Northeast Corridor Annual Report: Operations and Infrastructure

Fiscal Year 2019

March 2020

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

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

Contents

Letter from the Executive Director

The Northeast Corridor enjoyed its second consecutive year of improved train performance (page 9) and its third consecutive year of increased investment in capital renewal (page 21) in FY19. In that same year, NEC stakeholders continued to strengthen their partnerships, enhancing the quality of capital planning and reporting information and increasing the efficiency of track outages for capital investment to reduce the impact on train performance.

However, much work remains to be done. This is the second year that the Northeast Corridor Commission has tracked occurrences of single incidents (e.g., infrastructure failures, trespasser strikes) that cause major delays across service providers. Once again, the NEC suffered numerous failures of signals, signal power, electric traction power, and switches, many of which caused thousands of train-delay minutes and affected tens of thousands of passengers (page 14). Coordination across agencies on capital planning and adherence to plan is improving, but there is significant work ahead to refine and expand upon these improvements and address remaining challenges (page 26).

The quality of data submitted to the Commission and the Commission's analytical capabilities continue to grow. This year's Annual Report features a new section (pages 18-20) that spotlights three case studies on the interaction of infrastructure investment and train performance. One analysis shows how investments completed in FY18 at Dock Interlocking, a complex collection of assets that sorts trains coming into and out of Newark Penn Station, contributed to a more than two thirds reduction in train-delay minutes at that location in FY19. Other case studies examine the benefits of investment in bidirectional signaling completed in FY19 and how track outages for planned capital investment affect train performance.

This year's Annual Report also features a new approach to making recommendations. Each of the Commission's past three Annual Reports focused solely on advancing reforms to NEC capital planning and reporting practices. This year's report continues to push those reforms and initiates discussions of ongoing and future efforts to reduce recurring infrastructure failures and maximize efficiency of investment during continuous track outages.

Commission stakeholders are pleased to share with Congress the critical efforts they are undertaking to improve service and increase the level and efficiency of infrastructure investment. We are committed to continuing this progress and look forward to building upon our funding partnership with Congress to renew and improve the nation's busiest and most economically vital passenger rail corridor.

Mitch Warren
Executive Director
Northeast Corridor Commission

Executive summary

The 457-mile Northeast Corridor between Boston, MA to Washington, DC is America's busiest passenger railroad hosting over 800,000 daily trips on eight commuter railroads and Amtrak's intercity services. A well-functioning NEC enables workers to commute to jobs, people to connect with family and friends, and the region to attract businesses in a globally competitive economy.

The NEC Annual Report documents the operational performance of NEC trains and the implementation of the capital program for federal fiscal year 2019, and makes recommendations for improvement.

Customers experienced fewer train delays in FY19

NEC trains were on-time 89% of the time in FY19, increasing the number of trains that were on-time by 1.3% over FY18. Improvements to on-time performance may be attributed to several factors including a mild winter season, less invasive programmed work, and reduced trespasser incidents.

Infrastructure-related delays—which include delays due to asset failures (e.g., signal power failures), speed restrictions, and planned maintenance—continue to be the largest source of delay for NEC trains. However, infrastructure-related delays have decreased every year since FY17, when there were disruptive infrastructure-related delays at New York Penn Station, both in terms of number of occurrences and total number of minutes.

NEC ridership slightly increased in FY19 and remains the busiest rail corridor in the U.S.

Average estimated weekday trips on the NEC rose by approximately 11,500 trips in FY19 with NJ TRANSIT, Amtrak, and CT*rail*'s Hartford Line experiencing increases in passenger trips. With over 800,000 passenger trips on over 2,000 daily trains, the NEC remains the busiest rail corridor in the United States.

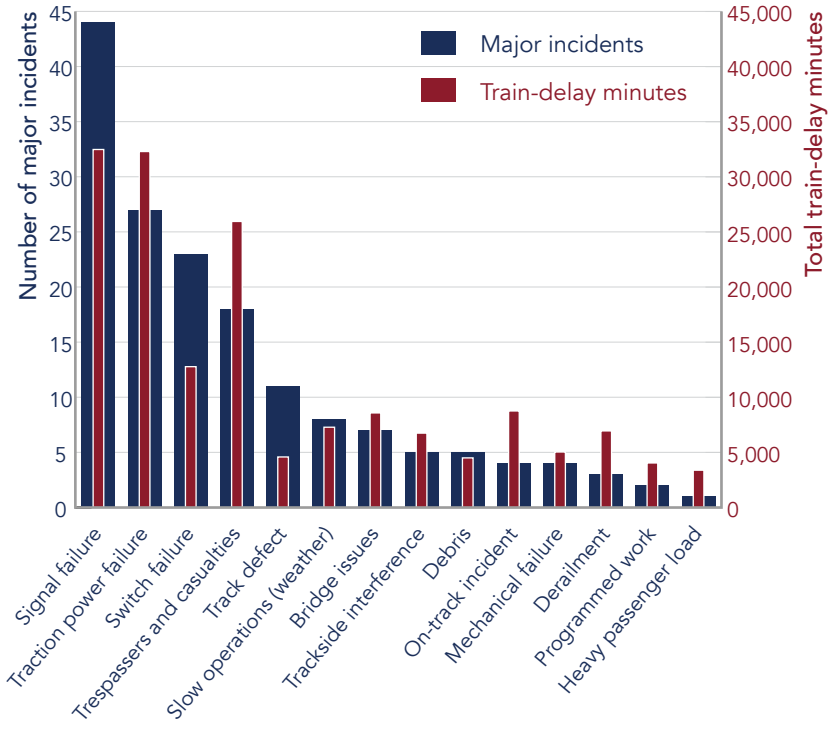
Infrastructure-related issues and trespassers generated most major incidents in FY18-19

The Commission began recording "major incidents," single events that generate multiple train delays, in FY18 to identify trends and potential mitigation strategies.

Two years' worth of major incident data show that 76% of these incidents on the NEC involved signal power failures, electric traction power failures, switch failures, track defects, or trespassers. Approximately one-third of the of the major incidents involving infrastructure failures or defects in FY18-19 were coincident with and possibly caused by severe weather.

Major incidents

Number of occurrences and minutes by incident type, FY18-19



Recommendation

Improve ability to identify and measure passenger impact of recurring infrastructure failures to inform capital plans

Current major incident analysis capabilities only offer a partial window into the impact of infrastructure failures on train performance. Data and process limitations do not allow the Commission to identify all recurring infrastructure failures, probe their root cause, and measure impact across all NEC operators and their passengers.

To address this challenge, the Commission and its member organizations should:

- Determine what additional, more precise infrastructure failure data are available to incorporate into Commission analyses, including more precise information related to incident location and the asset(s) involved;
- Establish a process to review and confirm the root causes of incidents with right-of-way owners; and
- Establish a process for measuring the impact of infrastructure failures across all NEC operators and their passengers.

Infrastructure investments can impact train performance

Operational performance of the railroad is closely tied to infrastructure condition and investment. In FY18, Amtrak completed rehabilitation and modernization of Dock Interlocking in Newark, NJ. In FY19, delays associated with Dock Interlocking were reduced by two-thirds. Similar delay reductions can be expected in the future due to other infrastructure investments underway, such as the installation of bidirectional signaling on portions of the Harrisburg Line and modernization of Fair Interlocking in Trenton, NJ.

Although in the long-term infrastructure investments can significantly improve train performance, in the near-term, critical investments such as track undercutting may affect service and negatively impact customers due to extended track outages.

Recommendation

Reduce customer impacts by improving track outage scheduling, coordination, and efficiency

Track outages are often required to undertake routine and non-routine capital investments that are essential for safety, ride quality, and the long-term viability of the NEC. However, in the short term, track outages can have a negative impact on train performance and passenger experience.

To address this challenge, the Commission and its member organizations should:

- Expand the track outage planning and coordination process established for the New York region to other targeted areas or regions, as needed;
- Ensure business practices promote coordination within and across agencies to allow more work to be completed simultaneously during planned outages and, to the extent possible, avoid geographically repetitive outages; and
- Identify opportunities to remove or reduce administrative barriers related to right-of-way owner equipment purchases, including the Buy America waiver process.

NEC stakeholders invested nearly $1.2 billion in infrastructure in FY19

NEC stakeholders invested $678 million in the capital renewal of basic infrastructure and $515 million in special projects for a total capital investment of $1.2 billion in FY19.

Spending on capital renewal investments has steadily increased since FY16 largely due to the cost-sharing framework established by the Cost Allocation Policy and increased federal appropriations. Right-of-way owners continued to invest heavily in track (56% of all capital renewal expenditures), followed by structures (19%); communications and signals (15%); and electric traction (9%).

Spending on special projects was slightly less in FY19 than FY18; however, this spending level allowed stakeholders to complete station upgrades, progress early action construction work for major backlog projects, continue construction at new and existing interlockings, and advance design work for projects that will alleviate major bottlenecks.

Total capital expenditure, FY16-19

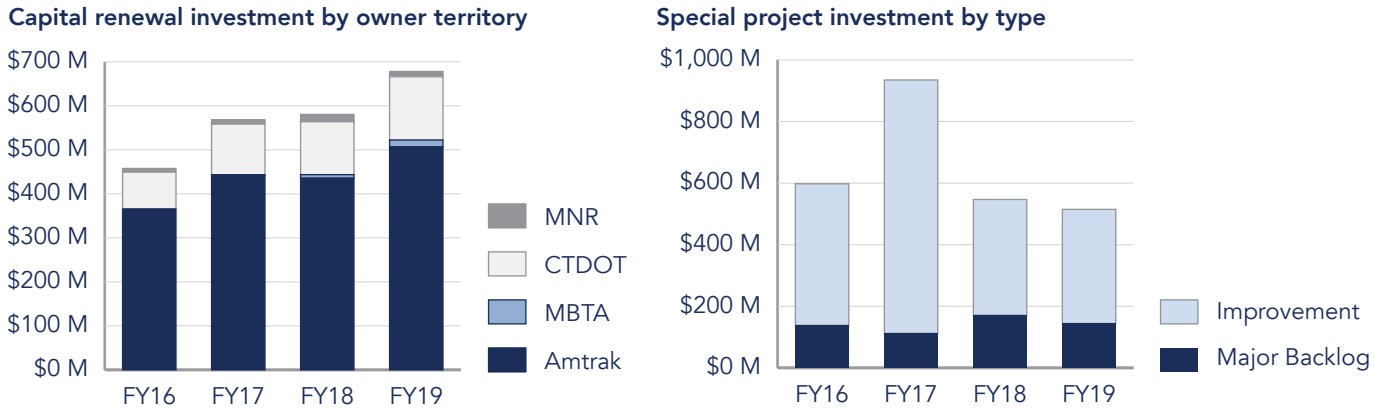


Figure note: (1) For capital renewal, MBTA assumed the role of right-of-way owner beginning in FY18. Prior to FY18, Amtrak maintained MBTA territory.

NEC stakeholders spent closer to plan in FY19 than FY18

NEC stakeholders planned to invest $1.6 billion in NEC infrastructure in FY19 but spent $1.2 billion.

Right-of-way owners fell $83 million short of their $762 million planned expenditure on capital renewal investments in FY19; however, since FY17, there is been a slow, upward trend in plan adherence for capital renewal investments.

For special projects, agencies fell $315 million short of their $810 million planned expenditure in FY19. Only 12% of special projects had expenditure levels within 20% of plan in FY19, which has slightly more than FY18, but less than FY17.

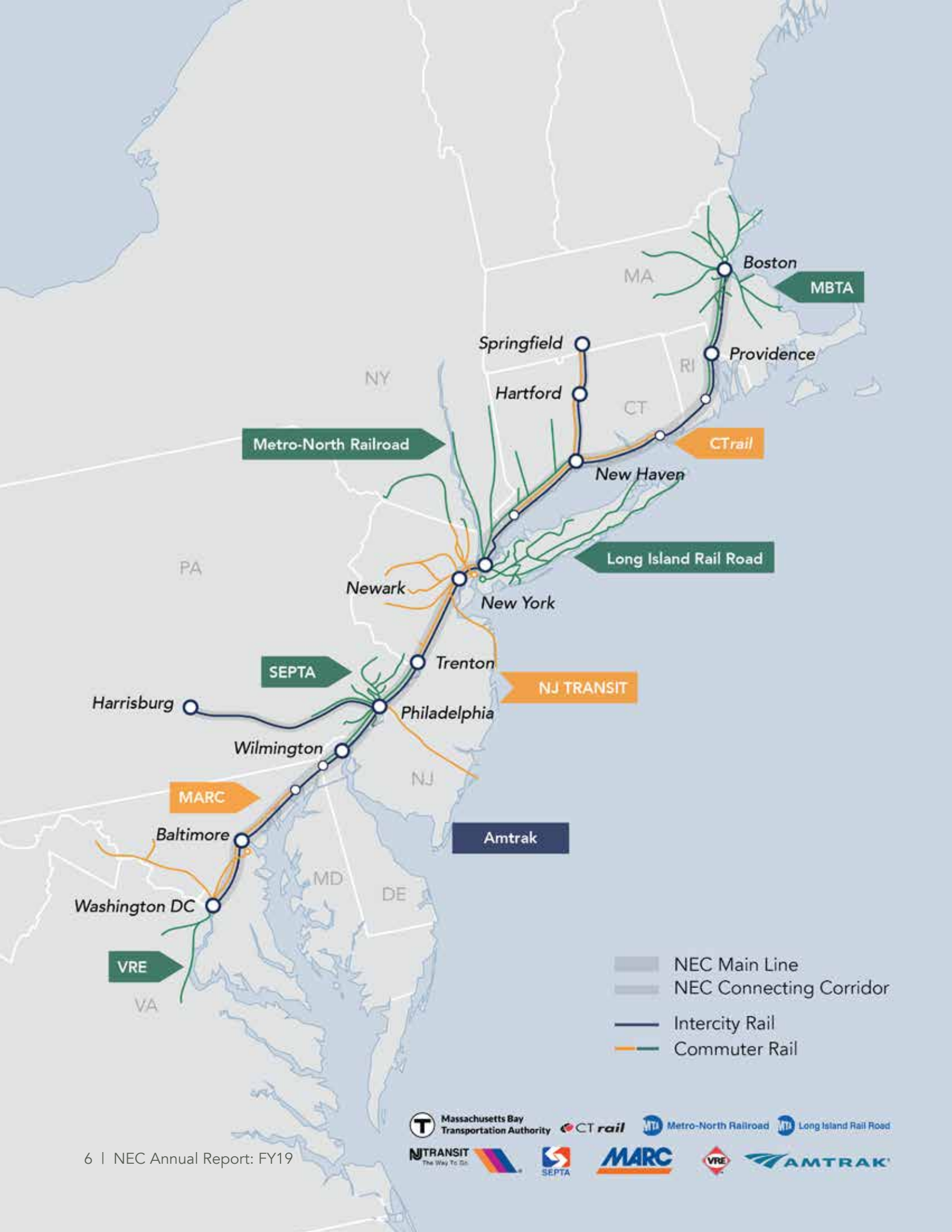
Recommendation

Continue to improve capital planning and reporting

Right-of-way owners, particularly Amtrak, have made meaningful progress in implementing capital planning and reporting reforms, which resulted in improved plan data and better adherence to plan in FY19. However, data quality and consistency issues exist, and plan adherence remains low overall.

To address these challenges, the Commission and its member organizations should:

- Strengthen quality assurance/quality control processes to address data quality and consistency issues;
- Expand recent planning reforms to provide a two-year, geographically specific forecast for capital renewal investments;
- Ensure internal processes support the application of realistic multi-year funding assumptions to projects; and
- Improve coordination between relevant parties during annual planning cycles, particularly for special projects.


Boston
MBTA
MA
Springfield
Providence
RI
NY
Hartford
CT
Metro-North Railroad
CTrail
New Haven
Long Island Rail Road
PA
Newark
New York
SEPTA
Trenton
NJ TRANSIT
Harrisburg
Philadelphia
Wilmington
NJ
MARC
Amtrak
Baltimore
MD
DE
Washington DC
VRE
VA
NEC Main Line
NEC Connecting Corridor
Intercity Rail
Commuter Rail
Massachusetts Bay Transportation Authority
CT rail
Metro-North Railroad
Long Island Rail Road
NJTRANSIT
SEPTA
MARC
VRE
AMTRAK

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.

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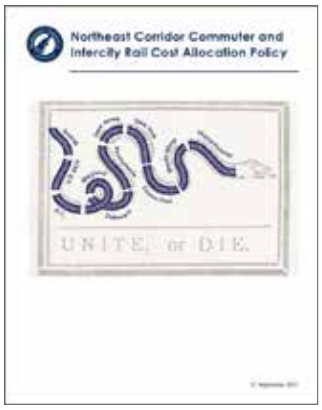
The NEC Commuter and Intercity Rail Cost Allocation Policy



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 $1.2 billion annually in shared operating costs and capital normalized replacement values among the NEC's four right-of-way 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 agencies' relative use of NEC infrastructure. Right-of-way owners use agencies' capital obligations, referred to as Baseline Capital Charges, to fund capital renewal investments associated with right-of-way basic infrastructure assets, such as track, structures, electric traction systems, and communication and signal systems (see pages 22-23 for more information).

Second, the Policy established a framework for transparency, collaboration, and accountability, including a first-ever corridor-wide capital planning process. The NEC Annual Report is a key component of that NEC-wide process and is required by the most recent federal transportation law, Fixing America's Surface Transportation (FAST) Act (49 U.S.C. §24905(b)(3)). 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 U.S. Department of Transportation, Amtrak, and eight commuter rail agencies. Throughout federal fiscal year 2019 (i.e., from October 1, 2018 through September 30, 2019), 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 documents the operational performance of NEC trains, the delivery of the Commission's FY19 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 makes recommendations for improvement.

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

2. Recent NEC-wide trends

Operations

This section summarizes NEC operations during federal fiscal year 2019 using available data for on-time performance, causes of delays, and ridership. Analyzing NEC operations, including trends over time, helps track how well the corridor serves its customers and also helps agencies identify ways to improve service.

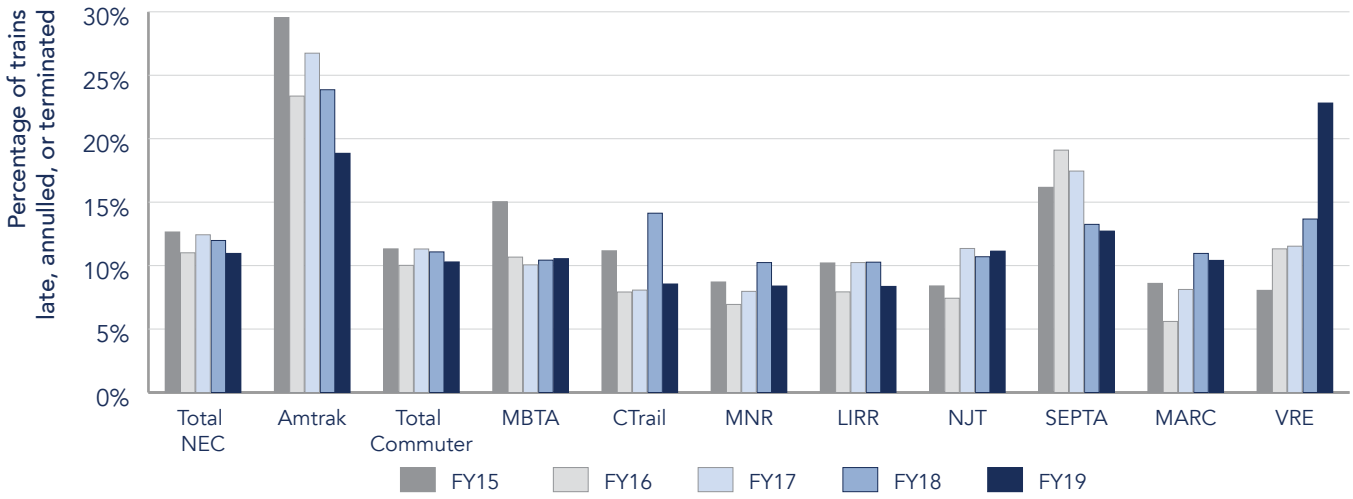
Performance

On-time performance on the NEC improved in FY19

NEC trains were on-time 89% of the time in FY19, increasing the number of trains that were on-time by 1.2% over FY18. As shown in Figure 1, CT*rail*, LIRR, MNR, and Amtrak led the NEC in decreasing late, annulled, or terminated trains. Amtrak and SEPTA showed continuous year-over-year improvement since FY17 and FY16, respectively. Improvements to on-time performance may be attributed to several factors including a mild winter season, less disruptive capital work, and reduced trespasser incidents.

VRE and NJ TRANSIT experienced an increase in late, annulled, or terminated trains. VRE's increase can in part be attributed to the implementation of new positive train control technology. NJ TRANSIT suffered a variety of challenges, from availability of equipment and train crews to the impacts of weather and infrastructure failures.

