-year basis—and will continue to closely monitor the status of these and other reform initiatives to advance collaborative, multi-year capital planning on the NEC.



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.

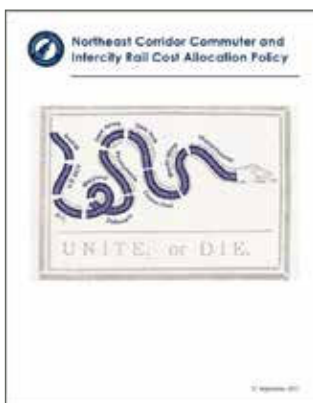
Service disruptions caused by infrastructure failures, rail traffic congestion, and other factors already cost the economy \$500 million per year in lost productivity. Without higher levels of capital investment, those losses are likely to grow. A loss of all NEC services for just one day would cost 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 and reporting process. The NEC Annual Report is a key component of that NEC-wide process and was incorporated into the most recent federal transportation law, Fixing America's Surface Transportation (FAST) Act (49 U.S.C. §24905(b)(3)).

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 Annual Report

The NEC Annual Report was developed in collaboration with eight states, the District of Columbia, the United States Department of Transportation, Amtrak, and eight commuter rail agencies. Throughout FY18, NEC stakeholders submitted operations and capital program data on a quarterly basis to meet the Policy's established framework for transparency, collaboration, and accountability.

The Annual Report summarizes train operations and performance on the NEC during federal fiscal year 2018 (i.e., from October 1, 2017 through September 30, 2018). It also documents the delivery of the Commission's FY18 NEC One-Year Implementation Plan—a consolidated cross-agency record of the anticipated capital project activity in the upcoming federal fiscal year based on available capital funding—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. Operations

The sections that follow summarize NEC operations during FY18 using available data for on-time performance, delays, and ridership. Analyzing NEC operations, including trends over time, is essential to understanding how the corridor is serving the national economy and identifying areas for improvement to reduce delays, improve reliability, and better serve customers.

Performance

On-time performance on the NEC improved slightly over FY17

On-time train performance on the NEC improved slightly from 87.6% in FY17 to 88.0% in FY18. This improvement reflects an overall decrease in the number of trains NEC-wide that were late, annulled, or terminated, which decreased from 12.4% in FY17 to 12.0% in FY18 as shown in Figure 2-1. Amtrak and SEPTA experienced notable improvements to their on-time performance, while most commuter rail agencies experienced increases in trains late, annulled, or terminated ranging from 0.2% (Long Island Rail Road) to 75.2% (CTrail).

Figure 2-1. Percentage of trains late, annulled, or terminated on the NEC, FY16-18

Service Operator	FY16	FY17	FY18	FY17-18 % Change
Amtrak	23.4%	26.7%	23.9%	↓ -10.8%
MBTA	10.7%	10.1%	10.4%	↑ 3.6%
CTrail ⁽¹⁾	7.9%	8.1%	14.1%	↑ 75.2%
Metro-North Railroad	6.9%	8.0%	10.2%	↑ 28.5%
Long Island Rail Road	7.9%	10.2%	10.3%	↔ 0.2%
NJ TRANSIT	7.4%	11.4%	10.7%	↓ -5.7%
SEPTA	19.1%	17.5%	13.2%	↓ -24.1%
MARC	5.6%	8.1%	11.0%	↑ 34.9%
Virginia Railway Express	11.3%	11.5%	13.7%	↑ 18.6%
NEC-wide	11.0%	12.4%	12.0%	

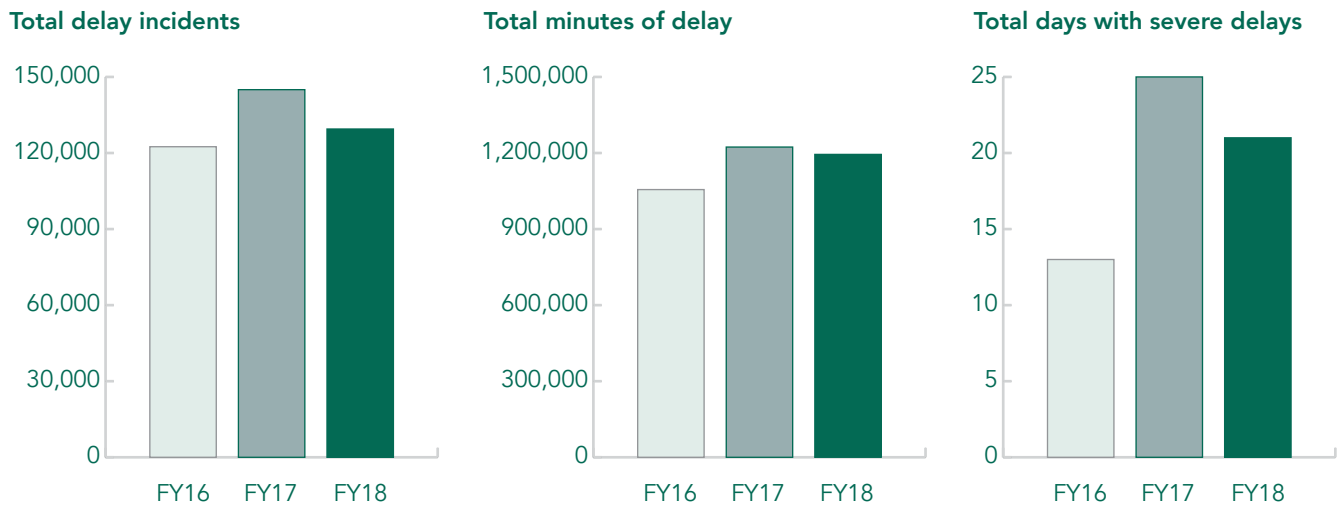
Note: (1) For CTrail, FY16-17 figures include trains only for the Shore Line East. In the third quarter of FY18, CTrail began new service on the new Hartford Line. Therefore, the FY18 figure includes trains for both Shore Line East and the Hartford Line.

The decrease in on-time performance for most commuter rail agencies coincides with the locations of several major, continuous track outages undertaken in FY18. In CTrail territory, there were continuous outages on the Shore Line East between Old Saybrook and New Haven. Similarly, in Metro-North Railroad territory, there were also continuous outages between CP261 and CP229, undergrade bridge work at Sound Beach and Tomac, and work at CP243 for the Walk Bridge program. In Maryland, MARC trains experienced double-block continuous outages for undercutting between Baltimore and Washington, DC for nearly the entire federal fiscal year.

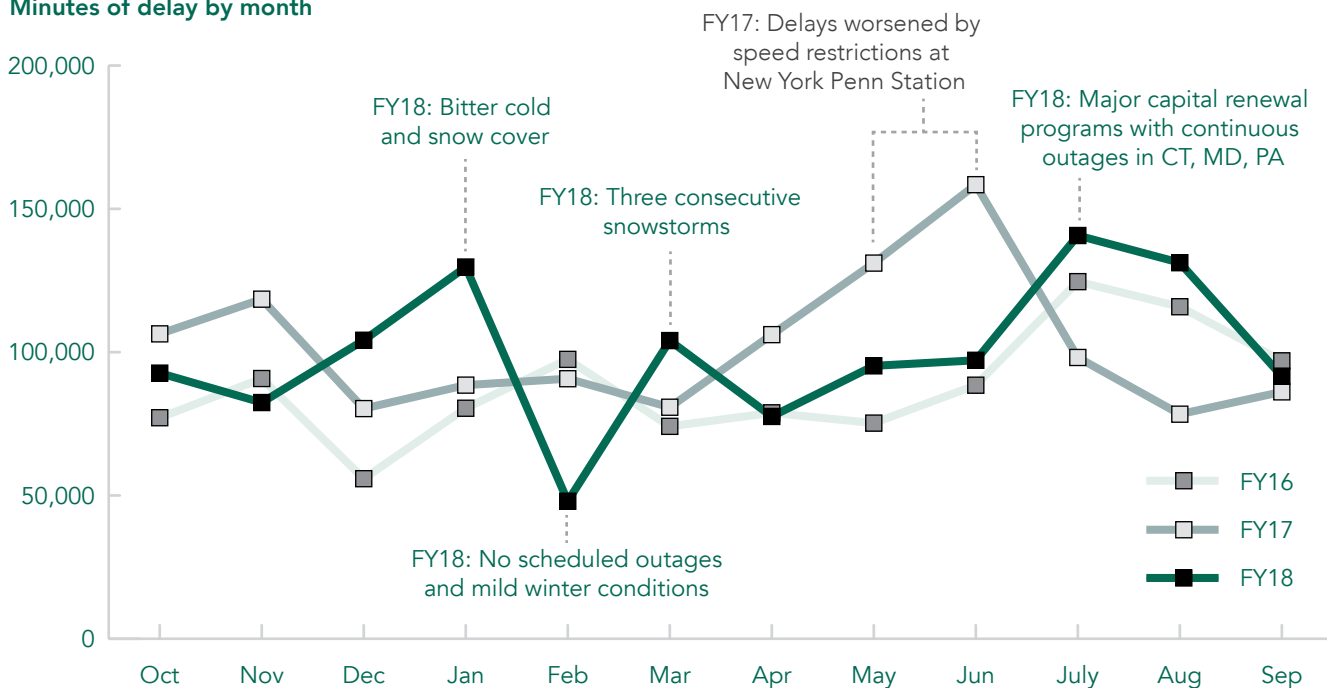
Total delay minutes decreased in FY18

Train delays on the NEC decreased in FY18 as compared to FY17 when measured by the number of delay incidents, total delay minutes, and severe delay days.¹ Specifically, in FY18, NEC operators experienced nearly 129,500 delay incidents, 1.2 million delay minutes, and 21 severe delay days, which reflect decreases of 10.7%, 2.4%, and 16.0% respectively as compared to FY17 (see Figure 2-2). However, it is important to note that operators experienced a significant increase in delays in FY17, largely due to events at New York Penn Station, and the number of delay incidents and total delay minutes in FY18 remain higher than reported in FY16.

Figure 2-2. Delays on the NEC, FY16-18



Minutes of delay by month



¹ Severe-delay days are days where over 20% of the schedule trains are late or not completed, or days where 3% of the scheduled trains are not completed.

Engineering issues remain largest delay source, but weather-related delays increased significantly in FY18

Individual railroads maintain their own classifications of delay causes. The Commission gathers, consolidates, and analyzes causes of delay from all NEC railroads to create a consistent framework that allows for a corridor-wide analysis. Under this approach, the Commission utilizes eight cause-of-delay categories defined below in Figure 2-3.

Similar to findings in the FY17 Annual Report and as shown in Figure 2-4, engineering-related delays—which include delays resulting from infrastructure issues, speed restrictions, and planned maintenance—were the largest source of delay on the corridor in FY18. Engineering-related delays in terms of total minutes comprised 30% of all delays—or nearly 359,000 minutes of delay—followed by mechanical-related delays (16%), and transportation-related delays (15%). While passengers experienced fewer delay minutes due to engineering-related causes in FY18 as compared to FY17, delay minutes attributable to this category remain elevated as compared to FY16.

Figure 2-3. Minutes of delay by cause, FY16-18

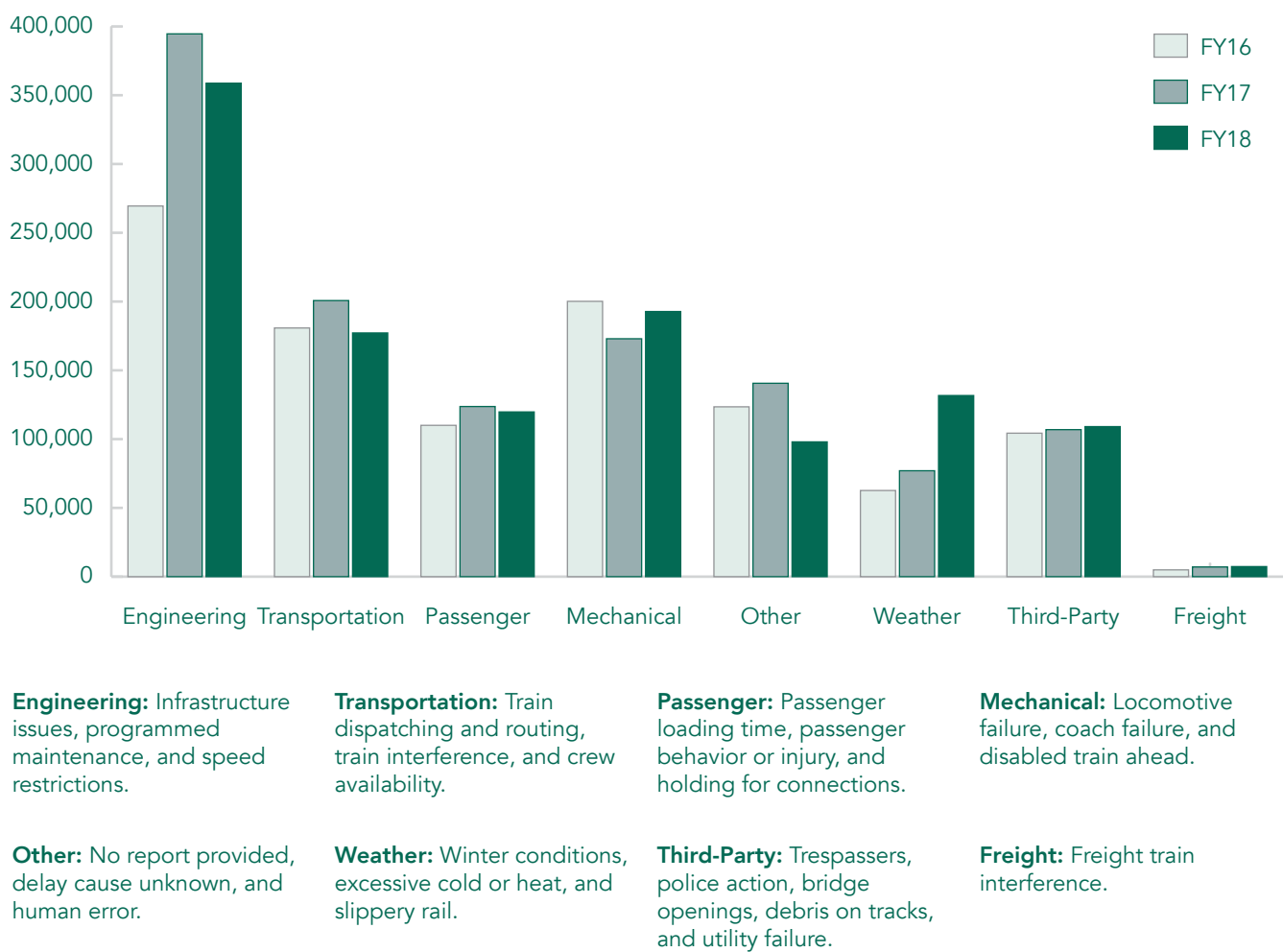
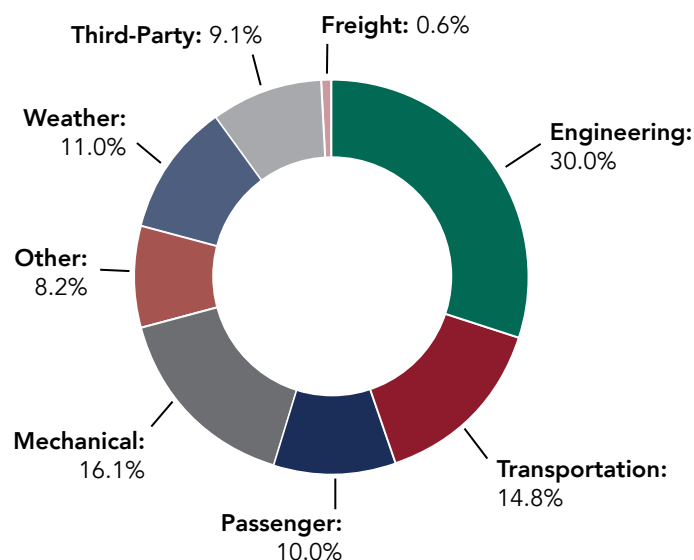
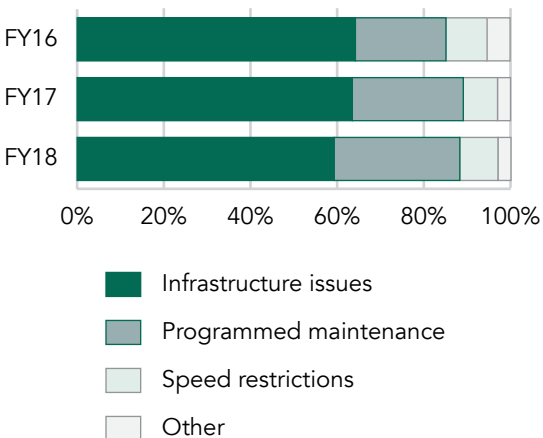


Figure 2-4. Minutes of delay by cause

Minutes of delay by cause, FY18



Engineering-related minutes of delay, FY16-18



Within the engineering-related delay category, infrastructure issues remained the largest source of delay at nearly 60% of all engineering-related minutes of delay. However, from FY17 to FY18, the total minutes of delay attributed to infrastructure issues decreased by 15.1%, while those associated with programmed maintenance increased by 2.7% (see Figure 2-4 above).

In FY18, right-of-way owners initiated several continuous track outages for concentrated capital renewal activities—particularly in Connecticut, Pennsylvania, and Maryland, as well as in New York Penn Station—the impacts of which would be reflected in two delay categories: (1) engineering as programmed maintenance; and (2) transportation as train interference. An up-tick in delays associated with programmed maintenance underscores the importance of agencies continuing to seek opportunities to coordinate on track outages to maximize outage productivity and minimize service impacts.



NJ TRANSIT's Hamilton Station in New Jersey

How weather may impact the railroad

Weather has significant and varied impacts on infrastructure components. For example, extreme cold can affect the operation of switches, interlockings, and overhead catenary systems and result in broken rail. In addition, strong winds can cause signal power cables to snap and moisture from excessive rainfall can negatively affect power systems, signal circuits, and track conditions. Excessive heat can cause catenary wires to sag, where they can get tangled in train pantographs. Heat also causes steel rails to expand causing heat kinks.

Some capital investments can protect and strengthen these vital infrastructure elements. For example, investments could be made to protect drainage systems and culverts; elevate vulnerable substations and instrument houses; bury vulnerable signal power cables; and install redundant power feeds and constant-tension catenary systems.

While engineering-related delays remained the largest cause of delay category, FY18 saw a notable increase in weather-related delays, as noted in Figure 2-3. Throughout FY18, the Northeast was heavily affected by severe winter conditions, particularly in January and March, and higher-than-average precipitation, most notably from July through September. As a result, from FY17 to FY18, weather-related delays increased by 25% in terms of the total number of incidents. When measured by the total number of minutes, weather-related delays grew by 71% from FY17 to FY18. In addition, over half of the 21 severe delay days had weather elements that contributed to the delays. These findings suggest that NEC passengers experienced direct and significant impacts from weather-related delays in FY18.

Major service impacts often result from single infrastructure and third-party incidents

To provide additional context for NEC train operations and performance in FY18, the Commission began identifying “major incidents,” or single events that can generate multiple train delays. Major incidents on the NEC were identified by analyzing daily train performance data and cross-referencing that data with the contents of NEC operators’ rail operations and incident reports.² Using this approach the Commission identified at least 58 major incidents on the NEC in FY18. Figure 2-5 below is the top ten major incidents based on a blended ranking on the total trains affected and total train delay minutes associated with each incident. See the Appendix page 31 for a list of all major incidents in FY18.

Of the top ten incidents, four involved infrastructure issues and three of those four involved issues related to signal and electric traction power. This analysis also illustrates that on-track incidents—in particular incidents involving trespasser strikes that required temporary cessation of service and action by first response teams—resulted in significant and prolonged service impacts in FY18. Continued use of this analysis technique will enable us to identify trends and common elements of such incidents with the hope of discovering actionable remedies in some areas.

Figure 2-5. Top ten major incidents by blended ranking of total trains affected and train delay minutes, FY18

Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train delay minutes ¹
12/19/2017 8:43 AM 6 hrs 10 min	Catenary failure	Location: Portal Interlocking, Secaucus, NJ Description: Catenary wire pulled down on Track 2 at Portal. Railroad had to operate on a single track instead of two for a 7.2-mile stretch.	161	5,203
8/9/2018 6:27 PM 3 hrs 47 min	Third-party: Trespasser incident	Location: Metuchen, NJ Description: NJ TRANSIT Train 3701 struck an individual on Track 4, west of Metuchen. A hold was placed on all four tracks to enable investigation and right-of-way clearing. First responders needed to investigate before any tracks were released. Passengers on Train 3701 were transferred to another train.	87	2,962
4/23/2018 8:42 AM 7 hrs 44 min	Catenary power failure	Location: New York Penn Station and East River Tunnels Description: Catenary power down on eleven tracks in New York Penn Station and one of the tunnel tracks under the East River. Because electric trains were immobile on deenergized tracks, diesel engines were called to clear disabled electric trains.	101	2,710

² Major incidents are identified through a multi-step methodology. First, train performance data are analyzed to uncover potential clusters of delay by time and location. Subsequently, daily operations summary reports from dispatching centers along the NEC are referenced to discover individual incidents (e.g. infrastructure failure, trespasser) that were likely to be an originating source of cascading delays. Finally, train performance data are reviewed again and professional judgment is used to determine which specific train delays were in all likelihood primarily traceable back to that originating incident. Since impacts on service are measured by number and severity of delays, this methodology is more likely to capture incidents that occur during rush hour and does not capture other incidents that might have been serious but may have affected fewer trains.

Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train delay minutes ¹
5/11/2018 4:12 PM 3 hrs 47 min	Third-party: Trespasser incident	Location: Track 2 near Monmouth Junction, NJ Description: Eastbound Amtrak Train 184 struck an individual on Track 2.	83	2,888
3/9/2018 6:11 AM 5 hrs 13 min	Third-party: Trespasser incident	Location: Track 3 near Secaucus Junction, NJ Description: An individual was struck on Track 3 west of Secaucus Station. A hold was placed on all tracks to enable investigation and right-of-way clearing.	114	2,048
4/16/2018 3:57 PM 3 hrs 16 min	Third-party: Trespasser incident	Location: Track 2, MP130 near Landover, MD Description: Eastbound Acela Train 2172 struck an individual. A hold was placed on both tracks to enable investigation and right-of-way clearing. Passengers on Acela 2172 were transferred to another train.	57	3,289
7/13/2018 4:55 AM 2 hrs 35 min	Third-party: Trespasser incident	Location: Woodside, Queens, NY Description: LIRR Train 1717 struck an individual at Woodside. A hold was placed on all tracks to enable investigation and right-of-way clearing. First responders needed to investigate before any tracks were released. Passengers on Train 1717 were transferred to another train.	100	1,547
3/16/2018 4:15 AM 4 hrs 23 min	Movable bridge failure	Location: Portal Bridge near Secaucus, NJ Description: Portal Bridge could not properly close after opening due to a broken mitre-rail, which provides a secure lock on a movable bridge. This movable bridge failure was further exacerbated by a bridge power failure, which resulted in severing the NEC at Portal Bridge. Trains west of Portal Bridge terminated at Newark, NJ, while intercity trains east of the bridge terminated at New York Penn Station. Travelers were required to take PATH trains to travel between Newark and Manhattan. NJ TRANSIT ran rail shuttle service between Secaucus Station, which is just east of Portal Bridge, and New York Penn Station.	137	1,163
12/28/2017 9:04 AM 6 hrs 51 min	Catenary power failure	Location: South tube of the North River Tunnel, near New York Penn Station Description: An electric circuit failure caused an outage in overhead power and other various infrastructure issues. All traffic in and out of New York Penn Station to/from New Jersey was routed to Track 1.	77	1,853
4/23/2018 9:00 AM 5 hrs 53 min	On track accident	Location: Track 1, MP119 near Bowie, MD Description: Eastbound Train 86 struck an individual. A hold was placed on all three tracks to enable investigation and right-of-way clearing. Passengers on Train 86 were transferred to another train.	49	2,870

Table note: (1) Total train delay minutes do not include trains that were annulled or terminated.

Ridership and Service

Ridership declined slightly in FY18, but the Northeast Corridor remains the busiest rail corridor in the United States

Overall ridership on NEC decreased in FY18 to an estimated 808,000 trips a day, from an estimated 820,500 in FY17. Figure 2-6 below summarizes the estimated average weekday trips and trains on the NEC and system-wide in FY18. Amtrak ridership decreased by less than 1,000 trips a day and has generally remained steady since FY16. Most commuter agencies' NEC ridership decreased slightly or remained steady in FY18, but some, including MARC and VRE, slightly increased over FY17. Among commuter agencies, NJ TRANSIT saw the largest decrease in estimated ridership; however, NJ TRANSIT's ridership submission for FY18 captured reductions in service that occurred during summer 2017 to accommodate the Penn Station Infrastructure Renewal Program.³ As shown in Figure 2-7, collectively, commuter agencies' NEC ridership has declined slightly year-over-year since FY16.

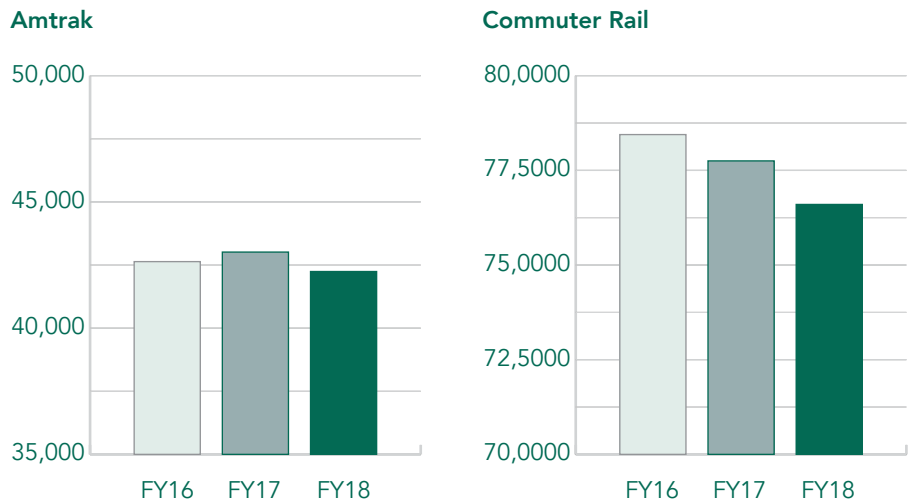
Figure 2-6. Estimated average weekday railroad trips and scheduled weekday trains, FY18

Service Operator	Northeast Corridor			System-wide	
	Estimated Trips	Change in Est. Trips, FY17-18	Scheduled Trains	Estimated Trips	Scheduled Trains
Amtrak	42,000	↓	150	88,000	300
MBTA ¹	79,000	↓	313	97,000	516
CTrail ²	2,000	↔	34	2,000	34
Metro-North Railroad ²	126,000	↓	299	291,000	673
Long Island Rail Road ³	234,000	↑	462	312,000	735
NJ TRANSIT	233,000	↓	419	311,000	700
SEPTA	53,000	↓	354	121,000	768
MARC	34,000	↑	95	36,000	95
Virginia Railway Express	5,000	↑	32	19,000	32
NEC-wide	808,000	↓	2,159	1,277,000	3,853

Notes: Results cover the NEC main line and connecting corridors identified in the Introduction. The results in this report do not necessarily match the statistics reported by any individual agency for their overall system because NEC trains are a subset of operations for most agencies. For complete historical ridership, methodology details and data considerations, see Appendix A on page 36. (1) Historical MBTA ridership on the NEC is only an estimate at this time due to limited data availability. (2) CTrail ridership includes both Shore Line East passengers from New London to New Haven, CT and passengers on the new Hartford Line commuter rail service, which began on June 2018. Shore Line East passengers between New Haven and Stamford are included in Metro-North's ridership figures. (3) Long Island Rail Road system-wide trips figure is preliminary.

³ Where possible, this report contains ridership data submitted by agencies to the Commission for the FY20 NEC Cost Allocation Model. Some agencies, including NJ TRANSIT, submit data for the state fiscal year, not the federal fiscal year. Historical ridership, methodology details, and data considerations can be found in Appendix A on page 36.

Figure 2-7. Estimated daily passenger trips on the NEC, FY16-18

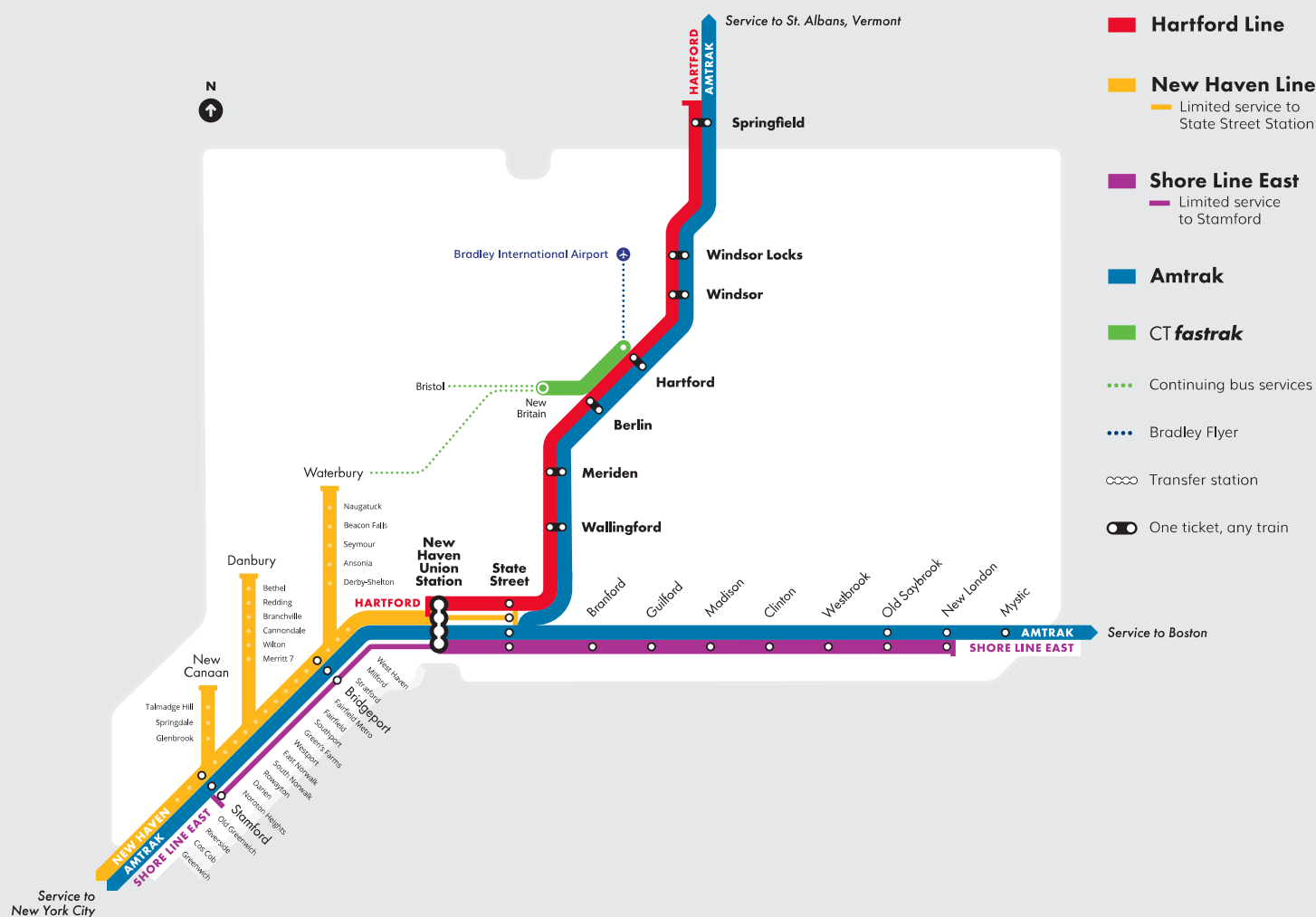


Despite a slight decrease in overall ridership in FY18, the NEC remains the busiest passenger rail corridor in the US with over 2,100 passenger trains and approximately 50 freight trains operating daily in FY18. On the NEC, commuter rail agencies continue to operate the majority of NEC daily trains (2,009 daily trains or 93% of the total), with the remainder operated by Amtrak (150 daily trains or 7% of the total). Most commuter rail agencies that operate on the NEC also continued to carry a majority of their passengers on the NEC for at least a portion of their trip. For instance, 81% of MBTA passenger trips used the NEC in FY18.

During FY18, Amtrak and commuter rail agencies instituted several changes to service on the NEC. Connecticut DOT and Amtrak completed infrastructure improvements and doubled service between New Haven, CT and Springfield, MA on the Hartford Line. Other operators adjusted services offered in response to resource constraints. For example, NJ TRANSIT made strategic reductions to some NEC services in order to advance progress on implementing Positive Train Control, while Amtrak and other commuter rail agencies made targeted schedule adjustments, including substituting train service with buses, to accommodate track outages for major capital renewal projects.



Above: Ribbon cutting for the new Hartford Line station in June 2018. **Below:** The Hartford Line links passengers from Springfield, Massachusetts to New Haven, Connecticut and beyond.





Berlin Station, the third new Hartford Line station, opened in October 2018.

New rail service initiated linking passengers from Springfield, MA to New Haven, CT and beyond

In June 2018, CTrail began commuter rail service on the Hartford Line, which includes nine stops between Springfield, MA and New Haven, CT. The Hartford Line will connect residents from Massachusetts and Connecticut to other rail services such as the New Haven Line, Shore Line East, and Amtrak's Northeast Regional and Acela trains.

The Hartford Line doubles the frequency of Amtrak's previous state-supported service in Connecticut. According to a state press release, the Hartford Line attracted 21,850 passengers in the opening weekend alone and continues to exceed the state's expectations. During FY18, service on the Hartford Line included 17 weekday Amtrak and CTrail trains between New Haven and Hartford, CT, with 13 of those trains continuing to Springfield, MA. Service to Springfield was expanded from 12 to 13 trains in November 2018 (during FY19).

3. Infrastructure

Each year, the Commission develops and approves the NEC One-Year Implementation Plan that identifies the capital investments planned for the upcoming federal fiscal year from each agency based on available funding. Throughout the year, NEC owners and operators are required to report on delivery of the capital program, including the progress made in implementing the plan. The sections that follow summarize capital investments made during FY18 to provide transparency regarding capital program delivery and highlight key areas of progress and challenges.

NEC stakeholders invested \$1.1 billion in infrastructure in FY18, but fell short from planned amount and prior year's investment

As summarized in Figure 3-1, NEC stakeholders invested \$1.1 billion in infrastructure in FY18. While substantial, this level of investment is \$400 million less than the \$1.5 billion reported investment in FY17 and significantly less than the investment stated in the FY18 plan. Total capital renewal expenditures, which include BCC funded and non-BCC funded investments, were approximately \$175 million lower in FY18 than anticipated, but relatively steady compared to FY17. Despite lower-than-anticipated total spending on capital renewal, most right-of-way owners, including Amtrak, met their spending obligations under the BCC Program (see page 20). Special project expenditures in FY18 were both lower than anticipated and lower relative to agencies' FY17 expenditures; however, as Figure 3-2 indicates, half of the special projects shortfall results from Connecticut DOT's use of programmed funding rather than planned expenditures. For further details on special project variances, see page 23.

Figure 3-1. Summary of capital investments, FY17 actuals vs. FY18 plan vs. FY18 actuals

Capital Investment Type	FY17 Expenditure	FY18 Plan ¹	FY18 Expenditure
Capital Renewal by Owner Territory	\$562.5 M	\$758.4 M	\$580.6 M
Amtrak-owned territory	\$437.6 M	\$573.0 M	\$435.6 M
MBTA-owned territory	Not applicable ²	\$19.7 M	\$8.1 M
Connecticut DOT-owned territory	\$115.2 M	\$150.0 M	\$120.3 M
Metro-North-owned territory	\$9.7 M	\$15.7 M	\$16.6 M
Special Projects by Coordinating Agency	\$934.7 M	\$1,402.4 M	\$546.8 M
Amtrak	\$465.7 M	\$416.2 M	\$169.5 M
MBTA	\$2.5 M	\$20.4 M	\$16.6 M
Rhode Island DOT	\$0	\$10.0 M	\$0
Connecticut DOT ¹	\$195.3 M	\$574.3 M ¹	\$152.2 M
Metro-North Railroad	\$4.0 M	Not available	\$3.2 M
MTA Capital Construction	\$141.5 M	\$12.0 M	\$74.1 M
Long Island Rail Road	\$9.4 M	\$42.5 M	\$6.0 M
NJ TRANSIT	\$16.4 M	\$192.0 M	\$33.2 M
Pennsylvania DOT	\$7.3 M	\$30.0 M	\$14.2 M
SEPTA	\$62.9 M	\$73.2 M	\$64.2 M
Delaware DOT	\$12.1 M	\$28.5 M	\$12.6 M
Maryland DOT	\$17.6 M	\$3.3 M	\$1.0 M
Total	\$1,497.2 M	\$2,160.0 M	\$1,127.4 M

Notes: (1) Connecticut DOT's FY18 plan figures for special projects represent programmed funding, not planned expenditures. See page 19 for more information. (2) Capital renewal for MBTA-owned territory was included in Amtrak's FY17 program.

Programmed funding vs. planned expenditures

Programmed funding figures provided by some agencies for NEC plans and reports do not necessarily represent planned expenditures. As used by NEC stakeholders, the term “programmed funding” refers to the amount of funding an agency has identified for a specific project or program for use over the life of the project or program, based on projected funding available, whereas “planned expenditure” refers to the amount an agency projects to spend on a project in a given time period (e.g., the upcoming fiscal year). For instance, Connecticut DOT requires funding to be available for a specific project that may take multiple years to complete. Unspent amounts from programmed funding for a multi-year project would likely carry over to future fiscal years.

In the FY18 One-Year Implementation Plan, Connecticut DOT indicated that \$574 million in programmed funding was available for its projects (listed below in Figure 3-2). However, Connecticut DOT spent \$152 million in FY18 on special projects. Almost half of the \$856.2 million shortfall between the FY18 One-Year Implementation Plan and the FY18 actuals for all special projects contained in this report can be attributed to Connecticut DOT’s use of programmed funding rather than planned expenditures.

Figure 3-2. Connecticut DOT special projects, FY18 programmed funding and FY18 actual expenditures

Special Project	FY18 Programmed Funding	FY18 Actual Expenditure
CTrail Hartford Line Commuter Station Improvements	\$30,000,000	\$7,694,033
New Haven Line Network Infrastructure Upgrade	\$35,000,000	\$5,310,593
New Haven Line Stations Improvements	\$80,000,000	\$2,837,554
New Haven Yard Master Complex Improvements	\$48,000,000	\$17,797,053
SLE Station Improvements	\$15,000,000	\$610,789
Walk Bridge Program	\$366,338,696	\$117,938,429
Total	\$574,338,696	\$152,188,451

The North River Tunnel connects New Jersey and New York under the Hudson River.



Capital Renewal

In FY18, states, commuter rail agencies, and Amtrak invested in capital renewal at similar levels as FY17, but less than planned for FY18

NEC stakeholders invested over \$580 million in capital renewal of basic infrastructure in FY18, which was \$177.8 million less than planned for the year. 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. On the NEC, capital renewal of basic infrastructure is managed by the infrastructure owners: Amtrak, MBTA, Connecticut DOT, and Metro-North Railroad.

Of the \$580 million invested in capital renewal, almost \$436 million was funded by Baseline Capital Charges paid to owners for their territories. As discussed on page 5, per the NEC Cost Allocation Policy, each operator contributes a Baseline Capital Charge, which is calculated annually through the Cost Allocation Model and based on the relative use of NEC infrastructure (see Figure 3-3 for agencies' BCC obligations for FY18). All owners spent the BCCs paid to them except MBTA (see Figure 3-4).

Due to limited information provided by right-of-way owners regarding planned capital renewal investments in the FY18 One- Year Implementation Plan, variances regarding capital renewal investments cannot be tracked or explained in the same manner as special projects. However, improvements were made in the FY19 One-Year Implementation Plan, particularly with respect to Amtrak's submission which included enhanced scope, schedule, and budget information for 59% of its FY19 capital renewal program (as a share of total FY19 planned expenditure). See the Challenges and Recommendations section on page 24 for more details.

Figure 3-3. Capital renewal baseline capital charge obligations, FY18

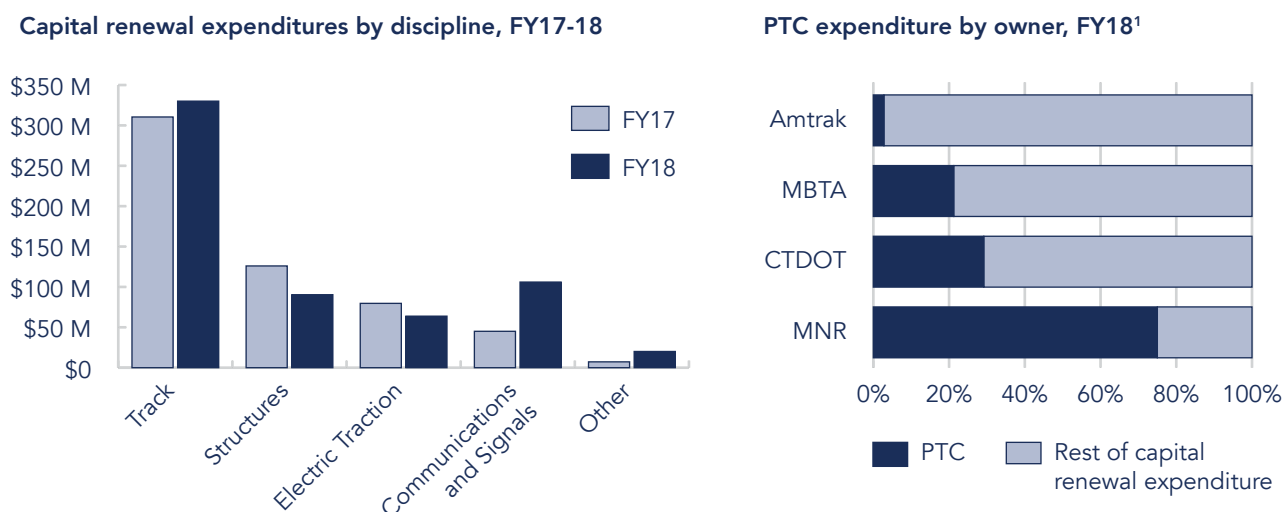
Service Operator	BCC Obligation (at 80% Normalized Replacement)
Amtrak	\$229,887,000
MBTA	\$12,150,000
Rhode Island DOT	\$1,378,000
CTDOT (Shore Line East)	\$4,306,000
CTDOT (Hartford Line)	See Note 1
CTDOT (New Haven Line)	\$35,428,000
Metro-North Railroad	\$9,855,000
Long Island Rail Road	\$18,045,000
NJ TRANSIT	\$83,824,000
SEPTA	\$30,336,000
Delaware DOT	\$1,764,000
Maryland DOT	\$13,231,000
Virginia Railway Express	\$456,000
Total Obligation	\$440,660,000

Note: (1) CTDOT's BCC obligation for the Hartford Line was handled bilaterally.

Figure 3-4. BCC obligation and expenditure by owner territory, FY18

	FY18 BCC Obligation	FY18 Actual BCC Expenditure	FY18 Above BCC Expenditure	FY18 Expenditure
Capital Renewal by Owner Territory	\$440.7 M	\$435.6 M	\$145.0 M	\$580.6 M
Amtrak-owned territory	\$361.6 M	\$367.3 M	\$68.3 M	\$435.6 M
MBTA-owned territory	\$18.9 M	\$8.1 M	\$0	\$8.1 M
Connecticut DOT-owned territory	\$48.5 M	\$48.5 M	\$71.8 M	\$120.3 M
Metro-North-owned territory	\$11.7 M	\$11.7 M	\$4.9 M	\$16.6 M

Figure 3-5. Capital renewal expenditures



Note: (1) Other NEC stakeholders invested in PTC in FY18 through vehicle investments in their non-NEC branch lines. Those investments are not reflected in Figure 3-5, which focuses on NEC right-of-way owners' capital renewal work on the NEC only.

Similar to FY17, track investments comprised the majority of right-of-way owners' capital renewal spending in FY18 (see Figure 3-5). This is largely attributable to Amtrak, which spent \$309 million in FY18, or 71% of its capital renewal program, on track work. Its efforts were focused primarily in Maryland where they undercut over 500,000 linear feet of track, Connecticut between Old Saybrook and New Haven where they surfaced over 100,000 passing feet of track, and in Pennsylvania between Trenton and Philadelphia where they installed rail and over 70,000 concrete ties. Amtrak's other major track investments include spending over \$30 million on track in the Westside Connection Tunnel on the connecting corridor between Penn Station and Spuyten Duyvil, NY and \$29 million on the second phase of the Penn Station Infrastructure Renewal Program which included rehabilitating three tracks and nine turnouts in three different interlockings.

Owners invested 135% more in communications and signals components in FY18 than in FY17. Included in the communication and signals category are owners' investments in positive train control (PTC) technologies on their respective systems, which totaled almost \$65 million in FY18. Connecticut DOT and Metro-North both spent the highest percentage of their programs on PTC: 29% and 75% respectively (see Figure 3-5). It should be noted that while other NEC stakeholders invested in PTC in FY18 through vehicle investments in their non-NEC branch lines, those investments are not reflected in owners' NEC capital renewal programs.

In FY18 Connecticut DOT made significant investments in its bridges and structures, although overall investment in structures was lower than in FY17. The agency spent over \$26 million of its capital renewal program reconstructing undergrade bridges in Stamford and Greenwich, restoring bridge timber, and making interim repairs to its major movable bridges to keep them functioning and safe until they can be fully replaced.




Metro-North's second largest investment after communications and signals was in electric traction including its Bridge-23 power project. Through this project Metro-North will replace the Bridge-23 substation which is the only source of power to the New Haven Line in New York State.

Special Projects

NEC stakeholders invested over \$500 million to advance special projects in FY18, but special project investment was significantly less than planned

Collectively NEC stakeholders invested over \$500 million to advance special projects in FY18. 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 structures with markedly superior ones.

Figure 3-6. Special projects for which agencies made notable advancements in FY18

Walk Bridge Program	
	<p>Project overview: This project will eventually replace the functionally obsolete 120-year-old Walk Bridge in Norwalk, CT. Connecticut DOT has committed to replace the bridge with a mix of state and federal funds.</p> <p>FY18 accomplishments: In FY18 construction continued for two advance projects which will improve dependability during full construction of the Walk Bridge Replacement Project. The first advance project is constructing a new interlocking, or collection of switches and signals, called CP243. The second project, Danbury Branch Dockyard Project, includes improvements and electrification of a portion of the Danbury Branch Line including the Dockyard where trains are stored when not in use. Design of the Walk Bridge Project continued in FY18 and reached 60% design.</p>
Harold Interlocking	
	<p>Project overview: This project will construct new conflict-free routes through Harold Interlocking, the busiest switch-point on the NEC located in Queens NY. The project, which is sponsored by MTA Capital Construction, is funded through a combination of an American Recovery & Reinvestment Act grant and state/local funds.</p> <p>FY18 accomplishments: In FY18, MTA Capital Construction completed portions of the east and west approach of the Westbound Bypass tunnel. The Westbound Bypass tunnel will allow Amtrak trains to be routed to Penn Station through the East River Tunnel without conflicts with Long Island Rail Road trains, resulting in reduced travel times. Additional progress in FY18 included developing a strategy to integrate project completion with other high priority regional projects including East River Tunnel Rehabilitation and MTA’s East Side Access project.</p>
Hudson Tunnel Project: Hudson Yards Concrete Casing	
	<p>Project overview: The Hudson Tunnel Project, part of the Gateway Program, 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, previously called Hudson Yards Concrete Casing. This project has been accepted by the FTA into the Project Development phase of the Capital Investment Grant program and state and Amtrak partners have committed funding for the remainder.</p> <p>FY18 accomplishments: In FY18, Phase 1 and 2 of Hudson Yards Concrete Casing were completed. Preliminary Engineering for the Hudson Tunnel Project was completed as planned. The administrative draft of the FEIS was completed in a record 22 months and submitted to FRA for review in January 2018. Legislation was passed in the New York State Legislature amending the Hudson River Park Trust act to allow a rail tunnel under the Park and to allow the park to negotiate an easement with the tunnel project.</p>

NEC stakeholders' submissions to the FY18 One-Year Implementation Plan indicated that, collectively, they planned to invest \$1.4 billion in special projects. However, \$574 million of that planned amount includes Connecticut DOT's programmed funding, not planned expenditures (for more details see "Programmed funding vs. planned expenditure" on page 19). NEC stakeholders' submissions for this report (i.e., their FY18 end-of-year actuals) included \$547 million in capital expenditures on special projects.

Unlike capital renewal investments which lack meaningful variance information for FY18, agencies' special project submissions for this report included an explanation of variance from the plan to account for changes to scope, schedule, or budget, each of which can be found on the special project pages in Appendix C starting on page 54. Given that each project is unique, and progress is determined by both internal and external factors, it is not possible to offer an overall explanation for the project-level variances from planned expenditures.

The five special projects with the largest negative variances between planned versus actual expenditures can be seen in Figure 3-7 below. Of these five projects, roughly \$200 million of variance can be attributed to delays from external stakeholders. For example, Amtrak and NJ TRANSIT both deferred activities for their Hudson Tunnel and NJ TRANSITGRID projects due to delayed issuance of environmental statements and records of decision from USDOT. NJ TRANSIT also faced delays in securing an agreement with Amtrak for its Delco Lead Project. The variance for Amtrak's Next-Generation High-Speed Rail projects at Sunnyside Yard and Ivy City can be attributed to internal decisions and value engineering to update scopes from building new or replacement facilities to implementing more cost-effective modifications to existing structures.