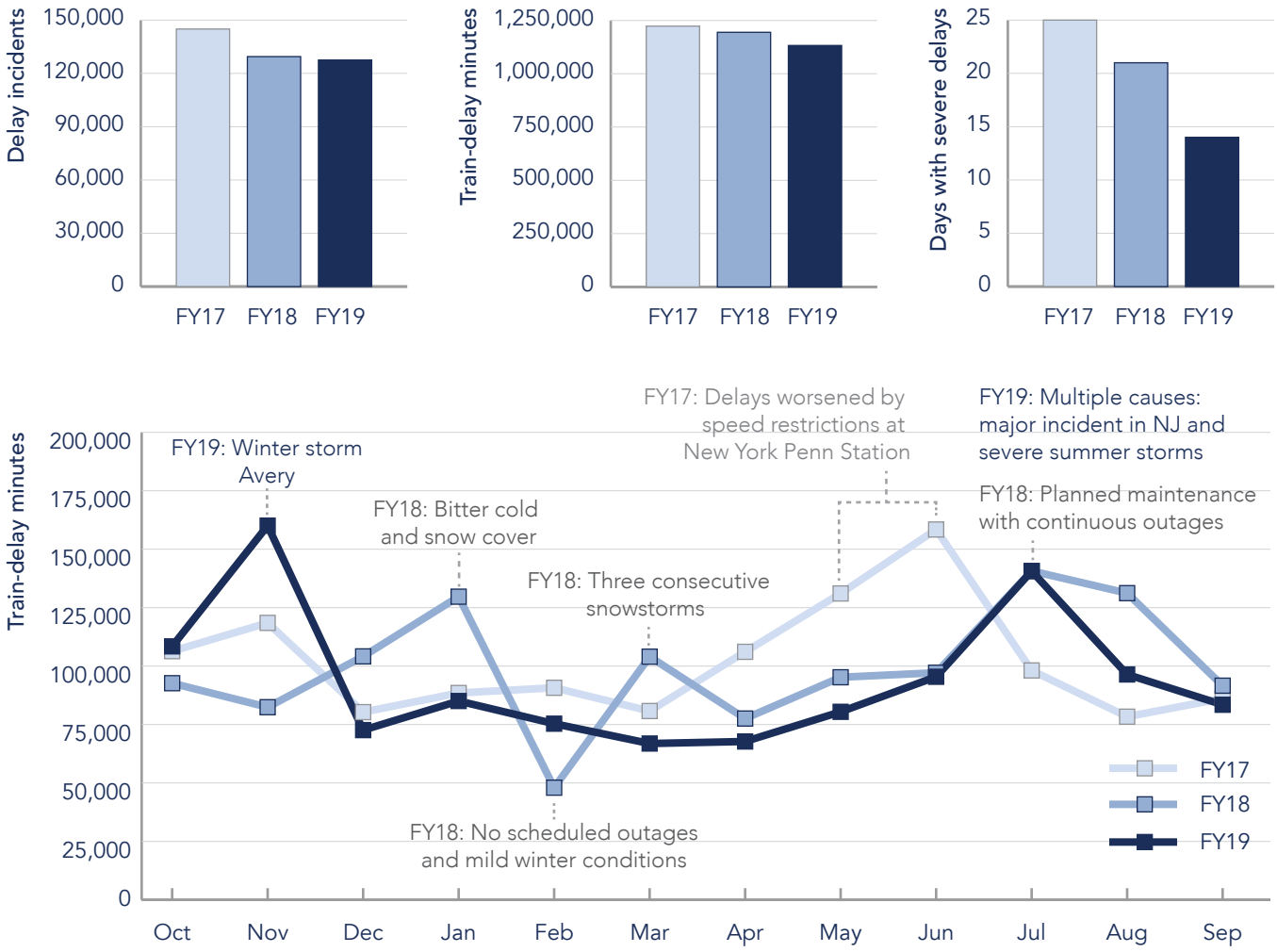
Figure 1. Percentage of NEC trains late, annulled, or terminated, FY15-19



Customers experienced fewer train delays in FY19, though infrastructure-related delays remain the largest source of delay

Delays on the NEC decreased in FY19 according to the total number of delay incidents, delay minutes, and days with severe delays[1] (by 1.5%, 5.2%, and 33.3%, respectively—see Figure 2). Each delay incident experienced by an NEC train lasted an average of 8.9 minutes, though some trains experience more than one delay incident.

Figure 2. Delays on the NEC, FY17-19



[1] Severe delay days are days where 20% of the scheduled trains are late or not completed, or days where 3% of the scheduled trains are not completed.

The causes of delay below contributed most significantly to the reduction in delays.

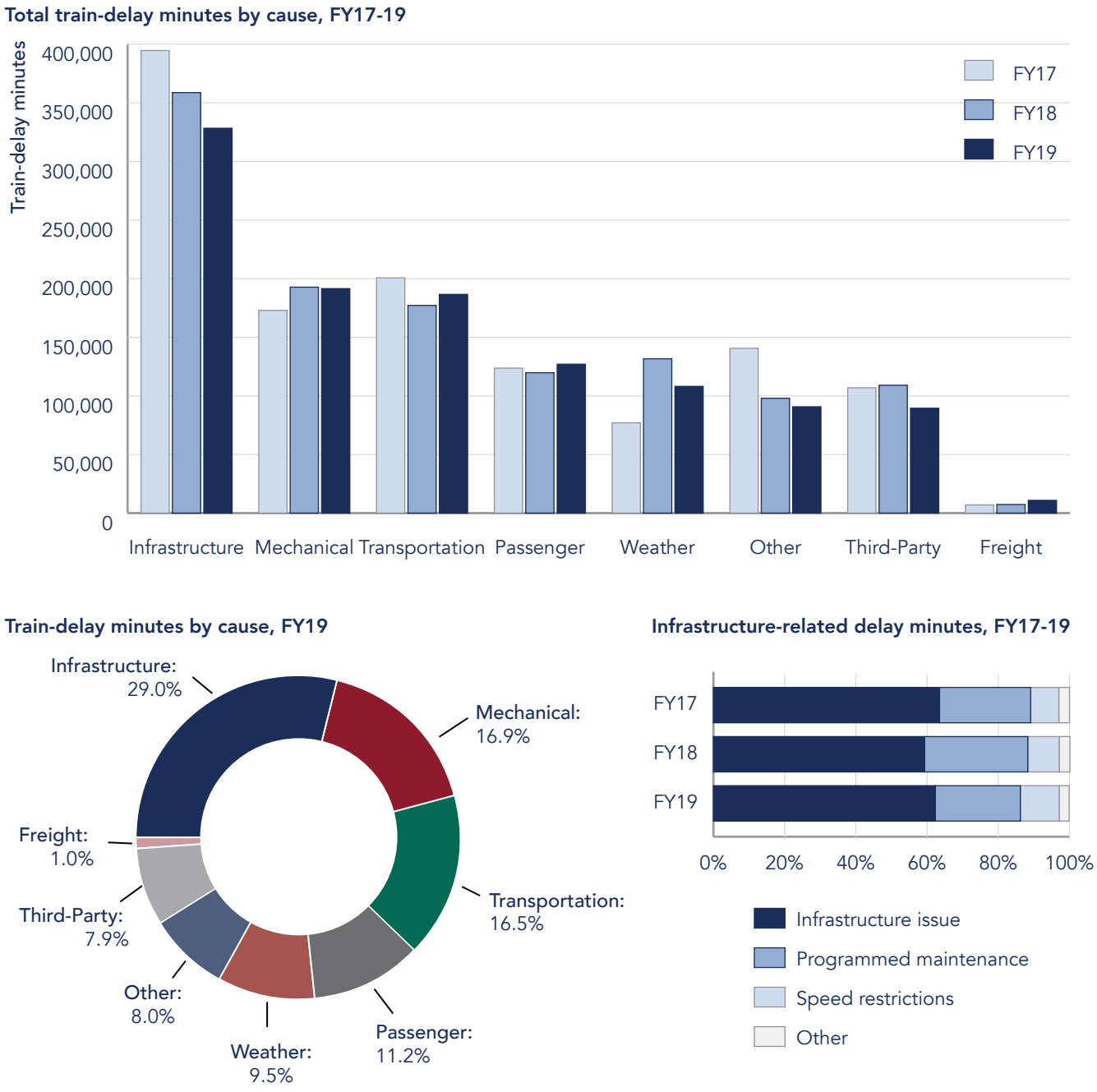
- **Infrastructure.** Infrastructure-related delays—which include delays due to asset failures (e.g., signal power failures)—continued to be the largest source of delay on the corridor in FY19. Infrastructure issues caused 328,000 train-delay minutes, the equivalent of 702 Amtrak Northeast Regional train trips from Boston, MA to Washington, DC. However, infrastructure-related delays (both in terms of number of occurrences and total number of minutes) have decreased every year since FY17, when there were disruptive infrastructure-related delays at New York Penn Station. The failure of basic infrastructure assets accounts for roughly 60% of all infrastructure-related delay minutes (see Figure 3.)
- **Third-Party.** FY19 experienced a 18% reduction in train-delay minutes related to third-party incidents. The FY18 Annual Report noted that on-track incidents, especially involving trespasser strikes that required temporary cessation of service and action by first response teams—resulted in significant and prolonged service impacts. Amtrak implemented an organization-wide safety management system that proactively identified and managed risks in FY19. This may have contributed to the reduction of trespasser-related delays.
- **Weather.** Weather conditions in winter, typically the largest source of weather-related delays, were favorable in FY19, resulting in fewer weather-related delays overall. Those improvements, however, were partially offset by severe weather in the fall and summer. High temperatures across the corridor led to extended heat orders for many operators. Under the heat orders, trains operated at reduced speeds to avoid the risk of damaging infrastructure. These orders can aggravate performance, especially when they are layered on top of outages for planned investment that reduce capacity and require strict schedule adherence to prevent cascading delays. Heavy rainfall and an early November snowstorm caused record delays in the fall. Thunderstorms caused flooding and damaged infrastructure in the summer. Largely due to improved weather conditions, delays associated with the Baltimore & Potomac Tunnels significantly decreased—from 14% of train-delay minutes directly attributed to weather-related delays at B&P in FY18 to 7% in FY19. In FY20, Amtrak plans to spend $8.9 million for the replacement of nearly 1,000 feet of slab track and block ties within the tunnel, which have deteriorated due to age and water infiltration.

NEC Commission Cause of Delay Categories

Individual railroads maintain their own classification 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:

- **Infrastructure:** Failure of track, communications and signals, electric traction and structure assets; planned maintenance; and speed restrictions.
- **Mechanical:** Locomotive failure; coach failure; and disabled train ahead.
- **Transportation:** Train dispatching and routing; train interference; and crew availability.
- **Passenger:** Passenger loading time; passenger behavior or injury; and holding for connections.
- **Weather:** Precipitation; wind; excessive cold or heat; slippery rail; and weather-related infrastructure failures.
- **Other:** No report provided; delay cause unknown; and human error.
- **Third-Party:** Trespassers; police action; bridge openings; debris on tracks; and utility failure.
- **Freight:** Freight train interference.

Figure 3. Minutes of delay by cause, FY17-19

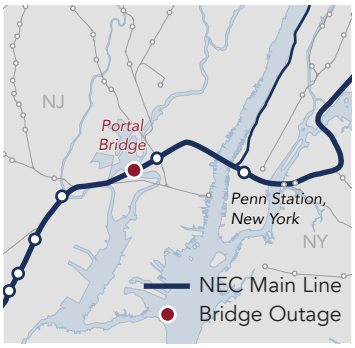


Major incidents caused 101,000 delay minutes in FY19

The Commission began recording "major incidents," single events that generate multiple train delays, in FY18 to identify trends and potential mitigation strategies. These incidents typically shut down operations over a segment of the NEC and require an extended period of time to resolve. Major incidents on the NEC are identified by analyzing train performance data and cross-referencing that data with NEC operators' daily operations reports.[2] The Commission identified 85 major incidents in FY19, three of which are listed in Figure 4 below. A full list is available in *Appendix A* on page 40.

Figure 4. Illustrative major incidents, FY19

Tuesday, October 30, 2018: Bridge issue - Portal Bridge in Secaucus, NJ



Portal Bridge opened for maritime traffic at 3:19 pm. When attempting to close, the rails failed to align properly, which prevented the signaling system from functioning. The problem was resolved at 4:55 pm; however, in the hour and 35 minutes the bridge was out, 28 trains were scheduled to cross it.

The delays stemming from this incident cascaded throughout the afternoon peak period, with some commuters delayed over 90 minutes. Normal service did not resume until 10:00 pm.

Trains affected: 126, including 16 annulments **Total train-delay minutes:** 2,082

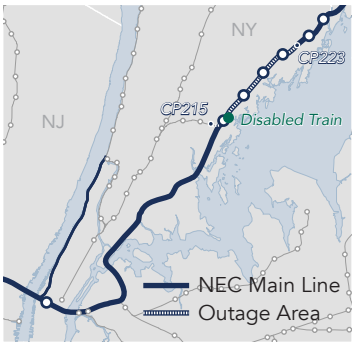
Wednesday, June 19, 2019: Traction Power Failure - From Philadelphia, PA to New Rochelle, NY

Frequency converters at Metuchen, NJ and Queens, NY failed and disrupted the ability to provide electric traction power on the NEC between New York and Philadelphia. At 10:15 am, a hold was placed on all trains between New York and Philadelphia, including three trains in the North River Tunnels.

The hold lasted 45 minutes, while the converters in Metuchen and Queens were repaired. Crews then temporarily transmitted power through other substations. An hour later, another power hold, lasting 15 minutes, was placed to fully resolve the issue. Customers on the most heavily delayed trains experienced delays of over two hours. Trains did not fully return to regular service until after 5:00 pm.

Trains affected: 93 **Total train-delay minutes:** 3,616

Thursday, September 12, 2019: Traction Power Failure - New Rochelle, NY



At 3:07 pm, a MNR train's pantograph became tangled in the overhead catenary wire and pulled down a section of the wire, cutting power for a track between New Rochelle and Harrison, NY and stranding a train with over 400 passengers. Two tracks were taken out of service to safely transfer stranded passengers to another train and allow for the removal of the damaged equipment.

Because of the location of the incident, MNR had significantly reduced throughput and Amtrak was completely unable to operate between New Rochelle, NY and New Haven, CT for an hour and a half. One track remained out of service for the remainder of the day as the disabled train and catenary were removed and repaired.

Trains affected: 110 **Total train-delay minutes:** 2,553

[2] Commission staff uses a threshold of 5,000 total delay minutes or 1,500 infrastructure delay minutes to identify days which may have had major incidents that disrupted service. Commission staff then reviews daily operations reports on those days to uncover any major incidents that affected train performance and ties those incidents back to train delay records to quantify their impact.

Prevailing trends in major incidents

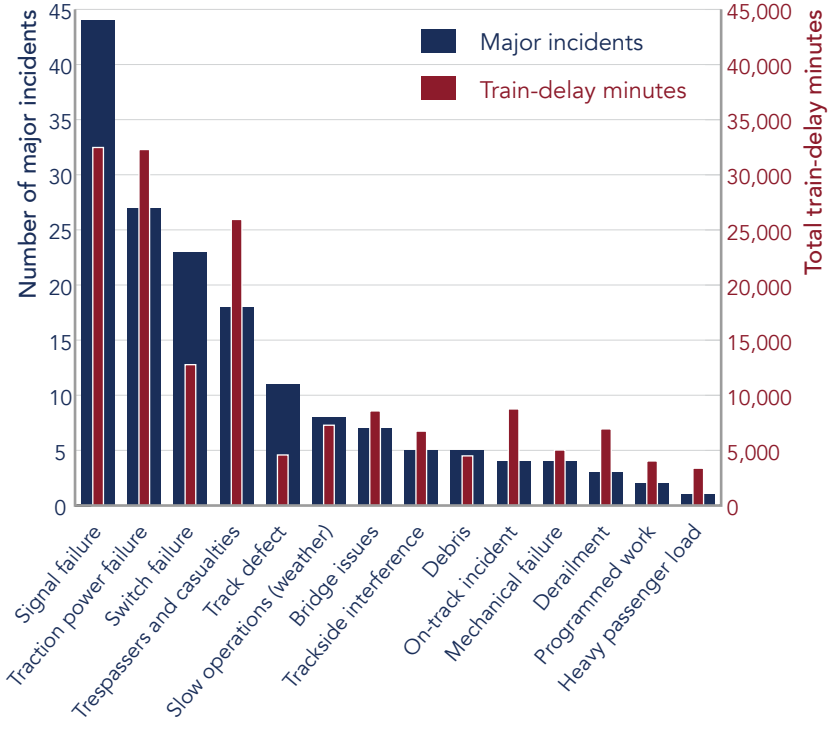
During FY18-19, 76% of major incidents identified by the Commission involved:

1. Signal failures;
2. Electric traction power failures;
3. Switch failures;
4. Trespassers and casualties, and/or
5. Track defects.

Figure 5 depicts the count of incidents by type and the associated train-delay minutes observed from FY18-19. The Commission also found that approximately one-third of the major incidents involving infrastructure failures or defects in FY18-19 were caused by the damaging effects of weather (see Figure 5 and page 15).

Figure 5. Major incidents

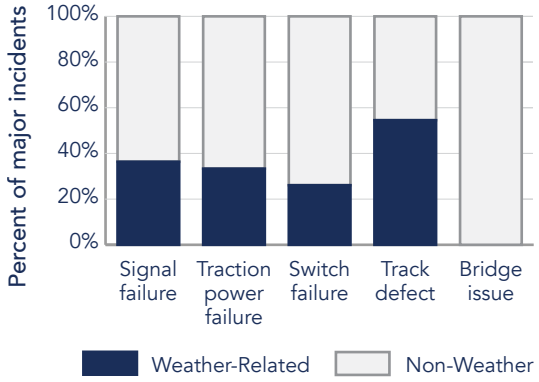
Number of occurrences and minutes by incident type, FY18-19



Major incident types

- **Signal failure:** Failure of a component of the signaling system.
- **Traction power failure:** Failure of a component of the electric traction system.
- **Switch failure:** Electrical or mechanical failures of switches.
- **Trespassers and casualties:** Incidents where trespassers are observed on the track or a person is struck by a passing train.
- **Track defect:** Instances where the rail breaks or kinks, or track conditions require a speed restriction.
- **Slow operations (weather):** Weather related events that slow rail operations.
- **Bridge issues:** Bridge strikes or failure of movable bridge to lock correctly.
- **Trackside interference:** Emergency events that occur alongside the railroad and disrupt service.
- **Debris:** Objects from outside the railroad that obstruct the track.
- **On-track incident**: Issues caused by failures of non-revenue vehicles.
- **Mechanical failure:** Failures of the train consist.
- **Derailment:** Incidents when a train runs off its rails.
- **Programmed work:** Delays occurring as a result of programmed track outages
- **Heavy passenger load:** Heightened level of passenger travel that require additional time at stations.

Percent of incident related to weather, FY18-19



Special focus: How weather can affect train operations and performance

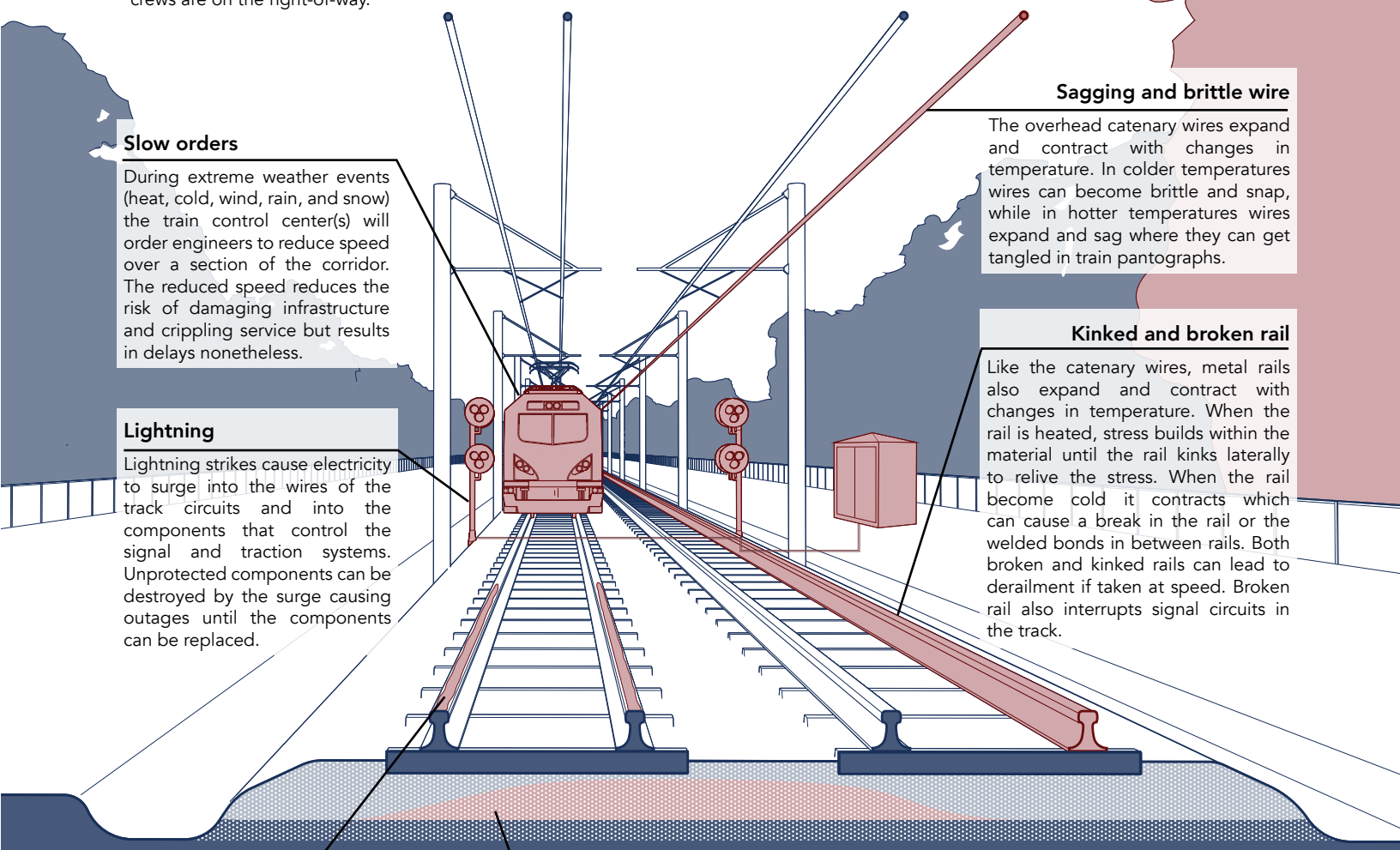
Weather has significant and varied impacts on infrastructure components. Below are illustrative examples of how weather can affect train operations and performance. Some capital investments can protect and strengthen these vital infrastructure assets.

Capital programs

Severe weather can interrupt the progress of crews that undertake capital renewal work. Crews typically halt production in the winter months (usually mid-December through mid-March) when the ground may be frozen. Progress during production season may be affected by extreme weather events when crews are on the right-of-way.

Downed trees

Trees and large branches can be toppled by fierce storms with high winds. The falling debris can obstruct tracks and pull down transmission lines disrupting traction or signal power.



Sagging and brittle wire

The overhead catenary wires expand and contract with changes in temperature. In colder temperatures wires can become brittle and snap, while in hotter temperatures wires expand and sag where they can get tangled in train pantographs.

Slow orders

During extreme weather events (heat, cold, wind, rain, and snow) the train control center(s) will order engineers to reduce speed over a section of the corridor. The reduced speed reduces the risk of damaging infrastructure and crippling service but results in delays nonetheless.

Kinked and broken rail

Like the catenary wires, metal rails also expand and contract with changes in temperature. When the rail is heated, stress builds within the material until the rail kinks laterally to relive the stress. When the rail become cold it contracts which can cause a break in the rail or the welded bonds in between rails. Both broken and kinked rails can lead to derailment if taken at speed. Broken rail also interrupts signal circuits in the track.