Figure 3-7. Top five special projects by negative variance, FY18 plan v. actual expenditures

Special Project	Coordinating Agency	FY18 Planned Expenditure	FY18 Actual Expenditure	Variance
Next Generation High Speed Fleet Infrastructure: Sunnyside Yard Facility Improvements	Amtrak	\$92,000,000	\$5,673,909	\$86,326,091
Gateway: Hudson Tunnel Project	Amtrak	\$105,804,644	\$25,417,612	\$80,387,032
NJ TRANSITGRID	NJ TRANSIT	\$90,050,000	\$10,779,000	\$79,271,000
Delco Lead Project	NJ TRANSIT	\$45,000,000	\$3,873,000	\$41,127,000
Next Generation High Speed Fleet Infrastructure: Ivy City/ Washington Terminal Yard Facility Improvements	Amtrak	\$25,450,000	\$1,378,663	\$24,071,337
Total		\$358,304,644	\$47,122,184	\$311,182,460

Challenges and Recommendations

Amtrak initiated capital planning and reporting reforms in FY18, but additional opportunities exist to strengthen capital planning and project delivery

In addition to establishing a cost-sharing formula that allocates over a billion dollars annually for shared operating and capital costs, the NEC Cost Allocation Policy outlines expectations for planning and reporting on shared capital investments, many of which have been codified in federal law. Prior NEC Annual Reports have highlighted challenges regarding Amtrak's capital planning and reporting processes as reflected in NEC One-Year Implementation Plans and Quarterly Capital Program Delivery Reports. 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. As described in the FY17 NEC Annual Report, 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
3. Reports do not provide location explanations of progress, changes in schedule, or variance from budget

The first challenge was a symptom of a greater problem related to the other two challenges: the lack of a systematic way of providing scope, schedule, and budget information for investments on a forward-looking basis. Plans tended to forecast expenditures based on the previous year rather than an upcoming year's scope of work. Given that the FY18 One-Year Implementation Plan continued to follow this approach, this FY18 Annual Report also reflects a weak relationship between planned and actual spending.

Throughout FY18, however, Amtrak began to address this challenge as part of ongoing efforts led by its Engineering Project Delivery organization. Amtrak's submission to the FY19 One-Year Implementation Plan included geographically specific scope, schedule, and budget information for approximately 59 percent of its planned capital renewal investments (as a share of total FY19 planned expenditure).

Capital planning and reporting provisions in the NEC Cost Allocation Policy

- **The NEC One-Year Implementation Plan:** a one-year, fiscally-constrained capital plan that includes geographic specificity for capital renewal investments;
- **The NEC Five-Year Capital Investment Plan:** a resource-constrained five-year capital plan that includes a fiscally-constrained component and a fiscally-unconstrained component and provides geographic-specificity for capital renewal investments for the first two fiscal years of the plan;
- **The NEC Annual Report and Quarterly Capital Program Delivery Reports:** capital program delivery reports against the one-year plan that include information about performance (actual expenditures and progress) against the approved capital program, as well as any changes to scopes, schedules, and budgets.

The Commission recommends that Amtrak and other right-of-way owners follow through on FY20 One-Year Implementation Plan commitments to provide geographically specific scopes, schedules, and budgets for all investments; pursue early outreach and collaboration across agencies in plan development; and provide meaningful reports on variance from plan. The Commission also recommends Amtrak expand one-year planning improvements into multi-year, cradle-to-grave project planning.

In approving the FY19 One-Year Implementation Plan in October 2018, the Commission acknowledged Amtrak’s initial reform efforts and outlined expectations for additional progress to be reflected in the FY20 One-Year Implementation Plan, as well as in the FY19 Quarterly Capital Program Delivery Reports. These expectations, which pertain to all right-of-way owners, included:

- Providing future one-year capital plans that include geographic specificity and adequate scopes, schedules, and budgets for all capital renewal projects and programs;
- Providing preliminary one-year capital plans and preliminary track outage plans that identify potential service impacts to the Commission earlier in the FY20 plan-development process, and ensuring these plans reflect enhanced collaboration with affected operators; and
- Providing quarterly capital reports for FY19 that reflect the same level of detail as provided in the FY19 One-Year Implementation Plan and include explanations of variances for planned and actual activities and expenditures.

Additionally, Amtrak’s goal is to extend the improvements underway regarding its annual capital planning process and apply them as it shifts into a multi-year, cradle-to-grave project planning and delivery organization. So far, this transformation has not taken place. When complete—in addition to improving project delivery outcomes—this initiative could vastly enhance the quality of information in the Commission’s five-year Capital Investment Plan and bolster support for higher levels of capital investment from transit agencies, state governments, and the federal government.

The Commission is committed to supporting Amtrak and other infrastructure owners as needed as they work to refine and improve their capital planning—on both an annual and multi-year basis—and will continue to closely monitor the status of these and other reform initiatives to advance collaborative, multi-year capital planning on the NEC.

Technical Appendix

A. Operations	28
Figure A-1. Performance	28
Figure A-2. Ridership	36
 B. Capital Renewal of Basic Infrastructure	 38
Figure B-1. FY18 Capital NR Cost Allocation (BCC Obligations) at 80% NR	38
Figure B-2. FY18 BCC Obligation and Expenditure Comparison	38
Figure B-3. Baseline Capital Charge Segments	39
Figure B-4. Actual capital renewal investment by agency, FY18	40
Figure B-5. Amtrak capital renewal of basic infrastructure details, FY18	42
Figure B-6. MBTA capital renewal of basic infrastructure details, FY18	50
Figure B-7. Connecticut DOT capital renewal of basic infrastructure details, FY18	51
Figure B-8. Metro-North Railroad capital renewal of basic infrastructure details, FY18	52
 C. Special Projects	 54
Figure C-1. Special project listing by coordinating agency	54

Appendix A. Operations

Figure A-1. Performance

Percent trains late, annulled, or terminated by agency, FY15-18

	FY15	FY16	FY17	FY18
Amtrak	29.6%	23.4%	26.7%	23.9%
MBTA	15.0%	10.7%	10.1%	10.4%
CTrail^a	11.2%	7.9%	8.1%	14.1%
MNR	8.7%	6.9%	8.0%	10.2%
LIRR	10.2%	7.9%	10.2%	10.3%
NJT	8.4%	7.4%	11.4%	10.7%
SEPTA	16.2%	19.1%	17.5%	13.2%
MARC	8.6%	5.6%	8.1%	11.0%
VRE	8.1%	11.3%	11.5%	13.7%
Total Commuter	11.3%	10.0%	11.3%	11.1%
Total NEC-wide	12.7%	11.0%	12.4%	12.0%

Note: (1) For CTrail, FY15-17 figures include trains only for the Shore Line East. In the third quarter of FY18, CTrail began new service on the new Hartford Line. Therefore, the FY18 figure includes trains for both Shore Line East and the Hartford Line.

Percent trains late, annulled, or terminated by quarterly and four-quarter rolling average, FY15-18

	FY15				FY16				FY17				FY18			
Quarterly	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Intercity	24.2%	35.0%	28.6%	29.9%	23.3%	21.1%	22.1%	27.0%	21.0%	25.3%	32.8%	27.7%	23.4%	20.9%	24.1%	26.5%
Commuter	10.0%	14.2%	10.6%	10.7%	9.8%	9.0%	8.8%	12.5%	12.2%	10.0%	13.6%	9.2%	10.7%	11.1%	9.7%	12.9%
Commuter Peak	11.6%	17.4%	11.9%	12.8%	11.9%	11.5%	9.5%	12.5%	15.3%	12.6%	16.3%	10.0%	12.5%	13.6%	10.8%	14.2%
Total NEC-wide	11.1%	15.8%	12.0%	12.1%	10.8%	9.9%	9.8%	13.6%	12.8%	11.2%	15.0%	10.5%	11.6%	11.8%	10.7%	13.9%
Rolling average	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Intercity	28.0%	28.1%	29.2%	29.4%	29.3%	25.8%	24.2%	23.4%	22.8%	23.9%	26.6%	26.7%	27.3%	26.3%	24.0%	23.9%
Commuter	9.6%	10.1%	10.7%	11.3%	11.3%	10.0%	9.6%	10.0%	10.6%	10.9%	12.1%	11.3%	10.9%	11.2%	10.2%	11.1%
Commuter Peak	11.4%	11.8%	12.4%	13.4%	13.4%	12.0%	11.4%	11.3%	12.1%	12.4%	14.2%	13.6%	13.0%	13.2%	11.7%	12.8%
Total NEC-wide	11.0%	11.6%	12.2%	12.7%	12.6%	11.2%	10.7%	11.0%	11.5%	11.8%	13.1%	12.4%	12.1%	12.3%	11.2%	12.0%

Total incidents of delay and total minutes of delay by month, FY15-FY18

	Total incidents of delay on the NEC				Total minutes of delay on the NEC			
Month	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
October	11,930	9,081	12,523	10,621	83,045	77,122	106,382	92,683
November	13,687	12,023	13,693	9,802	96,205	90,800	118,486	82,417
December	10,508	6,379	9,682	10,457	73,159	55,848	80,309	104,154
January	9,624	8,809	10,418	11,294	78,327	80,435	88,499	129,704
February	22,336	10,073	9,814	5,448	239,277	97,485	90,733	47,993
March	16,063	8,235	10,642	8,850	133,929	74,115	80,783	104,040
April	11,862	8,701	11,332	8,204	96,925	78,823	106,111	77,570
May	10,548	9,222	15,374	10,965	83,266	75,249	131,074	95,225
June	12,978	10,967	18,768	11,941	111,864	88,474	158,438	97,162
July	13,130	14,288	12,736	16,956	113,122	124,602	98,140	140,694
August	11,833	13,698	10,567	14,766	99,509	115,845	78,360	131,210
September	11,039	11,003	9,430	10,157	96,842	96,966	86,145	91,624
Total	155,538	122,479	144,979	129,461	1,305,470	1,055,764	1,223,460	1,194,476

See Figure 2-2 page 8 for graphs of total delay incidents and total minutes of delay.

Total NEC service levels (trains) by month, FY16-FY18

Month	FY16	FY17	FY18
October	54,130	53,846	53,919
November	49,498	51,586	52,889
December	54,712	54,818	52,494
January	49,955	52,342	51,949
February	50,873	49,209	48,373
March	57,244	57,123	53,257
April	54,663	52,961	53,470
May	54,469	55,461	54,358
June	55,519	55,509	52,866
July	51,931	50,948	53,448
August	55,873	54,582	55,067
September	51,808	51,660	49,911
Total	640,675	640,045	632,001

Total incidents of delay and total minutes of delay by major cause category, FY15-FY18

Cause	Total incidents of delay on the NEC				Total minutes of delay on the NEC			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
Engineering	43,462	32,610	46,759	43,157	314,620	269,483	394,605	358,717
Transportation	28,673	25,402	29,030	25,029	197,113	180,775	200,710	177,179
Passenger	31,124	21,207	24,905	23,733	161,231	110,005	123,691	119,757
Mechanical	15,195	15,129	12,998	13,422	218,915	200,153	172,956	192,759
Other	12,948	15,842	17,778	9,158	115,151	123,476	140,593	97,980
Weather	17,067	6,519	7,066	8,848	196,963	62,637	77,006	131,680
Third-Party	5,740	5,327	5,952	5,630	85,973	104,305	106,876	109,078
Freight	1,329	443	491	484	15,504	4,930	7,023	7,326
Total	155,538	122,479	144,979	129,461	1,305,470	1,055,764	1,223,460	1,194,476

See Figure 2-3 on page 9 and Figure 2-4 on page 10 for graphs of minutes of delay by cause.

Average NEC minutes of delay by major cause category, FY15-FY18

Cause	FY15	FY16	FY17	FY18
Engineering	7.2	8.3	8.4	8.3
Transportation	6.9	7.1	6.9	7.1
Passenger	5.2	5.2	5.0	5.0
Mechanical	14.4	13.2	13.3	14.4
Other	8.9	7.8	7.9	10.7
Weather	11.5	9.6	10.9	14.9
Third-Party	15.0	19.6	18.0	19.4
Freight	11.7	11.1	14.3	15.1

Major cause categories

Engineering: Infrastructure issues, programmed maintenance, and speed restrictions.

Transportation: Train dispatching and routing, train interference, and crew availability.

Passenger: Passenger loading time, passenger behavior or injury, and holding for connections.

Mechanical: Locomotive failure, coach failure, and disabled train ahead.

Other: No report provided, delay cause unknown, and human error.

Weather: Winter conditions, excessive cold or heat, and slippery rail.

Third-Party: Trespassers, police action, bridge openings, debris on tracks, and utility failure.

Freight: Freight train interference.

Major NEC incidents by date, FY18

Major incidents are single events that can generate multiple train delays. Major incidents on the NEC were identified by analyzing daily train performance data and cross-referencing that data with the contents of NEC operators' rail operations and incident reports. This approach may not capture all significant events in FY18 because it identifies major incidents based on service impacts, which are dependent on the location and time of day of the incident, not necessarily the severity or significance of the event.

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train delay minutes ¹
1	10/6/2017 11:26 AM 53 min	Switch failure	Location: Portal Interlocking, Secaucus, NJ Description: Switches locked preventing diversion of eastbound traffic to express track. All eastbound traffic was routed onto A track instead of having 2 track as an express option.	19	496
2	10/24/2017 9:26 AM 9 hrs 22 min	Signal power failure	Location: Morris to Holmes Interlocking, Morrisville, PA Description: Felled tree due to rain and high winds downed signal power cables at MP66.2. No signal power in affected territories (20 route-miles). Trains required to receive verbal permission to advance to the next block at restricted speed prepared to stop.	41	2,458
3	11/10/2017 2:30 PM 5 hrs 47 min	Track defect	Location: Track 5, MP11 to MP12, near Newark, NJ Description: Rapid temperature drop and high winds caused a broken joint bar. Tracks 4 and 5 were unusable for westbound traffic. All westbound traffic had to use Track 3, normally used by Amtrak express trains at that time of day.	42	512
4	11/10/2017 7:00 PM 1 hr	Switch failure	Location: 62 Switch at Swift Interlocking (MP7.2), Kearny, NJ Description: Indicator of properly locked switch point tripped due to undetermined cause. All NEC main line traffic in both directions was routed onto Track 3 from Hudson through Swift Interlockings. All traffic in either direction on or off NJT's Morristown Line was routed to Track 5.	14	138
5	11/13/2017 4:59 AM 6 hrs 16 min	Broken bond box	Location: Track 4 at 125th Street (MP3), Manhattan, NY Description: Broken impedance bond box due to undetermined cause. All southbound traffic from Hudson and Harlem interlockings routed to Track 2, resulting in loss of one track on MNR territory for a five-mile stretch (from CP5 to Grand Central Terminal).	76	944
6	11/13/2017 8:15 AM 23 min	Switch failure	Location: 62 Switch at Swift Interlocking (MP7.2), Kearny, NJ Description: Repeated switch failure from 11/10/2017. Indicator of properly locked switch point tripped. All NEC main line traffic in both directions was routed onto Track 3 from Hudson through Swift Interlockings. All traffic in either direction on or off NJT's Morristown Line was routed to Track 5.	32	456
7	11/14/2017 5:00 AM Duration not available	Track defect	Location: "A" Interlocking at New York Penn Station Description: Overnight track work not completed to restore normal service. Temporary 10-mph speed restriction established over this route until work was completed.	6	298
8	11/14/2017 8:58 AM 4 hrs 18 min	Track defect	Location: 54 Switch at Lane Interlocking, Newark, NJ Description: Pull-apart of rails on point of switch. Tracks 4 and 5 were unusable for westbound traffic. Westbound trains were required to use Track 3.	32	142
9	11/14/2017 10:31 AM 9 hrs 16 min	Track defect	Location: 45 Switch at Fair Interlocking, Trenton, NJ Description: Wide gauge. Tracks 4 and 5 were unusable for westbound traffic. Westbound trains were required to use Track 3. SEPTA trains were required to turn east of HAM Interlocking and cross all four tracks to return to Trenton Station.	18	262
10	11/14/2017 12:05 PM 11 hrs 54 min	Track defect	Location: 43 Switch at HAM Interlocking, Trenton, NJ Description: Defective switch component, which required a 10-mph speed restriction over this crossover until repaired.	21	128

Note: (1) Total train delay minutes do not include trains that were annulled or terminated.
Major NEC incidents by date, FY18 continued on the next page >>

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train delay minutes¹
11	11/14/2017 5:47 PM 1 hr 11 min	Track defect	Location: 513 Switch at New York Penn Station Description: Switch failed to return to normal position. Line 2 unavailable for westbound moves, traffic rerouted through Track 3.	32	493
12	11/16/2017 8:22 AM 5 hrs 32 min	Catenary failure	Location: Track 4, Westport, CT Description: Catenary circuits and wire damaged. Track 4 became unavailable for eastbound moves, which caused single-tracking on Track 3 between CP241 and CP248 until double bridge plates arrived to enable eastbound station stops off Track 1.	31	403
13	12/18/2017 10:49 AM 1 hr 48 min	Signal failure	Location: South tube of the North River Tunnel, "A" Interlocking at New York Penn Station Description: Stop signal displayed to Train 2104. All trains through 82E signal needed to receive verbal permission to advance at a restricted speed.	66	803
14	12/19/2017 8:43 AM 6 hrs 10 min	Catenary failure	Location: Portal Interlocking, Secaucus, NJ Description: Catenary wire pulled down on Track 2 at Portal. Railroad had to operate on a single track instead of two for a 7.2-mile stretch.	161	5,203
15	12/26/2017 8:38 AM 1 hr 59 min	Switch failure	Location: 62 Switch at Swift Interlocking (MP7.2), Kearny, NJ Description: Repeated switch failure from 11/10/2017 and 11/13/2017. Switch failed to operate. All NEC main line traffic in both directions was routed onto Track 3 from Hudson through Swift Interlockings. All traffic in either direction on or off NJT's Morristown Line was routed on Track 5.	15	273
16	12/28/2017 9:04 AM 6 hrs 51 min	Catenary power failure	Location: South tube of the North River Tunnel, near New York Penn Station Description: An electric circuit failure caused an outage in overhead power and other various infrastructure issues. All traffic in and out of New York Penn Station to/from New Jersey was routed to Track 1.	77	1,853
17	12/28/2017 5:30 PM 1 hr 4 min	Third rail power failure	Location: "C" Interlocking at New York Penn Station Description: Third rail fire due to a faulty tie switch adjacent to 636W switch, which caused loss of power for trains. Line 4 became unavailable for traffic in either direction. All LIRR traffic out of the north side of the station routed to Line 3 in either direction.	78	736
18	1/11/2018 10:01 AM 2 hrs 25 min	Movable bridge failure	Location: Portal Bridge near Secaucus, NJ Description: Portal Bridge operator unable to get rail lock indication on west end of bridge, thus suspending all traffic over Portal Bridge. Trains west of Portal Bridge terminated at Newark, NJ, while intercity trains east of the bridge terminated at New York Penn Station. Travelers were required to take PATH trains to travel between Newark and Manhattan. NJ TRANSIT ran rail shuttle service between Secaucus Station, which is just east of Portal Bridge, and New York Penn Station.	44	1,485
19	1/12/2018 5:20 AM 3 hrs 32 min	Signal failure	Location: Swift Interlocking (MP7.2), Kearny, NJ Description: 3W signal displaying stop and proceed. Westbound traffic was required to come to a complete stop before proceeding through the signal.	26	183
20	1/12/2018 2:55 PM 10 hrs 20 min	Signal power failure	Location: From New York Penn Station "JO" Interlocking to Lane Interlocking near Newark, NJ Description: Due to reduced commercial power delivered by Con Edison, there was intermittent loss of signal power in affected territories (14 route-miles). Trains required to receive verbal permission to advance to the next block at a restricted speed.	44	478
21	1/17/2018 8:05 AM 1 hr 38 min	Switch failure	Location: 72 Switch at Allied Interlocking, near Secaucus, NJ Description: Switch is lined against any eastbound NJT train that performed station duties on Track A at Secaucus. Trains on Track A had to reverse 1.1 miles to Lack Interlocking and reroute from Track A to Track 2 at Erie Interlocking until the switch could be repaired.	15	142

Note: (1) Total train delay minutes do not include trains that were annulled or terminated.
Major NEC incidents by date, FY18 continued on the next page >>

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train delay minutes ¹
22	1/17/2018 8:36 AM 3 hrs 37 min	Track defect	Location: East Portal, Line 3 at East River Tunnels Description: Due to poor drainage, a mud spot appeared at entrance to Line 3 of the East River Tunnels. The track was taken out of service for inspection and repair. 30-mph speed restriction was placed pending repair. Track 3 was unavailable for eastbound or westbound moves for LIRR traffic.	69	707
23	1/23/2018 4:45 PM 3 hrs 11 min	Switch failure	Location: 311 Switch at Plains Interlocking, near Boston, MA Description: Switch was intermittently out of correspondence and could not produce reliable route or signal west on Track 3. Switch spiked normal, preventing diverging moves.	39	833
24	3/1/2018 8:36 AM 1 hr 24 min	Equipment failure	Location: "A" Interlocking at New York Penn Station Description: Equipment failure on NJT Train 3712 caused the train to stop in the interlocking just west of New York Penn Station. The train was unable to take power and could not advance to New York Penn Station. All trains behind 3712 in the south tube had to reverse and approach New York Penn Station through the north tube—against the westbound current of traffic. A rescue engine was deployed to pull the train into a station track.	54	2,016
25	3/9/2018 6:11 AM 5 hrs 13 min	Third-party: Trespasser incident	Location: Track 3 near Secaucus Junction, NJ Description: An individual was struck on Track 3 west of Secaucus Station. A hold was placed on all tracks to enable investigation and right-of-way clearing.	114	2,048
26	3/13/2018 4:32 AM 3 hrs 20 min	Track defect	Location: Off-corridor: Track 4 at Woodlawn Junction (Metro-North Railroad territory) Description: A broken rail on Track 4 of MNR's Harlem Line affected inbound and outbound morning peak traffic. New Haven Line and Harlem Line trains were required to share three tracks on the Harlem Line instead of four, which disturbed normal stopping patterns and resulted in a backup of trains.	30	297
27	3/13/2018 1:15 PM 2 hrs 15 min	Third-party: Trackside interference	Location: Track 3, MP98.2 near Baltimore, MD Description: A brush fire adjacent to Track 3 stopped all traffic from Baltimore in both directions. Amtrak was required to deenergize the track to allow the Baltimore Fire Department to extinguish the fire.	26	1,518
28	3/16/2018 4:15 AM 4 hrs 23 min	Movable bridge failure	Location: Portal Bridge near Secaucus, NJ Description: Portal Bridge could not properly close after opening due to a broken mitre-rail, which provides a secure lock on a movable bridge. This movable bridge failure was further exacerbated by a bridge power failure, which resulted in severing the NEC at Portal Bridge. Trains west of Portal Bridge terminated at Newark, NJ, while intercity trains east of the bridge terminated at New York Penn Station. Travelers were required to take PATH trains to travel between Newark and Manhattan. NJ TRANSIT ran rail shuttle service between Secaucus Station, which is just east of Portal Bridge, and New York Penn Station.	137	1,163
29	3/25/2018 11:14 PM 3 hrs 49 min	Catenary failure	Location: Track 2 near Princeton Junction, NJ Description: A catenary wire came down on Track 2. (The incident report does not describe nature of failure that caused damage.) Power was deenergized on Track 2 and trains were held away from the wire damage. Some passengers were transferred to other trains while trains within the damage area were rescued with diesel equipment.	9	216
30	4/2/2018 9:19 PM 5 hrs 54 min	Third-party: Trespasser incident	Location: Track 1, MP202 near Mansfield, MA Description: Westbound MBTA Train 833 struck an individual on Track 1 at MP202 west of Mansfield, MA.	9	466
31	4/4/2018 10:04 AM 3 hrs 8 min	Third-party: Trespasser incident	Location: Track 4 near New Brunswick, NJ Description: Westbound Amtrak Train 643 struck an individual.	24	887
32	4/5/2018 9:41 PM 3 hrs 52 min	Signal power failure	Location: Lane to Swift Interlockings, near Newark, NJ Description: Static and signal wires made contact, which caused a signal power failure. All trains through a six-mile stretch required to receive verbal permission to advance at a restricted speed.	33	1,497

Note: (1) Total train delay minutes do not include trains that were annulled or terminated.
Major NEC incidents by date, FY18 continued on the next page >>

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train delay minutes¹
33	4/16/2018 3:57 PM 3 hrs 16 min	Third-party: Trespasser incident	Location: Track 2, MP130 near Landover, MD Description: Eastbound Acela Train 2172 struck an individual. A hold was placed on both tracks to enable investigation and right-of-way clearing. Passengers on Acela 2172 were transferred to another train.	57	3,289
34	4/16/2018 6:32 PM 7 hrs 1 min	Structures failure	Location: Albany Street in Boston, MA Description: Due to heavy rain, a retaining wall near Albany Street collapsed, affecting Track 2 of the NEC. Of the 5 tracks in this area, one was out of service, another was restricted, and three tracks allowed normal operations.	21	313
35	4/23/2018 8:42 AM 7 hrs 44 min	Catenary power failure	Location: New York Penn Station and East River Tunnels Description: Catenary power down on eleven tracks in New York Penn Station and one of the tunnel tracks under the East River. Because electric trains were immobile on deenergized tracks, diesel engines were called to clear disabled electric trains.	101	2,710
36	4/23/2018 9:00 AM 5 hrs 53 min	On track accident	Location: Track 1, MP119 near Bowie, MD Description: Eastbound Train 86 struck an individual. A hold was placed on all three tracks to enable investigation and right-of-way clearing. Passengers on Train 86 were transferred to another train.	49	2,870
37	5/2/2018 11:08 PM 10 hr 59 min	Freight derailment	Location: Ridley Park, PA Description: A Norfolk Southern Freight train derailed in Baldwin Interlocking. Tracks 2 and 3 were out of service until the extensive damage was repaired. Traffic was only allowed on Tracks 1 and 4.	95	961
38	5/3/2018 5:55 AM 3 hrs 4 min	Third-party: Trespasser incident	Location: Track 4 near West Haven, CT Description: Eastbound Amtrak Train 66 struck an individual.	8	80
39	5/11/2018 7:40 AM 5 hrs 33 min	Third-party: Trespasser incident	Location: Track 2 near Westbrook, CT Description: Westbound Amtrak Acela 2153 struck an individual.	17	540
40	5/11/2018 4:12 PM 3 hrs 47 min	Third-party: Trespasser incident	Location: Track 2 near Monmouth Junction, NJ Description: Eastbound Amtrak Train 184 struck an individual on Track 2.	83	2,888
41	6/1/2018 3:49 PM 20 min	Third-party: Trespasser incident	Location: Line 2 at East River Tunnel Description: All Amtrak, Long Island Rail Road, and NJ TRANSIT trains in both directions on Lines 1 and 2 were held due to a report of an individual running off Platform 10 at New York Penn Station onto Line 2 of the East River Tunnel. Trains were held until the situation was resolved.	52	1,000
42	6/18/2018 2:49 PM 7 hrs 9 min	Signal failure	Location: Track 2 near Cornwells Heights Station near northeast Philadelphia, PA Description: 716 Signal displays stop and proceed. Due to a signal failure, trains were required to stop and proceed. Max speed on this track is 125 mph. With this defect, eastbound trains were required to stop at the signal and proceed.	16	153
43	6/19/2018 2:00 PM 2 hrs 44 min	Signal failure	Location: North tube of the North River Tunnel near New York Penn Station Description: Signal circuit failure gave restricting indication for the use of the north tube. Trains required to receive dispatcher's verbal permission to pass at a restricted speed. When Communications & Signals team arrived, they were given foul time, which required single tracking North River Tunnel	50	646
44	6/28/2018 9:15 AM 5 hrs 25 min	Signal power failure	Location: Groton Interlocking near Groton, CT Description: A utility power failure affected signal power in this area. All trains through Groton required to receive verbal permission to advance at a restricted speed.	20	329
45	6/28/2018 4:39 PM 4 hrs 12 min	Signal power failure	Location: CP248 near Southport, CT Description: Lightning hit caused signal power failure. All trains through CP248 required to receive verbal permission to advance at restricted speed.	49	2,230

Note: (1) Total train delay minutes do not include trains that were annulled or terminated.
Major NEC incidents by date, FY18 continued on the next page >>

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train delay minutes¹
46	7/3/2018 4:01 PM 5 hrs 57 min	Track circuit failure	Location: Line 1 at East River Tunnel Description: A track circuit failure due to weather-related causes required all trains through Line 1 to receive verbal permission to advance at a restricted speed.	28	549
47	7/3/2018 6:41 PM 9 hrs 42 min	Catenary failure	Location: Harrisburg Line Description: Due to weather-related causes, the Harrisburg Line had many areas with downed catenary wires. Affected trains required diesel rescue.	13	161
48	7/5/2018 9:18 PM 2 hrs 11 min	Third-party: Trespasser incident	Location: Tracks 1 and 3 in Bridgeport, CT Description: MNR Train 1595 struck an individual at CP256. A hold was placed on all tracks to enable investigation and right-of-way clearing. First responders needed to investigate before any tracks were released. Passengers on Train 1595 were transferred to another train.	19	732
49	7/13/2018 4:55 AM 2 hrs 35 min	Third-party: Trespasser incident	Location: Woodside, Queens, NY Description: LIRR Train 1717 struck an individual at Woodside. A hold was placed on all tracks to enable investigation and right-of-way clearing. First responders needed to investigate before any tracks were released. Passengers on Train 1717 were transferred to another train.	100	1,547
50	7/17/2018 8:25 AM 39 min	Third-party: Trackside interference	Location: Rahway, NJ Description: NJT police reported a high-pressure gas leak at facility adjacent to the NEC. A hold was placed on all tracks for five miles from Rahway to Linden, NJ.	41	873
51	7/23/2018 3:57 PM 1 hr 4 min	Signal failure	Location: Sunnyside Yard, NY Description: Unable to route from Sunnyside Yard tracks to Line 2 of the East River Tunnel. A blown fuse caused signal failure. Therefore no westbound trains fed into New York Penn Station during the afternoon peak service and caused overcrowding in the station.	33	564
52	7/25/2018 6:52 AM 1 hr 42 min	Signal power failure	Location: New Rochelle, NY Description: Due to weather-related causes, there was a signal power outage from CP215 to CP230. Trains operating at restricted cab signal speed from Mt. Vernon to Larchmont, NY.	28	255
53	7/25/2018 6:54 AM 15 hrs 5 min	Signal failure	Location: Woodlawn, NY Description: Due to weather-related causes, 3 switches out of correspondence. Unable to display 3N signal on Track 3. Trains were flagged by signals. Intermittent failures complicate diagnosis.	64	606
54	8/2/2018 Entire day impact	Derailment	Location: Washington Union Station Description: The lead engine of Amtrak Train 20 derailed while arriving to Track 26 at Union Station. The engine needed to be rerailed, which caused track congestion at Union Station.	46	2,450
55	8/9/2018 6:27 PM 3 hrs 47 min	Third-party: Trespasser incident	Location: Metuchen, NJ Description: NJ TRANSIT Train 3701 struck an individual on Track 4, west of Metuchen. A hold was placed on all four tracks to enable investigation and right-of-way clearing. First responders needed to investigate before any tracks were released. Passengers on Train 3701 were transferred to another train.	87	2,962
56	8/13/2018 9:23 AM 8 hrs 25 min	Track defect	Location: Hamilton, NJ Description: 15-mph speed restriction due to broken insulated joint on the south rail at MP50.3. All trains on Track 4 were required to operate at a reduced speed.	26	254
57	8/18/2018 7:10 PM 7 hrs 15 min	Third-party: Trackside interference	Location: Holmesburg Junction in Philadelphia, PA Description: Large tire fire on Track 1 side of right-of-way. A hold was placed on all four tracks to enable first responders to extinguish fire.	38	3,071
58	9/5/2018 5:03 PM 3 hrs 20 min	Third-party: Trackside interference	Location: Portal Bridge near Secaucus, NJ Description: Tie fire at the east end of Portal Bridge. A hold was placed on all four tracks to enable first responders to extinguish fire.	41	945

Note: (1) Total train delay minutes do not include trains that were annulled or terminated.

Figure A-2. Ridership

Estimated average weekday railroad trips and weekday trains by operator, FY15-18

	Estimated weekday trips on the NEC				Weekday number of scheduled trains on the NEC			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
Amtrak	42,000	43,000	43,000	42,000	152	152	148	150
MBTA	79,000	81,000	82,000	79,000	302	313	289	313
CTrail	2,000	2,000	2,000	2,000	34	34	34	34
MNR	127,000	127,000	128,000	126,000	294	297	297	299
LIRR	230,000	233,000	233,000	234,000	459	457	462	462
NJT	240,000	244,000	241,000	233,000	413	417	415	419
SEPTA	60,000	59,000	54,000	53,000	352	356	357	354
MARC	34,000	34,000	33,000	34,000	93	95	95	95
VRE	4,000	4,000	4,500	5,000	29	32	32	32
NEC-wide	818,000	827,000	820,500	808,000	2,128	2,153	2,129	2,159

Note: FY16 ridership was revised in 2018 to include updated actuals for SEPTA, MNR, and LIRR. Historical ridership for MBTA was revised in 2019 for a more accurate estimate based on counts at each station completed in FY18.

Methodology & Assumptions

Trips are considered on the NEC if the origin and/or destination is on the Northeast Corridor. The Northeast Corridor includes both the main line from Boston, MA to Washington, DC and the connecting corridors to Harrisburg, PA; Spuyten Duyvil, NY; and Springfield, MA. The results in this report do not necessarily match the statistics reported by any individual agency for their overall system because NEC trips are a subset of operations for most agencies. For most agencies, ridership data comes from their ridership submission for the FY20 NEC Commission Cost Allocation Model. In some cases, model submission data is not available or sufficient to calculate NEC ridership for that operator, so publicly available data is used. In some cases, agencies submit data for their state's fiscal year, not federal fiscal year.

Scheduled weekday trains are based on FY19 NEC Cost Allocation Model submissions in which agencies submitted their January 2018 schedule to be used as a representative sample.

Operator	Ridership data source	Time period	Other Notes
Amtrak	NEC Cost Allocation Model submission	Federal fiscal year (Oct 1, 2017 – Sept 30, 2018)	
MBTA	2018 ridership is available publicly via https://www.mass.gov/lists/2018-commuter-rail-counts . Historical ridership is estimated based on the National Transit Database data publicly available via https://www.transit.dot.gov/ntd/transit-agency-profiles/massachusetts-bay-transportation-authority	State fiscal year (July 1, 2017 – June 30, 2018)	MBTA historical ridership is an estimate at this time due to limited data availability.
CTrail	NEC Cost Allocation Model submission.	State fiscal year (July 1, 2017 – June 30, 2018)	CTrail ridership includes both Shore Line East passengers from New London to New Haven, CT and passengers on the new Hartford Line commuter rail service, which began on June 2018. Shore Line East passengers between New Haven and Stamford are included in Metro-North's ridership figures.
Metro-North Railroad	NEC Cost Allocation Model submission	State fiscal year (Jan 1, 2018 – Dec 1, 2018)	Metro-North Railroad ridership includes both CTrail Shore Line East passengers traveling between New Haven and Stamford and all other New Haven Line passengers.
Long Island Rail Road	Publicly-available: LIRR 2018 Ridership Book. (provided by the agency, not yet published at the time of publication).	State fiscal year (Jan 1, 2018 – Dec 1, 2018)	In FY18, Long Island Rail Road system-wide trips figure is preliminary.
NJ TRANSIT	NEC Cost Allocation Model submission	State fiscal year (July 1, 2017 – June 30, 2018)	
SEPTA	Publicly-available: "SEPTA Route Statistics 2018" via http://septa.org/strategic-plan/reports.html .	Spring 2018.	
MARC	NEC Cost Allocation Model submission	Federal fiscal year (Oct 1, 2017 – Sept 30, 2018)	
VRE	NEC Cost Allocation Model submission	State fiscal year (July 1, 2017 – June 30, 2018)	

Appendix B. Capital Renewal of Basic Infrastructure

Figure B-1. FY18 Capital NR Cost Allocation (BCC Obligations) at 80% NR

Millions of USD		Allocated to											
Operators	Capital needs submitted	Amtrak	MBTA	RIDOT	SLE	CTDOT (NHL-CT)	MNR (NHL-NY)	LIRR	NJT	SEPTA	DE	MD	VRE
Amtrak	361.58	208.14	0.91	1.38	3.49			18.05	83.82	30.34	1.76	13.23	0.46
MBTA	18.96	7.72	11.24										
RIDOT													
SLE													
CTDOT (NHL-CT)	48.46	12.22			0.81	35.43							
MNR (NHL-NY)	11.66	1.80					9.86						
LIRR													
NJT													
SEPTA													
DeIDOT													
MARC													
VRE													
Total	440.66	229.89	12.15	1.38	4.31	35.43	9.86	18.05	83.82	30.34	1.76	13.23	0.46

Figure B-2. FY18 BCC Obligation and Expenditure Comparison

FY18 Capital NR Cost Allocation (80% NR) versus FY18 Actual Expenditure Allocation

Millions of USD		Allocated to											
Operators	Difference in obligation and actual expenditure	Amtrak	MBTA	RIDOT	SLE	CTDOT (NHL-CT)	MNR (NHL-NY)	LIRR	NJT	SEPTA	DE	MD	VRE
Amtrak	5.77	5.70	(0.001)	(0.00)	(0.002)			0.08	(0.00)	0.00	0.00	0.00	0.00
MBTA	(10.84)	(7.72)	(3.12)										
RIDOT													
SLE													
CTDOT (NHL-CT)	0.00	0.00			0.00	0.00							
MNR (NHL-NY)	0.00	0.00					0.00						
LIRR													
NJT													
SEPTA													
DeIDOT													
MARC													
VRE													
Total	(5.07)	(2.03)	(3.119)	(0.00)	(0.002)	0.00	0.00	0.08	(0.00)	0.00	0.00	0.00	0.00

Figure B-3. Baseline Capital Charge Segments

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

Figure B-4. Actual capital renewal investment by agency, FY18

BCC Segment	Amtrak BCC	Amtrak (Above BCC)	MBTA BCC	RIDOT BCC	CTDOT BCC (SLE)	CTDOT BCC (NHL)	CTDOT (Above BCC)	CTDOT BCC (Hartford)
1	0	0	8,122,596	0	0	0	0	0
2	2,629,556	0	910,000	0	0	0	0	0
3	998,897	0	0	1,378,000	0	0	0	0
4	(15,887)	5,824,771	0	0	0	0	0	0
5	17,954,046	0	0	0	3,490,000	0	0	0
6	12,221,206	0	0	0	814,326	35,428,060	71,807,764	0
7	1,799,918	0	0	0	0	0	0	0
8	(41)	1,534,435	0	0	0	0	0	0
9	3,905,426	0	0	0	0	0	0	0
10	2,179,298	0	0	0	0	0	0	0
11	12,575,048	0	0	0	0	0	0	0
12	615,254	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0
14	36,177,268	0	0	0	0	0	0	0
15	17,405,483	0	0	0	0	0	0	0
16	3,387,454	0	0	0	0	0	0	0
17	11,348,505	0	0	0	0	0	0	0
18	(3,823)	2,115,173	0	0	0	0	0	0
19	284,530	0	0	0	0	0	0	0
20	5,795,479	0	0	0	0	0	0	0
21	(11,793)	5,423,761	0	0	0	0	0	0
22	57,581,448	0	0	0	0	0	0	0
23	3,690,442	0	0	0	0	0	0	0
24	750,891	0	0	0	0	0	0	0
25	(5,921)	4,243,532	0	0	0	0	0	0
27	(27,306)	33,338,198	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0
29	344,794	0	0	0	0	0	0	0
30	(15,583)	15,784,817	0	0	0	0	0	0
31	36,294,983	0	0	0	0	0	0	0
Total	227,859,571	68,264,686	9,032,596	1,378,000	4,304,326	35,428,060	71,807,764	See Note 1

Note: (1) CTDOT's BCC obligations for the Hartford Line was handled bilaterally. (2) Subject to revision per Amtrak-LIRR agreement.

MNR BCC	MNR (Above BCC)	LIRR BCC ²	NJT BCC	SEPTA BCC	DelDOT BCC	MDOT BCC	VRE BCC	Total	BCC Segment
0	0	0	0	0	0	0	0	8,122,596	1
0	0	0	0	0	0	0	0	3,539,556	2
0	0	0	0	0	0	0	0	2,376,897	3
0	0	0	0	0	0	0	0	5,808,884	4
0	0	0	0	0	0	0	0	21,444,046	5
0	0	0	0	0	0	0	0	120,271,356	6
9,855,414	4,973,298	0	0	0	0	0	0	16,628,630	7
0	0	0	0	0	0	0	0	1,534,394	8
0	0	0	0	0	0	0	0	3,905,426	9
0	0	3,334*		0	0	0	0	2,182,632	10
0	0	18,121,544*	12,443,760	0	0	0	0	43,140,352	11
0	0	0	61,064,911	0	0	0	0	61,680,165	12
0	0	0	5,632,676	0	0	0	0	5,632,676	13
0	0	0	0	0	0	0	0	36,177,268	14
0	0	0	0	0	0	0	0	17,405,483	15
0	0	0	4,682,654	0	0	0	0	8,070,108	16
0	0	0	0	0	0	0	0	11,348,505	17
0	0	0	0	0	0	0	0	2,111,350	18
0	0	0	0	20,389,758	0	0	0	20,674,288	19
0	0	0	0	0	1,764,000	0	0	7,559,478	20
0	0	0	0	0	0	0	0	5,411,968	21
0	0	0	0	0	0	13,231,000	0	70,812,448	22
0	0	0	0	0	0	0	0	3,690,442	23
0	0	0	0	0	0	0	456,000	1,206,891	24
0	0	0	0	0	0	0	0	4,237,610	25
0	0	0	0	0	0	0	0	33,310,892	27
0	0	0	0	0	0	0	0	0	28
0	0	0	0	9,946,242	0	0	0	10,291,036	29
0	0	0	0	0	0	0	0	15,769,234	30
0	0	0	0	0	0	0	0	36,294,983	31
9,855,414	4,973,298	18,124,878*	83,824,000	30,336,000	1,764,000	13,231,000	456,000	580,639,593	Total

Note: (1) CTDOT's BCC obligations for the Hartford Line was handled bilaterally. (2) Subject to revision per Amtrak-LIRR agreement.

Figure B-5. Amtrak capital renewal of basic infrastructure details, FY18

FY18 Actuals															
Program Code	Project Name	FY18 Plan	FY18 Actual	Variance	Amtrak	Amtrak (Above BCC)	MBTA	RIDOT	CTDOT (SLE)	LIRR*	NJT	SEPTA	DelDOT	MDOT	VRE
C.EN.101652	TLS AMTRAK NEC - TLS CONCRETE TIE REPLACEMENT PROGRAM	90,478,724	61,808,457	28,670,267	48,851,531						12,956,926				
C.EN.100269	BLST AMTRAK NEC - SYSTEM UNDERCUTTING PROGRAM	56,382,979	41,939,214	14,443,764	24,856,700				3,490,000		539,287	665,678		12,387,550	
C.EN.101660	TURN AMTRAK NEC - TURNOUT RENEWAL PROGRAM	7,765,957	20,197,959	(12,432,001)	12,493,261	8,914					7,695,784				
C.EN.101104	TURN PENN STATION NY – INFRASTRUCTURE RENEWAL PROGRAM	39,315,656	28,902,045	10,413,612	4,598,930					18,124,878	6,178,237				
C.EN.101762	PTC AMTRAK NEC - PTC SPLIT-POINT DERAIL PROGRAM	13,021,277	6,078,767	6,942,510	5,313,410	334,279		197,215					233,862		
C.EN.101662	SUB AMTRAK NATIONAL - SUBSTATION UPGRADES	10,957,447	5,373,290	5,584,157	53,571	4,181,028						1,138,691			
C.EN.101656	TIES AMTRAK NEC - TIE-TIMBER REPLACEMENT PROGRAM	30,683,147	35,506,048	(4,822,901)	14,274,630	1,437,233		48,654			13,814,350	5,157,618	317,563		456,000
C.EN.201034	ACSE AMTRAK OWNED- POSITIVE TRAIN CONTROL (PTC) INSTALLATION	2,208,511	6,984,385	(4,775,875)	6,984,385										
C.EN.100418	SYS ENGINEERING CAPITAL PROGRAM - PROJECT MANAGEMENT	9,563,878	5,088,351	4,475,527	5,088,351										
C.EN.101758	PTC AMTRAK NATIONAL - PTC SPLIT-POINT DERAIL PROGRAM	8,626,809	4,403,772	4,223,036	20,413	4,383,359									
C.EN.101697	BGUG AMTRAK NEC - UNDERGRADE BRIDGE UPGRADES	8,276,596	4,178,993	4,097,603	2,313,924	1,326,754					202,082	336,233			
C.EN.101661	RAIL AMTRAK NEC - RAIL REPLACEMENT PROGRAM	6,781,915	2,775,995	4,005,920	71,036						1,659,219	1,045,739			
C.EN.101646	TKRH WESTSIDE CONNECTION TUNNEL - TRACK INFRASTRUCTURE UPGRS	27,127,660	30,927,211	(3,799,552)		30,927,211									
C.EN.100756	STIP NEW YORK EAST RIVER TUNNELS-RAIL/TIE REPL LINE 3/4	3,457,447	(31,862)	3,489,309	(31,862)										
C.EN.101657	TIES AMTRAK NEC - CONCRETE TIE REPLACEMENT PROGRAM	3,178,253	6,603,138	(3,424,884)	1,925,161	105,819					2,252,349	2,219,394	100,415		
C.EN.101707	WALL AMTRAK NEC - RETAINING WALL UPGRADES	3,659,574	296,457	3,363,117	14,546						153,340	128,571			
C.EN.101607	PTC SPRINGFIELD LINE - PTC INSTALLATION WAYSIDE	5,319,149	2,000,796	3,318,353		2,000,796									
C.EN.101726	CETC AMTK NEC-TECHNOLOGY RENEWAL PROGRAM	4,224,164	1,042,695	3,181,469	1,042,695										

Note: *Subject to revision per Amtrak-LIRR agreement.

FY18 Actuals															
Program Code	Project Name	FY18 Plan	FY18 Actual	Variance	Amtrak	Amtrak (Above BCC)	MBTA	RIDOT	CTDOT (SLE)	LIRR*	NJT	SEPTA	DelDOT	MDOT	VRE
C.EN.101436	INT HOOK INTERLOCKING - UPGRADE TO MICROLOK 2	5,731,915	2,613,825	3,118,090	45,332							2,568,492			
C.EN.101675	TURN AMTRAK NATIONAL - TURNOUT RENEWAL PROGRAM	6,382,979	3,330,283	3,052,696	65,172	493,621						2,771,490			
C.EN.101699	MOFW AMTRAK NEC - MOFW BASE UPGRADES	5,319,149	2,293,706	3,025,443	1,409,624	416,129					467,953				
C.EN.100120	INT DOCK INTERLOCKING - INTERLOCKING RENEWAL C&S/ET	1,117,021	3,980,724	(2,863,702)							3,980,724				
C.EN.101720	RAIL AMTRAK NATIONAL - RAIL REPLACEMENT PROGRAM	2,659,574		2,659,574											
C.EN.101651	DRAN AMTRAK NEC - DRAINAGE- ROADBED IMPROVEMENTS	7,569,149	4,947,355	2,621,794	605,167	324,087					4,018,101				
C.EN.201126	STIP BRANDY TO RAGAN - SECTION IMPROVEMENT	3,191,489	729,315	2,462,174	729,315										
C.EN.101650	STIP AMTRAK NEC - RIDE QUALITY IMPROVEMENT PROGRAM	5,186,170	2,862,566	2,323,604	150,921	721,642					301,038	1,688,965			
C.EN.101116	STA PENN STATION NEW YORK - FACILITIES UPGRADES	3,191,489	875,835	2,315,654	334,433						541,402				
C.EN.101698	CULV AMTRAK NEC - CULVERT UPGRADES	2,285,278	25,472	2,259,806	461						25,011				
C.EN.101256	BGTI NED SPRINGFIELD LINE - BRIDGE TIMBER REPLACEMENT	2,127,660		2,127,660											
C.EN.100627	STA 30TH STREET STATION - ELEVATOR REPLACEMENT	2,127,660	32,870	2,094,789	32,870										
C.EN.101714	CETC AMTRAK SYSTEM- MOFW ENHANCED EMPLOYEE PROTECTION SYSTEM	2,405,319	310,925	2,094,394	310,925										
C.EN.101417	NET NEC - IT AND POLICE VIDEO BANDWIDTH AUGMENTATION	1,987,660		1,987,660											
C.TR.100065	CETC WASHINGTON TERMINAL - K TOWER UPGRADE TO CETC	3,615,663	1,681,693	1,933,970	1,681,693										
C.EN.100578	STA HARRISBURG LINE STATIONS - STATION IMPROVEMENTS		1,887,675	(1,887,675)	(11,161)	1,898,836									
C.EN.100676	INT Q INTERLOCKING - DESIGN AND REPLACE C&S EQUIPMENT	2,978,723	1,098,299	1,880,424	1,098,299										
C.EN.101690	POLE AMTRAK NEC - CATENARY POLE UPGRADES	957,447	2,820,805	(1,863,359)	2,433,579	66,420						320,806			
C.EN.101743	INT NEW YORK DIVISION EAST - INTERLOCKING UPGRADES	2,081,131	340,453	1,740,678	107,211	30,884					202,358				
C.EN.101673	TIES AMTRAK NATIONAL - TIE- TIMBER REPLACEMENT PROGRAM	3,618,301	1,941,956	1,676,345		1,236,189						705,767			

Note: *Subject to revision per Amtrak-LIRR agreement.