Lightning

Lightning strikes cause electricity to surge into the wires of the track circuits and into the components that control the signal and traction systems. Unprotected components can be destroyed by the surge causing outages until the components can be replaced.

Wheel slip

In Autumn months, leaves fall onto the rails and are crushed by passing trains. Over time a slippery film builds up on the rail that prevents wheels from adhering to the rail. This film becomes even more slick during the rain. These patches cause train wheels to slip when the train is taking power and lock up when braking. Repeated wheel-locking events can create flatspots on the wheels that require taking the car out of service.

Mud spots

Mud spots can develop when excess water and the pumping pressure of passing trains forces fine soil up into the ballast which prevents the ballast from draining properly and creates voids underneath the ties.

Flooding

Flooding can affect the stability of the roadbed by washing away the ballast that supports the railroad and damaging the electronics contained in track circuits and wayside equipment. Tunnels are inherently susceptible to flooding. Tunnels such as the Baltimore & Potomac Tunnels have specialized drainage systems to counteract flooding, but when these systems clog or fail due to age, water can build up around the track.

Ridership and service

NEC ridership slightly increased in FY19 and remains the busiest rail corridor in the U.S.

In FY19, overall ridership on the NEC increased by an estimated 11,500 trips per weekday: agencies saw a collective ridership of 819,500, compared to 808,000 trips in FY18. Amtrak's NEC ridership grew by more than 2,000 trips a day, an increase of more than 5%. Most commuter agencies saw an increase in their NEC ridership, but some, including MBTA, MNR, and VRE, slightly decreased. Among commuter agencies, NJ TRANSIT saw the largest increase of approximately 9,000 weekday trips. CT*rail*'s Hartford Line also saw a significant increase of approximately 15%.

Similar to FY18, commuter agencies and Amtrak scheduled over 2,100 trains a day on the NEC in FY19. Additionally, freight railroads operate approximately 50 daily trains. Figure 6 below summarizes the estimated average weekday trips and scheduled trains on the NEC and system-wide for FY19.

Figure 6. Estimated average weekday railroad trips and scheduled weekday trains, FY19

	Northeast Corridor			System-wide	
Service Operator	Estimated Trips	Change in Est. Trips, FY18-19[1]	Scheduled Trains	Estimated Trips	Scheduled Trains
Amtrak	45,000	↑	157	89,000	300
MBTA[2]	78,000	↓	308	95,000	516
CT*rail*[3]	2,000	↑	53	2,000	53
MNR[3]	124,000	↓	294	288,000	673
LIRR[4]	237,000	↑	465	316,000	735
NJ TRANSIT	242,000	↑	402	318,000	700
SEPTA	53,000	↑	355	120,000	768
MARC	34,000	↑	97	37,000	97
VRE	4,500	↓	32	18,000	32
NEC-wide	**819,500**	↑	**2,163**	**1,283,000**	**3,874**

Table 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. (1) Arrows represent changes in the raw ridership numbers, not the rounded figures. (2) Historical MBTA ridership on the NEC is only an estimate at this time due to limited data availability. (3) CT*rail* ridership includes both Shore Line East passengers from New London to New Haven, CT and passengers on the Hartford Line, which began on June 2018. Shore Line East passengers between New Haven and Stamford are included in MNR's ridership figures. (4) LIRR system-wide trips figure is preliminary.

A NJ TRANSIT conductor in New Brunswick, NJ.

On the NEC, commuter rail agencies continue to operate the majority of NEC daily trains (2,006 daily trains or 93% of the total), with the remainder operated by Amtrak (157 daily trains or 7% of the total). Additionally, most agencies operating 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, trips on the NEC accounted for 76% of NJ TRANSIT's total passenger trips.

The NEC remains the busiest passenger rail corridor in the United States, carrying over 800,000 passengers per weekday. Outside of the NEC, the second busiest corridors are Chicago to Milwaukee in Illinois and Wisconsin, followed by the Capital Corridor in California. These two corridors respectively carry approximately 130,000 and 80,000 passengers per weekday.[3]

[3] Chicago to Milwaukee Corridor data retrieved from https://metrarail.com/about-metra/reports-documents/operations-ridership-data. Capital Corridor data retrieved from Caltrain's 2018 Annual Passenger Counts and APTA's Transit Ridership Report for 2018 Q2.

Case studies on operations and infrastructure

These case studies highlight how operational performance of the railroad is closely linked to infrastructure condition and investment.

Completed investments at Dock Interlocking improved performance

Dock Interlocking sorts trains among tracks coming into and out of Newark Penn Station in New Jersey. It is a critical infrastructure component for NJ TRANSIT's North Jersey Coast Line, Raritan Valley Line, and Northeast Corridor services, in addition to all of Amtrak's Regional and Acela services. Newark Penn Station has six tracks for NJ TRANSIT and Amtrak services. Trains traveling eastbound towards New York converge into three tracks at Dock Interlocking.

Newark Penn Station, shown above, is one of the busiest stations in New Jersey. The station serves over 27,000 and 1,000 NJ TRANSIT and Amtrak customers, respectively, each weekday.

Starting in FY05, Amtrak made significant investment to modernize and bring Dock Interlocking into a state of good repair. Prior to these investments, Dock was one of Amtrak's last interlockings controlled on-site by operators who used manual controls to move switches via a system of compressed air. This required 24-hour coverage, coordination, and communication among train crews, train dispatchers, and tower operators to ensure safe train operations through the interlocking. These antiquated assets were prone to failure and required frequent emergency maintenance. An annual average of 1,838 train-delay minutes were associated with Dock Interlocking between FY15 and FY18.

Amtrak invested $52.7 million to completely upgrade the track and signal components at Dock Interlocking. A final cutover took place in November 2018, where all remaining local responsibilities for Dock were transferred to Penn Station Control Center in New York, NY. In FY19, only 506 train-delays minutes were associated with Dock. These findings highlight the benefits of accelerating modernization efforts. Similar work is now underway in FY20 at Fair Interlocking near Trenton, NJ, which still uses compressed air to control the movement of the switches and outdated propane switch heaters.



Starting from left to right: Crews operate the undercutter during a continuous outage near Canton, MD in August 2019. **Middle:** A view of track that sits on top of ballast, which helps with drainage and ensures proper alignment of the track. **Right:** Ballast over time erodes and becomes dirty with fouled material, shown here as the darker areas next to new, lighter-colored ballast.

Investments requiring track outages reduced performance in Maryland

Track work is a critical investment required to maintain safety, reliability, and ride quality. Undercutting is when crews use heavy equipment to raise stretches of track and replace ballast (small, angular rocks) underneath it to improve drainage, remove mud spots, and set the tracks in their proper place. Amtrak took large stretches of track out of service in Maryland to complete $29 million worth of undercutting in FY19. Amtrak's records indicate that this stretch of the NEC received sporadic undercutting activities as part of the original Northeast Corridor Improvement Project (NECIP) in the late 1970s and early 1980s, with recent undercutting activities beginning in 2016. Track work is also one of the most invasive investments, reducing the number of tracks available for train service and limiting speeds on adjacent tracks to ensure worker safety for days, weeks, or months at a time.

In order to accommodate this work, MARC and Amtrak adjusted their train schedules and operated around these outages for eight months. Eighty-five percent of MARC trains adjusted their schedules to accommodate the outage and customers needed to pay extra attention to changing platform assignments. Despite these mitigations, there were 14,305 train-delay minutes associated with programmed outage locations in Maryland in FY19—or roughly the same amount of time for someone to take 230 trips from Baltimore, MD to Washington, DC on the MARC Penn Line. This work contributed to a third of late trains operated on the NEC in Maryland in FY19.

While some level of delay will always be associated with programmed capital investment, current undercutting equipment is approximately 20 years old and is prone to frequent mechanical issues, thereby prevented crews from carrying out the work quickly and efficiently while track outages are in place. Amtrak's records indicate that the undercutter experienced over 10,800 minutes of delay in Maryland in 2019, where nearly 30% of which were directly attributed to mechanical issues. Of the 81 days with recorded undercutter delays in Maryland, 39 days or (48%) included a mechanical delay.

Newer equipment could be better utilized by crews to maximize times blocked off for track outages, both increasing the cost efficiency of investment and decreasing the time lost in delay. For additional discussion, including latest efforts from Amtrak to improve efficiency during track outages, see *Challenges and Recommendations* starting on page 32.

Additional bidirectional signaling completed in Pennsylvania will begin to offer greater operational flexibility

The connecting corridor to Harrisburg, PA is one of the remaining areas on the NEC that continues to include stretches of single-direction signaling, or track that only allows maximum authorized speeds in the primary direction of travel. For travel in the opposite direction, crews must obtain permission from the train dispatcher to proceed, and then only at a restricted speed of 15 miles per hour to be prepared to stop at any moment.

Amtrak has been incrementally converting the signal system from Harrisburg to Paoli to modern standards to include bidirectional signaling, allowing trains to travel at maximum authorized speeds in both directions. This improvement creates operational flexibility and offers greater efficiency over the manual process of reverse-direction travel.

The connecting corridor to Harrisburg, PA is also SEPTA's busiest commuter rail line, serving an estimated 20,000 customers every weekday from Thorndale to downtown Philadelphia, PA.

In FY19, investments were completed that allowed Amtrak to introduce bidirectional signaling on both tracks in the four-mile territory between Paoli and Frazer. Less than three weeks later, on October 17, 2019, a tree fell on the westbound track between Paoli and Frazer, making it impassable. Unlike any time before it, dispatchers were able to signal westbound Amtrak and SEPTA trains to proceed at normal speed on the eastbound track. A distance that would have taken 20 minutes to traverse at 15 miles per hour was covered in four, saving time for passengers in transit and freeing capacity to reduce the amount of time trains were delayed during temporary single tracking.

Much of the connecting corridor east of Paoli and parts of the NEC main line in Pennsylvania and New Jersey are still signaled for a single direction. Continued investments like these can help ease conflicts where multiple service types operate, maintain performance during track outages for capital investment, and create operational flexibility to reduce delays during unexpected disruptions.

Infrastructure

Each year, the Commission develops and approves the NEC One-Year Implementation Plan, which identifies each agency's capital investments planned for the upcoming federal fiscal year based on available funding. This section summarizes the capital investments made by NEC owners and operators during federal fiscal year 2019 to highlight key areas of progress and notable accomplishments. It also summaries how FY19 capital investments compared to the FY19 One-Year Plan to provide transparency for capital program delivery.

Types of capital investment

1. **Capital renewal of basic infrastructure** includes the routine repair or replacement of existing basic infrastructure assets to keep the NEC safe for train operations. Capital renewal is managed by the NEC right-of-way owners and funded largely by Baseline Capital Charges, as discussed on page 8.
2. **Special projects** include "major backlog projects" which represent the complete overhaul or replacement of major bridges and tunnels and "improvement projects" aimed at created new infrastructure above and beyond existing assets or replacing existing assets with markedly superior ones. While some special project components may be funded with BCCs, special projects as a whole are typically not BCC-eligible and are funded through a combination of state, local, federal, and Amtrak sources.

NEC stakeholders invested nearly $1.2 billion in infrastructure in FY19

NEC stakeholders invested $678 million (or 57%) in capital renewal of basic infrastructure and $515 million (or 43%) in special projects in FY19. Capital renewal expenditures have steadily increased from $457.7 million in FY16 to $678.2 million in FY19 (see Figure 7). This can be attributed largely to the cost-sharing framework established by the Cost Allocation Policy and increased federal appropriations.

Compared to previous years, stakeholders' FY19 special project investment was slightly lower than FY18 and significantly lower than FY17 (see Figure 7). The spike in FY17 special project investment was due, in large part, to the completion of Phase 1 of Moynihan Station in New York. In general, special project spending is less predictable than capital renewal spending as special projects are often large and complex; involve multiple parties, including federal agencies; and require numerous reviews and approvals to advance.

Figure 7. Total capital expenditure, FY16-19

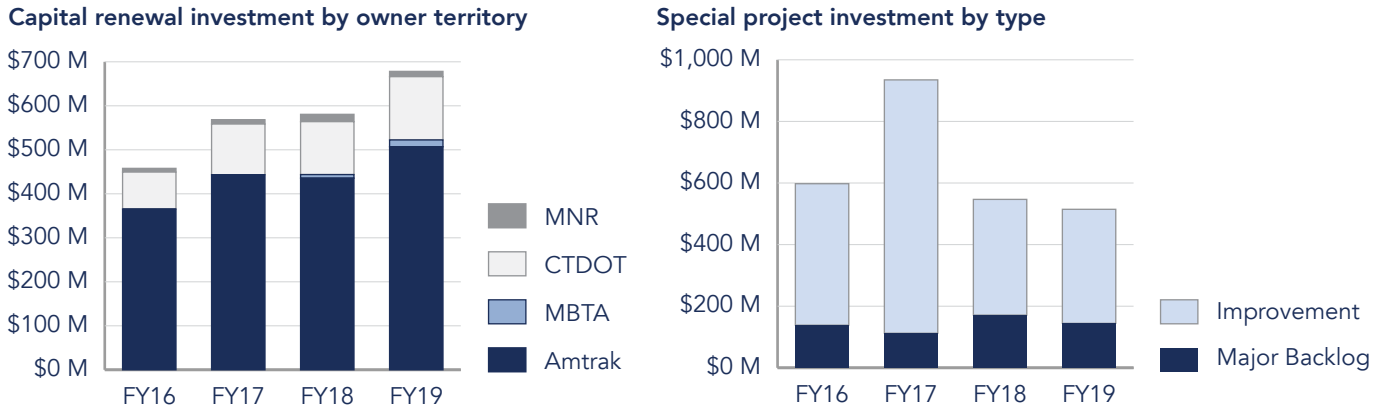


Figure note: (1) For capital renewal, MBTA assumed the role of right-of-way owner beginning in FY18. Prior to FY18, Amtrak maintained MBTA territory.

Capital renewal accomplishments

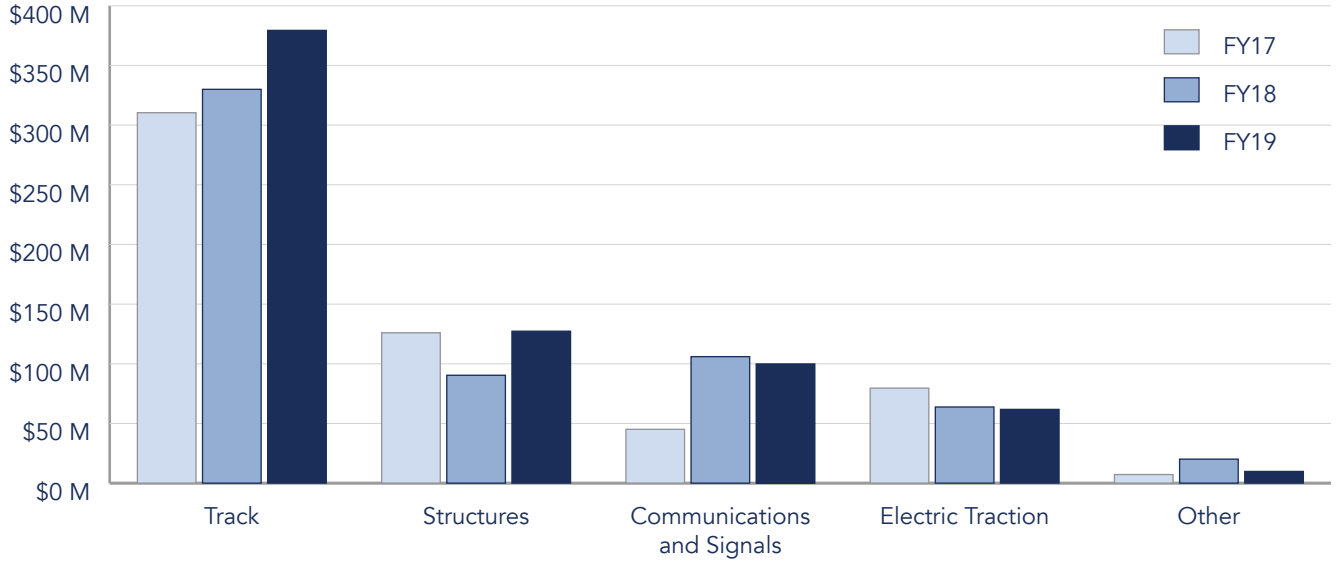
Of the $678 million invested in capital renewal in FY19, $479 million (or 70%) was funded by Baseline Capital Charges paid to owners for their territories (see Figure 8). Per the NEC Cost Allocation Policy, as discussed on page 8, each operator contributes a BCC, which is calculated annually through the NEC Cost Allocation Model and based on the relative use of NEC infrastructure. Approximately $199 million of the total investment in capital renewal was funded by Amtrak and CTDOT using other available agency funds. MBTA and MNR invested in their territory at levels lower than the FY19 BCC obligations.

Figure 8. BCC obligation and capital renewal expenditure by owner territory, FY19

	FY19 BCC obligation	FY19 total capital renewal expenditure	FY19 BCC expenditure	FY19 above or below BCC expenditure
Amtrak-owned territory[1]	$395.5 M	$507.0 M	$395.5 M	+$111.5 M
MBTA-owned territory[2]	$24.1 M	$15.4 M	$15.4 M	-$8.7 M
CTDOT-owned territory	$55.9 M	$143.8 M	$55.9 M	+$88.0 M
MNR-owned territory	$13.5 M	$12.0 M	$12.0 M	-$1.5 M
Total capital renewal	**$489.0M**	**$678.2 M**	**$478.8 M**	

Table notes: (1) The FY19 BCC obligation for Amtrak-owned territory reflects the NJ TRANSIT-Amtrak BCC variance approved by the Commission in August 2019. Amtrak's FY19 capital renewal expenditure includes contribution from CTDOT for Hartford Line expenditures not included in the FY19 BCC obligations. (2) Per agreement by MBTA and Amtrak, unspent FY18 and FY19 BCCs in MBTA-owned territory will be used as the local match for the Federal-State Partnership for State of Good Repair Grant obtained by MBTA for Tower 1 Interlocking.

Figure 9. Capital renewal expenditure by asset type, FY17-19



Examples of FY19 capital renewal accomplishments by asset type

1 TRACK

Track physically supports the movement of trains, including rail, concrete or wooden ties, a trackbed of ballast, and sublayers designed to ensure proper drainage and prevent shifting of the railroad. Regular maintenance of such infrastructure is required to maintain safe operating conditions, prevent damage to train equipment, and promote comfortable ride quality.

FY19 Accomplishments: Similar to prior years, track investments made up the majority of capital renewal spending, totaling $379 million or 56%.

- Amtrak invested nearly $60 million in its track laying system concrete tie replacement program, which focused its work in Pennsylvania, Maryland, and Delaware and replaced over 76,800 ties and over 315,000 feet of continuous welded rail; and $29 million in undercutting activities in Maryland. Additionally, Amtrak completed the Perry Interlocking Renewal Project in Maryland, which installed two new crossovers, switch heaters, and new electric traction wiring to provide greater operational flexibility and to remove speed restrictions at the nearby Prince Interlocking. Amtrak also completed extending the interchange in Trenton, NJ which will accommodate additional ballast car unit trains.
- MBTA completed over 185,000 feet of surfacing along the corridor in Massachusetts.
- CTDOT installed switches near New Haven, replaced rail between the Connecticut-New York state border to the Housatonic River, and installed ties near Stamford.

2 STRUCTURES

Structures carry the railroad over or under rivers, streams, roadways, and other obstacles, in addition to buildings necessary to support railroad operations. Regular maintenance is required to maintain safe operating conditions and extend the useful life of assets. Hundreds of such assets are now over a century old and require complete replacement.

FY19 Accomplishments: Investment in structures made up second largest capital renewal expenditure, totaling $127 million or 19%.

- In July 2019, CTDOT completed the replacement of the Atlantic Street Bridge in Stamford. This multi-year project used an innovative accelerated bridge construction method which involves constructing the replacement bridge off-site, followed by removing the old bridge, then "sliding in" the prefabricated pieces of the new railroad bridge and completing the construction in place. This method vastly reduces on-site construction time, thereby reducing the number of delays for train operations.

3 COMMUNICATIONS AND SIGNALS

Communications and signals control the movement of trains along tracks and between tracks at interlockings. The signal network on the NEC is among the most outdated of all assets as communications technology has rapidly developed in recent decades. Many replacement parts for the current system are not available.

FY19 Accomplishments: Expenditures in communications and signals, the third largest investment by asset type, totaled nearly $100 million or 15%.

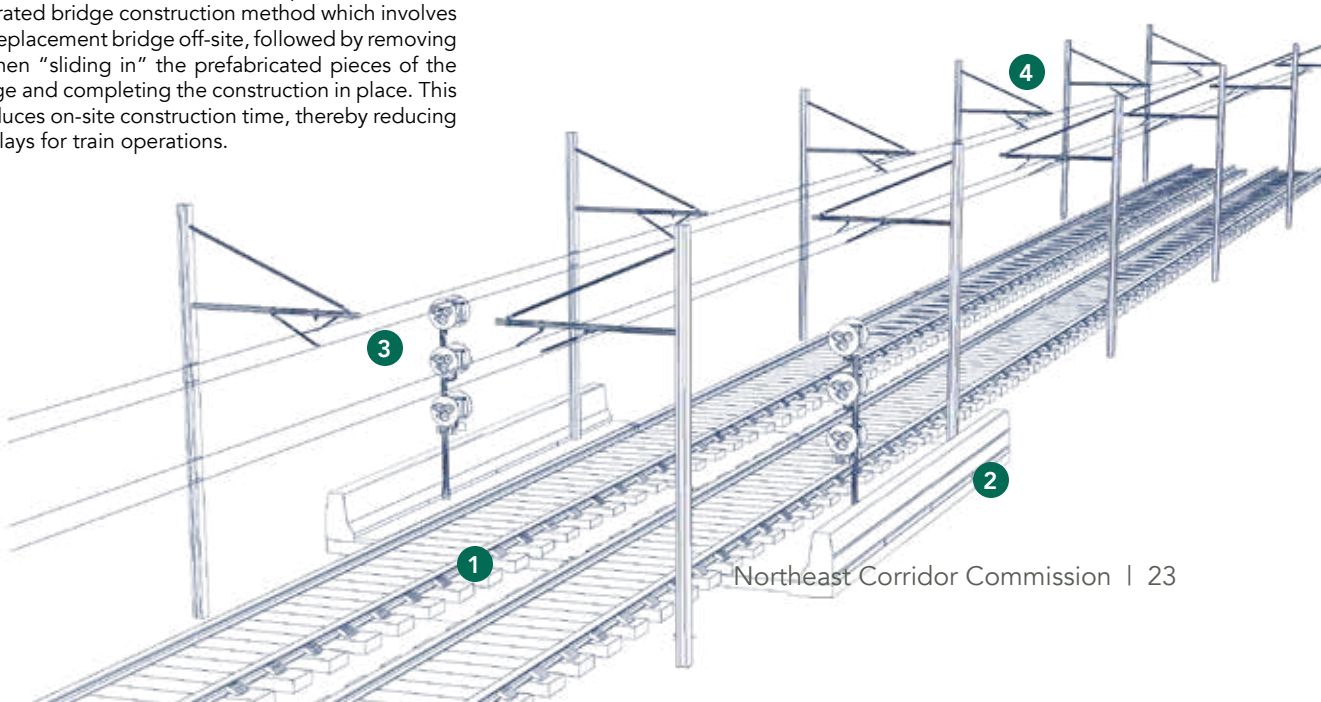
- Amtrak completed installation of bidirectional signaling on the Harrisburg Line between Paoli and Frazer, PA (see page 20 for more detail). This upgrade now allows train operations to run more efficiently in both directions on this section of track. Amtrak also continued work on its C&S equipment replacement project at Q Interlocking in Queens, NY which will support the eventual retirement of Q Tower by installing a new Central Instrument House and Communications Bungalow. Amtrak advanced Phase 1 of this project to 90% design, continued preliminary site work, and fabricated the huts.