FY18 Actuals															
Program Code	Project Name	FY18 Plan	FY18 Actual	Variance	Amtrak	Amtrak (Above BCC)	MBTA	RIDOT	CTDOT (SLE)	LIRR*	NJT	SEPTA	DelDOT	MDOT	VRE
C.EN.101649	GEOM AMTRAK NEC - SURFACING PROGRAM	26,995,382	25,329,873	1,665,509	12,501,352	3,344,432	910,000	507,125			5,977,332	1,702,496	387,137		
C.EN.100081	CETC PENN STATION NY - SCADA PHASE II	3,457,447	1,797,205	1,660,242	1,797,205										
C.EN.100316	STA PENN STATION NEW YORK - ESCALATOR REPLACEMENT	3,297,872	1,728,184	1,569,689	(6,811)						1,734,994				
C.EV.100032	ENV PENN STATION - TRACK REMEDIATION	9,574,468	8,022,765	1,551,703	4,033,639						3,989,126				
C.SP.100057	STA NEWARK NJ STATION- PLATFORM/CANOPY REHABILITATION	1,595,745	119,721	1,476,024							119,721				
C.EN.100347	FREQ SAFE HARBOR - FREQUENCY CONVERTER UPGRADE	6,914,894	5,502,533	1,412,361	5,502,533										
C.EN.100755	STIP NEW YORK EAST RIVER TUNNELS-RAIL/TIE REPL LINE 1/2	1,595,745	198,165	1,397,580	198,165										
C.EN.101221	STA MID ATLANTIC DIVISION - STATION CONSTRUCTION UPGRADES	5,319,149	3,959,717	1,359,432	3,812,515	33,547							113,655		
C.EN.101418	SUB NEW ENGLAND DIVISION - SUBSTATION SCADA-RTU UPGRADES	1,335,106	6,054	1,329,053	5,484	570									
C.EN.101277	INRL FAIR INTERLOCKING - INTERLOCKING RENEWAL	2,659,574	1,334,597	1,324,978							1,334,597				
C.EN.101689	CAT AMTRAK NEC - CATENARY UPGRADES	4,673,847	5,790,212	(1,116,366)	2,835,228	2,592,649						362,335			
C.EN.101694	SIGP AMTRAK NEC - SIGNAL POWER UPGRADES	1,468,729	377,990	1,090,739	253,671	116,017					8,302				
C.EN.101288	INRL DAVIS INTERLOCKING - INTERLOCKING RENEWAL	1,063,830		1,063,830											
C.EN.101239	FREQ SUNNYSIDE YARD - CONVERTER REPLACEMENT	1,063,830	346	1,063,484	346										
C.EN.100850	STA WASHINGTON TERM & IVY CITY- FACILITY ELECTRICAL UPGRADES	1,170,213	116,738	1,053,474	116,738										
C.EN.100477	SYS STRUCTURES BRIDGES/ TUNNELS/WALLS - FUTURE DESIGN	1,665,707	655,625	1,010,083	309,897	136,278					209,450				
C.EN.101701	INT AMTRAK NEC - C&S INTERLOCKING UPGRADES	2,179,090	1,187,228	991,862	764,734	419,055		3,439							
C.EN.101627	STA PENN STATION NEW YORK-LIFE SAFETY FACILITY IMPROVEMENTS	1,063,830	88,335	975,495	88,335										
C.EN.101611	CAT AMTRAK ELECTRIFIED TERRITORY-OSHA FALL PROTECTION STUDY	1,063,830	107,987	955,843	107,987										

FY18 Actuals															
Program Code	Project Name	FY18 Plan	FY18 Actual	Variance	Amtrak	Amtrak (Above BCC)	MBTA	RIDOT	CTDOT (SLE)	LIRR*	NJT	SEPTA	DeIDOT	MDOT	VRE
C.EN.101624	TUN EAST RIVER TUNNELS - TUNNEL IMPROVEMENTS	1,170,213	283,002	887,210	283,002										
C.EN.101704	SWHT AMTRAK NEC - C&S SWITCH HEATER IMPROVEMENTS	1,037,234	176,732	860,502	176,732										
C.EN.100371	SAFE EMPLOYEE ARC FLASH PROTECTION	883,404	41,991	841,413	41,991										
C.EN.101211	STA NEW ENGLAND DIVISION - STATION CONSTRUCTION UPGRADES	2,659,574	1,885,272	774,302	549,839	1,001,274		334,159							
C.EN.101622	TUN NORTH RIVER TUNNELS - TUNNEL IMPROVEMENTS	1,063,830	301,008	762,822	(43)						301,051				
C.EN.101244	TUN MID ATLANTIC DIVISION - TUNNEL UPGRADES	2,127,660	1,374,871	752,788	1,374,871										
C.EN.100764	XINR AMTRAK NATIONAL - CROSSING UPGRADES	744,681		744,681											
C.EN.101678	BGUG AMTRAK NATIONAL - UNDERGRADE BRIDGE UPGRADES	808,511	80,831	727,679	(146)	80,977									
C.EN.101688	SUB AMTRAK NEC - SUBSTATION UPGRADES	8,238,104	7,590,911	647,193	6,277,377	228,741					1,084,793				
C.EN.100709	BGMS NJ008.50 DOCK BRG-UPGR CTRL LINE/EMGY BCKUP ENG/AUX DRV	851,064	269,530	581,534							269,530				
C.EN.101692	SWHT AMTRAK NEC - ELECTRICT TRACTION SW HTR IMPROVEMENTS	1,276,596	1,856,789	(580,193)	1,671,797						184,992				
C.EN.101705	BGMS AMTRAK NEC - MOVABLE BRIDGE UPGRADES	1,063,830	504,133	559,697	174,656	178,516					150,961				
C.EN.101653	TKAP AMTRAK NEC - WAYSIDE DETECTOR REPLACEMENT PROGRAM	607,660	71,391	536,268	71,391										
C.EN.100846	CABF WAS TO NEW YORK-INSTALL REDUNDANT COMM CBL	1,063,830	536,671	527,159	2,540						534,132				
C.EN.101672	RAIL AMTRAK NATIONAL - JOINT ELIMINATION PROGRAM	1,170,213	668,263	501,949	9,070	425,258						233,935			
C.EN.101693	TRN AMTRAK NEC - TRANSMISSION LINE UPGRADES	797,872	307,084	490,788	171,942						135,142				
C.EN.101695	CATC AMTRAK NEC - CONSTANT TENSION CATENARY HARDWARE RENEWAL	586,951	120,755	466,197	120,755										
C.EN.101474	INT AMTRAK NEC NYD WEST - INTERLOCKING UPGRADES	1,066,157	621,095	445,062	38,226						582,870				
C.EN.101648	FAST AMTRAK NEC - CONCRETE TIE FASTENER HARDWARE	468,085	30,862	437,223	8,333						22,529				

Note: *Subject to revision per Amtrak-LIRR agreement.

FY18 Actuals															
Program Code	Project Name	FY18 Plan	FY18 Actual	Variance	Amtrak	Amtrak (Above BCC)	MBTA	RIDOT	CTDOT (SLE)	LIRR*	NJT	SEPTA	DelDOT	MDOT	VRE
C.SP.100011	SYS NEC IID CAPITAL PLANNING - PROGRAM SUPPORT	534,524	108,331	426,193	108,331										
C.EN.101668	GEOM AMTRAK NATIONAL - SURFACING PROGRAM	3,723,404	4,148,465	(425,061)	26,869	2,094,674						2,026,922			
C.EN.100039	STA 30TH STREET STATION - FACADE RESTORATION	3,670,213	4,085,741	(415,529)	4,085,741										
C.EN.101110	BGTI STRUCTURES - BRIDGE TIE DESIGN	485,872	87,023	398,850	(21,044)	15,948					92,119				
C.EN.100727	INT DAVISVILLE INTERLOCKING - UPGRADE TO MICROLOK 2	678,410	299,860	378,549	12,452			287,408							
C.EN.101691	FREQ AMTRAK NEC - FREQUENCY CONVERTER UPGRADES	4,009,466	3,632,765	376,701	3,348,610							284,155			
C.PO.100037	30TH STREET STATION PERIMETER DOOR UPGRS	372,340		372,340											
C.EN.100563	INT AMTRAK NEC MAD NORTH – INTERLOCKING UPGRADES	1,440,769	1,072,533	368,236	312,390	29,240						730,903			
C.EN.100940	INTB NEW YORK DIV - INTERLOCKING LIGHTING FIXTURE UPGRADES	531,915	174,009	357,906	10,200						163,810				
C.EN.100562	INT AMTRAK NEC MAD SOUTH – INTERLOCKING UPGRADES	672,855	327,419	345,436	245,538	72,244								9,637	
C.EN.101696	BGTI AMTRAK NEC - BRIDGE TIMBER REPLACEMENT	3,723,404	4,068,316	(344,912)	(1,135)	1,795,563					551,917	1,721,970			
C.EN.101647	BLST AMTRAK NEC - SPOT UNDERCUTTING PROGRAM	7,313,830	7,658,189	(344,359)	3,060,654	590,612					2,732,644	345,606	94,859	833,813	
C.EN.101751	INT NEW ENGLAND DIV EAST – INTERLOCKING UPGRADES	409,070	69,255	339,815	69,255										
C.EN.101620	INT NEW ENGLAND DIVISION- INTERLOCKING SURGE PROTECTION UPGRS	319,149	7,948	311,201	7,785	163									
C.EN.101655	RAIL AMTRAK NEC - JOINT ELIMINATION PROGRAM	6,648,937	6,350,706	298,231	3,130,358	298,896					2,468,154	215,088	238,210		
C.EN.101706	BGSF AMTRAK NEC - SIGNAL BRIDGE UPGRADES	2,251,064	1,952,881	298,182	543,087	537,658					216,436	655,699			
C.EN.101702	ABS AMTRAK NEC - SIGNAL SYSTEM UPGRADES	447,872	152,324	295,548	151,946	218					160				
C.EN.101736	INT AMTRAK NEC NYD EAST - INTERLOCKING UPGRADES	405,599	113,913	291,686							113,913				
C.EN.101674	TURN AMTRAK NATIONAL - INTERLOCKING STEEL RENEWAL PROGRAM	851,064	582,605	268,459	3,029	77,490						502,085			

FY18 Actuals															
Program Code	Project Name	FY18 Plan	FY18 Actual	Variance	Amtrak	Amtrak (Above BCC)	MBTA	RIDOT	CTDOT (SLE)	LIRR*	NJT	SEPTA	DeIDOT	MDOT	VRE
C.EN.101517	SAFE ELECTRIC TRACTION EMPLOYEE ARC FLASH PROTECTION	265,957		265,957											
C.EN.100123	APP ENGINEERING ASSET MANAGEMENT SYSTEM	3,161,423	3,424,613	(263,189)	3,424,613										
C.EN.100203	INTB MID-ATLANTIC DIVISION- INTERLOCKING LIGHTING UPGRADES	345,745	82,664	263,080	22,171								60,494		
C.EN.101723	STIP AMTRAK NATIONAL - RIDE QUALITY IMPROVEMENT PROGRAM	797,872	1,045,872	(248,000)		298,570						747,302			
C.EN.101708	BGMS AMTRAK NATIONAL - MOVABLE BRIDGE UPGRADES	265,957	19,473	246,485		19,473									
C.EN.101243	TOWR MID ATLANTIC DIVISION- TRANSPORTATION FACILITY UPGRADES	425,532	192,991	232,541	192,991										
C.EN.101679	CULV AMTRAK NATIONAL - CULVERT UPGRADES	319,149	90,554	228,595		90,554									
C.EN.100331	SYS ELECTRIC TRACTION DESIGN REVIEW	369,293	595,047	(225,755)	582,263						12,785				
C.EV.100023	ENV NEWARK PENN STATION - PCB REMEDIATION	319,149	107,441	211,708							107,441				
C.EN.100739	TKAP WASHINGTON TO BOSTON - RAIL LUBICATOR REPLACEMENT	531,915	734,830	(202,915)	734,830										
C.EN.101732	RAD AMTRAK NEC - RADIO SYSTEM UPGRADES	331,277	129,657	201,619	129,417	240									
C.EN.101625	TUN EMPIRE TUNNEL - TUNNEL IMPROVEMENTS	1,063,830	1,253,248	(189,418)	(21,400)	1,274,648									
C.EN.100213	STA 30TH STREET STATION - FIRE ALARM SYSTEM IMPROVEMENTS	1,010,638	831,266	179,372	831,266										
C.EV.201069	Wilmington Maintenance Facility Stormwater Separat	265,957	99,076	166,882	99,076										
C.EN.101667	BLST AMTRAK NATIONAL - SPOT UNDERCUTTING PROGRAM	797,872	957,150	(159,278)	129	164,840						792,181			
C.EN.101358	TEL NEW YORK DIVISION - REPLACE COMM EQUIPMENT HOUSES	159,574	7,263	152,312	61						7,201				
C.EN.100332	SYS STRUCTURES FACILITIES - FUTURE DESIGN	1,230,319	1,380,982	(150,663)	1,294,692	45,155					41,135				
C.EN.100750	GEOM AMTRAK SYSTEM - SURFACING PROGRAM DEVELOPMENT	414,096	272,701	141,395	272,701										
C.EN.101276	STA NEW YORK DIVISION - STATION CONSTRUCTION UPGRADES	841,489	961,560	(120,071)	961,560										

Note: *Subject to revision per Amtrak-LIRR agreement.

					FY18 Actuals										
Program Code	Project Name	FY18 Plan	FY18 Actual	Variance	Amtrak	Amtrak (Above BCC)	MBTA	RIDOT	CTDOT (SLE)	LIRR*	NJT	SEPTA	DelDOT	MDOT	VRE
C.EN.101753	ABS WASHINGTON TO NEW YORK - UPGRADE SIGNAL SYSTEM TO 562	738,298	858,008	(119,711)	838,932						19,076				
C.EN.101415	RAD AMTRAK SYSTEM-RADIO SITE BACKUP AND EMERGENCY PWR UPGRS	165,638	54,852	110,787	48,710	6,141									
C.EV.100013	ENV LANCASTER PA STA MAIL TUN- GROUNDWATER INFILTRATION UPGR	106,383	(70)	106,453	(70)										
C.EN.101359	TEL MID-ATLANTIC DIVISION - REPLACE COMM EQUIPMENT HOUSES	106,383		106,383											
C.EN.101686	POLE AMTRAK NATIONAL - CATENARY POLE UPGRADES	106,383		106,383											
C.EV.100020	ENV FAIR INTERLOCKING - CONTAMINATED SOIL REMOVAL	319,149	221,730	97,419							221,730				
C.EN.100449	INT NEW ENGLAND DIV INTERLOCKINGS - BATTERY BANK REPLACEMENT	101,626	5,208	96,418	(0)	5,208									
C.EN.101727	XINR AMTRAK NEC - CROSSING UPGRADES		94,333	(94,333)	94,333										
C.EN.100618	CAT ELECTRIC TRACTION TRAINING FACILITY - UPGRADES	321,649	231,283	90,366	180,484						50,799				
C.EN.100478	SYS C&S LANCASTER SHOP EQUIPMENT PURCHASE/UPGRADES	209,809	128,342	81,467	127,505	837									
C.EN.101722	RAIL AMTRAK NATIONAL - INSULATED JOINT REPLACEMENT PROGRAM	265,957	344,536	(78,578)	18,290	326,246									
C.EN.100788	RAD NORTHEAST CORRIDOR - RADIO VOTER UPGRADES	159,574	81,681	77,894	41,980						39,701				
C.EN.101713	RAIL AMTRAK NEC - INSULATED JOINT REPLACEMENT PROGRAM	2,978,723	3,054,112	(75,388)	1,883,348	272,198					730,251	138,219	30,096		
C.EN.101592	TKRN TRENTON NJ - INTERCHANGE EXTENSION	2,127,660	2,055,306	72,353							2,055,306				
C.EN.101768	STA ROUTE 128 STATION MA - STATION UPGRADES		70,682	(70,682)	70,682										
C.EN.100333	SYS TRACK - FUTURE DESIGN	292,553	362,292	(69,739)	88,460	135,115					138,717				
C.EN.101709	WALL AMTRAK NATIONAL - RETAINING WALL UPGRADES	531,915	465,308	66,606		465,308									
C.EN.201264	POLE ZOO TO PAOLI - CATENARY STRUCTURE REPLACEMENT DESIGN	79,787	16,990	62,797	16,990										
C.EN.100649	RAD PENN STATION NY - RADIO SYSTEM UPGRADES DESIGN & INSTALL	106,383	44,565	61,818	44,565										

FY18 Actuals															
Program Code	Project Name	FY18 Plan	FY18 Actual	Variance	Amtrak	Amtrak (Above BCC)	MBTA	RIDOT	CTDOT (SLE)	LIRR*	NJT	SEPTA	DeIDOT	MDOT	VRE
C.EN.100422	BGMS STRUCTURES - MOVABLE BRIDGE COMPONENT DESIGN	154,255	208,332	(54,077)	134,881	56,136					17,316				
C.EN.101710	FEN AMTRAK NATIONAL - FENCE UPGRADES		48,095	(48,095)		48,095									
C.EV.100011	ENV MIDWAY, CT MOFW FACILITY- STORMWATER TREATMENT SYSTEM	53,191	101,204	(48,012)		101,204									
C.EN.101425	TEL HARRISBURG LINE - COMM SHELTER BACKUP POWER UPGRADES	203,723	157,839	45,884	146	49,730						107,963			
C.EV.201240	ENV WILMINGTON WEST YARD - ENVIROMENTAL CLEANUP	265,957	220,205	45,753	220,205										
C.EN.101178	TIES CONCRETE TIE - REDESIGN OF CONCRETE TIES	853,301	896,776	(43,475)	896,776										
C.EN.101665	SIGP AMTRAK NATIONAL - SIGNAL POWER UPGRADES	265,957	305,259	(39,302)	(257)	305,516									
C.EN.101510	SWHT NEW ENGLAND DIVISION - ENERGY EFFICIENT SW HEATER REPL	319,149	288,177	30,972	101,920	186,257									
C.EV.100021	ENV 30TH STREET STATION - PLATFORM AREA PCB REMEDIATION	1,914,894	1,927,626	(12,733)	1,927,626										
C.EN.101711	FEN AMTRAK NEC - FENCE UPGRADES		12,460	(12,460)	12,460										
C.EN.101658	TURN AMTRAK NEC - INTERLOCKING STEEL RENEWAL PROGRAM	7,071,016	7,082,584	(11,568)	3,209,879	302,178					2,415,706	967,111	187,709		
C.EN.101426	TEL MID-ATLANTIC DIVISION - COMM SHELTER ALARM SYSTEM UPGRS	106,383	97,822	8,561	34,331	63,491									
C.EN.101666	TRN AMTRAK NATIONAL - TRANSMISSION LINE UPGRADES	106,383	103,380	3,003	19,056	84,324									
C.EN.101663	CAT AMTRAK NATIONAL - CATENARY HARDWARE RENEWAL	106,383	105,489	894	50,903							54,586			
Amtrak Total		572,951,940	435,617,011	137,334,929	213,838,447	68,264,686	910,000	1,378,000	3,490,000	18,124,878	83,824,000	30,336,000	1,764,000	13,231,000	456,000

Note: *Subject to revision per Amtrak-LIRR agreement.

Figure B-6. MBTA capital renewal of basic infrastructure details, FY18

Project Name	FY18 Plan	FY18 Actual	Variance
Route 128 Station Upgrades	\$2,750,000	\$44,236	\$2,705,764
Interlocking Crossover Replacement Program	\$3,250,000	\$918,447	\$2,331,553
Interlocking Signal Systems Upgrades	\$1,500,000	\$0	\$1,500,000
Interlocking Steel Replacement Program	\$1,125,000	\$135,095	\$989,905
ROW Fence Upgrades	\$1,312,500	\$2,300,461	(\$987,961)
TAMS Upgrade Program	\$950,000	\$0	\$950,000
Power and Express Cable Upgrades	\$950,000	\$0	\$950,000
PTC Split Point Derail Upgrades	\$2,500,000	\$1,698,511	\$801,489
Emergency Egress Stairway Upgrades	\$600,000	\$0	\$600,000
Southwest Corridor Infiltration Remediation	\$500,000	\$0	\$500,000
Tie/Timber Program	\$180,000	\$523,523	(\$343,523)
CWR Replacement Program	\$660,000	\$343,412	\$316,588
Backbay Tunnel Ductwork Upgrades	\$400,000	\$83,964	\$316,036
Hot Box/ Dragging Equipment Detectors Upgrades	\$300,000	\$0	\$300,000
M3 Switch Machine Upgrades	\$316,000	\$100,189	\$215,811
South Bay Transformer Upgrades	\$175,000	\$0	\$175,000
South Station Upgrades	\$160,000	\$1,620	\$158,380
South Station Tie and Rail Upgrades	\$150,000	\$0	\$150,000
Out of Face Surfacing Program	\$1,500,000	\$1,604,141	(\$104,141)
Joint Elimination Program	\$250,000	\$206,588	\$43,412
Insulated Joint Upgrade Program	\$145,000	\$162,409	(\$17,409)
MBTA Total	\$19,673,500	\$8,122,596	\$11,550,904

Figure B-7. Connecticut DOT capital renewal of basic infrastructure details, FY18

Program Code	Project Name	FY18 Plan	FY18 Actual	Variance
DOT03000149	Positive Train Control	\$20,000,000	\$36,549,487	(\$16,549,487)
DOT03000170CN, DOT03000182CN, DOT03000190CN, DOT03000206CN	NHL CT - Track Program (C Program)	\$25,000,000	\$11,770,309	\$13,229,691
DOT03010154CN	NHL CT - Signal System Replacement Phase 1	\$20,000,000	\$10,599,598	\$9,400,402
DOT03000150CN, DOT03000178CN	Network Infrastructure Upgrade Phase 2	\$15,000,000	\$8,939,669	\$6,060,331
DOT03010175PE, DOT03010175CN	NHL CT - Milford Culvert (MP 65.6)	\$6,000,000	\$97,696	\$5,902,304
DOT01350301CN, DOT03010163CN	NHL CT - Bridges - Atlantic Street, Stamford	\$15,000,000	\$9,918,114	\$5,081,886
DOT03010072CN, DOT03010072EQ	Substation Replacements	\$10,000,000	\$6,138,662	\$3,861,338
DOT03010139CN	NHL - DEVON Movable Bridge Repairs	\$4,000,000	\$379,774	\$3,620,226
DOT03010173CN	Cos Cob Interim Repairs	\$6,000,000	\$2,406,714	\$3,593,286
DOT03000175PE	NHL CT - Bridge Design	\$4,000,000	\$973,710	\$3,026,290
DOT03000189PE	NHL CT - Bridge Design (East Ave, Osbourne, Ft Point Bridges)		\$2,740,708	(\$2,740,708)
DOT03010145CN	NHL CT - Catenary Replacement - Segments C1A and C2 - Construction	\$10,000,000	\$12,654,266	(\$2,654,266)
DOT03000173CN, DOT03000161CN, DOT03000195CN, DOT03000207CN	NHL S program/Timber Program	\$4,000,000	\$1,356,767	\$2,643,233
DOT03010504PE, DOT03010504CN	NHL Devon High Towers Guy Wire Emergency Declaration		\$2,362,605	(\$2,362,605)
DOT03010153CN	Substation Replacements	\$5,000,000	\$6,593,764	(\$1,593,764)
DOT03010092CN	NHL CT - Bridges - Sound Beach/Tomac Ave Construction	\$5,000,000	\$5,859,126	(\$859,126)
DOT03010177CN	NHL - SAGA Movable Bridge Repairs	\$1,000,000	\$518,387	\$481,613
DOT03000202PE, DOT03000202CN	Network Infrastructure Upgrade Phase 3		\$411,999	(\$411,999)
Connecticut DOT Total		\$150,000,000	\$120,271,356	\$29,728,644

Figure B-8. Metro-North Railroad capital renewal of basic infrastructure details, FY18

Program Code	Project Name	FY18 Plan	FY18 Actual	Variance
M7040103	Positive Train Control	\$3,724,000	\$12,392,417	(\$8,668,417)
M6050101	Bridge 23	\$6,640,232	\$2,111,197	\$4,529,035
M7030201	Overhead Bridge Program - E of H	\$1,850,697	\$0	\$1,850,697
L08A2735	Purchase Two (2) Catenary Maintenance Vehicles		\$1,330,797	(\$1,330,797)
M7030101	Cyclical Track Program	\$1,195,000	\$127,000	\$1,068,000
M7030107	Rebuild Retaining Walls	\$927,577	\$121,239	\$806,338
M7030109	Purchase MoW Equipment	\$684,546	\$39,209	\$645,337
M7030208	Replace Timbers - Undergrade Bridges	\$209,401	\$97,438	\$111,963
M7080107	Program Scope Development-2015	\$110,080	\$2,038	\$108,042
M7030201	Undergrade Bridge Rehabilitation		\$94,250	(\$94,250)
L08A2737	Autonomous Track Geometry Measurement System		\$52,245	(\$52,245)
M7080103	Railroad Protective Liability	\$72,000	\$20,025	\$51,975
M7030103	Rock Slope Remediation	\$37,213	\$0	\$37,213
M7030102	Cyclical Repl. Insulated Joint	\$19,500	\$0	\$19,500
L08A2739	11 Vehicles for Positive Train Control		\$18,468	(\$18,468)
M7080104	Independent Engineer	\$102,400	\$89,093	\$13,307
M7080106	Program Administration - 2015	\$100,000	\$113,090	(\$13,090)
L08A2645	GIS Expansion		\$9,927	(\$9,927)
M7050109	Replace Substations 128 and 178		\$9,390	(\$9,390)
M7080102	Environmental Remediation		\$808	(\$808)
Metro-North Railroad Total		\$15,672,646	\$16,628,630	(\$955,984)

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Appendix C. Special Projects

Figure C-1. 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.

Amtrak

Major Backlog Projects

- Baltimore & Potomac Tunnel Replacement.....56
- Connecticut River Bridge Replacement57
- East River Tunnel Rehabilitation58
- Gateway: Hudson Tunnel Project59
- Gateway: Sawtooth Bridge.....60
- Pelham Bay Bridge Replacement.....61
- Susquehanna River Bridge Replacement62

Improvement Projects

- Baltimore Penn Station Infrastructure Improvements....63
- Baltimore Penn Station Master Plan.....64
- Fitter Interlocking (formerly Yale Interlocking).....65
- Gateway: Harrison Fourth Track66
- Gateway: Hudson Yards Concrete Casing.....67
- Gateway: Penn Station Expansion.....68
- Gateway: Planning and Program Management69
- Hanson Interlocking70
- Maryland Section Reliability Improvements71
- Moynihan Station (Phase 2).....72
- New Carrollton Station - Acela 21.....73
- New Jersey HSR Improvement Program74
- Newark Penn Station Platform Rehabilitation75
- Next Generation High Speed Fleet Infrastructure:
Ivy City/ Washington Terminal Yard Facility
Improvements76
- Next Generation High Speed Fleet Infrastructure:
Ride Quality Investment77
- Next Generation High Speed Fleet Infrastructure:
Safety Mitigation78
- Next Generation High Speed Fleet Infrastructure:
Southampton St. Yard Facility Improvements79
- Next Generation High Speed Fleet Infrastructure:
Sunnyside Yard Facility Improvements80

- Paoli Transportation Center - Phase 1 (ADA &
Infrastructure)81
- Philadelphia 30th Street Station District Plan
Implementation82
- Washington Union Station: Claytor Concourse
Modernization83
- Washington Union Station: Long Term Station
Expansion.....84
- Washington Union Station: Near Term Rail Program85
- Washington Union Station: Subbasement Program86
- Wilmington Maintenance of Equipment Facility -
Complex Replacement.....87

Connecticut DOT

Major Backlog Projects

- Walk Bridge Program88

Improvement Projects

- CTail Hartford Line Commuter Station
Improvements89
- New Haven Line Network Infrastructure Upgrade90
- New Haven Line Stations Improvements91
- New Haven Yard Master Complex Improvements92
- SLE Station Improvements93

Delaware DOT

- Claymont Regional Transportation Center.....94
- Delaware Third Track Program95
- Newark (DE) Regional Transportation Center96

Long Island Rail Road

- East River Tunnel - Right of Way Infrastructure
Improvements97
- Penn Station New York - LIRR Projects98
- River-to-River Rail Resiliency Project (R4)99

Maryland DOT

- BWI Thurgood Marshall Airport Station Interim Improvements 100
- MARC Station Improvements - West Baltimore 101
- MARC Storage Improvements - Martin Airport..... 102

MBTA

- MBTA Layover Facilities - Pawtucket Layover Facility 103
- MBTA Station Improvements - Mansfield Station 104
- MBTA Station Improvements - Ruggles Street Station 105
- MBTA Station Improvements - South Attleboro Station 106
- Spandrel Beam Repair..... 107

Metro-North Railroad

- Penn Station Access 108

MTA Capital Construction

- Harold Interlocking..... 109

NJ TRANSIT

Major Backlog Projects

- Gateway: Portal North Bridge Early Action Items 110
- Gateway: Portal North Bridge 111

Improvement Projects

- County Yard 112
- Delco Lead Project 113
- New Brunswick Station 114
- NJ TRANSITGRID 115
- Penn Station New York - NJ TRANSIT Projects 116
- Princeton Junction Station 117

Pennsylvania DOT

- Harrisburg Line Automatic Block Signal System – Park to Paoli 118
- Harrisburg Line Station Improvements: Coatesville 119
- Harrisburg Line Station Improvements: Downingtown 120
- Harrisburg Line Station Improvements: Middletown .. 121
- Harrisburg Line Station Improvements: Mount Joy..... 122
- Harrisburg Line Station Improvements: Parkesburg..... 123

Rhode Island DOT

- Pawtucket/ Central Falls Station..... 124

SEPTA

- 30th Street West Catenary Replacement 125
- Ardmore Station ADA Improvements 126
- Exton Station Improvements..... 127
- Frazer Rail Shop and Yard Upgrade 128
- Levittown Station Improvements..... 129
- Southwest Connection Improvement Program 130
- Villanova Station Improvements..... 131

Special Projects: Amtrak (Major Backlog)

Baltimore & Potomac Tunnel Replacement

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

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

Project schedule starting from FY18:

- PE/NEPA: Apr 2011 - Oct 2017
- Design: Oct 2011 - Sep 2024
- Construction: Oct 2022 - Sep 2032

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$11,500,000

FY18 planned activities: Advance the engineering of selected program elements. Engage stakeholders regarding improvements to non-Amtrak owned infrastructure. Develop program delivery strategy and implementation sequence. Perform marginal analysis on the project objectives defined by NEPA to evaluate the incremental cost of the service benefits to inform funding strategies and PRIIA cost allocation discussions. Advance early preparations for required mitigation effort.

FY18 actual expenditure: \$4,546,435

FY18 accomplishments: Continued Overall Design Development; Continued developing Project Delivery strategy and identified potential Enabling Contracts; Met with CSX Engineering regarding proposed bridge modification

Explanation of variance from FY18 plan (including scope, schedule, budget): The project has suffered delays with engaging key stakeholders, which reduced the value of the engineering design effort that could be performed in FY18. The project mitigated budget and schedule variances by focusing on project elements with minimal risk to the design development.

Connecticut River Bridge Replacement

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$759,000,000

Project schedule starting from FY18:

- Feasibility/Conceptual Design: 2018 - 2019
- Final Design: 2019 - 2022
- Construction: 2024 - 2030

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$4,000,000

FY18 planned activities: Award Design Services contract to A/E, and begin the Preliminary Engineering design phase for the project.

FY18 actual expenditure: \$572,011

FY18 accomplishments: Award of Preliminary Design Contract and complete 15% Preliminary Design submission.

Explanation of variance from FY18 plan (including scope, schedule, budget): Preliminary design contract took until mid-year to award, therefore expenditure did not reach planned amount.

East River Tunnel Rehabilitation

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

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

Project schedule starting from FY18:

- NEPA/Final Design: Oct 2017 - Mar 2021
- Construction: Oct 2024 - Sep 2028

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: Not included in FY18 plan.

FY18 planned activities: Not included in FY18 plan.

FY18 actual expenditure: \$4,963,317

FY18 accomplishments: Four partial weekend outages for conventional survey, LiDAR and trolley survey in ERT 1 and 2 (6 full weekends requested). Survey data is critical path and created an 8-10 month overall schedule slip. 30-40 weeknight outages completed for structural survey and condition assessment for intermediate repair task. "40% Design Progress" Presentation in Spring of 2018 to update internal stakeholders given the extended 60% milestone timeline. 60% design slipped to November of 2019. Evaluation and SOW determination for incorporation of Hinman Security Risk Assessment recommendations. NEPA Project Initiation and consultation with FRA on schedule. Development of in-tunnel fire/smoke/heat detection testing program for implementation in FY19. Preparation of early works package for feeder cable alternate route proofing to remove feeder cable from ERT-2.

Explanation of variance from FY18 plan (including scope, schedule, budget): General underspend due to lack of weekend tunnel access. Main reason was higher priority SOGR projects and other large impacting work (Moynihan, Brookfield, East Side Access, etc.)

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

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

Project schedule starting from FY18:

- PE/NEPA: 2016 - 2019
- New Tunnel and Concrete Casing: 2019 - 2026
- Rehab of North River Tunnel Construction: 2027 - 2030

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$105,804,644

FY18 planned activities: The FY18 project scope will include the completion of preliminary engineering of the new tunnel and conclusion of the environmental review process with the publication of the Final Environmental Impact Statement and obtaining a Record of Decision. Acquisition of property rights for the tunnel alignment will begin in FY18 following the ROD and procurement of the first construction contracts will begin.

FY18 actual expenditure: \$25,417,612

FY18 accomplishments: Preliminary Engineering was completed as planned. Consultants submitted the 30% design package for review by the Gateway partners. The administrative draft of the FEIS was completed in a record 22 months and submitted to FRA for review in January 2018. Legislation was passed in New York State Legislature amending the Hudson River Park Trust act to allow a rail tunnel under the Park and to allow the park to negotiate an easement with the tunnel project.

Explanation of variance from FY18 plan (including scope, schedule, budget): The issuance of the Final Environmental Impact Statement/Record of Decision (FEIS/ROD), planned for March 2018, was delayed by Federal Railroad Administration. This in turn deferred planned property acquisition activities and related expenditures in FY2018.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

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

Project schedule starting from FY18:

- NEPA: 2018 - 2019
- PE: 2019 - 2020
- Final Design: 2020 - 2029
- Construction: 2022 - 2029

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$3,000,000

FY18 planned activities: In FY18, design engineering services seeks to provide a concept design which will identify the type, size, and location of new railroad bridge structures for existing bridges NJ 007.80 (NJ TRANSIT underpass) and NJ 007.86 (PATH & Conrail underpass) to provide 4 track capacity. The scope will also identify construction strategies and constructibility issues in order to complete the project while maintaining railroad operations, and provide Amtrak with sufficient conceptual design information, costs, and schedule to progress the design in subsequent project phases. Utilization of the concept design recommendations in subsequent project design phases will ultimately lead to the completion of a construction project that will result in improved rail passenger service on the NEC.

FY18 actual expenditure: \$132,557

FY18 accomplishments: An administrative draft of the Environmental Assessment (EA) was drafted and shared with the Federal Railroad Administration.

Explanation of variance from FY18 plan (including scope, schedule, budget): Commencement of Preliminary Engineering is deferred pending completion of NEPA process. Environmental Assessment is ongoing.

Pelham Bay Bridge Replacement

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$546,000,000

Project schedule starting from FY18:

- Pre-NEPA: Oct 2017 - Sep 2018
- NEPA: Oct 2018 - Sep 2019
- Preliminary Engineering: Oct 2019 - Sep 2022
- Final Design: Oct 2022 - Sep 2025
- Construction: Oct 2025 - Sep 2030

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$1,000,000

FY18 planned activities: Finalize Pre-NEPA report in response to FRA project questions. Upon determination of NEPA type, award NEPA services contract to A/E firm and proceed with the preparation of the NEPA document.

FY18 actual expenditure: \$106,812

FY18 accomplishments: Final field work and draft technical memorandum responding to FRA questions initiated by review of the Concept Design Report was completed.

Explanation of variance from FY18 plan (including scope, schedule, budget): Initial budget based on FRA Class of Action Determination for the project. This would have allowed the actual start of the NEPA process. However, this determination has not yet been resolved.

Susquehanna River Bridge Replacement

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

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

Project schedule starting from FY18:

- Final Design: May 2017 - Jun 2024
- Early Action/Enabling Projects: 2020 - 2024
- Construction: 2024 - 2030

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$4,500,000

FY18 planned activities: Commence initial final design efforts off, various structures included ballasted deck bridges supporting Tracks 4 and B, Lewis Lane Overhead Bridge, 220' span configurations of the main bridge, catenary support details at the south abutments due to the extended 220' spans, track design, direct fixation investigations for Tracks 2 and 3, drainage design and roadway reconfiguration designs in Havre de Grace and Perryville, coordination with local officials, MD State Highway Administration, US Dept of VA and various other stakeholders.

FY18 actual expenditure: \$3,922,228

FY18 accomplishments: Advanced towards 60% Design. Soil Boring Program completed. Several approach bridges nearing 90% Final Design completion.

Explanation of variance from FY18 plan (including scope, schedule, budget): As with all projects in the Life Support Funding Model, funding is allocated annually, without true project prioritization, and not pegged to real milestones. Simply put, the Project is advanced during the year as effectively as possible without exceeding the available funding.

Special Projects: Amtrak (Improvement)

Baltimore Penn Station Infrastructure Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$43,000,000

Project schedule starting from FY18:

- Feasibility/Conceptual Design: Mar 2017 - Oct 2017
- PE/NEPA: Oct 2017 - Oct 2018
- Final Design: Apr 2018 - Aug 2018
- Construction: Jan 2019 - Sep 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$2,500,000

FY18 planned activities: Conceptual design development, NEPA process, PE and construction drawing preparation for the platform and canopy improvements will be underway in FY18.

FY18 actual expenditure: \$1,919,260

FY18 accomplishments: Assessment and 15%, 30% , 60% and 90% designs completed. Design is currently at the 100% and nearing completion, with completion of the PIDS design required. Finish Board selections and coordination with Transportation for site coordination of train storage and use during construction. On- going coordination with Amtrak project delivery and Transportation.

Explanation of variance from FY18 plan (including scope, schedule, budget): Project completion date extended to Jan 2019, so less funds were spent in FY18.

Baltimore Penn Station Master Plan

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$95,000,000

Project schedule starting from FY18:

- Feasibility/Conceptual Design: May 2017 - Feb 2019
- PE/NEPA: Mar 2018 - Apr 2019
- Final Design: Apr 2019 - Apr 2020
- Construction: Jan 2020 - 2023

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$7,651,000

FY18 planned activities: Continued execution of a State of Good Repair strategy for Baltimore Penn Station, including construction of the first group of priority projects, and design work on additional building envelope improvements. In FY18, construction will be completed on a new roof and critical building system elements, as well as the advancement of a Master Development partnership for the station.

FY18 actual expenditure: \$752,564

FY18 accomplishments: Announcement of the selected Master Developer for Baltimore Penn Station (Nov 2017). Commencement of the Next Stop Baltimore Penn Station Vision Plan (April 2018) and Kick-Off Public Meeting (July 2018). Completion of master developer due diligence (November 2018)

Explanation of variance from FY18 plan (including scope, schedule, budget): Variance due to a \$7M SOGR Project which did not proceed through procurement and will now be included within the Master Developer Partnership.

Fitter Interlocking (formerly Yale Interlocking)

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$34,100,000

Project schedule starting from FY18:

- Final Design: Nov 2015 - Dec 2017
- Construction: Oct 2018 - Dec 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: Not included in FY18 plan.

FY18 planned activities: Not included in FY18 plan.

FY18 actual expenditure: \$202,829

FY18 accomplishments: Final Design was completed and submitted to Amtrak by consultant. Amtrak began to develop agreement with CTDOT for shared funding agreement for construction.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not included in FY18 plan.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: TBD

Project schedule starting from FY18:

- PE/NEPA: 2019 - 2020
- Final Design/Construction: 2020 - 2024

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$2,000,000

FY18 planned activities: Starting in FY18, Amtrak will award the contract for the design of the fourth track at Harrison Station. The design will progress in stages up to final design and will be conducted in collaboration with the Port Authority.

FY18 actual expenditure: \$4,263

FY18 accomplishments: A design contract was procured and a kick-off meeting with consultants was held, but notice to proceed is deferred until Amtrak-PATH design phase agreement is finalized.

Explanation of variance from FY18 plan (including scope, schedule, budget): Commencement of design is deferred pending execution of design phase agreement between Amtrak and PATH.

Gateway: Hudson Yards Concrete Casing

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan. Note: Hudson Yards Concrete Casing project details in any future NEC plan or report can be found on the Hudson Tunnel Project page.

Scope: Construction of an underground concrete casing to protect the future right-of-way of the Hudson Tunnel Project beneath the extensive overbuild project that is being constructed on a platform above the rail complex in Manhattan (immediately west of PSNY) known as “Hudson Yards.” The project encompasses approximately 1,000 linear feet from 10th Avenue in Manhattan to 11th Avenue. This project’s total cost estimate has increased due to the additional spending on the project over the previous year. As Phase I and Phase II have been wrapping up and closing out (The 11th Avenue section - Phase II - is now closed), costs continue to accrue (Phase I in particular has experienced challenges to closing out the LIRR Maintenance of Equipment building element). The third and final phase is now included as part of the Hudson Tunnel Project.

Total project cost: \$302,606,307

Project schedule starting from FY18:

- Construction (Phase 1, Section 1): Aug 2013 - Oct 2017
- Construction (Phase 2, Section 2 - 11th Ave): Dec 2014 - Oct 2017

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$14,290,307

FY18 planned activities: Begin construction on the third and final section of the concrete casing from the west side of 11th Avenue to the north side of 30th Street in the vicinity of 12th Avenue. Before construction on the concrete casing begins, the LIRR Emergency Services Building (ESB) must be relocated to make way for construction of the concrete casing. Construction must proceed in FY18 to allow the private developer to proceed with their timeline for Hudson Yards development project.

FY18 actual expenditure: \$7,818,117

FY18 accomplishments: a. Hudson Yards Concrete Casing Phase 1 is complete. b. Hudson Yards Concrete Casing Phase 2, 11th Avenue Section, is complete. c. Final design refinements for Hudson Yards Concrete Casing Phase 2 Section 3 are ongoing.

Explanation of variance from FY18 plan (including scope, schedule, budget): Construction of Phase 2, Section 3 Early Work has not yet begun, pending ongoing business negotiations with Related. Approval to proceed with early work is contingent on resolution of ongoing LIRR-related issues.

Note: For details about this project in the FY20-24 Capital Investment Plan and any future NEC plan or report, see Gateway: Hudson Tunnel Project.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: TBD

Project schedule starting from FY18:

- PE/NEPA: 2020 - 2024
- Property Acquisition: 2024 - 2025
- Construction: 2025 - 2033

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$1,000,000

FY18 planned activities: Begin conceptual planning work among Penn Station New York stakeholders, including Amtrak, NJ TRANSIT, LIRR and NYC TRANSIT and coordinate with future and external stakeholders in advance of a NEPA study of Penn Station Expansion.

FY18 actual expenditure: \$0

FY18 accomplishments: Not applicable.

Explanation of variance from FY18 plan (including scope, schedule, budget): Project deferred pending conceptual planning with railroad partners.

Gateway: Planning and Program Management

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

General Project Information

For full project details, see the FY19 One-Year Implementation Plan, October 2018.

Scope: The Gateway Program would create four main line tracks between Newark, NJ and New York, NY to address and alleviate the most severe bottleneck on the NEC. Several of the Gateway Program elements are now progressing into design or construction and are carved out for the purposes of the NEC Capital Investment Plan, including the Hudson Tunnel Project, Portal North Bridge, Hudson Yards Concrete Casing, and the Sawtooth Bridge. The investments listed here focus on planning and program management for these Phase 1 projects and the rest of the program. Cost estimates for the full program are not yet complete as many project elements remain in early stages of development.

Total project cost: \$207,660,792

Project schedule starting from FY18:

- Program Management: Oct 2018 - Sep 2023

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$16,276,542

FY18 planned activities: Develop funding and finance plans for Phase 1 of the Gateway Program, including the Hudson Yards Concrete Casing, Hudson Tunnel Project, and Portal North Bridge. Develop and negotiate agreements among project partners for design and construction of program elements, property acquisition, debt financing, and long term ownership and operation. Acquire property rights for project construction. Advance concept planning for Phase II elements.

FY18 actual expenditure: \$7,596,725

FY18 accomplishments: Gateway Development Corporation (GDC) opened project office in Newark. GDC selected Ernst and Young as Financial Advisor. GDC Appointed chief of public outreach.

Explanation of variance from FY18 plan (including scope, schedule, budget): Due to the delay in issuance of the Hudson Tunnel Project ROD, various procurement, property acquisition, and program management activities were delayed or deferred.

Hanson Interlocking

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$90,000,000

Project schedule starting from FY18:

- Construction: Oct 2011 - Dec 2023

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$8,000,000

FY18 planned activities: The FY18 project scope is for Amtrak's contractor to perform civil and structural work, including sheeting and piling, drainage, grading, and paving, to complete an access road.

FY18 actual expenditure: \$6,104,277

FY18 accomplishments: 95% of the access road has been completed (only waiting on easement for approximately 60' to fully complete road); ET and C&S designs are at 90%; contractor selected to install Catenary Pole, Down guy and Signal Bridge foundations

Explanation of variance from FY18 plan (including scope, schedule, budget): Anticipated the ET foundation drawings and procurement of contractor to be quicker in order to begin foundations late part of Q3/early Q4. Originally anticipated design to be completed by end of FY18. A few big decisions taking longer than expected to come to a conclusion and Amtrak review time longer than anticipated pushed the completion out. Anticipated C&S to be on site earlier to begin running cables from Landover to Hanson for point protection of Hanson crossovers when installed. Anticipated having easement to complete access road.

Maryland Section Reliability Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$20,600,000

Project schedule starting from FY18:

- Final Design: Aug 2017 - Dec 2018
- Construction: Mar 2019 - Dec 2019

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$13,200,000

FY18 planned activities: Amtrak plans to retain an architectural / engineering firm to begin development of a design package for a new Track 1 side platform at New Carrollton Station. The design work will build on concepts to reduce trip time and enhance rail service. The design drawings will also be used to assess whether an easement or other agreement with WMATA may be needed if the new platform design overlaps or otherwise impacts WMATA's property.

FY18 actual expenditure: \$241,104

FY18 accomplishments: 1. Completed New Track No 1 Horizontal Alignment Design from Hanson to Bridge interlockings.
2. Completed 50% of 40-scale plan/profile drawings.

Explanation of variance from FY18 plan (including scope, schedule, budget): The construction was rescheduled to start in FY19; only design work was completed in FY18.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

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

Project schedule starting from FY18:

- Construction: May 2017 - Jan 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$1,200,000

FY18 planned activities: All work in FY18 will be in design for Phase 2 (fit-out of Back-of-House, and outfitting of Club Acela).

FY18 actual expenditure: \$27,468,567

FY18 accomplishments: Completion of back of house design to the 90% level; 36.3% completion of ventilation system/fan plant; continuation of planning and design activities.

Explanation of variance from FY18 plan (including scope, schedule, budget): Spend plan projections provided by contractors less than actual billed work for: design/construction/ventilation plan work.

New Carrollton Station - Acela 21

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$35,837,881

Project schedule starting from FY18:

- Final Design: Sep 2017 - Feb 2019
- Construction: March 2019 - Dec 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: This project was split out of the Maryland Section Reliability Improvements project after the FY18 One-Year Implementation Project was published. For planned expenditure, see page 71.

FY18 planned activities: This project was split out of the Maryland Section Reliability Improvements project after the FY18 One-Year Implementation Project was published. For planned activities, see page 71.

FY18 actual expenditure: \$2,300,000

FY18 accomplishments: 30%, 60% and 90% designs submitted.

Explanation of variance from FY18 plan (including scope, schedule, budget): At end of FY18 design was slowed down due to additional coordination effort needed.

New Jersey HSR Improvement Program

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$499,100,000

Project schedule starting from FY18:

- Construction: Aug 2012 - Sep 2019
- Demolition: Oct 2019 - Feb 2020

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$39,804,010

FY18 planned activities: Amtrak will start the upgrade for the wiring within Midway Interlocking in FY'18 with the completion planned for FY'19. The 23-mile section of track between Trenton and New Brunswick, New Jersey will have the wire upgraded on Track 1 and will start Track 2 with the completion of Track 2 being performed in FY'19

FY18 actual expenditure: \$24,761,088

FY18 accomplishments: Fully cut over and commissioned underground signal power cables and retired existing aerial line. Completed wiring of 34 and 43 crossovers at Midway and placed into service. Completed approximately 9 miles of fixed termination wire renewal with associated SAP assemblies on track 1 between County and Midway interlockings. Completed approximately 7 miles of constant tension wire installation with all associated appurtenances on track 1 between Midway and CP Clark.

Explanation of variance from FY18 plan (including scope, schedule, budget): Underspend is associated with reduction in project staff, less than anticipated track surfacing Midway crossovers, retro wage accrual adjustments, efficiencies in ET construction and reduction in workforce.

Newark Penn Station Platform Rehabilitation

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$123,262,000

Project schedule starting from FY18:

- Structural Assessment: Jul 2017 - Jan 2018
- PE/NEPA: Jun 2018 - Jun 2019
- Construction: Jun 2020 - May 2028

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: Not included in FY18 plan.

FY18 planned activities: Not included in FY18 plan.

FY18 actual expenditure: \$112,997

FY18 accomplishments: Consultant prepared an initial Draft SOGR Structural and Track Assessment. Report was distributed to Engineering. Initial draft was determined to be insufficient. Consultant then revised Draft and submitted a second time. Engineering Review Comments were sent to Consultant and reports were revised. 100% Final Report was issued. Report was distributed to Engineering. Comments were gathered and sent to the consultant for report revision. In September the revised report was submitted by the Consultant and sent to NJT and PATH.

Explanation of variance from FY18 plan (including scope, schedule, budget): Variance of \$1,387,000. Design did not occur in FY18, just the Assessment, due to NYP track work and Access/ Protection as Assessment was started late.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$13,000,000

Project schedule starting from FY18:

- Final Design: Jul 2018 - Mar 2019
- Construction: Mar 2019 - Oct 2020

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$25,450,000

FY18 planned activities: Complete the Design Phase services by the end of November 2017. Issue a contract for Construction Management (CM) Services by the end of October 2017. Advertise and select a Construction Contractor between December 2017 and April 2018. NTP for Construction in April 2018. Initiate storage track construction from June 2018 through September 2018.

FY18 actual expenditure: \$1,378,663

FY18 accomplishments: Developed 100% design plans for Expansion of HSR Building and Storage Tracks project; Submitted Bid Documents for construction of HSR Building and Storage Tracks project

Explanation of variance from FY18 plan (including scope, schedule, budget): The original scope was modified to remove the design of new buildings, as existing structures were found to be adaptable. However, the retrofit of existing structures is currently on hold.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$67,000,000

Project schedule starting from FY18:

- Selection of methodology/proof of concept: Sep 2017 - Sep 2019
- Survey, design and equipment purchase: Oct 2019 - Sep 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$2,160,000

FY18 planned activities: Amtrak will continue to investigate the technologies available to perform reference surfacing. Tests will be developed and executed to investigate the capability of Amtrak's high speed tampers, and to see if they can be modified to perform a type of reference surfacing.

FY18 actual expenditure: \$261,299

FY18 accomplishments: 1) Awarded Professional Services Task Order for Reference Surfacing system requirements and components to HNTB. 2) Added Reference Surfacing requirement requirements for High Speed Surfacing Units (Tampers).

Explanation of variance from FY18 plan (including scope, schedule, budget): The FY-18 expenditure forecast assumed a faster award of the Engineering Services contract to HNTB, which took longer than expected.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$90,000,000

Project schedule starting from FY18:

- Construction: Sep 2017 - Mar 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$14,000,000

FY18 planned activities: Erect security fences at various locations along the NEC where trespassers might take the opportunity to place obstructions or otherwise endanger train movements. Erect barriers, which might be sited on roadways or Amtrak property, to deflect motor vehicles that might otherwise stray onto the right of way and into the path of high-speed trains. Amtrak will install new fencing and/or barriers, as required by the circumstances, at locations in the 20 most vulnerable segments of the high- speed zones. The locations along various segments of the Northeast Corridor are being treated as security- sensitive information (SSI) pending completion of improvements. Construction: 3 locations on New York Division (Oct-June), 3 locations on Mid Atlantic Division (Oct-July), and 2 locations on New England Division (Mar-August).