4 ELECTRIC TRACTION

Electric traction systems draw power from the regional electric grid and distribute it to trains through a complex system of frequency converters, substation facilities, and overhead catenary lines. Many such assets that date back to the 1930s limit train speeds and are a frequent source of infrastructure failures and service disruptions.

FY19 Accomplishments: NEC right-of-way owners invested over $61 million, or 9%, in electric traction.

- MNR completed the final commissioning of the Bridge 23 substation, which is the only source of power to the New Haven Line within New York state. In addition to increasing reliability, this project will allow the substation to capture power from MNR's M8 fleet regenerative braking systems, which captures energy normally wasted during the braking process to be fed back into the electric supply system.
- Amtrak also completed the replacement and upgrade of the frequency converter at Safe Harbor, MD generating station.

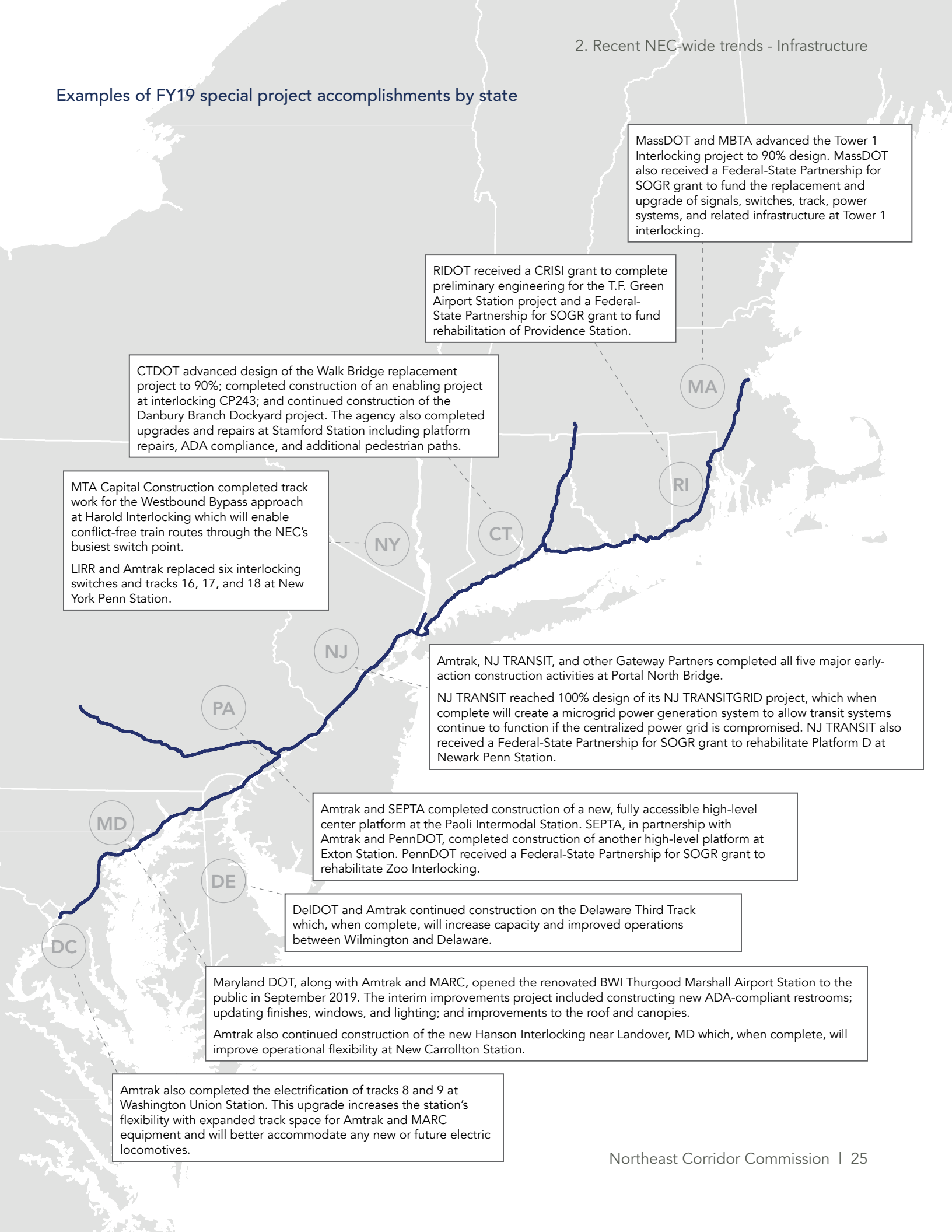


Clockwise, starting from top left: An aerial view of the completed of track 4 near interlocking CP243 in East Norwalk, CT. CP243 is a component of the Walk Bridge Program and will offer operational flexibility during the replacement of the Norwalk River Bridge. **Top right:** Representatives from SEPTA, PennDOT, Amtrak, and the Federal Railroad Administration celebrate the completion of improvements at the Paoli Transportation Center in Pennsylvania. **Bottom right:** Crews from MTA Capital Construction install running rail clips for the new track at Harold Interlocking in Queens, NY. **Bottom left:** Completed improvements at the BWI Thurgood Marshall Airport Station in Maryland.

Special project accomplishments

NEC stakeholders invested over $500 million in FY19 to advance special projects. Accomplishments, submitted by project coordinating agencies and highlighted on the following page, include completing station upgrades, progressing major backlog early action construction work, continuing construction at new and existing interlockings, advancing the design of projects that will alleviate major bottlenecks, and securing federal grant awards for future work.

Examples of FY19 special project accomplishments by state



MassDOT and MBTA advanced the Tower 1 Interlocking project to 90% design. MassDOT also received a Federal-State Partnership for SOGR grant to fund the replacement and upgrade of signals, switches, track, power systems, and related infrastructure at Tower 1 interlocking.

RIDOT received a CRISI grant to complete preliminary engineering for the T.F. Green Airport Station project and a Federal-State Partnership for SOGR grant to fund rehabilitation of Providence Station.

CTDOT advanced design of the Walk Bridge replacement project to 90%; completed construction of an enabling project at interlocking CP243; and continued construction of the Danbury Branch Dockyard project. The agency also completed upgrades and repairs at Stamford Station including platform repairs, ADA compliance, and additional pedestrian paths.

MTA Capital Construction completed track work for the Westbound Bypass approach at Harold Interlocking which will enable conflict-free train routes through the NEC's busiest switch point.

LIRR and Amtrak replaced six interlocking switches and tracks 16, 17, and 18 at New York Penn Station.

Amtrak, NJ TRANSIT, and other Gateway Partners completed all five major early-action construction activities at Portal North Bridge.

NJ TRANSIT reached 100% design of its NJ TRANSITGRID project, which when complete will create a microgrid power generation system to allow transit systems continue to function if the centralized power grid is compromised. NJ TRANSIT also received a Federal-State Partnership for SOGR grant to rehabilitate Platform D at Newark Penn Station.

Amtrak and SEPTA completed construction of a new, fully accessible high-level center platform at the Paoli Intermodal Station. SEPTA, in partnership with Amtrak and PennDOT, completed construction of another high-level platform at Exton Station. PennDOT received a Federal-State Partnership for SOGR grant to rehabilitate Zoo Interlocking.

DelDOT and Amtrak continued construction on the Delaware Third Track which, when complete, will increase capacity and improved operations between Wilmington and Delaware.

Maryland DOT, along with Amtrak and MARC, opened the renovated BWI Thurgood Marshall Airport Station to the public in September 2019. The interim improvements project included constructing new ADA-compliant restrooms; updating finishes, windows, and lighting; and improvements to the roof and canopies.

Amtrak also continued construction of the new Hanson Interlocking near Landover, MD which, when complete, will improve operational flexibility at New Carrollton Station.

Amtrak also completed the electrification of tracks 8 and 9 at Washington Union Station. This upgrade increases the station's flexibility with expanded track space for Amtrak and MARC equipment and will better accommodate any new or future electric locomotives.

Delivering the NEC One-Year Implementation Plan

NEC stakeholders spent less than planned in FY19, but spent closer to plan than in FY18

NEC stakeholders planned to invest $1.6 billion in NEC infrastructure but spent $1.2 billion (see Figure 10). The $400 million shortfall can mostly be attributed to the $296 million underspend in special projects. Notably, right-of-way owners' collective $83 million capital renewal underspend in FY19 is almost half of the $177 million capital renewal underspend in FY18.

Figure 10. Summary of FY19 plan vs. actuals

	FY19 Planned Expenditure	FY19 Actual Expenditure	Difference
Capital renewal	$761.6 M	$678.2 M	-$83.4 M
Special projects	$810.8 M	$514.7 M	-$296.1 M
Total	**$1,572.4 M**	**$1,192.9 M**	**-$379.5 M**

The Commission acknowledges the dynamic and complex nature of the corridor and the responsibility of all owners and operators to maintain a safe and reliable railroad. As such, 100% plan adherence is not expected and adjustments to plan based on better data are reasonable. For this report, plan adherence is measured as expenditures that fall within 20% of the planned expenditure approved in the FY19 One-Year Implementation Plan. Aside from expenditures, the Commission also acknowledges that there are other ways to measure progress and plan adherence, such as units or qualitative statements of progress. However, due to data limitations in previous plans and a need for consistent cross-agency comparison, fiscal year expenditure remains the best tool to measure progress at this time.

Capital renewal adherence to plan

Improving capital planning and reporting practices for capital renewal investments is a high priority for the Commission—see *Challenges and Recommendations* on page 32 for more background and information. Following the definition of plan adherence, three of the four right-of-way owners spent within 20% of the total planned capital renewal expenditure in FY19. As seen in Figure 11, Amtrak, CTDOT, and MNR spent 89%, 97%, and 81% of the total planned expenditure in their respective territories. MBTA spent 55% of its total planned expenditure.

Figure 11. Capital renewal investment by right-of-way owner, FY19 plan vs. actual

	FY19 Planned Expenditure	FY19 Actual Expenditure	Percent of Plan Spent
Amtrak	$570.3 M	$507.0 M	89%
MBTA	$28.1 M	$15.4 M	55%
CTDOT	$148.4 M	$143.8 M	97%
MNR	$14.8 M	$12.0 M	81%
Total for capital renewal	**$761.6 M**	**$678.2 M**	**89%**

Baseline Capital Charge Segments

NEC right-of-way owners invest operators' BCCs within their respective service territories. The NEC, therefore, is divided into 31 BCC segments generally defined as points on the NEC where the mix of owners and/or operators changes. Each segment then has a distinct set of operators whose BCCs may be applied to capital renewal investments.

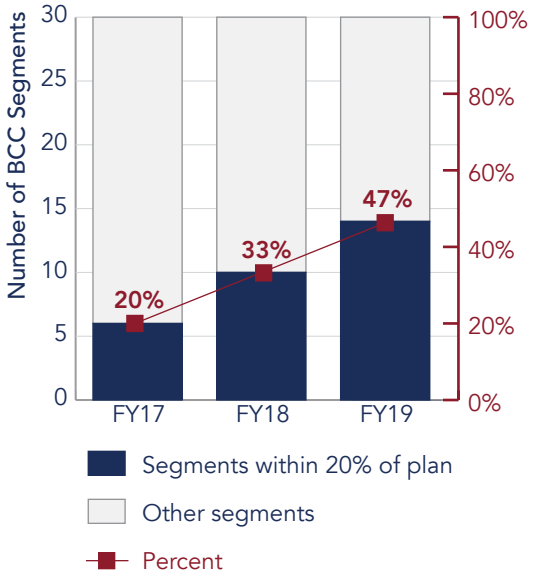
BCC Segment	Owner
1. Boston South Station to MA/RI State Line	MBTA
2. MA/RI State Line to Providence	Amtrak
3. Providence to Wickford Junction	Amtrak
4. Wickford Junction to New London	Amtrak
5. New London to New Haven	Amtrak
6. New Haven to CT/NY State Line	CTDOT
7. CT/NY State Line to New Rochelle	MNR
8. New Rochelle to Harold	Amtrak
9. Harold to F Interlocking	Amtrak
10. F Interlocking to Penn Station New York	Amtrak
11. Penn Terminal	Amtrak
12. Penn Station New York to Trenton	Amtrak
13. Trenton to Morris	Amtrak
14. Morris to Holmes	Amtrak
15. Holmes to Shore	Amtrak
16. Shore to Girard	Amtrak

BCC Segment	Owner
17. Girard to Philadelphia 30th Street	Amtrak
18. Philadelphia 30th Street to Arsenal	Amtrak
19. Arsenal to Marcus Hook	Amtrak
20. Marcus Hook to Bacon	Amtrak
21. Bacon to Perryville	Amtrak
22. Perryville to WAS	Amtrak
23. Washington Union Terminal	Amtrak
24. WAS to CP Virginia	Amtrak
25. Springfield to New Haven	Amtrak
26. Poughkeepsie - Spuyten Duyvil*	MNR
27. Spuyten Duyvil to Penn Station New York	Amtrak
28. Penn to 36th Street	Amtrak
29. 36th Street to Thorndale	Amtrak
30. Thorndale to Harrisburg	Amtrak
31. Amtrak System-wide	Amtrak

*Segment 26 is exempt from the plan

A geographic analysis of FY19 capital renewal plan adherence shows that owners spent within 20% of their segment-level planned expenditure in 14 out of 30 BCC segments (see Figure 12). Applied to previous years, this analysis also shows improvements over time: in FY18, owners met this threshold for ten BCC segments, compared to six in FY17.

Figure 12. Capital renewal plan adherence by BCC Segment



While plan adherence is improving for capital renewal investments from a geographic perspective, continuous future improvement is a high priority for the Commission. FY19 represents the first year that all right-of-way owners have been able to provide project- or program-level explanations of variance for some capital renewal investments. CTDOT and MNR cited lack of track outage availability as causing delays for some of their maintenance programs while MBTA reported lack of partner agreements, procurement delays, and changes in scope. Amtrak noted project- and program-level variances in their capital renewal work could be attributed to various causes including mid-year changes in scope or budget, outside factors such as weather, or manpower shortages. See *Appendix B* starting on page 82 for the submitted information.

Special focus: Amtrak adherence to plan in FY19

The FY19 NEC One-Year Implementation Plan represented a step forward in terms of the level of detail provided by Amtrak for its capital renewal investments.

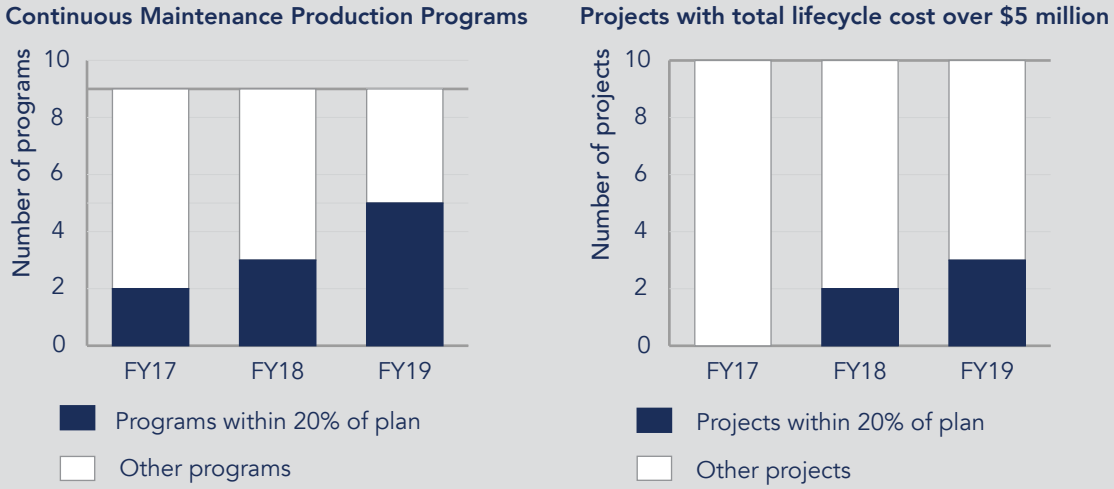
Amtrak provided improved geographic specificity and scope, schedule, budget detail for approximately 59% of its capital renewal portfolio (as measured by total planned expenditure). Specifically, Amtrak made planning improvements for two types of capital renewal investments in FY19: (1) continuous maintenance production programs (e.g., NEC System Undercutting Program); and (2) capital renewal projects with total lifecycle cost over $5 million (e.g., Fair Interlocking Renewal Project).

1. Amtrak spent 104% of its plan overall for its ten **continuous maintenance production programs** in FY19. In addition, Amtrak's spending on continuous maintenance production programs aligned better to its plan in FY19 than those programs aligned in previous years. Of the nine continuous maintenance production programs which existed in Amtrak's plan in all three years, Amtrak spent within 20% of its planned expenditure for five programs in FY19, as compared to three in FY18 and two in FY17 (see Figure 13).

2. For **capital renewal projects with total lifecycle cost over $5 million**, Amtrak spent 68% of its plan in FY19. Of the ten projects included in all three plans, Amtrak spent slightly closer to plan in FY19 than in previous years. In FY19, Amtrak spent within 20% of plan for three of the ten projects (see Figure 13). Amtrak spent within that range for two projects in FY18 and no projects in FY17.

Despite this progress, further improvements to capital planning and reporting practices are needed and remain a high priority for the Commission along with improving overall plan adherence. The *Challenges and Recommendations* beginning on page 32 discusses these remaining challenges and necessary next steps in more detail.

Figure 13. Amtrak capital renewal program- or project-level plan adherence, FY17-19



Special projects adherence to plan

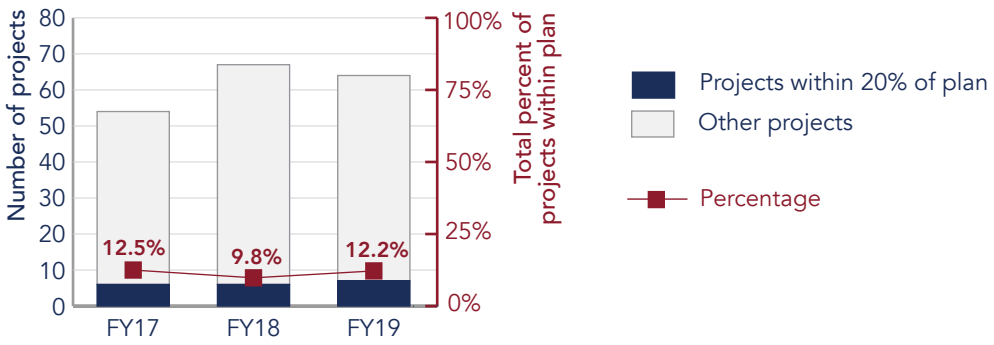
NEC stakeholders spent approximately 61% of the FY19 planned special projects expenditure. At the coordinating agency level, VRE, Amtrak, and DelDOT each spent 39% or less of its planned expenditure while MTA Capital Construction and LIRR each spent 190% or more than planned (see Figure 14).

Figure 14. Special projects plan vs. actual by coordinating agency, FY19

	FY19 Planned Expenditure	FY19 Actual Expenditure	Percent of Plan Spent
Amtrak	$373.9 M	$145.8 M	39%
MBTA	$24.6 M	$15.6 M	63%
RIDOT	$8.5 M	$6.1 M	72%
CTDOT	$139.0 M	$138.4 M	99%
MNR	$26.0 M	$11.4 M	44%
LIRR	$25.5 M	$48.4 M	190%
MTA Capital Construction	$14.0 M	$39.9 M	285%
NJ TRANSIT	$82.6 M	$33.6 M	41%
SEPTA	$40.2 M	$30.9 M	77%
PennDOT	N/A	$17.3 M	N/A
DelDOT	$50.3 M	$19.5 M	39%
Maryland DOT	$8.5 M	$7.1 M	84%
VRE	$17.7 M	$0.6 M	3%
Total for special projects	**$810.8 M**	**$514.6 M**	**63%**

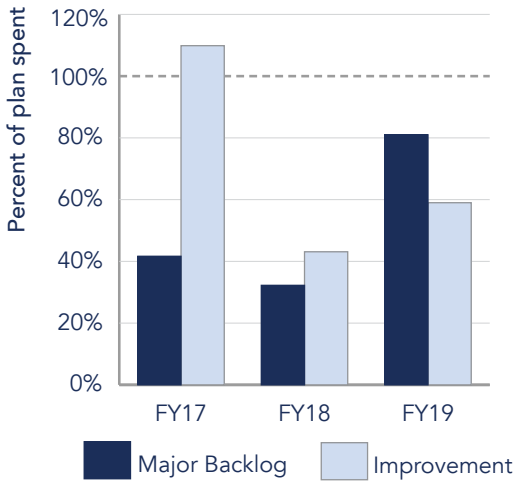
FY19 plan adherence at the project-level for special projects is consistent with previous years. While there has been slight improvement for plan adherence for capital renewal investments, plan adherence for special projects continue to be a challenge. Since FY17, NEC stakeholders spent within 20% of plan for 12.5% of all special projects or less each year (see Figure 15).