FY18 actual expenditure: \$8,469,730

FY18 accomplishments: 1. Security Fencing: completed 37,389 feet of fencing/guidrails at 9 sites in FY 18. 2. Adjacent Track Siding: met with the MBTA to discuss adjacent track requirements in section 9 a. of the waiver. The MBTA suggested Amtrak assume the maintenance requirements for Merckens Chocolate Lead and Blaine Chemical Lead. 3. Positive Train Stop Override: captured the technical design requirements from each department. Prepared an RFP for technical design support services that will develop conceptual design Document. Received proposals

Explanation of variance from FY18 plan (including scope, schedule, budget): Planned spend included additional fencing sites and additional safety related mitigations to be determined by the FRA, but no additional scope was added during FY2018; additional security fencing installation was planned but did not get authorized to proceed.

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

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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).

Total project cost: \$10,312,000

Project schedule starting from FY18:

- Final Design: Jul 2018 - Apr 2019
- Construction: Apr 2019 - Nov 2020

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$192,000

FY18 planned activities: Initiate design services for Track and Site Civil disciplines in November and complete the design in May 2018

FY18 actual expenditure: \$96,102

FY18 accomplishments: Not available.

Explanation of variance from FY18 plan (including scope, schedule, budget): Scope being changed to accommodate no new build here or Ivy City; original design was halted.

Next Generation High Speed Fleet Infrastructure: Sunnyside Yard Facility Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

Scope: The project scope includes the design and construction of infrastructure improvements for Sunnyside Yard in Queens, NY to support the Next Generation High-Speed Rail (HSR) trainsets. The project elements funded by the RRIF loan include: A new separate two-track, 2-story HSR S&I facility, including welfare space on the second floor; and (3) Three new storage / service ready tracks with a run-through track and improvements to the Eastward Engine Track.

Total project cost: \$339,900,000

Project schedule starting from FY18:

- Construction: Aug 2018 - Mar 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$92,000,000

FY18 planned activities: Complete the Design Phase services by the end of November 2017. Issue a contract for Construction Management (CM) Services by the end of October 2017. Advertise and select a Construction Contractor between December 2017 and April 2018. NTP for Construction in April 2018. Initiate HSR S&I building foundation construction from June 2018 through September 2018.

FY18 actual expenditure: \$5,673,909

FY18 accomplishments: Developed 100% design plans for Expansion of HSR Building and Storage Tracks project and submitted Bid Documents for construction of HSR Building and Storage Tracks project

Explanation of variance from FY18 plan (including scope, schedule, budget): Original plan was for a new facility, but that was put on hold. More recent plan was to retrofit existing facility to accommodate Acela 21 consists but this plan is also currently on hold. The original scope was modified to remove the design of new buildings, as existing structures were found to be adaptable. However, the retrofit of existing structures is currently on hold.

Paoli Transportation Center - Phase 1 (ADA & Infrastructure)

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

Scope: This project will reconstruct Paoli Intermodal Station on SEPTA's Paoli-Thorndale Regional Rail Line and Amtrak's Keystone Corridor. Phase 1 will make the existing station ADA accessible and include a pedestrian overpass with elevators connecting to parking lots and a new high-level center platform. The outbound parking areas will be reconfigured and pedestrian linkages will be provided throughout the station area such as sidewalks and crosswalks. The project will also include changes to the railroad infrastructure as needed to accommodate the work. The construction cost for Phase 1 is approximately \$41 million. SEPTA is contributing 2/3 of the project costs and Amtrak is providing 1/3 of the project costs.

Total project cost: \$51,020,000

Project schedule starting from FY18:

- Construction: Dec 2017 - Apr 2019

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$9,700,000

FY18 planned activities: The FY18 project scope is to complete Phase I construction.

FY18 actual expenditure: \$22,034,159

FY18 accomplishments: Completed installation of pedestrian bridge superstructure and progressed the fit out of the bridge and north and south support towers. Completed installation of island platform super structure.

Explanation of variance from FY18 plan (including scope, schedule, budget): SEPTA was coordinating agency for this project in the FY18 plan and submitted the \$9,700,000 planned expenditure. When Amtrak took over as coordinating agency, it revised their FY18 projected spend to \$22M internally but this wasn't communicated to external entities.

Philadelphia 30th Street Station District Plan Implementation

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$517,000,000

Project schedule starting from FY18:

- Feasibility/Conceptual Design: Oct 2016 - Sep 2018
- Finalize Feasibility/Conceptual Design: Oct 2018 - Dec 2020
- Final Design: Jan 2021 - Jan 2035
- Construction: Jan 2035 - Jan 2050

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$6,525,000

FY18 planned activities: The work program for FY18 will support the 30th Street Station District Plan objectives and will include procurement of a master development partner for the Station and adjacent parcels, completing a programming study for Penn Coach Yard to plan for future growth and prepare for overbuild, advance planning & design activities for the renovation and expansion of concourse areas, along with completing an evaluation of the State of Good Repair needs.

FY18 actual expenditure: \$2,390,095

FY18 accomplishments: a. Completed Penn Coach Yard Master Plan & Programming Study. b. Completed 30th Street Station State of Good Repair Study and Capital Improvement Plan. c. Completed Request for Qualifications for PHL Master Developer.

Explanation of variance from FY18 plan (including scope, schedule, budget): Postponement of Master Developer RFQ by 6 months and project scope refocusing on Station SOGR and building improvements, resulting in a budget reduction due to a delay in proceeding with the 30% Design project for Station Plaza.

Washington Union Station: Claytor Concourse Modernization Program

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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. 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.

Total project cost: \$171,145,000

Project schedule starting from FY18:

- Construction (HVAC): Jun 2016 - Sep 2018
- Construction (APD and Electric Workshop Relocation): Oct 2018 - Mar 2020
- Design (Concourse Modernization Project): Nov 2015 - Jan 2019
- Construction (Concourse Modernization Project): Apr 2019 - Mar 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$3,000,000

FY18 planned activities: The FY18 work will be the beginning of construction for this estimated three year program. It is anticipated that this work will consist of beginning of demolition of the main bulkhead which bifurcates the space as well as the beginning of installing new bathrooms on the west side of the concourse.

FY18 actual expenditure: \$3,439,154

FY18 accomplishments: Construction Manager on board; released draft 100% design/bid set; prepared procurement documents for General Contractor.

Explanation of variance from FY18 plan (including scope, schedule, budget): APD construction delay due to design resolution and constructibility review; construction procurement duration. Concourse construction and final design delays due to continued design coordination with project stakeholders and unresolved design issues and leadership/staff changes.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

Note this project was originally part of the Washington 2nd Century Plan before it was split into Long-Term Expansion and Near-Term Program (page 85).

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.

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

Project schedule starting from FY18:

- PE/NEPA: Nov 2015 - Jan 2020
- Future Precedent Projects: Dec 2020 - Dec 2024
- Full Design: Dec 2020 - Dec 2024
- Construction: 2025 - 2040

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: (from Washington 2nd Century Plan) \$13,600,000

FY18 planned activities: (from Washington 2nd Century Plan) The FY18 work will include advancing the long term Station Expansion Environmental Impact Statement as it moves into the Draft EIS portion of the environmental process. FY18 funds will also be used to construct the new Washington Union Station Amtrak Police Department Headquarters as well as fund improvements to station infrastructure such as a new emergency generator and substation and the contracting with a Construction Manager, both needed for the near term Concourse Modernization project. The FY18 funds will support necessary track infrastructure improvements such as the installation of overhead catenary at tracks 8/9 and supporting work for the implementation of Track 22 as a revenue track. The program will also be working with Amtrak operations to advance the decommissioning of the K Tower building and relocation of the terminal control services.

FY18 actual expenditure: \$2,900,000

FY18 accomplishments: Advanced planning studies to support the EIS including finalizing concept track layout; completing groundwater investigations, and advancing the constructability review.

Explanation of variance from FY18 plan (including scope, schedule, budget): Small variance attributed to additional EIS studying requested by FRA and project proponents.

Washington Union Station: Near Term Rail Program

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

Note this project was originally part of the Washington 2nd Century Plan before it was split into Long-Term Expansion (page 84) and Near-Term Program.

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.

Total project cost: \$78,500,000

Project schedule starting from FY18:

- Construction (Electrification of tracks 8 & 9): Sep 2018 - Feb 2019
- Construction (Relocation of Satellite Commissary): Jun 2019 - Jul 2020
- Design (Crew Base Relocation): Apr 2017 - Feb 2019
- Construction (Crew Base Relocation): Jun 2019 - Nov 2020
- Design (Substation 25A Relocation): Feb 2018 - Sep 2019
- Construction (Substation 25A Relocation): Oct 2020 - Sep 2022
- Construction (Tracks 15/16 Platform Rehab): Jan 2022 - Sep 2023

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: See Washington Union Station: Long-Term Expansion (page 84).

FY18 planned activities: See Washington Union Station: Long-Term Expansion (page 84).

FY18 actual expenditure: \$2,166,981

FY18 accomplishments: Advanced design of Crew Base and Substation 25A. Finalized design of Satellite Commissary

Explanation of variance from FY18 plan (including scope, schedule, budget): Electrification of Tracks 8 & 9 was delayed due to lack of resources. Overall design delays due to coordination for the projects.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

Note this project was previously called Washington Union Station: Track 22 Rehabilitation.

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.

Total project cost: \$163,600,000

Project schedule starting from FY18:

- Construction (Track 22): Jan 2019 - Jun 2021
- Design (Subbasement): Mar 2017 - Sep 2019
- Construction (Subbasement): Jan 2020 - Dec 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$13,000,000

FY18 planned activities: Work to be performed in FY18 includes contractor and Amtrak forces mobilization; temporary and permanent Overhead Catenary System (OCS) work; platform, rail and canopy removal; and early work to erect the walkway and vertical circulation elements.

FY18 actual expenditure: \$1,101,247

FY18 accomplishments: Design delays due to critical path decisions needed regarding column removal, engine switching, etc.

Explanation of variance from FY18 plan (including scope, schedule, budget): Achieved 30% design milestone; determined column removal to remain; undertook engine switching analysis for rail operations during construction.

Wilmington Maintenance of Equipment Facility - Complex Replacement

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

General Project Information

For full project details, see the FY19-23 NEC Capital Investment Plan, July 2018.

Scope: This project would fully replace the Maintenance of Equipment Repair Shop (Buildings 1 & 2) at the Amtrak Maintenance Complex in Wilmington, DE. The project has completed the 30% design phase, and additional funding is needed to complete design work and construct the facilities.

Total project cost: \$112,200,000

Project schedule starting from FY18:

- Final Design: Sep 2014 - Mar 2019
- Construction: Oct 2019 - Jan 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$800,000

FY18 planned activities: This project will continue through the design phase for FY18.

FY18 actual expenditure: \$30,781

FY18 accomplishments: \$30.8K spent on a structural analysis of the existing Wilmington MOE Facility buildings to assess their conditions.

Explanation of variance from FY18 plan (including scope, schedule, budget): The project was put on hold, so spending was far short of \$800K.

Special Projects: Connecticut DOT (Major Backlog)

Walk Bridge Program

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

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

Project schedule starting from FY18:

- Final Design: End Jun 2017
- Construction (Phase 1 - CP243/ Dock Yard): End Jan 2021
- Construction (Phase 2 - Walk): Jun 2019 - Sep 2023

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 programmed amount: \$366,338,696

FY18 planned activities: The FY18 project scope includes NEPA, preliminary design, final design, and early procurement.

FY18 actual expenditure: \$117,938,429

FY18 accomplishments: Construction at CP 243 and Dockyard continued to progress. Walk Design at 60% complete.

Explanation of variance from FY18 plan (including scope, schedule, budget): Planned expenditure represents programmed funding. Variance is the difference between programmed funding and actual expenditures. Expenditures in coming years will make up for variance.

Special Projects: Connecticut DOT (Improvement)

CTrail Hartford Line Commuter Station Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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

Total project cost: \$90,000,000

Project schedule starting from FY18:

- Construction: Apr 2019 - 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 programmed amount: \$30,000,000

FY18 planned activities: FY18 Scope includes completion of the State Street Station Improvements and design activities for the other stations.

FY18 actual expenditure: \$7,694,033

FY18 accomplishments: Completed conceptual design for North Haven, West Hartford, Windsor, and Enfield. The relocated station for Windsor Locks continued final design.

Explanation of variance from FY18 plan (including scope, schedule, budget): Planned expenditure represents programmed funding. Variance is the difference between programmed funding and actual expenditures. Expenditures in coming years will make up for variance.

New Haven Line Network Infrastructure Upgrade

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$70,000,000

Project schedule starting from FY18:

- Construction (Phase 1): End 2021
- Construction (Phase 2): 2020 - 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 programmed amount: \$35,000,000

FY18 planned activities: The FY18 scope includes construction of the fiber optic network and video cameras.

FY18 actual expenditure: \$5,310,593

FY18 accomplishments: Phase 2 construction continued on schedule for completion in Spring 2019.

Explanation of variance from FY18 plan (including scope, schedule, budget): Planned expenditure represents programmed funding. Variance is the difference between programmed funding and actual expenditures. Expenditures in coming years will make up for variance.

New Haven Line Stations Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$320,000,000

Project schedule starting from FY18:

- Construction: End Nov 2018
- Construction: 2020 - 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 programmed amount: \$80,000,000

FY18 planned activities: The FY18 project scope includes construction of improvements at the Stamford and Noroton Heights stations and design/NEPA activities at the others.

FY18 actual expenditure: \$2,837,554

FY18 accomplishments: Construction continued at Noroton Heights and Stamford Stations. Noroton Heights is on schedule to be completed in November 2018 and Stamford Station will be complete in December 2018.

Explanation of variance from FY18 plan (including scope, schedule, budget): Planned expenditure represents programmed funding. Variance is the difference between programmed funding and actual expenditures. Expenditures in coming years will make up for variance.

New Haven Yard Master Complex Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$750,000,000

Project schedule starting from FY18:

- Final Design: Jan 2017 - 2020
- Construction: 2019 - Feb 2023

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 programmed amount: \$48,000,000

FY18 planned activities: The FY18 scope includes construction of a parts storage facility, upgrade of a yard power substation, construction of yard tracks, and design activities related to yard storage.

FY18 actual expenditure: \$17,797,053

FY18 accomplishments: East End Connector completed final design and bids opened.

Explanation of variance from FY18 plan (including scope, schedule, budget): Planned expenditure represents programmed funding. Variance is the difference between programmed funding and actual expenditures. Expenditures in coming years will make up for variance.

SLE Station Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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 Clinton, Madison, and New Haven State Street. In addition, the state will study the feasibility of constructing a new station in Niantic, CT.

Total project cost: \$70,000,000

Project schedule starting from FY18:

- Construction: End Sep 2020

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 programmed amount: \$15,000,000

FY18 planned activities: FY18 scope includes construction at the Clinton Station and NEPA activities at Niantic.

FY18 actual expenditure: \$610,789

FY18 accomplishments: Clinton Station completed final design. Notice to Proceed will be issued in Spring of 2019.

Explanation of variance from FY18 plan (including scope, schedule, budget): Planned expenditure represents programmed funding. Variance is the difference between programmed funding and actual expenditures. Expenditures in coming years will make up for variance.

Special Projects: Delaware DOT (Improvement)

Claymont Regional Transportation Center

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$71,000,000

Project schedule starting from FY18:

- PE/NEPA: Jan 2016 - Mar 2018
- Final Design: Apr 2018 - Aug 2018
- Construction: Dec 2018 - Dec 2020

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$1,000,000

FY18 planned activities: The FY17 project scope is to advance preliminary engineering up to 30% (NEPA).

FY18 actual expenditure: \$1,045,450

FY18 accomplishments: Preliminary design completed and bid package for the Design-Build Agreement was prepared. FTA TIGER GRANT VIII was executed on 8.22.18.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not provided.

Delaware Third Track Program

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

General Project Information

For full project details, see the FY19-23 NEC Capital Investment Plan, July 2018.

Scope: This project will increase capacity for intercity and commuter service between Wilmington and Newark, DE by eliminating a current two-track bottleneck and thereby restoring a third track through most of the state. This joint Amtrak/Delaware DOT project is funded by a combination of federal and state sources.

Total project cost: \$49,000,000

Project schedule starting from FY18:

- Construction: Jul 2013 - Jul 2019

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$11,629,600

FY18 planned activities: The FY17 project scope is completion of civil and structural preparation and commencement of track construction and electric traction and communication and signals installation.

FY18 actual expenditure: \$2,727,486

FY18 accomplishments: Amtrak's Phase 1 work completed in the 4th Quarter 2018 and Phase 11 work was partially completed.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not provided.

Newark (DE) Regional Transportation Center

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$57,000,000

Project schedule starting from FY18:

- Final Design: Dec 2015 - Apr 2018
- Construction: Jul 2017 - May 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$15,850,000

FY18 planned activities: The FY17 project scope includes parking and building construction and 90% design for trackwork.

FY18 actual expenditure: \$8,802,847

FY18 accomplishments: Contract 1 work substantially completed. Contract 2 work commenced. Contract 3A work out to bid.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not provided.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$88,500,000

Project schedule starting from FY18:

- Construction: Jan 2017 - Dec 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$14,500,000

FY18 planned activities: The FY18 project scope is to complete Total Track Replacement of East River Tunnel Line 4; complete First Avenue Substation Renovation; continue Communications Antenna Installation in East River Tunnel Lines 3 and 4; continue the Stray Current Study; continue High Density Signaling Design.

FY18 actual expenditure: \$611,849

FY18 accomplishments: No Total Track Replacement work in East River Tunnel Line 4 took place in due to other higher priority required tunnel and track outages. First Ave Substation Replacement was completed with punchlist work remaining. Stray Current Study work continued along with continued design/modeling of the High Density Signaling System.

Explanation of variance from FY18 plan (including scope, schedule, budget): Due to repair of broken current containment cabinets in the East River Tunnels the Stray Current Study will take approximately one year longer than previously forecast.

Penn Station New York - LIRR Projects

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$315,677,829

Project schedule starting from FY18:

- Construction: Jan 2020 - Dec 2024

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$21,000,000

FY18 planned activities: The FY18 project scope is to continue platform design, continue elevator/escalator refurbishment, complete construction of New Station Master's Office, award design/build contract for Penn Station Substation; complete construction of new "Lost and Found" Office; Award Design/Build contract for Penn Station Improvements and begin preliminary construction.

FY18 actual expenditure: \$4,506,344

FY18 accomplishments: Penn Station LIRR escalator and elevator refurbishment assessment and ordering of parts continued. Penn Station HVAC Plant 100% Design by NYPA was completed. Penn Station platform and track surveying was completed, and 90% design of four Platform 11 staircases was completed. The design of the Penn Station Critical Improvements Project continued with further studies of new LIRR entrances and southern expansion of the 33rd Street Concourse.

Explanation of variance from FY18 plan (including scope, schedule, budget): The 30 % design completion of the Penn Station Critical Improvements Project was not completed in December 2017 due to the NYS Governor's initiative to add new entrances to the design and investigate the potential to expand the concourse south, leading to a design contract modification of \$302,959.

River-to-River Rail Resiliency Projects (R4)

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$108,100,000

Project schedule starting from FY18:

- Feasibility/Conceptual Design: Sep 2016 - Oct 2018
- Construction: Start 2019

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$7,000,000

FY18 planned activities: The FY18 project scope is to award a design/build contract, complete design, and begin construction.

FY18 actual expenditure: \$918,210

FY18 accomplishments: 30% design of the perimeter flood walls was completed. 30% design of the Queens portal approach north and south property line flood walls was completed.

Explanation of variance from FY18 plan (including scope, schedule, budget): The design completion schedule has slipped from Dec 2018 to July 2019 due to inability to obtain a site access agreement from Amtrak for soil borings at the Queens ERT portal area.

Special Projects: Maryland DOT (Improvement)

BWI Thurgood Marshall Airport Station Interim Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

Scope: This project will complete renovation of the existing BWI Thurgood Marshall Airport Station building to provide improved customer service, accessibility, and security. The project involves interior station improvements including new ADA-compliant restrooms; updated interior finishes and lighting; exterior station improvements to windows, the roof and canopies.

Total project cost: \$9,502,000

Project schedule starting from FY18:

- PE/NEPA: Oct 2013 - Jan 2014
- Final Design: Dec 2013 - Oct 2016
- Construction: Mar 2018 - May 2019

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$3,000,000

FY18 planned activities: The FY18 project scope is to continue construction. Notice to proceed for construction occurred in November 2016. Construction duration is anticipated to last 18 months.

FY18 actual expenditure: \$846,962

FY18 accomplishments: Project remains on schedule; demolition is 75% complete.

Explanation of variance from FY18 plan (including scope, schedule, budget): A toilet trailer and additional deckin/ramping, traffic controls and back up generator have been added to the contract for costs of +/- 190k.

MARC Station Improvements - West Baltimore

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

General Project Information

For full project details, see the FY19-23 NEC Capital Investment Plan, July 2018.

Scope: This project would reconstruct the West Baltimore MARC Station to add high-level platforms and bring the station into ADA compliance. The West Baltimore MARC Station improvement may be incorporated into the B&P Tunnel Replacement Project because the tunnel's selected Preferred Alternative (Alternative 3B) can incorporate the new MARC station into its alignment. Funding levels here assume the West Baltimore MARC Station project remains a stand-alone project. Conceptual design is completed, but additional funding is required to complete NEPA documentation, project engineering, and construction.

Total project cost: \$32,000,000

Project schedule starting from FY18:

- Final Design: Sep 2016 - Jun 2019
- Construction: Sep 2019 - Mar 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$66,000

FY18 planned activities: This project remains on hold given that the timing for funding engineering design and construction of the new tunnel is indeterminate. Further refinement of the B&P Tunnel is anticipated.

FY18 actual expenditure: \$0

FY18 accomplishments: Project is no longer being pursued.

Explanation of variance from FY18 plan (including scope, schedule, budget): Project is no longer being pursued.

MARC Storage Improvements - Martin Airport

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$16,465,000

Project schedule starting from FY18:

- PE/NEPA: Apr 2016 - Apr 2019
- Final Design: May 2016 - Mar
- Construction: Jun 2018 - Dec 2019

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$200,000

FY18 planned activities: The FY18 project scope includes engineering design to 85%. Additionally, construction shall commence in FY18.

FY18 actual expenditure: \$112,613

FY18 accomplishments: There was one meeting held with owner but wasn't fruitful. The condemnation hearing is scheduled for January 2019.

Explanation of variance from FY18 plan (including scope, schedule, budget): There is no variance in the project at this time as we wait for the right of way condemnation hearing.

Special Projects: MBTA (Improvement)

MBTA Layover Facilities - Pawtucket Layover Facility

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$21,985,929

Project schedule starting from FY18:

- Construction: 2017 - 2017
- Construction: 2018 - 2020

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$1,900,457

FY18 planned activities: The FY17 project scope is to complete final design by the end of November 2016, incorporating comments from site visits and additional reviews.

FY18 actual expenditure: \$2,301,689

FY18 accomplishments: 55% of the work has been completed.

Explanation of variance from FY18 plan (including scope, schedule, budget): A delay in schedule occurred as a result of electrical redesign.

MBTA Station Improvements - Mansfield Station

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

General Project Information

Scope: This project will make improvements to heavily used Mansfield Station which currently is not fully accessible. The project includes pedestrian ramps and stairways to make platforms accessible for inbound and outbound passengers, replacement of existing mini-high platforms which are in poor condition with ADA-compliant mini-high platforms, platform repaving, new tactile strips along both platforms, new lighting, guard rails, bollards, signage, curb cuts, and improvements in parking lots for better accessibility.

Total project cost: \$13,100,000

Project schedule starting from FY18:

- Final Design: Mar 2012 - Jan 2017
- Construction: Feb 2017 - Mar 2019
- Feasibility/Conceptual Design: 2020 - 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$2,745,188

FY18 planned activities: The FY17 project scope is to issue notice-to-proceed and begin construction activities.

FY18 actual expenditure: \$3,083,069

FY18 accomplishments: Project is at 30% completion.

Explanation of variance from FY18 plan (including scope, schedule, budget): The only variance is the delay experienced on the schedule by FTA review of scope and Amtrak approval of Means and methods.

MBTA Station Improvements - Ruggles Street Station

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$36,500,000

Project schedule starting from FY18:

- Construction: Jun 2017 - Jan 2020
- Feasibility/ Conceptual Design: 2020 - 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$15,226,918

FY18 planned activities: The FY17 project scope is to complete 100% design, advertise to contractors, award contract, and issue notice-to-proceed with construction.

FY18 actual expenditure: \$10,173,348

FY18 accomplishments: The construction project was awarded to L.M.H Heavy Civil Construction and Notice to proceed was issued June 30, 2017. Excavation for the west end platform commenced. The underpass that will connect the west end platform to the east end platform was constructed. That work disrupted the upper busway during construction. The busway is reopened and busway is in use. The new wall (X-1) construction has started and ongoing. This will provide the new boundary wall between the NEC and the Northeastern property. It will also provide a shelf to accommodate the installation of the new platform.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not provided.

MBTA Station Improvements - South Attleboro Station

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$3,900,000

Project schedule starting from FY18:

- Construction: 2018 - 2020

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$210,000

FY18 planned activities: The FY17 project scope includes evaluation of design options, selection of a preferred alternative, and finding funding for construction.

FY18 actual expenditure: \$39,067

FY18 accomplishments: Design NTP August 13, 2018; 30% Design review December 7, 2018. Design completion Feb 13, 2019.