Figure 15. Special project-level plan adherence, FY17-19



As seen in Figure 16, measuring expenditure at a project category level, NEC stakeholders have been consistently underspending as compared plan. The exception to this trend is spending on improvement projects in FY17, which was largely driven by the investment at Moynihan Station (also mentioned on page 21).

Figure 16. Special project variance by type, FY17-19



Due to project complexities and differences, it is not possible to assign one overall reason for lack of adherence to plan for special projects. Project-level variance explanations are provided by each agency (see *Appendix B* starting on page 103 for the submitted information). Figure 17 lists projects with the highest variance for coordinating agencies with the greatest underspend, as described in Figure 14 on page 29.

Many of the submitted project variances attributed delays to external stakeholders in the negotiation of complex contract agreements, real estate agreements, and design reviews. For instance, the Next Generation High Speed Fleet Infrastructure Safety Mitigation project was delayed due to administrative reasons, including the approvals for a lease agreement and procurement contracts. Similarly, parts of the Moynihan Station project were delayed by several months due to an extended bidding process, while the VRE Midday Storage project experienced setbacks due to coordinating design and real estate agreements between project partners.

Figure 17. Highlighted special projects variance, FY19

The below special projects have the highest variances for coordinating agencies with the greatest agency-level variance by percentage as previously described in Figure 14 on page 29. Full list is available in *Appendix B* starting on page 103.

Coordinating agency and special project	FY19 Planned expenditure	FY19 Actual expenditure	Difference	Submitted explanation of variance
Amtrak - Baltimore & Potomac Tunnel Replacement	$30.0 M	$4.2 M	-$25.8 M	Design development has not progressed at the anticipated rate due to requirements for third party stakeholder agreements, resulting in less than anticipated expenditures.
Amtrak - Hudson Tunnel Project	$27.0 M	$9.5 M	-$17.7 M	Final design of tunnel systems deferred to FY20, reducing FY19 scope.
Amtrak - Moynihan Station (Phase 2)	$79.8 M	$39.3 M	-$40.5 M	Construction of the back of house fit-out was delayed several months due to an extended bidding process and resolution of other change order related issues; this reduced the FY19 actual spend value.
Amtrak - Next Generation High Speed Fleet Infrastructure: Safety Mitigation	$20.0 M	$1.7 M	-$18.6 M	Delay on approval from a property owner on the leasing agreement at a Massachusetts NEC mitigation location has continued to delay completion; Amtrak Real Estate is still in negotiations on this matter. Additionally, procurement delays to award the NTP for survey firms and fencing contractors occurred in FY19 Q4.
Amtrak - Washington Union Station: Claytor Concourse Modernization Program	$22.6 M	$3.3 M	-$19.3 M	The project has been delayed due to the complex ownership structure at Union Station. FRA has determined that USRC should deliver the project on behalf of Amtrak, which will take time to define and implement. Originally construction was supposed to begin in late FY19, but now it is contemplated for FY21. Additionally, the Amtrak Police Department building was descoped to a smaller facility.
DelDOT - Newark (DE) Regional Transportation Center	$41.0 M	$12.0 M	-$29.0 M	DelDOT's underspend was driven primarily by unanticipated site conditions. Several conflicts with the planned installation of new catenary foundations were discovered. Additionally, a leaking utility water line prevented some work from proceeding. The aforementioned are being addressed by all project parties.
LIRR - East River Tunnel - Right-of-Way Infrastructure Improvements	$5.5 M	$21 M	+$15.5 M	LIRR's overspend was driven primarily by scope changes for the East River Tunnel – Right of Way Infrastructure Improvements project. The 1st Avenue substation work, which was originally supposed to be complete in FY18, was delayed and therefore added to the FY19 scope. Furthermore, a joint project with Amtrak to address SOGR track and switch replacement at Penn Station was added to the FY19 scope further increasing the FY19 expenditure.
MTA Capital Construction - Harold Interlocking	$14 M	$39.8 M	+$25.2 M	MTA Construction and Development's overspend at Harold Interlocking is driven by earlier starts to Eastbound Reroute work and Amtrak Building demolitions, more Westbound Bypass track connection work carried over into Fed FY19 than expected, faster than expected Force Account direct work and procurements, and continued administrative, management and insurance costs.
VRE - VRE Midday Storage	$17.6 M	$0.5 M	-$17.0 M	VRE's underspend was due to continuing coordination of the Midday Storage Replacement Facility project's preliminary design and related real estate and construction agreements with Amtrak

3. Challenges and recommendations

The FY19 NEC Annual Report is the fourth Annual Report published by the Northeast Corridor Commission. As instructed by federal statute, the Commission uses these reports to provide recommendations for improvement to NEC stakeholders. Since FY16 the Commission's recommendations have focused primarily on improvements to NEC capital planning and reporting processes and practices. While this topic remains a key area of focus for the Commission, this year's report also includes recommendations that help position NEC stakeholders to collectively address and further explore critical train performance and operational issues.

Continue to improve capital planning and reporting

Since FY16, NEC Annual Reports have raised challenges regarding right-of-way owners' plans and reports, with a particular emphasis on Amtrak. These challenges noted that capital renewal plans had a weak relationship with reported spending, the plans did not provide location-specific scope, schedule, or budget details, and reports did not provide location-specific explanations of progress and scope, schedule or budget adjustments.

Amtrak's efforts to address these challenges, although still underway, have led to meaningful progress. As noted on page 28, Amtrak's submission to the FY19 NEC One-Year Implementation Plan included geographically specificity and scope, schedule, and budget details for continuous maintenance production programs (e.g., undercutting, TLS, etc.) and capital renewal projects with a total project cost over $5 million (e.g., Fair Interlocking Renewal Project). Analyses prepared for this report demonstrate that adherence to plan has improved slightly for Amtrak's programs and projects with enhanced FY19 data as compared to prior years (see page 28). In the FY20 One-Year Plan, NEC right-of-way owners, including Amtrak, provided scope, schedule, and budget details for all capital renewal investments, which represented a significant NEC-wide planning milestone.

The Commission recognizes and supports the progress achieved to-date, but also acknowledges that additional work remains. While right-of-way owners provided enhanced plan data for all capital renewal investments in FY20, the quality and consistency of that plan data varied across owners and within owners' plans. Additionally, while FY19 plan adherence for Amtrak's continuous maintenance production programs, such as undercutting and concrete tie replacement, is generally promising, plan adherence for stand-alone projects—whether capital renewal or special projects—from all agencies is weak. In FY19, Amtrak spent 104% of plan for its capital renewal programs but only 68% of plan for its capital renewal projects. Furthermore, NEC stakeholders only spent

61% of plan for all special projects. This suggests that plan adherence for projects, which often involve multiple stakeholders with competing priorities, is particularly challenging. Lastly, critical components of NEC five-year plans have not yet been realized, including a two-year geographically specific outlook for capital renewal investments and the application of realistic funding assumptions to special projects' multi-year forecasts.

The Commission and its member agencies should take several steps to address these remaining challenges, including:

- Strengthen their quality assurance/quality control processes to ensure that planning and reporting information provided to the Commission is accurate, reliable, and consistent across regions, projects/programs, and departments;
- Expand recent planning reforms such that a two-year geographically specific forecast can be provided for capital renewal investments in NEC five-year plans;
- Ensure internal processes support the application of realistic multi-year funding assumptions to projects as part of NEC five-year plans; and
- Improve coordination between relevant parties during annual planning cycles to collaboratively and proactively identify issues and vet assumptions underlying the planned expenditures, particularly for special projects.

Reduce customer impacts by improving track outage scheduling, coordination, and efficiency

Track outages are often required to undertake routine and non-routine capital investments that are essential for safety, ride quality, and the long-term viability of the NEC. However, as described on page 19, in the short term, track outages can have a negative impact on train performance and passenger experience. This is especially true when critical maintenance-of-way equipment, such as Amtrak's two undercutters and track laying system, are decades old and break down frequently, thereby extending the duration of outages and/or reducing their efficiency.

NEC stakeholders have been taking steps in recent years to lessen the impact of track outages on passengers by enhancing coordination and creating efficiencies. For example, in 2017, Amtrak and NY MTA established a working group and coordination protocols to enhance track outage planning in the vicinity of New York Penn Station, which stakeholders report has been successful in increasing the productivity of planned outages, identifying resource needs, and reducing the number of canceled work tasks.

Amtrak has also been focused internally on identifying more and different types of work that can be completed simultaneously during existing planned outages recognizing that additional planned outages are not desirable from a customer impact standpoint. During an outage in FY19 that was

arranged to accommodate undercutting between New Carrollton and Odenton Stations in Maryland, Amtrak was able to complete catenary work as well, eliminating the need for a second outage.

Additionally, in 2018, Amtrak initiated a major equipment purchase to supplement its aging and increasingly unreliable maintenance-of-way equipment fleet, which includes a new track laying system, two undercutters, five high-speed tampers, and one crane. While the equipment procurement has been slow and cumbersome—in part due to federal procurement rules such as Buy America—Amtrak plans to expand weekly equipment work schedules by 80% (from 40 hours to 72 hours) once the new equipment is available.

While these efforts represent a necessary and useful starting point for improving track outage planning and utilization on the NEC, agencies should build upon these efforts to further maximize track outage efficiency and minimize impacts on passengers. Specifically, the Commission and its member agencies should:

- Expand the track outage planning and coordination process established for the New York region to other targeted areas or regions, as needed;
- Ensure business practices promote coordination within and across agencies to allow more work to be completed simultaneously during planned outages and, to the extent possible, avoid geographically repetitive outages; and
- Identify opportunities to remove or reduce administrative barriers related to equipment purchases, including the Buy America waiver process.

Improve ability to identify and measure passenger impact of recurring infrastructure failures to inform capital plans

Prior to the adoption of the Cost Allocation Policy, each NEC operator tracked and reported the on-time performance of its own trains, but no third-party systematically analyzed train delays from a corridor-wide perspective. Additionally, while right-of-way owners monitored railroad incidents which affected train operations, agencies lacked a comprehensive data source on incidents that reflected the impact on all operators.

In 2014, the Commission began collecting, standardizing, and reporting train delay data on a quarterly basis. As discussed on page 9, since 2015, data analyzed by the Commission show that on-time train performance on the NEC has been improving. In FY18 the Commission began supplementing its quarterly train performance reporting process with an analysis of "major incidents"—or single events that generate multiple train delays—and their causes (see page 13 for more information on major incidents). This analysis has revealed that in FY18 and FY19 most major incidents on the NEC (69%) were the result of infrastructure failures; and collectively, these major incidents contributed to 101,000 train-delay minutes in FY19.

While the Commission's analysis of major incidents has generated some compelling insights, data limitations prevent a comprehensive analysis of the impact of infrastructure failures on train performance. First, the current data sources underlying the Commission's major incidents analysis only capture the right-of-way owner's initial understanding of the incident's cause, yet further investigation sometimes reveals another or more precise cause. Second, the exact location of the incident is not always available which makes it difficult to associate an incident with a specific infrastructure asset or location. Furthermore, the Commission is currently unable to measure the impact of infrastructure failures across all NEC passengers as train delay and incident data provided by owners generally do not capture passenger impacts beyond their own services.

With additional data and a more robust methodology, the Commission would be better positioned to identify specific, recurring infrastructure failures which are causing delays for all operators and their passengers and work with owners to incorporate the renewal or replacement of the failing assets into their capital plans. As a result, the Commission and its member agencies should undertake the following next steps:

- Determine what additional, more precise infrastructure failure data are available to incorporate into Commission analyses, including more precise information related to incident location and the asset(s) involved;
- Establish a process to review and confirm the root causes of incidents with right-of-way owners; and
- Establish a process for measuring the impact of infrastructure failures across all NEC operators and their passengers.

Summary of FY19 NEC Annual Report Recommendations

Continue to improve capital planning and reporting

Right-of-way owners, particularly Amtrak, have made meaningful progress in implementing capital planning and reporting reforms, which resulted in improved plan data and better adherence to plan in FY19. However, data quality and consistency issues exist, and plan adherence remains low overall.

To address these challenges, the Commission and its member organizations should:

- Strengthen quality assurance/quality control processes to address data quality and consistency issues;
- Expand recent planning reforms to provide a two-year, geographically specific outlook for capital renewal investments;
- Ensure internal processes support the application of realistic multi-year funding assumptions to projects; and
- Improve coordination between relevant parties during annual planning cycles, particularly for special projects.

Reduce customer impacts by improving track outage scheduling, coordination, and efficiency

Track outages are often required to undertake routine and non-routine capital investments that are essential for safety, ride quality, and the long-term viability of the NEC. However, in the short term, track outages can have a negative impact on train performance and passenger experience.

To address this challenge, the Commission and its member organizations should:

- Expand the track outage planning and coordination process established for the New York region to other targeted areas or regions, as needed;
- Ensure business practices promote coordination within and across agencies to allow more work to be completed simultaneously during planned outages and, to the extent possible, avoid geographically repetitive outages; and
- Identify opportunities to remove or reduce administrative barriers related to equipment purchases, including the Buy America waiver process.

Improve ability to identify and measure passenger impact of recurring infrastructure failures to inform capital plans

Current major incident analysis capabilities only offer a partial window into the impact of infrastructure failures on train performance. Data and process limitations do not allow the Commission to identify all recurring infrastructure failures, probe their root cause, and measure impact across all NEC passengers.

To address this challenge, the Commission and its member organizations should:

- Determine what additional, more precise infrastructure failure data are available to incorporate into Commission analyses, including more precise information related to incident location and the asset(s) involved;
- Establish a process to review and confirm the root causes of incidents with right-of-way owners; and
- Establish a process for measuring the impact of infrastructure failures across all NEC passengers.

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Appendix

A. Operations

Major incidents by date, FY19

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 FY19 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	10/4/2018 6:18 PM 8 hours 50 mins	Derailment	**Location:** Penn Station, New York, NY **Description:** Westbound NJ TRANSIT train derails in A Interlocking. Much of Penn Station inaccessible while train is derailed and track is damaged.	92	1,396
2	10/5/2018 4:20 AM 9 hours 31 mins	Derailment	**Location:** Penn Station, New York, NY **Description:** Continuation of prior day incident. Equipment rerailed, route cleared, temporary repairs made to tracks.	134	3,110
3	10/10/2018 7:58 AM 4 hours 15 mins	Traction power failure	**Location:** Swift Interlocking, Secaucus, NJ **Description:** Broken wire hanger restricts traffic on Track 3.	53	795
4	10/10/2018 6:17 PM 6 hours 15 mins	Traction power failure	**Location:** Portal Interlocking, Secaucus, NJ **Description:** Broken wire hanger requires Track 3 to be taken out of service - 2 miles single-track operation required until repaired.	65	1,440
5	10/11/2018 8:05 AM 2 hours 53 mins	Trespassers and casualties	**Location:** Penn Station, New York, NY **Description:** Trespasser in East River Tunnels. Traffic restricted until individual apprehended.	73	2,134
6	10/17/2018 7:12 AM 30 mins	Signal failure	**Location:** Washington, DC to Philadelphia, PA and Harrisburg, PA to Philadelphia, PA **Description:** Train control system disabled by damage to wires in field.	66	1,070
7	10/17/2018 11:53 AM 34 mins	Signal failure	**Location:** New York, NY to Trenton, NJ **Description:** Train control system disabled by damage to wires in field.	27	362
8	10/18/2018 8:03 AM 2 hours 30 mins	Switch failure	**Location:** Swift and Allied Interlockings, Secaucus, NJ **Description:** Switches fail to work mechanically restricting westbound traffic.	12	215
9	10/19/2018 5:30 PM 50 mins	Signal failure	**Location:** Penn Station, New York, NY **Description:** Failing track circuit results in red signals and inoperable switches.	42	665
10	10/25/2018 8:05 PM 2 hours	Signal failure	**Location:** South Station, Boston, MA **Description:** Intermittent track circuit failure - trains required verbal permission to advance to the next block at restricted speed prepared to stop.	14	82
11	10/30/2018 3:19 PM 7 hours 10 mins	Bridge issues	**Location:** Portal Bridge, Secaucus, NJ **Description:** Rail lock indication failed after movable bridge opening.	126	2,082

Major NEC incidents by date, FY19 continued on the next page >>

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train-delay minutes[1]
12	11/2/2018 All Day	Slow operations (weather)	**Location:** Corridor-wide **Description:** Fallen leaves combined with precipitation limits adhesion of steel wheels against steel rail.	127	1,491
13	11/2/2018 2:16 AM 5 hours 52 mins	On-track incident	**Location:** Penn Station, New York, NY **Description:** Work equipment broke down in the North tube of the North River Tunnel. Disabled equipment required assistance to transport back to Penn Station to clear the route.	160	2,851
14	11/2/2018 11:14 PM 17 hours 57 mins	Traction power failure	**Location:** Paoli, PA **Description:** Extreme weather resulted in fallen trees at three separate locations fouling all four tracks.	51	1,486
15	11/5/2018 All Day	Slow operations (weather)	**Location:** Corridor-wide **Description:** Fallen leaves combined with precipitation limits adhesion of steel wheels against steel rail.	361	4,109
16	11/8/2018 2:02 PM 1 hour 36 mins	Bridge issues	**Location:** Dock Bridge, Newark, NJ **Description:** Unlocked bridge alarm affects Tracks 2-4 on Dock Bridge, restricting traffic through Newark Penn Station to two tracks.	35	1,057
17	11/9/2018 5:05 PM 20 mins	Trespassers and casualties	**Location:** Penn Station, New York, NY **Description:** Trespasser observed on tracks at A interlocking.	72	1,276
18	11/12/2018 3:59 PM 1 hour 48 mins	Switch failure	**Location:** Penn Station, New York, NY **Description:** Locked switches limit approach from the west to Tracks 1-7 at Penn Station.	49	632
19	11/13/2018 8:29 AM 11 mins	Signal failure	**Location:** Penn Station, New York, NY **Description:** Citywide Con Ed power failure shuts down signal system. Time required after power restoration to reset system.	71	903
20	11/13/2018 12:56 PM 1 hour 23 mins	Bridge issues	**Location:** Portal Bridge, Secaucus, NJ **Description:** Bridge strike by tugboat requires B&B inspection before allowing traffic.	47	655
21	11/15/2018 9:03 AM 5 hours 31 mins	Track defect	**Location:** Metuchen, NJ **Description:** Broken rail on Track 4 limits westbound traffic and causes congestion with other NJ continuous outages.	15	370
22	11/15/2018 3:30 PM 8 hours 29 mins	Switch failure	**Location:** Fair interlocking, Trenton NJ **Description:** Propane switch heaters fail to ignite resulting in multiple frozen switches at Fair interlocking near Trenton.	57	1,413
23	11/15/2018 4:16 PM 7 hours 43 mins	Switch failure	**Location:** Harold Interlocking, Queens, NY **Description:** Multiple Switch failures at Harold Interlocking.	151	2,215
24	11/15/2018 6:15 PM 1 hour 15 mins	Slow operations (weather)	**Location:** Penn Station, New York, NY **Description:** Holding all NJ TRANSIT trains destined Newark in NYP account station congestion caused by overcrowding on platforms.	36	949
25	11/15/2018 5:55 PM 6 hours 43 mins	Debris	**Location:** Paoli, PA **Description:** Keystone train strikes tree at MP 27. Tree and train have to be cleared.	63	1,104
26	11/15/2018 6:00 PM 1 hour 57 mins	Signal failure	**Location:** North Philadelphia, PA **Description:** Signal power outage occurred from Girard to Holmesburg. Blown transformer between Lehigh and Clearfield.	19	608
27	11/15/2018 All Day	Mechanical failure	**Location:** Corridor-wide **Description:** Various trains activated dragging equipment alarms due to accumulation of snow and ice on train undercarriages.	10	124

Major NEC incidents by date, FY19 continued on the next page >>

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train-delay minutes[1]
28	11/15/2018 All Day	Switch failure	**Location:** Various New England Division **Description:** Multiple Switch failures were recorded on the New England Division as temperatures dropped in the evening.	48	689
29	11/21/2018 4:30 PM 1 hour 30 mins	Debris	**Location:** Lane Interlocking, Newark, NJ **Description:** Plastic was caught in the catenary wire at Lane Interlocking, requiring power shutoff and removal of debris.	85	1,421
30	11/30/2018 7:58 AM 37 mins	Mechanical failure	**Location:** Various NJ TRANSIT locations **Description:** NJ TRANSIT trains had temporary interruption in the on-board positive train control system.	50	1,063
31	1/7/2019 4:30 AM 5 hours 20 mins	Programmed work	**Location:** Newark, NJ to Swift Interlocking, Kearny, NJ **Description:** 55 Hour weekend outage over overran the allotted time by 4 hours into the Monday morning peak	87	1,815
32	1/11/2019 2:00 PM 2 hours 30 mins	Trespassers and casualties	**Location:** Rockville Center, NY **Description:** A man was struck by a train and killed near the Rockville Centre station at about 2 pm.	11	244
33	1/21/2019 All Day	Slow operations (weather)	**Location:** Philadelphia, PA to Boston, MA **Description:** Extreme cold throughout the region paired with snow storm in the north. Specific incidents include: frozen hydrant at SSYD, AC power loss at NYP, snow planB in New England.	138	1,647
34	1/30/2019 All Day	Slow operations (weather)	**Location:** Corridor-wide **Description:** A polar vortex hit the northeast bringing record low temperatures and overnight snowfall before January 31 commute. Specific incidents include: multiple broken rail incidents, Switch failure in Philadelphia, AC power loss at NYP.	67	693
35	1/31/2019 All Day	Slow operations (weather)	**Location:** Corridor-wide **Description:** A polar vortex hit the northeast bringing record low temperatures and overnight snowfall before January 31 commute. Specific incidents include: multiple broken rail incidents, Switch failure in Philadelphia, AC power loss at NYP.	204	3,327
36	2/1/2019 4:18 PM 7 mins	Switch failure	**Location:** Zoo Interlocking, Philadelphia, PA **Description:** Switch failure at Zoo interlocking	10	218
37	2/5/2019 All Day	Heavy passenger load	**Location:** Boston, MA **Description:** Heavy passenger loads due to the Patriots Victory Parade	159	3,390
38	2/8/2019 12:25 PM 4 hours 22 mins	Switch failure	**Location:** A Interlocking, New York, NY **Description:** 10mph speed restriction on 129 switch at A interlocking on account of a broken riser.	60	634
39	2/12/2019 7:57 AM 3 hours 26 mins	Mechanical failure	**Location:** North River Tunnel, NY/NJ **Description:** Train lost main reservoir just east of Bergen in North Tube.	45	1,301
40	2/20/2019 All Day	Signal failure	**Location:** Philadelphia, PA to Boston, MA **Description:** A snowstorm rolled down from the north depositing 6 inches of snow.	110	885
41	2/20/2019 5:24 PM 6 hours 34 mins	Signal failure	**Location:** F Interlocking, New York, NY **Description:** TOL on failing on Line 3 between 3E22 and F interlockings	60	618
42	2/27/2019 7:20 AM 16 hours 39M mins	Trespassers and casualties	**Location:** Westbury, NY **Description:** Pick-up truck skirted the crossing gate and was stuck by two incoming trains	183	1,535

Major NEC incidents by date, FY19 continued on the next page >>

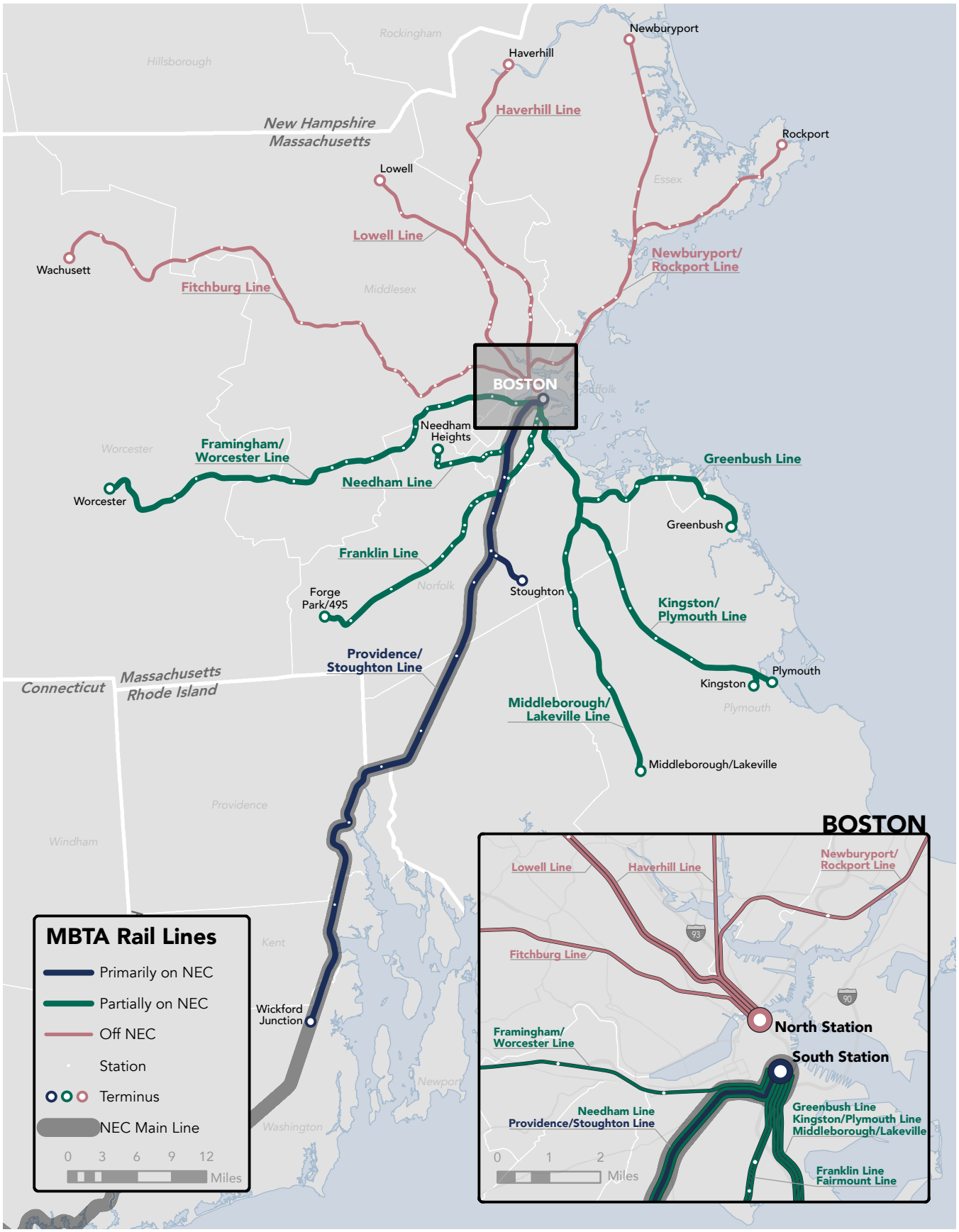
	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train-delay minutes[1]
43	2/27/2019 1:27 PM 1 hour 14 mins	Traction power failure	**Location:** East River Tunnel, NY **Description:** Burnt wire found on Y1 breaker making it necessary to close tie switch	24	634
44	2/27/2019 6:00 PM 46 mins	Traction power failure	**Location:** North River Tunnel, NY/NJ **Description:** NJ 6658 stopped with no traction power on account of loss of AC power (Code 500 initiated).	19	445
45	3/4/2019 All Day	Switch failure	**Location:** Baltimore, MD to Boston, MA **Description:** Winter Storm Scott crossed the Northeast depositing 6-12 inches of snow overnight.	155	2,189
46	4/18/2019 10:35 AM 3 hours 9 mins	Trespassers and casualties	**Location:** Bay Interlocking, Baltimore , MD **Description:** Acela 2160 struck a passenger near Bay Interlocking	17	316
47	4/18/2019 5:40 PM 3 hours 17 min	Signal failure	**Location:** North River Tunnel, NY/NJ **Description:** Broken track wire on north rail	46	526
48	4/26/2019 5:20 PM 12 hours 5 mins	Traction power failure	**Location:** Zoo to Frazer Interlocking , Philadelphia, PA **Description:** A band of severe thunderstorms armed with strong winds swept through the region causing slippery rail and power loss	41	1,363
49	4/26/2019 6:18 AM 4 hours 47 mins	Signal failure	**Location:** A Interlocking, New York, NY **Description:** Track occupancy light at A interlocking on account of broken wires and stuck insulation on west end point of 135 switch	71	1,172
50	5/29/2019 12:00 AM 8 hours	Signal failure	**Location:** Philadelphia, PA **Description:** An overnight storm left a spree of downed trees throughout the Mid-Atlantic	46	1,105
51	6/3/2019 All Day	Programmed work	**Location:** Ronkonkoma and Hicksville, NY **Description:** Track work from LIRR's Double Track Project cut between Ronkonkoma and Hicksville	130	2,233
52	6/17/2019 5:57 AM 4 hours 21 mins	Traction power failure	**Location:** CP 257 interlocking, Bridgeport, CT **Description:** Train stopped in interlocking with pantograph and catenary damage	50	920
53	6/19/2019 10:07 AM 3 hours 20 mins	Traction power failure	**Location:** Philadelphia, PA to Trenton, NJ **Description:** AC Power issues reported thorough the division causing power fluctuations, arcing, buzzing, and explosions	93	3,616
54	6/20/2019 6:12 PM 1 hours 9 mins	Traction power failure	**Location:** North River Tunnel, NY/NJ **Description:** Sparking and possible fire emitting from the 3rd rail in the North Tube	46	1,555
55	6/26/2019 5:55 PM 10 hours 5 mins	Track defect	**Location:** Exton, PA **Description:** A kink in the rail east of Exton, PA suspended SEPTA service	19	323
56	6/29/2019 5:02 PM 3 hours 41 mins	Signal failure	**Location:** Morris to Grundy Interlocking, Morrisville, PA **Description:** Loss of signal power on all tracks between Morris and Grundy interlocking halted Amtrak service and cut off NJ TRANSIT's Morrisville Yard.	25	1,122
57	7/1/2019 2:45 PM 3 hours 2 mins	On-track incident	**Location:** Ham to Midway Interlocking, Trenton, NJ **Description:** A fire involving Amtrak's catenary car caused a major service disruption between Ham and Midway interlockings.	96	4,349
58	7/2/2019 6:50 AM 2 hours 13 mins	Mechanical failure	**Location:** Metropark Station, Iselin, NJ **Description:** An NJ TRANSIT commuter rail train lost traction power at Metropark station due to electrical problems.	28	612

Major NEC incidents by date, FY19 continued on the next page >>

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train-delay minutes[1]
59	7/3/2019 5:15 PM 5 hours 45 mins	Trespassers and casualties	**Location:** Newtonville Station, Newton, MA **Description:** A person was struck by a passing MBTA commuter rail train near the Newtonville Station on the Framingham/Worcester Line.	27	1,142
60	7/11/2019 4:50 PM 11 hours 15 mins	Signal failure	**Location:** Phil to Perry Interlocking,PA to MD **Description:** Signal power was lost from Philadelphia to Perryville, MD. A tree was later found in the signal line near Newark, DE.	24	635
61	7/11/2019 4:12 PM 4 hours 38 mins	Traction power failure	**Location:** East River Tunnel, NY **Description:** Heavy arcing from the catenary in Line 2 from calcium build up.	58	968
62	7/12/2019 8:12 AM 13 hours 8 mins	On-track incident	**Location:** Grove to Bowie Interlocking, Odenton, MD **Description:** A work train derailed near Grove interlocking. The undercutter and derailed train occupied track one while spilled ballast fouled track two.	40	769
63	7/15/2019 4:10 PM 3 hours 20 mins	Switch failure	**Location:** Ragan Interlocking, Wilmington, DE **Description:** The number 32 and 23 switches failed at Ragan Interlocking requiring establishing local control and repair of remote-control circuits.	22	1,230
64	7/16/2019 7:57 AM 9 hours 4 mins	Signal failure	**Location:** Stamford, CT **Description:** Track circuits intermittently dropped at various locations around Stamford, CT throughout the day.	30	312
65	7/17/2019 All Day	Slow operations (weather)	**Location:** Maryland, DC, and Virginia **Description:** The Northeast Corridor was under a weeklong heatwave with significant heat restrictions on the southern end.	56	681
66	7/17/2019 All Day	Signal failure	**Location:** Corridor-wide **Description:** The remnants of Hurricane Berry hit the Northeast corridor leading to heavy delays throughout. Significant incidents include: -Lightning strike at Perry interlocking -Downed trees near Zoo Interlocking	107	2,341
67	7/17/2019 7:49 AM 5 hours 50 mins	On-track incident	**Location:** F Interlocking, New York, NY **Description:** A stop signal violation occurred on line 4 at F interlocking during the AM Peak. LIRR trains were delayed or canceled while the situation was being resolved.	52	796
68	7/18/2019 10:21 AM 11 hours 2 mins	Traction power failure	**Location:** CP 229 to CP232, Greenwich, CT **Description:** Water levels rose and covered a section of Track 3 between CP 229 and CP 232. This occurred while another track was out of service for to high water level the previous day. Engineers reported excessive lateral movement and the track was taken out of service.	86	1,076
69	7/19/2019 All Day	Traction power failure	**Location:** CP232 to CP217, New Rochelle, NY **Description:** Downed and damaged catenary wires took two tracks out of service between CP232 and CP217.	60	516
70	7/21/2019 2:55 PM 1 hour 56 mins	Traction power failure	**Location:** CP 255 to CP266, Stratford, CT **Description:** The overhead power ground on track two with two trains in the affected area.	19	558
71	7/22/2019 All Day	Signal failure	**Location:** Philadelphia, PA to New York, NY **Description:** A severe thunderstorm rolled across the Northeast Corridor in the late afternoon bringing heavy rainfall to the New York area. Flooding crippled NJ TRANSIT and LIRR operations.	149	3,122
72	7/26/2019 2:50 PM 1 hour 18 mins	Trespassers and casualties	**Location:** East River Tunnel, NY **Description:** Police pursued a trespasser who fled onto the tracks at Penn Station.	88	972
73	8/7/2019 All Day	Signal failure	**Location:** Wilmington, DE to New York, NY **Description:** Severe thunderstorms disrupted service between New York and Philadelphia. SEPTA experienced a significant signal power outage.	162	3,044

Major NEC incidents by date, FY19 continued on the next page >>

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train-delay minutes[1]
74	8/15/2019 3:10 PM 3 hours 30 mins	Signal failure	**Location:** CP Ave to Landover, Washington, DC **Description:** A Track Occupancy Light (TOL) occurred on Track 3 North of Union Station, DC while ACSES enforced a 15mph restriction on Track 2.	24	433
75	8/15/2019 6:00 PM 20 mins	Traction power failure	**Location:** North River Tunnel, NY/NJ **Description:** Momentary power loss in the north tube caused the track to be closed for inspection. No exceptions with the catenary or pantograph were found.	25	422
76	8/19/2019 8:50 AM 7 hours	Signal failure	**Location:** Bergen Interlocking, Newark, NJ **Description:** A broken Insulated Joint on Track 3 caused a 15MPH speed restriction through the AM Peak period. The track was later taken out of service for repair.	46	548
77	8/19/2019 4:39 PM 3 hours 18 mins	Signal failure	**Location:** CP 212 to CP 223, New Rochelle, NY **Description:** Strong storms downed two trees on the signal power wire and cased multiple circuits to go down between CP212 and CP 223.	107	2,298
78	8/21/2019 2:00 AM 7 hours	Signal failure	**Location:** Metro North Territory **Description:** RTCs reported frozen control consoles of various districts and were temporarily unable to route trains.	31	404
79	8/21/2019 5:25 PM 2 hours 39 mins	Switch failure	**Location:** CP3, East Harlem, NY **Description:** Switch 21 at CP3 into GCT failed.	31	473
80	8/30/2019 11:57 AM 3 hours 11 mins	Switch failure	**Location:** CP249 to CP255, Bridgeport, CT **Description:** The overhead catenary wire was down and was fouling across all 4 tracks.	54	1,020
81	9/12/2019 3:03 PM 12 hours 57 mins	Traction power failure	**Location:** CP215 to CP 223, New Rochelle, NY **Description:** A train's pantograph damaged the catenary system. Tracks 2 and 4 were out of service between CP 215 and CP223 territory.	110	2,553
82	9/17/2019 9:10 AM 2 hours 14 mins	Track defect	**Location:** North River Tunnel, NY/NJ **Description:** A rough ride and dip in the rail was reported in the North Tube. The track was taken out of service for inspection. Upon inspection no exception was found.	53	1,430
83	9/25/2019 7:27 AM 20 mins	Bridge issues	**Location:** Portal Bridge, Secaucus, NJ **Description:** The rail lock indicator on the west end of Portal Bridge was lost due to a dislodged sensor cable..	29	372
84	9/26/2019 7:28 AM 1 hour 14 mins	Bridge issues	**Location:** Forest Hills Station,Long Island, NY **Description:** An over-height vehicle struck a bridge at Forest Hills, NY.	75	1,773
85	9/26/2019 3:05 PM 5 hours 24 mins	Signal failure	**Location:** CP3, East Harlem, NY **Description:** Multiple track circuits were dropping intermittently at CP 3 slowing the flow of trains into GCT.	41	563

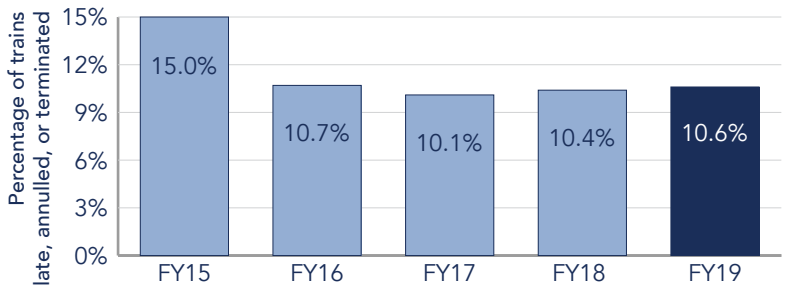

Rockingham
Hillsborough
New Hampshire
Massachusetts
Haverhill
Newburyport
Haverhill Line
Rockport
Lowell
Essex
Lowell Line
Newburyport/
Rockport Line
Wachusett
Fitchburg Line
Middlesex
BOSTON
Suffolk
Needham
Heights
Framingham/
Worcester Line
Worcester
Needham Line
Greenbush Line
Greenbush
Franklin Line
Norfolk
Forge
Park/495
Stoughton
Kingston/
Plymouth Line
Providence/
Stoughton Line
Connecticut
Massachusetts
Rhode Island
Kingston
Plymouth
Middleborough/
Lakeville Line
Middleborough/Lakeville
Providence
Windham
Kent
Wickford
Junction
Newport
Washington
MBTA Rail Lines
Primarily on NEC
Partially on NEC
Off NEC
Station
Terminus
NEC Main Line
0 3 6 9 12
Miles
BOSTON
Lowell Line
Haverhill Line
Newburyport/
Rockport Line
93
Fitchburg Line
90
North Station
Framingham/
Worcester Line
South Station
Needham Line
Providence/Stoughton Line
Greenbush Line
Kingston/Plymouth Line
Middleborough/Lakeville
0 1 2
Miles
Franklin Line
Fairmount Line

MBTA

MBTA's train service is comprised of 12 service lines, eight of which access the corridor. The Franklin, Needham, and Providence/Stoughton lines all operate on the NEC spine for a significant portion of their route. The Fairmount, Greenbush, Kingston/Plymouth, Middleborough/Lakeville, and Framingham/Worcester lines all tie into the corridor near Boston's South Station.

Performance

	FY18	FY19
Percent NEC trains late, annulled, or terminated	10.4%	10.6%
Percent NEC trains not completed	0.29%	0.21%
Avg min late per NEC train	13.6	13.3



Train-delay minutes by cause

	FY18	FY19		% Change
Infrastructure	27,860	25,949	↓	-6.9%
Mechanical	40,216	41,173	↔	2.4%
Transportation	17,632	22,222	↑	26.0%
Passenger	9,716	18,502	↑	90.4%
Weather	20,426	9,573	↓	-53.1%
Third-Party	3,044	3,291	↑	8.1%
Freight	440	506	↑	15.0%
Other	5,295	6,591	↑	24.5%
Total	**124,629**	**127,807**	↔	**2.5%**

Ridership and service

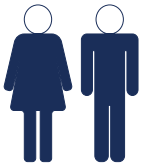
	FY18	FY19
Estimated NEC trips (weekday)	79,000	78,000
Scheduled NEC trains (weekday)	313	308

Table note: See page 64 for ridership methodology and assumptions.

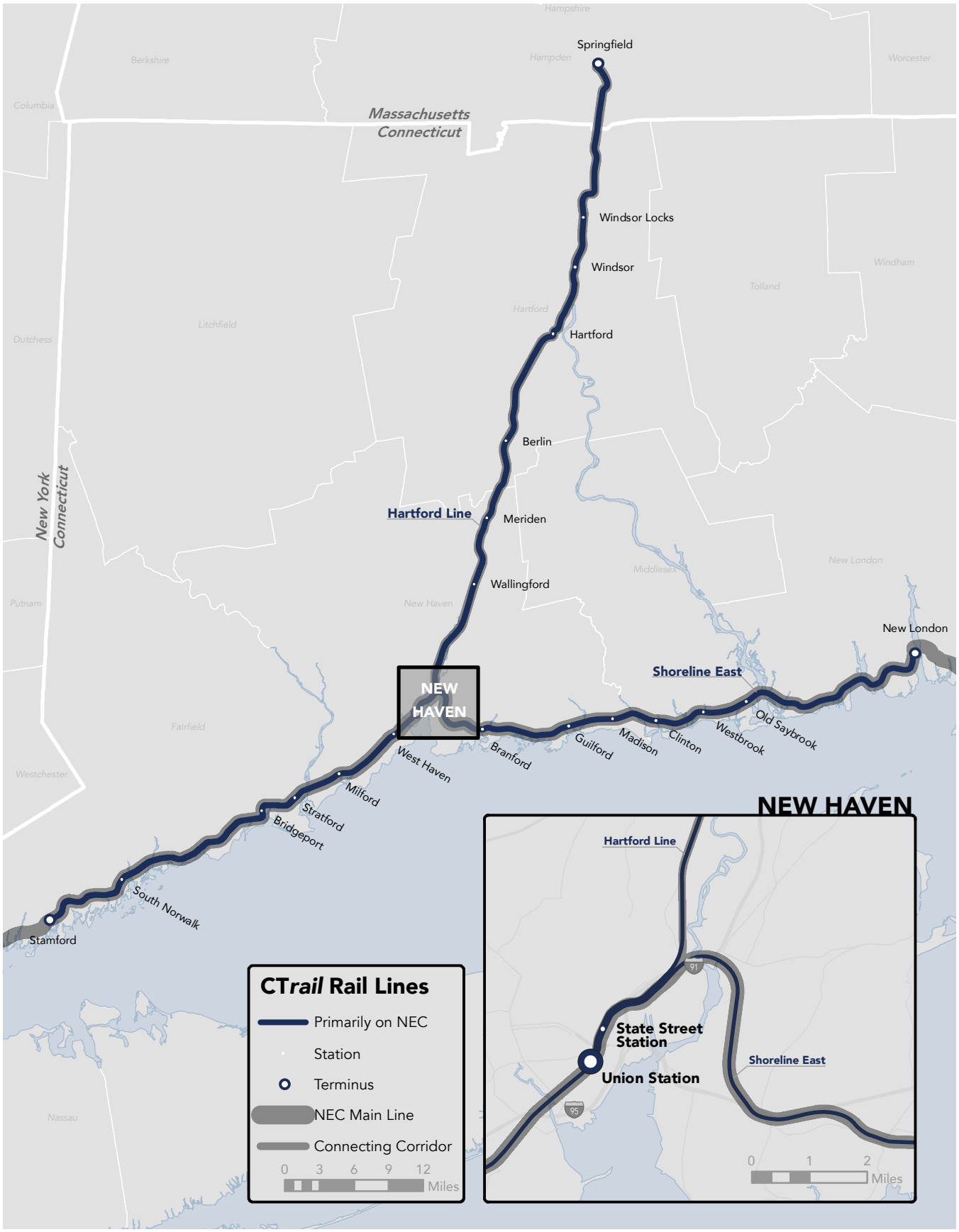
308 MBTA trains operated on the NEC each weekday

60% of MBTA trains

78,000 MBTA passenger trips on the NEC each weekday



82% of all MBTA trips

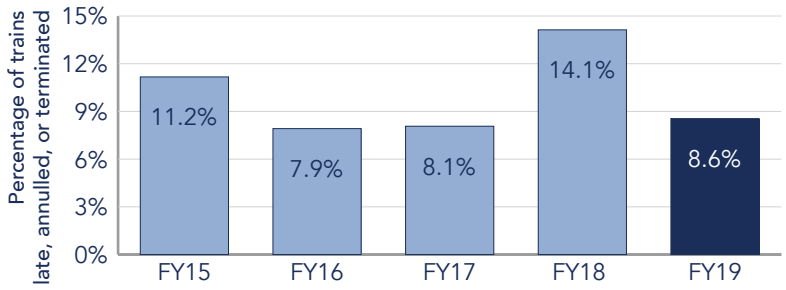

Springfield
Massachusetts
Connecticut
Windsor Locks
Windsor
Hartford
Berlin
Hartford Line
Meriden
Wallingford
New York
Connecticut
NEW HAVEN
Shoreline East
New London
Old Saybrook
Westbrook
Clinton
Madison
Guilford
Branford
West Haven
Milford
Stratford
Bridgeport
South Norwalk
Stamford
CTrail Rail Lines
Primarily on NEC
Station
Terminus
NEC Main Line
Connecting Corridor
0 3 6 9 12
Miles
NEW HAVEN
Hartford Line
State Street Station
Union Station
Shoreline East
91
95
0 1 2
Miles

CTrail

CT*rail*'s train service operates on two lines, both of which use the NEC. Shore Line East trains operate between New London and New Haven, CT with some extending to Stamford. Hartford Line trains operate between Hartford, CT or Springfield, MA and New Haven.