Explanation of variance from FY18 plan (including scope, schedule, budget): Original design intent was for a major overhaul of the station. The new scope is to bring the station up to state of good repair.

Spandrel Beam Repair

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

General Project Information

Scope: This project will repair a beam that spans across columns running perpendicular to an opening that gives access to the NEC. It is a part of the massive retaining/curtain wall that provides support of loads from an adjacent corridor to the southwest. This work is ongoing and located north of Forest Hill before Green Street Station off Williams Street in Jamaica Plain.

Total project cost: \$2,900,000

Project schedule starting from FY18:

- Not available.

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$350,000

FY18 planned activities: Not available.

FY18 actual expenditure: \$1,007,679

FY18 accomplishments: All work in the field is complete. Final payments to the contractor and consultant. Amtrak working on gathering final costs.

Explanation of variance from FY18 plan (including scope, schedule, budget): Work was completed due to good weather conditions.

Special Projects: Metro-North Railroad (Improvement)

Penn Station Access

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Approved Project Funding: \$695,000,000

Project schedule starting from FY18:

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

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: TBD

FY18 planned activities: The FY18 project scope is for MTA Metro-North Railroad and MTA Capital Construction to continue the technical activities necessary to refine the PSA project scope and operating plan and to prepare the development of a federal environmental review for the project. A General Engineering Consultant will be hired to take the project to the next stages of development and design.

FY18 actual expenditure: \$3,164,763

FY18 accomplishments: NEPA Environmental Assessment is progressing with FTA as lead agency. Consultant selection completed for General Engineering Consultant, which will advance the project into design.

Explanation of variance from FY18 plan (including scope, schedule, budget): Execution of General Engineering Consultant contract stalled pending conclusion of negotiations regarding a Memorandum of Understanding with Amtrak, the owner of the right of way.

Special Projects: MTA Capital Construction (Improvement)

Harold Interlocking

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$763,870,448

Project schedule starting from FY18:

- Construction: End Jul 2025

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$12,000,000

FY18 planned activities: The FY18 scope of work includes the advancement of the signal infrastructure within Harold Interlocking to support the planned CIL cutovers in FY2018. Other work includes the installation of catenary structures and foundations, the demolition and removal of the LIRR G02 Substation, third rail and catenary wiring. Determine methods and timing for completing the Westbound Bypass Structure including the tunnel section, East and West approaches, pump station and track work within the tunnel section.

FY18 actual expenditure: \$74,091,394

FY18 accomplishments: Close out of Westbound Bypass (WBBY) Contract after completion of portions of east and west approach cuts. Construction of WBBY track from east of WBBY east approach to Amtrak New Haven 1 line. Cutover of various signal systems. Exercising of contract option to demolish Amtrak buildings and initial scoping of environmental abatement effort. Continued program management to develop strategy to integrate project completion with other high priority regional projects such as Amtrak's East River Tunnel Rehab and MTA's East Side Access project.

Explanation of variance from FY18 plan (including scope, schedule, budget): Closeout payments to CH057A contractor and final payments for Force Account protection. Initiation of CH057D package and related Force Account Protection. Continued management and admin costs.

Special Projects: NJ TRANSIT (Major Backlog)

Gateway: Portal North Bridge Early Action Construction

- **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 but still requires funding for construction. 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.

Total project cost for early action items: \$20,000,000

Project schedule starting from FY18:

- Final Engineering: Oct 2016 - Feb 2019
- Construction Phase 1 (Early Action): Aug 2017 - Feb 2019
- Construction Phase 2 (Replacement Project): 1st. Qrt. CY 2020 - 4th Qrt. CY 2026

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$35,000,000

- Note: Since the FY18 plan, reporting and planning on Portal North Bridge was split into early-action work and full construction (see page 111). The coordinating agency reports that the FY18 planned expenditure for Portal North Bridge early-action items only was \$12,000,000.

FY18 planned activities: FY18 scope includes start and advancement of the early works construction activities and construction packaging for full construction of the bridge. Multi-party agreements for funding, financing, and construction must also be put in place.

FY18 actual expenditure:

- NJ TRANSIT: \$11,778,859 (Early Action Activities Only)
- Amtrak: \$648,498 (Early Action Activities Only)

FY18 accomplishments: The \$20 million Portal North Bridge early work project was initiated and progressed throughout the duration of FY18. Thus far the project has completed four 4 of the 5 major components of the Early Action Activities, including the following: (1) the realignment of the 138kV transmission lines off of the Northeast Corridor (NEC) and onto to two monopoles; (2) the construction of a construction access structure known as a finger pier which will allow for the delivery of equipment and materials via the Hackensack River; (3) the construction of a steel bridge structure over an 1860's era water main owned by the Jersey City Municipal Utility Authority; and (4) the construction of a 540 foot long retaining wall just west of the Frank R. Lautenberg Station at Secaucus Junction. Construction of the new, 2,000 foot long Pole Line, consisting of 10 equally spaced poles and carrying the NEC's Fiber Optic cables, is currently underway, and is on target to be completed in the 2nd Quarter of FY19.

Explanation of variance from FY18 plan (including scope, schedule, budget): The activities funded under the Tiger Grant were fortunately able to advance throughout FY '18 without encountering any major impediments to the completion of the Project. Therefore, there was no change in scope, schedule or budget as the construction contractor is anticipated to complete its work well within the value of its contract.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$1,787,000,000

Project schedule starting from FY18:

- Final Engineering: Oct 2016 - Feb 2019
- Construction Phase 1 (Early Action): Aug 2017 - Feb 2019
- Construction Phase 2 (Replacement Project): 1st. Qrt. CY 2020 - 4th Qrt. CY 2026

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$35,000,000

- Note: Since the FY18 plan, reporting and planning on Portal North Bridge was split into early-action work and full construction (see page 110). The coordinating agency reports that the FY18 planned expenditure for Portal North Bridge full construction was not included in the FY18 One-Year Implementation Plan.

FY18 planned activities: FY18 Scope includes start of early works construction and construction packaging for full construction of the bridge. Multi-party agreements for funding, financing, and construction must also be put in place.

FY18 actual expenditure: \$1,216,000

FY18 accomplishments: In November 2017 a formal request was submitted to the FTA for the Project to enter into the Engineering Phase of the CIG Program. In late June 2018, the FTA granted a 6-month extension for the federal agency to review and approve of NJ Transit's request for the Project to enter into the Engineering Phase. Although the extension formally expired on January 31, 2019, discussions regarding the request remain underway with the FTA as to the status of the same. In July 2018 a revised Project Financial Plan was submitted to the FTA and other potential funding sources for their review and comment. The financial plan was revised to include a \$600M bond sale to be effectuated by the New Jersey Economic Development Authority (NJEDA) in support of the Project. In August 2018 the Project underwent a 3rd Risk Assessment initiative, focusing on certain items where estimated costs were modified lower from a previous Risk Assessment. Re- packaging of the contract documents (plans and specifications) continued throughout the fiscal year. Steps were taken to hire a broker to oversee the Project's Owner Controlled Insurance Program. Actions were also begun to finalize a pre-qualification process to secure the services of qualified contractors to build the new bridge and related facilities. Property acquisition actions continued with a few appraisals being completed. Negotiations continued with Amtrak in an effort to finalize a few agreements between the 2 agencies.

Explanation of variance from FY18 plan (including scope, schedule, budget): Start of major construction has not yet begun and is not anticipated to commence until an approval of the Project's Financial Plan is obtained, and not until a Full Funding Grant Agreement has been executed with the FTA. Amtrak's planned expenditure that was being held in the FY18 budget will be applied to its contribution to major construction once it begins.

Special Projects: NJ TRANSIT (Improvement)

County Yard

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan. Note that County Yard and Delco Lead Project were combined into one project in the FY20-24 CIP.

Scope: This project 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.

Total project cost: \$125,000,000

Project schedule starting from FY18:

- Construction: Mar 2018 - Jun 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$13,000,000

FY18 planned activities: The project's initial contract is scheduled to be advertised in October 2016 and is anticipated to be awarded by NJ Transit's Board of Directors in March 2017. Thereafter, Notice to Proceed is expected to be issued to the winning contractor in June 2017.

FY18 actual expenditure: \$3,969,000

FY18 accomplishments: The design activities continued towards a 90% completion level for Contract GC.02. Easement negotiations continued with adjacent property owners. Efforts also continued with the environmental regulatory authorities to secure the permits necessary to build the project.

Explanation of variance from FY18 plan (including scope, schedule, budget): Construction Bids for Contract GC.01 were canceled for Contract GC.01 due to not having an executed Agreement with Amtrak. Therefore, the work contained in Contract GC.01 is now being incorporated into Contract GC.02. Otherwise the overall scope of the project remains the same.

Delco Lead Project

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$245,992,000

Project schedule starting from FY18:

- PE/NEPA: Oct 2014 - Feb 2016
- Final Design: Mar 2016 - Jun 2019
- Construction: Jul 2019 - May 2023

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$45,000,000

FY18 planned activities: The first construction contract package GC.01 is anticipated to be awarded in September, followed by issuance of NTP in October 2017. Advertisement of Contract GC.02 is currently set to occur in March 2018. The construction management contract is anticipated to be awarded by NJ Transit's Board of Directors by October 2017.

FY18 actual expenditure: \$3,873,000

FY18 accomplishments: Construction Contract GC.01 was publicly advertised and Board approval was later granted to award the contract in Spring 2018. However, the Board approval to issue a contract to the winning low bidder was officially canceled in Summer 2018 due to issues with obtaining and finalizing an Easement and other related agreements with Amtrak. As a consequence, the scopes of Contracts GC.01 and GC.02 are currently being combined into one, singular contract for advertisement in Spring 2019. The completion of the design phase of Contract GC.02 continued throughout the year.

Explanation of variance from FY18 plan (including scope, schedule, budget): Due to the difficulties noted above with securing required agreements from Amtrak, the overall completion of the project was required to be pushed back from May 2023 to June 2024. However, as the scopes-of-work between Contracts GC.01 and GC.02 are being combined, the overall scope of the project will nonetheless remain the same

New Brunswick Station

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$20,303,000

Project schedule starting from FY18:

- Feasibility/Conceptual Design: May 2007 - May 2012
- Final Design: Jun 2012 - May 2019
- Construction: Sep 2010 - Mar 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$2,382,000

FY18 planned activities: NTP for the construction work was issued in June 2017 which has allowed for the commencement of the multiple rehabilitation activities on the station. This work is anticipated to intensify during all of FY '18 as both the interior and exterior areas of the facility undergo major work.

FY18 actual expenditure: \$1,454,588

FY18 accomplishments: A pre-bid conference was held in July 2018 on the Elevator replacement Project and bid were opened in August 2018 with the low bid being \$2.979M. Negotiations continued with NJDOT with regards to a reimbursement agreement for the new Escalator. Design coordination continued with Amtrak with regards to the proposed new Walkway Overpass. A change order was negotiated with the Contractor to provide for additional repairs to the roof of the station building.

Explanation of variance from FY18 plan (including scope, schedule, budget): The total expenditure amount was slightly revised as certain expenditures that had been previously charged to the project were transferred by NJ Transit's Finance Department and charged against another project within the capital program.

NJ TRANSITGRID

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$577,353,000

Project schedule starting from FY18:

- PE/NEPA: Jan 2016 - Jul 2019
- Final Design: Feb 2016 - Jan 2019
- Construction: May 2019 - Oct 2026

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$90,050,000

FY18 planned activities: The design of the Central Power Plant for traction power being undertaken by Jacobs Consulting Group under Contract 15-031 will continue advancing with an Environmental Record of Decision expected to be issued in June 2018. AECOM's design of the Distributed Generation work under Contract 16-001 is expected to be completed, followed by the advertisement, bid and award of the construction contract in May 2018.

FY18 actual expenditure: \$10,779,000

FY18 accomplishments: Distributed Generation Project: An industry Workshop was conducted December 2017. A Categorical Exclusion was received for the project in August 2018. The plans for the DG Project were completed up to a 20% level of design completion in September 2018. Central Power Plant: Continued to advance the design of the CPP Project to a 20% level of design completion.

Explanation of variance from FY18 plan (including scope, schedule, budget): There has not been any change in scope, cost or schedule on either the Distributed Generation Project or the Central Power Plant project. Actual expenditures incurred during the fiscal year were less than the theoretical planned expenditures. This is due to a delay in starting the Final Design Phases of each of the projects as decisions are still being awaited on the NEPA document and Record of Decision from the FTA.

Penn Station New York - NJ TRANSIT Projects

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$75,000,000

Project schedule starting from FY18:

- Final Design: Sep 2016 - Aug 2018
- Construction: Sep 2018 - Jul 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$6,018,000

FY18 planned activities: The FY '18 project scope includes advertisement of a contract to install new signage within the Station, followed by the issuance of NTP in March 2018. Advertisement of a contract to make improvements to the Hilton Passageway is expected to occur in Fall 2017, followed by an issuance of NTP in April 2018. Efforts to expand an existing Waiting Area, requiring the relocation of artwork, will begin with the advertisement of a contract in December 2017, followed by the issuance of NTP in July 2018.

FY18 actual expenditure: \$105,000

FY18 accomplishments: NJ Transit continued to search for a new location for the existing Artwork. Negotiations continued with Amtrak on a PI Agreement to secure Amtrak's services and support of the artwork project. Efforts continued to seek the approval of the FTA to use certain funding for the other needed improvement projects around the station facility.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not provided.

Princeton Junction Station

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$747,000

Project schedule starting from FY18:

- Construction: Apr 2019 - Dec 2019

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$500,000

FY18 planned activities: The construction contract is anticipated to be publicly advertised by October 2017 and, awarded by NJ Transit's Board of Directors in January 2018. This action will then be followed by the issuance of notice-to-proceed to the winning bidder in February 2018.

FY18 actual expenditure: \$7,000

FY18 accomplishments: This project remains generally on hold as all funding previously dedicated to the project has been shifted to other projects within the capital program with more pressing needs. Only minor oversight by the Project Manager is currently being provided.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not provided.

Special Projects: Pennsylvania DOT (Improvement)

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$10,000,000

Project schedule starting from FY18:

- Final Design: Oct 2018 - Dec 2019
- Construction: Jan 2020 - Dec 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: Not included in FY18 plan.

FY18 planned activities: Not included in FY18 plan.

FY18 actual expenditure: \$142,856

FY18 accomplishments: Not available.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not available.

Harrisburg Line Station Improvements: Coatesville

- **Coordinating agency:** Pennsylvania DOT
- **Type:** Improvement
- **Partner agency:** Amtrak, Federal Railroad Administration, Federal Transit Administration
- **Benefit:** Shared

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$46,600,000

Project schedule starting from FY18:

- Final Design: Oct 2015 - Aug 2019
- Construction: Oct 2019 - Oct 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: In the FY18 plan, this project was combined with the other PennDOT stations projects into the Harrisburg Line Stations Improvement Project. The total planned expenditure for all stations projects was \$30,000,000.

FY18 planned activities: See above. The planned activities for the Harrisburg Line Stations Improvement Project included the following activities for Coatesville: Advance station design.

FY18 actual expenditure: \$2,713,480

FY18 accomplishments: Not available.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not available.

Harrisburg Line Station Improvements: Downingtown

- **Coordinating agency:** Pennsylvania DOT
- **Partner agency:** Amtrak, Federal Railroad Administration, Federal Transit Administration
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$115,500,000

Project schedule starting from FY18:

- Design: Feb 2019 - Feb 2022
- Construction: Apr 2021 - Apr 2026

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: In the FY18 plan, this project was combined with the other PennDOT stations projects into the Harrisburg Line Stations Improvement Project. The total planned expenditure for all stations projects was \$30,000,000.

FY18 planned activities: See above. The planned activities for the Harrisburg Line Stations Improvement Project included the following activities for Downingtown: Complete Preliminary Engineering and Environmental Clearance.

FY18 actual expenditure: \$338,094

FY18 accomplishments: Not available.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not available.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$35,000,000

Project schedule starting from FY18:

- Construction: Sep 2018 - Aug 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: In the FY18 plan, this project was combined with the other PennDOT stations projects into the Harrisburg Line Stations Improvement Project. The total planned expenditure for all stations projects was \$30,000,000.

FY18 planned activities: See above. The planned activities for the Harrisburg Line Stations Improvement Project included the following activities for Middletown: Shift Norfolk Southern track and Amtrak track 1 to the South to allow for the construction of a center platform between Amtrak Track 1 and Track 2.

FY18 actual expenditure: \$353,721

FY18 accomplishments: Not available.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not available.

Harrisburg Line Station Improvements: Mount Joy

- **Coordinating agency:** Pennsylvania DOT
- **Partner agency:** Amtrak, Federal Railroad Administration, Federal Transit Administration
- **Type:** Improvement
- **Benefit:** Shared

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

Scope: This project will eventually modernize the Amtrak station at Mount Joy, 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.

Total project cost: Not available

Project schedule starting from FY18:

- Not available

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: In the FY18 plan, this project was combined with the other PennDOT stations projects into the Harrisburg Line Stations Improvement Project. The total planned expenditure for all stations projects was \$30,000,000.

FY18 planned activities: See above. The planned activities for the Harrisburg Line Stations Improvement Project included the following activities for Mount Joy: Construct south platform and access (elevator/stairs).

FY18 actual expenditure: \$10,692,214

FY18 accomplishments: Not available.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not available.

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

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$49,000,000

Project schedule starting from FY18:

- Design: Oct 2020 - Dec 2023
- Construction: Mar 2024 - Mar 2027

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: In the FY18 plan, this project was combined with the other PennDOT stations projects into the Harrisburg Line Stations Improvement Project. The total planned expenditure for all stations projects was \$30,000,000.

FY18 planned activities: See above. The planned activities for the Harrisburg Line Stations Improvement Project included the following activities for Parkesburg: Complete Preliminary Engineering and Environmental Clearance.

FY18 actual expenditure: \$0

FY18 accomplishments: Not available.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not available.

Special Projects: Rhode Island DOT (Improvement)

Pawtucket/ Central Falls Station

- **Coordinating agency:** Rhode Island DOT
- **Partner agency:** MBTA
- **Type:** Improvement
- **Benefit:** Sole

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$40,000,000

Project schedule starting from FY18:

- PE/NEPA: End Jan 2018
- Final Design: Nov 2018 - Nov 2019
- Construction: Apr 2019 - Jul 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$10,000,000

FY18 planned activities: The PE/NEPA phase was completed in the first quarter of FFY17 with the project earning a Categorical Exclusion (CE). A design/build procurement is currently underway. The D/B team will be awarded, and final design will be completed within FFY18. RIDOT is currently working with Amtrak, FRA, FTA, and MBTA to finalize a station layout and train schedule. These will be used to solicit revised proposals in an effort to reduce Amtrak costs.

FY18 actual expenditure: \$0

FY18 accomplishments: The RFP resulted in receipt of three proposals. Proposals were evaluated both technically and for cost resulting in an apparent best value. This D/B team was issued a tentative notice to award on 9/25/18 and are undergoing post-qualification. NTP tentatively planned in FY19 Q1.

Explanation of variance from FY18 plan (including scope, schedule, budget): The anticipated expenditure was based on an aggressive procurement schedule that upon actual issuance was realized to require more time to analyze and prepare the proposals. Henceforth, the expected expenditure to the awarded Design/Build Team for mobilization and preliminary design will not occur until FY 19.

Special Projects: SEPTA (Improvement)

30th Street West Catenary Replacement

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$77,000,000

Project schedule starting from FY18:

- Design: Feb 2015 - Dec 2018
- Construction: Oct 2019 - Oct 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$2,600,000

FY18 planned activities: The FY18 project scope includes continued design work which will be completed in FY18.

FY18 actual expenditure: \$2,121,203

FY18 accomplishments: In FY 2018, the 30th Street West Catenary track portion of this project reached final design and the overhead contact system (OCS) replacement was designed to 90% .

Explanation of variance from FY18 plan (including scope, schedule, budget): Coordination of track outages took longer than originally anticipated.

Ardmore Station ADA Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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 FY19-23 NEC Capital Investment Plan). SEPTA currently leases this station from Amtrak.

Total project cost: \$36,290,000

Project schedule starting from FY18:

- Construction: Mar 2019 - Oct 2021

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$700,000

FY18 planned activities: The FY18 project scope is to begin construction.

FY18 actual expenditure: \$236,567

FY18 accomplishments: In FFY 2018, the Ardmore Transportation Center Phase 1 final design was approved by Amtrak, construction bid documents were finalized, and work progressed on real estate easements and permitting. Construction bids were advertised on October 24, 2018.

Explanation of variance from FY18 plan (including scope, schedule, budget): Amtrak's final design approval and permitting took longer than originally anticipated. As a result, the project was delayed by approximately 6 months.

Exton Station Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

Scope: This project will implement overall station improvements to Exton Station on SEPTA's Paoli-Thorndale Regional Rail Line and Amtrak's Keystone Corridor and will provide full-length high-level boarding. Work includes construction of high-level boarding platforms, ramps and stairs, a new station building, new canopies, and shelters. The project will bring the station to a state of good repair and make the station ADA compliant. SEPTA currently leases this station from Amtrak.

Total project cost: \$24,200,000

Project schedule starting from FY18:

- Construction: Jun 2015 - Apr 2019

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$8,200,000

FY18 planned activities: The FY18 project scope is to continue construction to be completed in FY18.

FY18 actual expenditure: \$5,479,198

FY18 accomplishments: The Exton Station Improvement project construction continued and is approximately 80% complete.

Explanation of variance from FY18 plan (including scope, schedule, budget): Construction completion was delayed 9 months due to coordination issues between Amtrak, SEPTA forces and SEPTA contractors.

Frazer Rail Shop and Yard Upgrade

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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 will include 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.

Total project cost: \$139,000,000

Project schedule starting from FY18:

- Construction: Mar 2016 - Sep 2022

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$38,200,000

FY18 planned activities: The FY18 project scope continue construction.

FY18 actual expenditure: \$30,485,966

FY18 accomplishments: The Frazer Rail Shop & Yard Upgrade Project is being advanced in three concurrent phases. In FY 2018, Phase 1 construction was substantially completed, Phase 2 construction reach 90% completion and Phase 3 was designed to 30%.

Explanation of variance from FY18 plan (including scope, schedule, budget): Planned expenditures were overstated.

Levittown Station Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

Scope: This project will rebuild Levittown Station on SEPTA's Trenton Regional Rail Line (Northeast Corridor main line) to make the station fully ADA accessible. The project includes station improvements, construction of high-level platforms, elevators, a pedestrian overpass, improved intermodal service connections, and parking expansion. SEPTA currently leases this station from Amtrak.

Total project cost: \$36,000,000

Project schedule starting from FY18:

- Construction: Jul 2015 - Sep 2018

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$9,700,000

FY18 planned activities: The FY18 project scope is to continue construction.

FY18 actual expenditure: \$4,969,384

FY18 accomplishments: In FY 2018, construction continued to progress on the Levittown Station Improvement Project. At the end of the fiscal year, construction was approximately 75% complete.

Explanation of variance from FY18 plan (including scope, schedule, budget): Planned expenditures were overstated.

Southwest Connection Improvement Project

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$45,900,000

Project schedule starting from FY18:

- Construction: Mar 2017 - Dec 2020

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$7,300,000

FY18 planned activities: The FY18 project scope is to continue construction.

FY18 actual expenditure: \$15,193,761

FY18 accomplishments: SEPTA performed work at Arsenal Interlocking (on the NEC) and heavy maintenance on the Airport Regional Rail Line. At Arsenal Interlocking SEPTA completed the replacement of three (3) High Speed Track Turnouts, adjustment to track alignment, replacement and realignment of the corresponding catenary wire and preparation of communication and signal work that will be completed in later phases. Construction primarily occurred during a 15 day continuous outage.

Explanation of variance from FY18 plan (including scope, schedule, budget): Planned expenditures understated the cost of the continuous outage.

Villanova Station ADA Improvements

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

General Project Information

For full project details, see the FY20-24 NEC Capital Investment Plan.

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.

Total project cost: \$32,200,000

Project schedule starting from FY18:

- Construction (Phase 2): Oct 2019 - Mar 2023

FY18 One-Year Implementation Plan v. FY18 Actual

FY18 planned expenditure: \$6,500,000

FY18 planned activities: The FY18 project scope is to complete Phase I construction and continue Phase II design.

FY18 actual expenditure: \$5,730,953

FY18 accomplishments: In FY 2018, construction continued to progress on the Villanova Station Improvement Project. At the end of the fiscal year, construction was approximately 97% complete.

Explanation of variance from FY18 plan (including scope, schedule, budget): Not applicable.

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Page 16, service map: Courtesy of Connecticut DOT, 2019. Service map available at: www.hartfordline.com/route_stations.

Page 17: Courtesy of Connecticut DOT, 2018. Photo available at: www.nhhsrail.com/gallery under "Berlin Station Ribbon Cutting Ceremony."

Page 19: Courtesy of Amtrak. Photo available at: <https://media.amtrak.com/media-images/ready-to-build/>.

Page 22, Walk Bridge Program: Courtesy of Connecticut DOT, 2018. Photo available at: www.walkbridgect.com/gallery under "CP243 Interlocking Project."

Page 22, Harold Interlocking: "Installation of 37 third rail extension channels and bracket supports on concrete ties for a track in Harold Interlocking. (Force Account, 02-28-2018)" by flickr user mtacc-esa, 2018. Used under Creative Commons License Attribution 2.0 Generic (CC BY 2.0): <https://creativecommons.org/licenses/by/2.0/>. Photo available at: <https://flic.kr/p/Fairic>.

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