Performance

	FY18	FY19
Percent NEC trains late, annulled, or terminated	14.1%	8.6%
Percent NEC trains not completed	2.14%	0.58%
Avg min late per NEC train	17.2	15.3



Train-delay minutes by cause

	FY18	FY19		% Change
Infrastructure	9,540	6,179	↓	-35.2%
Mechanical	3,778	3,755	↔	-0.6%
Transportation	2,778	3,633	↑	30.8%
Passenger	705	453	↓	-35.8%
Weather	977	354	↓	-63.8%
Third-Party	1,131	1,107	↓	-2.2%
Freight	104	46	↓	-55.8%
Other	6,930	4,198	↓	-39.4%
Total	**25,943**	**19,723**	↓	**-24.0%**

Ridership and service

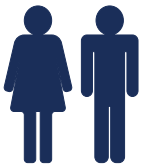
	FY18	FY19
Estimated NEC trips (weekday)	2,000	2,000
Scheduled NEC trains (weekday)	34	53

Table note: CT*rail* ridership includes both Shore Line East passengers from New London to New Haven, CT and passengers on the new Hartford Line commuter rail service. Shore Line East passengers between New Haven and Stamford are included in MNR's ridership figures. See page 64 for ridership methodology and assumptions.

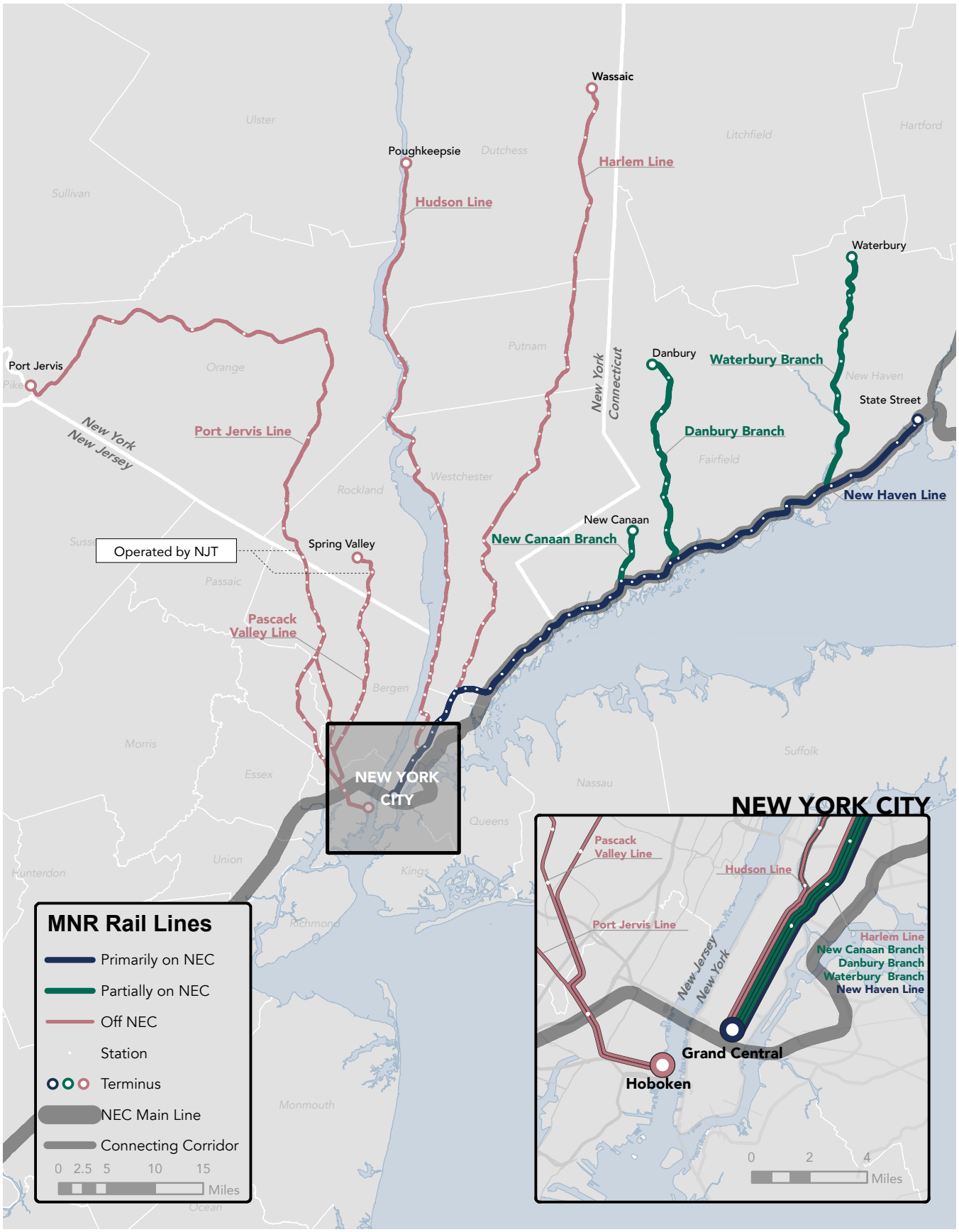
53 CT*rail* trains operated on the NEC each weekday

100% of CT*rail* trains

2,000 CT*rail* passenger trips on the NEC each weekday



100% of all CT*rail* trips

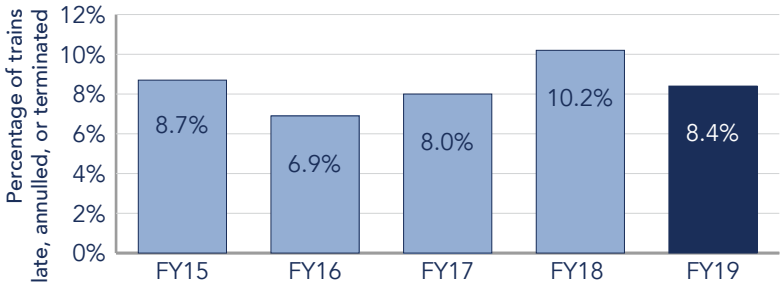

Wassaic
Poughkeepsie
Harlem Line
Hudson Line
Waterbury
Danbury
Waterbury Branch
State Street
Port Jervis
Port Jervis Line
Danbury Branch
New Haven Line
New Canaan
New Canaan Branch
Spring Valley
Operated by NJT
Pascack Valley Line
NEW YORK CITY
NEW YORK CITY
Pascack Valley Line
Hudson Line
Port Jervis Line
Harlem Line
New Canaan Branch
Danbury Branch
Waterbury Branch
New Haven Line
Grand Central
Hoboken
0 2 4 Miles
MNR Rail Lines
Primarily on NEC
Partially on NEC
Off NEC
Station
Terminus
NEC Main Line
Connecting Corridor
0 2.5 5 10 15 Miles

MNR

MNR controls the Northeast Corridor between New Rochelle, NY and New Haven, CT and operates its New Haven Line service alongside Amtrak intercity trains in that segment. Branch lines from New Canaan, Danbury, and Waterbury connect with the New Haven Line at Stamford, South Norwalk, and Devon.

Performance

	FY18	FY19
Percent NEC trains late, annulled, or terminated	10.2%	8.4%
Percent NEC trains not completed	0.40%	0.27%
Avg min late per NEC train	12.8	12.3



Train-delay minutes by cause

	FY18	FY19	% Change
Infrastructure	57,027	43,095	↓ -24.4%
Mechanical	20,467	14,599	↓ -28.7%
Transportation	3,888	3,025	↓ -22.2%
Passenger	8,651	6,925	↓ -20.0%
Weather	16,998	13,458	↓ -20.8%
Third-Party	8,618	9,142	↑ 6.1%
Freight	31	120	↑ 287.1%
Other	3,721	4,596	↓ 23.5%
Total	**119,401**	**94,960**	↓ **-20.5%**

Ridership and service

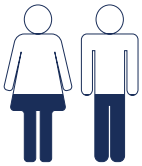
	FY18	FY19
Estimated NEC trips (weekday)	126,000	124,000
Scheduled NEC trains (weekday)	299	294

Table note: MNR ridership includes both CT*rail* Shore Line East passengers traveling between New Haven and Stamford, CT and all other New Haven Line passengers. See page 64 for ridership methodology and assumptions.

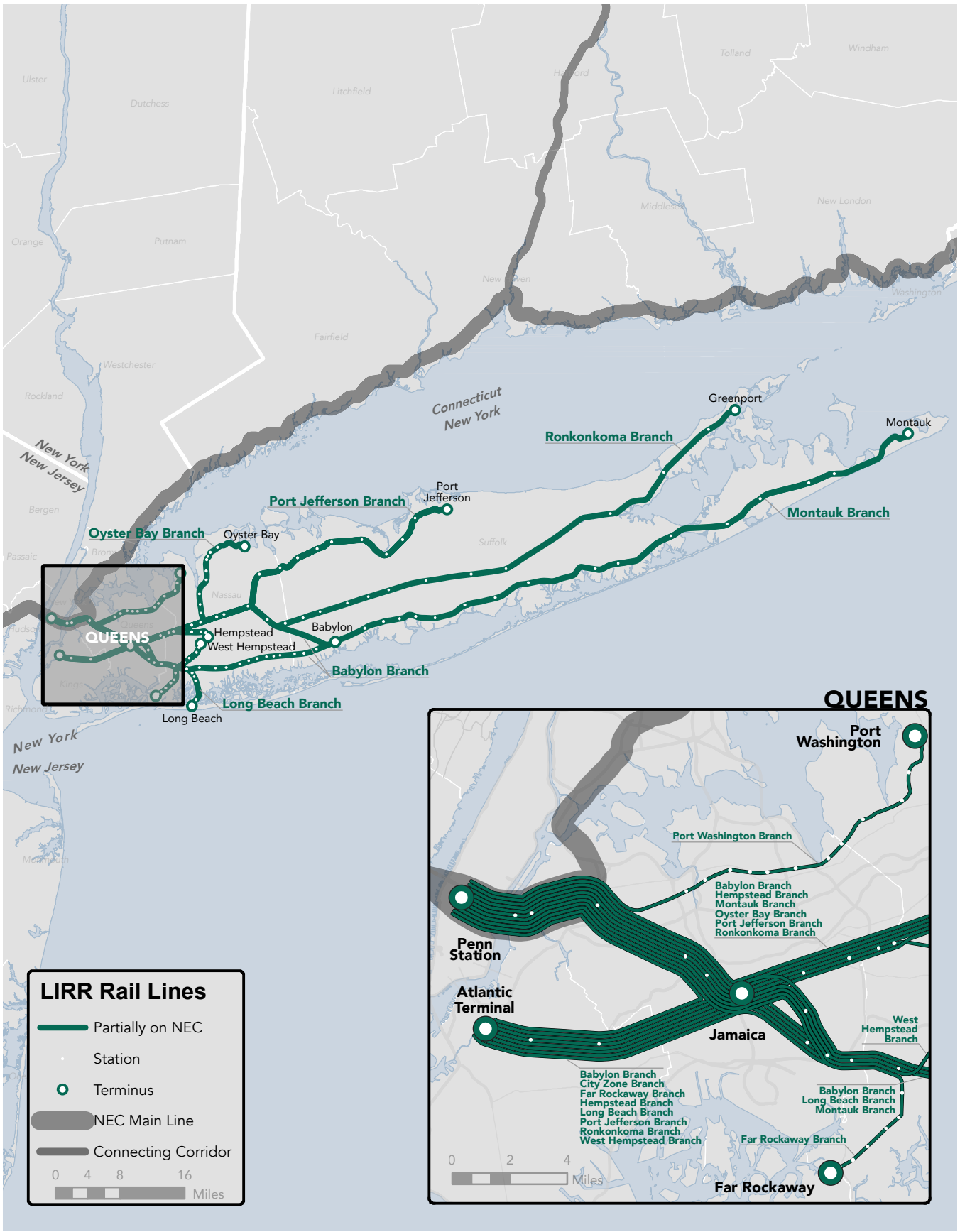
294 MNR trains operated on the NEC each weekday

43% of MNR trains

124,000 MNR passenger trips on the NEC each weekday



43% of all MNR trips

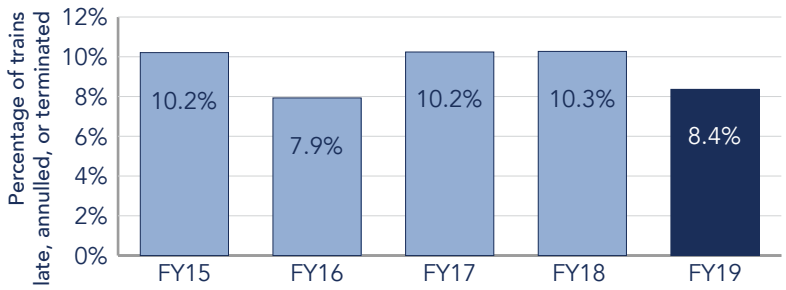

Ulster
Dutchess
Litchfield
Tolland
Windham
Orange
Putnam
Middlesex
New London
Westchester
Fairfield
Rockland
Connecticut
New York
New York
New Jersey
Bergen
Passaic
Suffolk
Nassau
Kings
Richmond
Monmouth
Greenport
Montauk
Ronkonkoma Branch
Port Jefferson Branch
Port Jefferson
Montauk Branch
Oyster Bay Branch
Oyster Bay
QUEENS
Hempstead
West Hempstead
Babylon
Babylon Branch
Long Beach Branch
Long Beach
New York
New Jersey
LIRR Rail Lines
Partially on NEC
Station
Terminus
NEC Main Line
Connecting Corridor
0 4 8 16
Miles
QUEENS
Port Washington
Port Washington Branch
Babylon Branch
Hempstead Branch
Montauk Branch
Oyster Bay Branch
Port Jefferson Branch
Ronkonkoma Branch
Penn Station
Atlantic Terminal
Jamaica
West Hempstead Branch
Babylon Branch
City Zone Branch
Far Rockaway Branch
Hempstead Branch
Long Beach Branch
Port Jefferson Branch
Ronkonkoma Branch
West Hempstead Branch
Babylon Branch
Long Beach Branch
Montauk Branch
Far Rockaway Branch
0 2 4
Miles
Far Rockaway

LIRR

LIRR operates eleven branch lines, ten of which connect to the NEC at Harold Interlocking in Queens operate into New York Penn Station. Passengers on the Oyster Bay branch heading to Penn Station must transfer at Jamaica Station. Passengers on the Far Rockaway, Hempstead, and West Hempstead branches must frequently make this transfer as well.

Performance

	FY18	FY19
Percent NEC trains late, annulled, or terminated	10.3%	8.4%
Percent NEC trains not completed	0.69%	0.65%
Avg min late per NEC train	11.9	11.2



Train-delay minutes by cause

	FY18	FY19		% Change
Infrastructure	39,202	33,983	↓	-13.3%
Mechanical	11,396	11,262	↔	-1.2%
Transportation	7,279	7,179	↔	-1.4%
Passenger	33,485	35,788	↑	6.9%
Weather	27,560	12,309	↓	-55.3%
Third-Party	18,526	23,207	↑	25.3%
Freight	102	153	↑	50.0%
Other	11,478	10,065	↓	-12.3%
Total	**149,028**	**133,946**	↓	**-10.1%**

Ridership and service

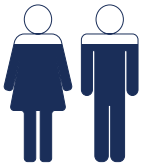
	FY18	FY19
Estimated NEC trips (weekday)	234,000	237,000
Scheduled NEC trains (weekday)	462	465

Table note: See page 64 for ridership methodology and assumptions.

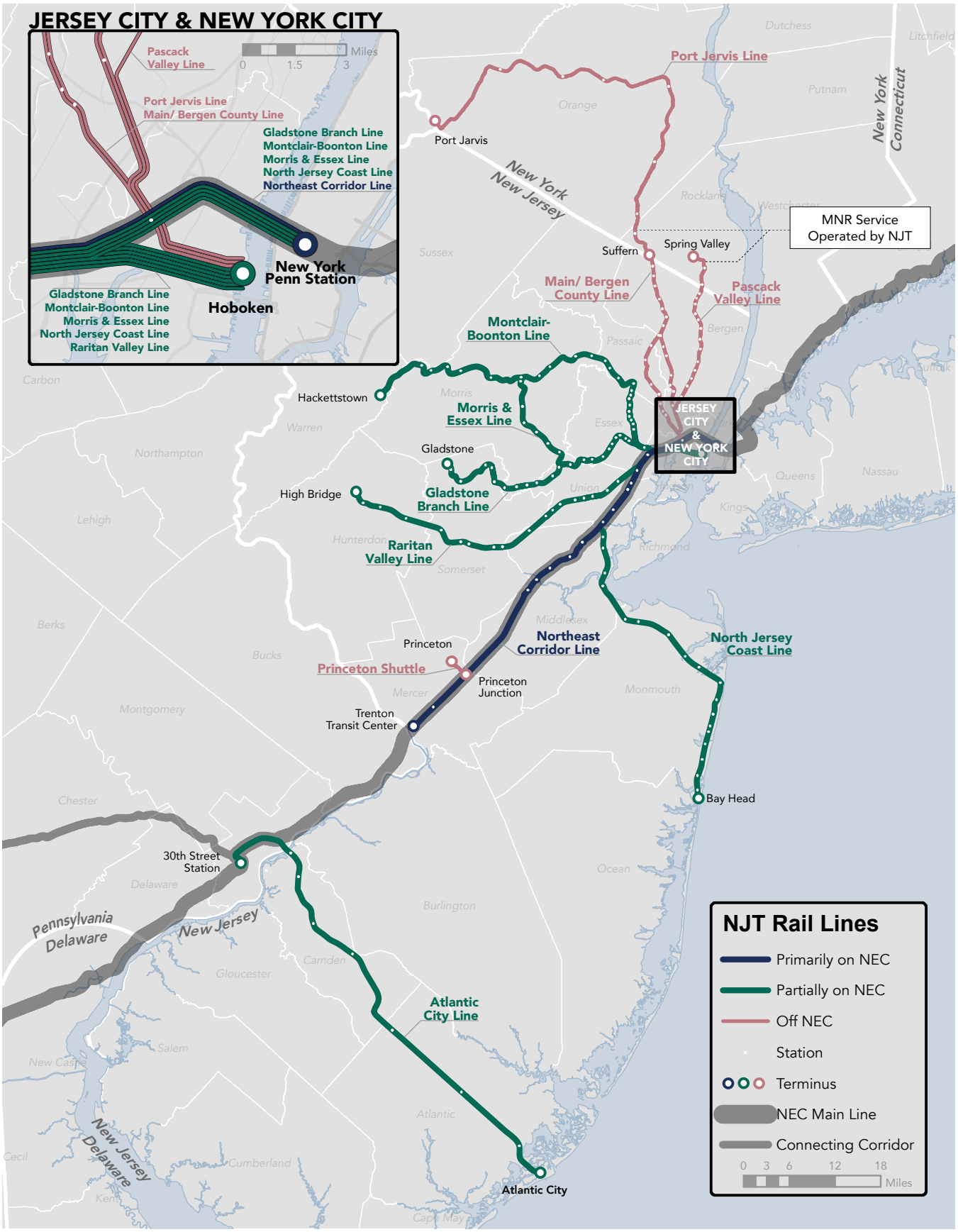
465 LIRR trains operated on the NEC each weekday

63% of LIRR trains

237,000 LIRR passenger trips on the NEC each weekday



75% of all LIRR trips

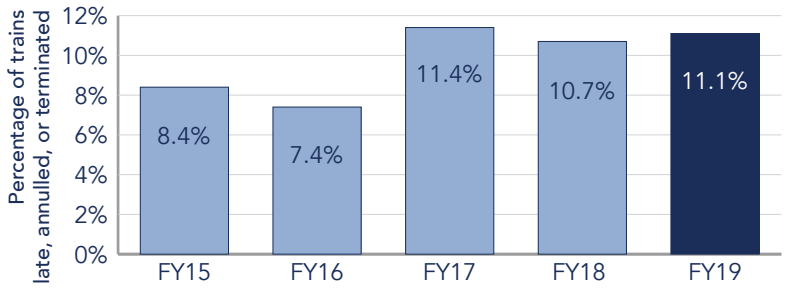

JERSEY CITY & NEW YORK CITY
Pascack Valley Line
Port Jervis Line
Main/ Bergen County Line
Gladstone Branch Line
Montclair-Boonton Line
Morris & Essex Line
North Jersey Coast Line
Northeast Corridor Line
Raritan Valley Line
0 1.5 3 Miles
New York Penn Station
Hoboken
Port Jervis Line
Port Jarvis
New York
New Jersey
New York
Connecticut
MNR Service Operated by NJT
Suffern
Spring Valley
Main/ Bergen County Line
Pascack Valley Line
Montclair-Boonton Line
Hackettstown
Morris & Essex Line
JERSEY CITY & NEW YORK CITY
Gladstone
High Bridge
Gladstone Branch Line
Raritan Valley Line
Princeton
Princeton Shuttle
Princeton Junction
Northeast Corridor Line
North Jersey Coast Line
Trenton Transit Center
Bay Head
30th Street Station
Pennsylvania
Delaware
New Jersey
Atlantic City Line
Atlantic City
NJT Rail Lines
Primarily on NEC
Partially on NEC
Off NEC
Station
Terminus
NEC Main Line
Connecting Corridor
0 3 6 12 18 Miles

NJ TRANSIT

NJ TRANSIT operates its Northeast Corridor, North Jersey Coast, Midtown Direct, Raritan Valley, and Atlantic City services on the Northeast Corridor.

Performance

	FY18	FY19
Percent NEC trains late, annulled, or terminated	10.7%	11.1%
Percent NEC trains not completed	2.19%	2.07%
Avg min late per NEC train	18.9	17.3



Train-delay minutes by cause

	FY18	FY19		% Change
Infrastructure	59,244	61,107	↔	3.1%
Mechanical	32,648	35,565	↑	8.9%
Transportation	9,476	12,108	↑	27.8%
Passenger	9,886	14,424	↑	45.9%
Weather	20,103	18,995	↓	-5.5%
Third-Party	35,774	24,424	↓	-31.7%
Freight	773	882	↑	14.1%
Other	26,804	22,814	↓	-14.9%
Total	**194,708**	**190,319**	↔	**-2.3%**

Ridership and service

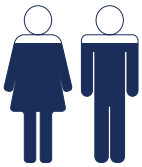
	FY18	FY19
Estimated NEC trips (weekday)	233,000	242,000
Scheduled NEC trains (weekday)	419	402

Table note: See page 64 for ridership methodology and assumptions.

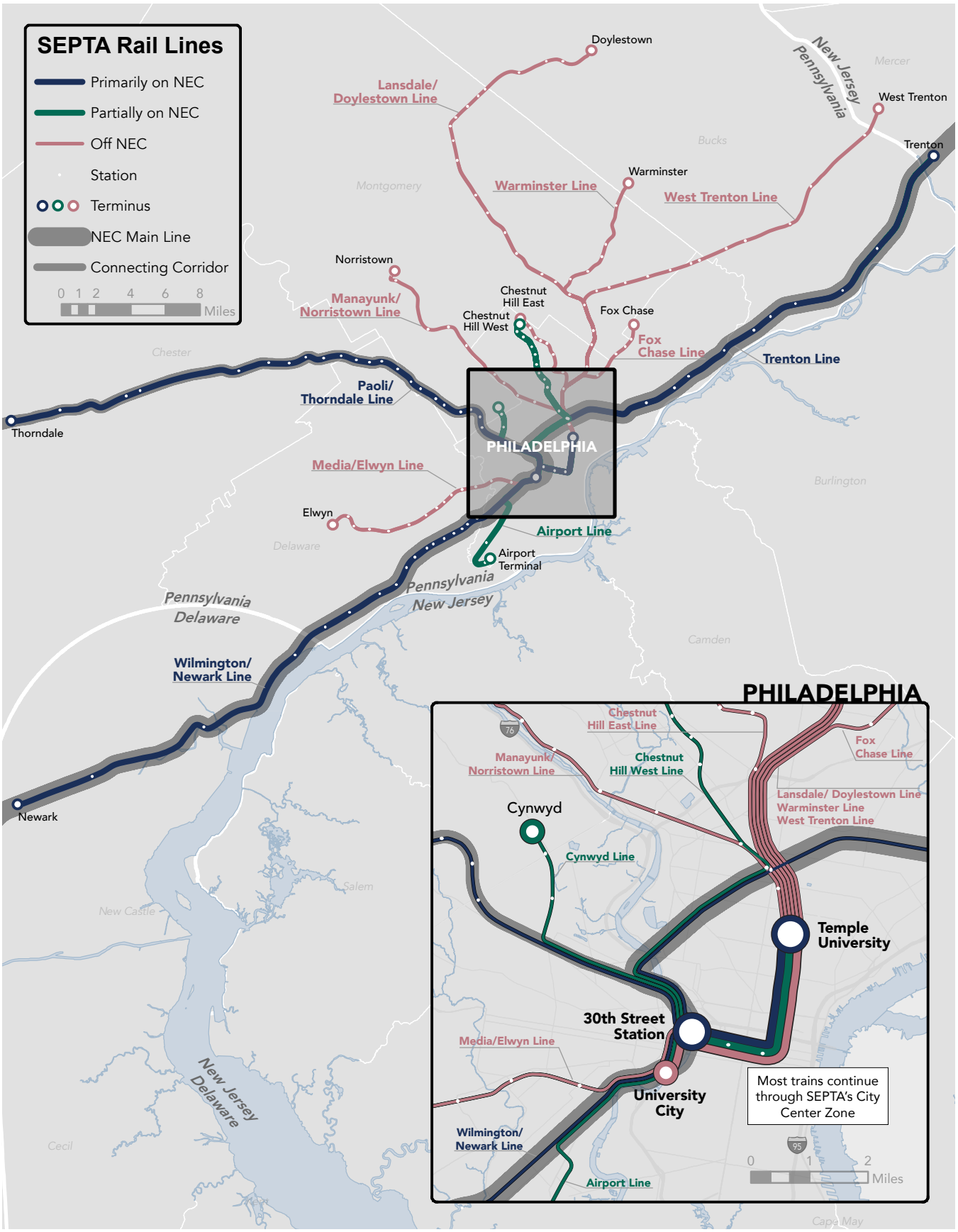
402 NJ TRANSIT trains operated on the NEC each weekday

57% of NJ TRANSIT trains

242,000 NJ TRANSIT passenger trips on the NEC each weekday



76% of all NJ TRANSIT trips

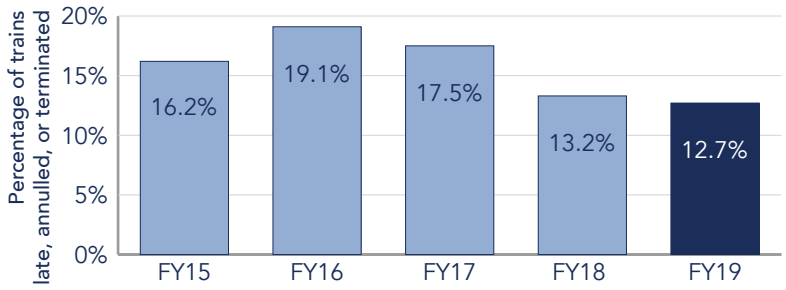

SEPTA Rail Lines
Primarily on NEC
Partially on NEC
Off NEC
Station
Terminus
NEC Main Line
Connecting Corridor
0 1 2 4 6 8
Miles
Doylestown
Lansdale/ Doylestown Line
Warminster
Warminster Line
West Trenton Line
West Trenton
Trenton
New Jersey
Pennsylvania
Mercer
Bucks
Montgomery
Norristown
Manayunk/ Norristown Line
Chestnut Hill East
Chestnut Hill West
Fox Chase
Fox Chase Line
Trenton Line
Chester
Paoli/ Thorndale Line
Thorndale
PHILADELPHIA
Media/Elwyn Line
Elwyn
Airport Line
Airport Terminal
Delaware
Burlington
Pennsylvania
New Jersey
Pennsylvania
Delaware
Camden
Wilmington/ Newark Line
Newark
Salem
New Castle
New Jersey
Delaware
Cecil
Cape May
PHILADELPHIA
Chestnut Hill East Line
Manayunk/ Norristown Line
Chestnut Hill West Line
Fox Chase Line
Lansdale/ Doylestown Line
Warminster Line
West Trenton Line
Cynwyd
Cynwyd Line
Temple University
30th Street Station
Media/Elwyn Line
University City
Wilmington/ Newark Line
Airport Line
Most trains continue through SEPTA's City Center Zone
0 1 2
Miles

SEPTA

SEPTA's NEC service includes Wilmington, Trenton, Paoli, Airport, Chestnut Hill West, and the Cynwyd Line service. Each of these services connects to a corresponding non-NEC SEPTA service when going through SEPTA's Center City Terminal Zone.

Performance

	FY18	FY19
Percent NEC trains late, annulled, or terminated	13.2%	12.7%
Percent NEC trains not completed	0.75%	0.63%
Avg min late per NEC train	17.5	17.4



Train-delay minutes by cause

	FY18	FY19		% Change
Infrastructure	44,435	35,017	↓	-21.2%
Mechanical	20,068	20,672	↔	3.0%
Transportation	52,930	46,096	↓	-12.9%
Passenger	23,259	22,162	↔	-4.7%
Weather	10,568	19,361	↑	83.2%
Freight	792	418	↓	-47.2%
Other	13,964	13,883	↔	-0.6%
Total	**166,016**	**157,609**	↓	**-5.1%**

Ridership and service

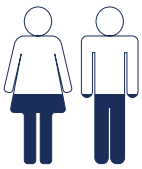
	FY18	FY19
Estimated NEC trips (weekday)	53,000	53,000
Scheduled NEC trains (weekday)	354	355

Table note: See page 64 for ridership methodology and assumptions.

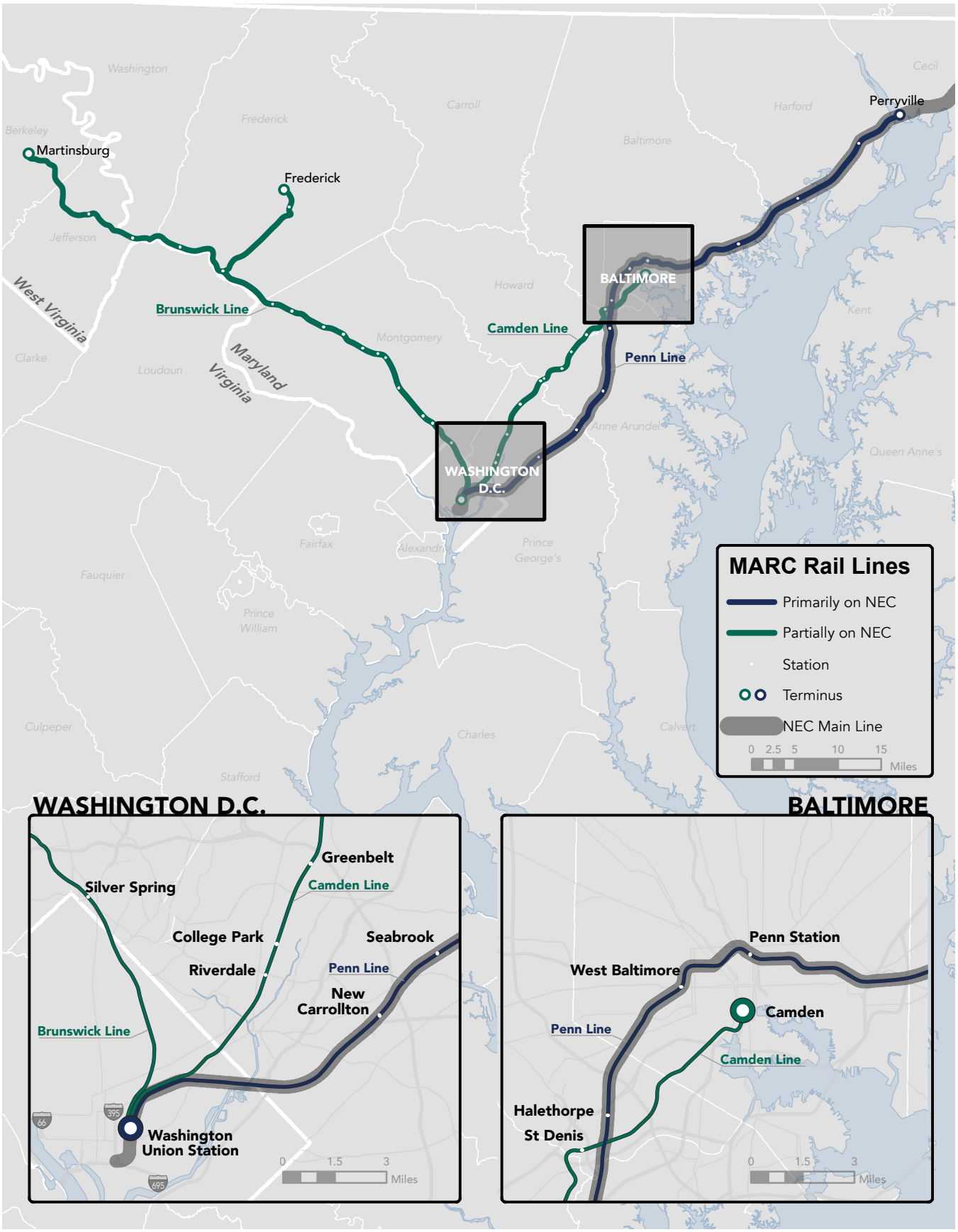
355 SEPTA trains operated on the NEC each weekday

46% of SEPTA trains

53,000 SEPTA passenger trips on the NEC each weekday



44% of all SEPTA trips

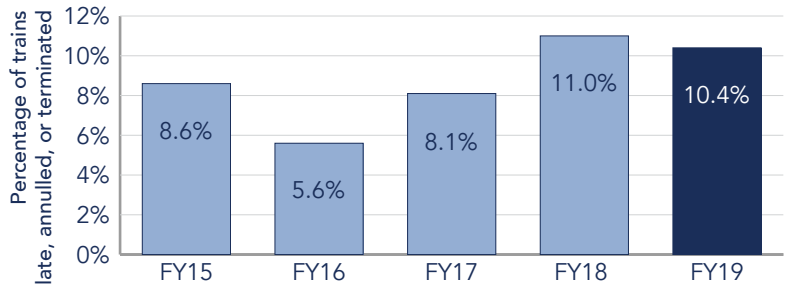

Martinsburg
Frederick
Perryville
BALTIMORE
WASHINGTON D.C.
Brunswick Line
Camden Line
Penn Line
West Virginia
Maryland
Virginia
Washington
Berkeley
Jefferson
Frederick
Carroll
Howard
Montgomery
Loudoun
Clarke
Fauquier
Culpeper
Fairfax
Alexandria
Prince William
Stafford
Charles
Prince George's
Anne Arundel
Calvert
Baltimore
Harford
Cecil
Kent
Queen Anne's
MARC Rail Lines
Primarily on NEC
Partially on NEC
Station
Terminus
NEC Main Line
0 2.5 5 10 15
Miles
WASHINGTON D.C.
Greenbelt
Silver Spring
Camden Line
College Park
Seabrook
Riverdale
Penn Line
New Carrollton
Brunswick Line
Washington Union Station
0 1.5 3
Miles
BALTIMORE
Penn Station
West Baltimore
Camden
Penn Line
Camden Line
Halethorpe
St Denis
0 1.5 3
Miles

MARC

MARC's Penn Line service operates entirely on the main line between Perryville, Maryland and Washington Union Station, while the Camden and Brunswick services operate on CSX lines that connect to the NEC at "C" Interlocking, just north of Washington Union Station.

Performance

	FY18	FY19
Percent NEC trains late, annulled, or terminated	11.0%	10.4%
Percent NEC trains not completed	0.91%	0.42%
Avg min late per NEC train	12.1	11.3



Train-delay minutes by cause

	FY18	FY19		% Change
Infrastructure	8,438	10,507	↑	24.5%
Mechanical	10,958	6,384	↓	-41.7%
Transportation	18,899	19,076	↔	0.9%
Passenger	1,833	1,133	↓	-38.2%
Weather	4,280	5,090	↑	18.9%
Third-Party	1,094	5,134	↑	369.3%
Freight	3,219	5,135	↑	59.5%
Other	16,456	11,018	↓	-33.0%
Total	**65,177**	**63,477**	↓	**-2.6%**

Ridership and service

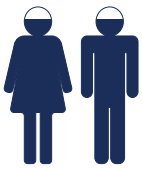
	FY18	FY19
Estimated NEC trips (weekday)	34,000	34,000
Scheduled NEC trains (weekday)	95	97

Table note: See page 64 for ridership methodology and assumptions.

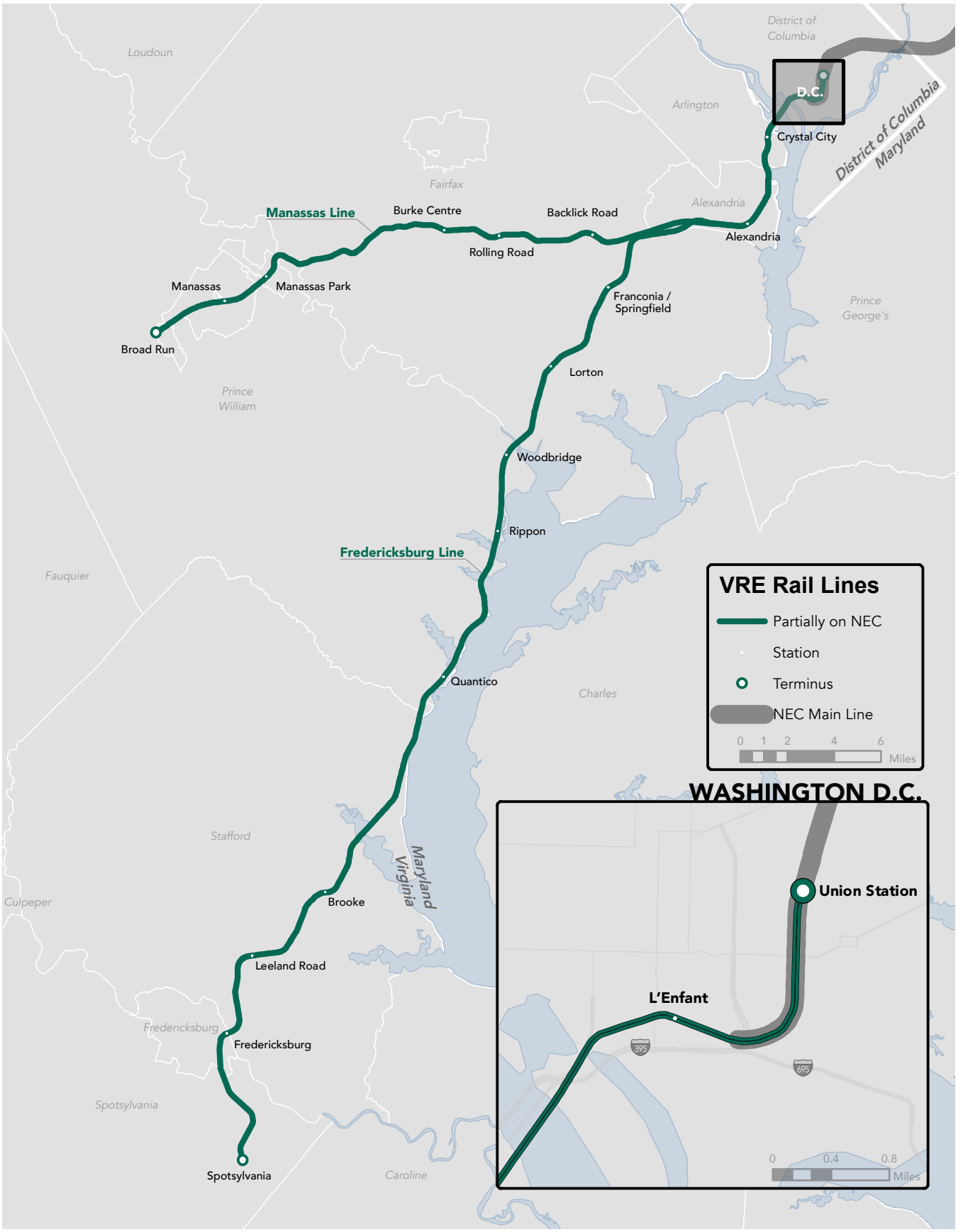
97 MARC trains operated on the NEC each weekday

100% of MARC trains

34,000 MARC passenger trips on the NEC each weekday



92% of all MARC trips

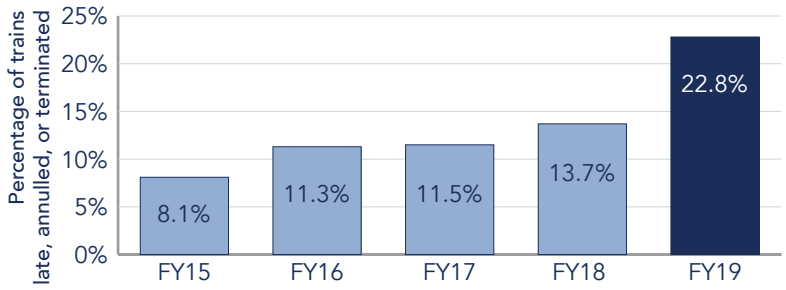

Loudoun
District of Columbia
D.C.
Arlington
Crystal City
District of Columbia
Maryland
Fairfax
Alexandria
Manassas Line
Burke Centre
Backlick Road
Alexandria
Rolling Road
Manassas
Manassas Park
Franconia / Springfield
Prince George's
Broad Run
Lorton
Prince William
Woodbridge
Rippon
Fredericksburg Line
Fauquier
VRE Rail Lines
Partially on NEC
Station
Terminus
NEC Main Line
0 1 2 4 6
Miles
Quantico
Charles
WASHINGTON D.C.
Union Station
Stafford
Maryland
Virginia
Brooke
Culpeper
L'Enfant
Leeland Road
Fredericksburg
Fredericksburg
Spotsylvania
0 0.4 0.8
Miles
Spotsylvania
Caroline

VRE

VRE's Manassas Line, operating over NS track and Fredericksburg Line, operating over CSX track, converge just west of Alexandria, VA operating on CSX track over the Potomac River Long Bridge into Washington Union Station.

Performance

	FY18	FY19
Percent NEC trains late, annulled, or terminated	13.7%	22.8%
Percent NEC trains not completed	0.08%	0.05%
Avg min late per NEC train	19.3	17.0



Train-delay minutes by cause

	FY18	FY19	% Change
Infrastructure	4,768	7,602	↑ 59.4%
Mechanical	271	3,534	↑ 1204.1%
Transportation	2,518	6,159	↑ 144.6%
Passenger	4,445	5,989	↑ 34.7%
Weather	1,091	1,292	↑ 18.4%
Third-Party	1,895	49	↓ -97.4%
Freight	1,098	865	↓ -21.2%
Other	2,888	6,274	↑ 117.2%
Total	**18,974**	**31,764**	↑ **67.4%**

Ridership and service

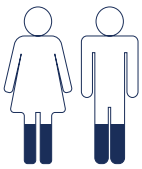
	FY18	FY19
Estimated NEC trips (weekday)	5,000	4,500
Scheduled NEC trains (weekday)	32	32

Table note: See page 64 for ridership methodology and assumptions.

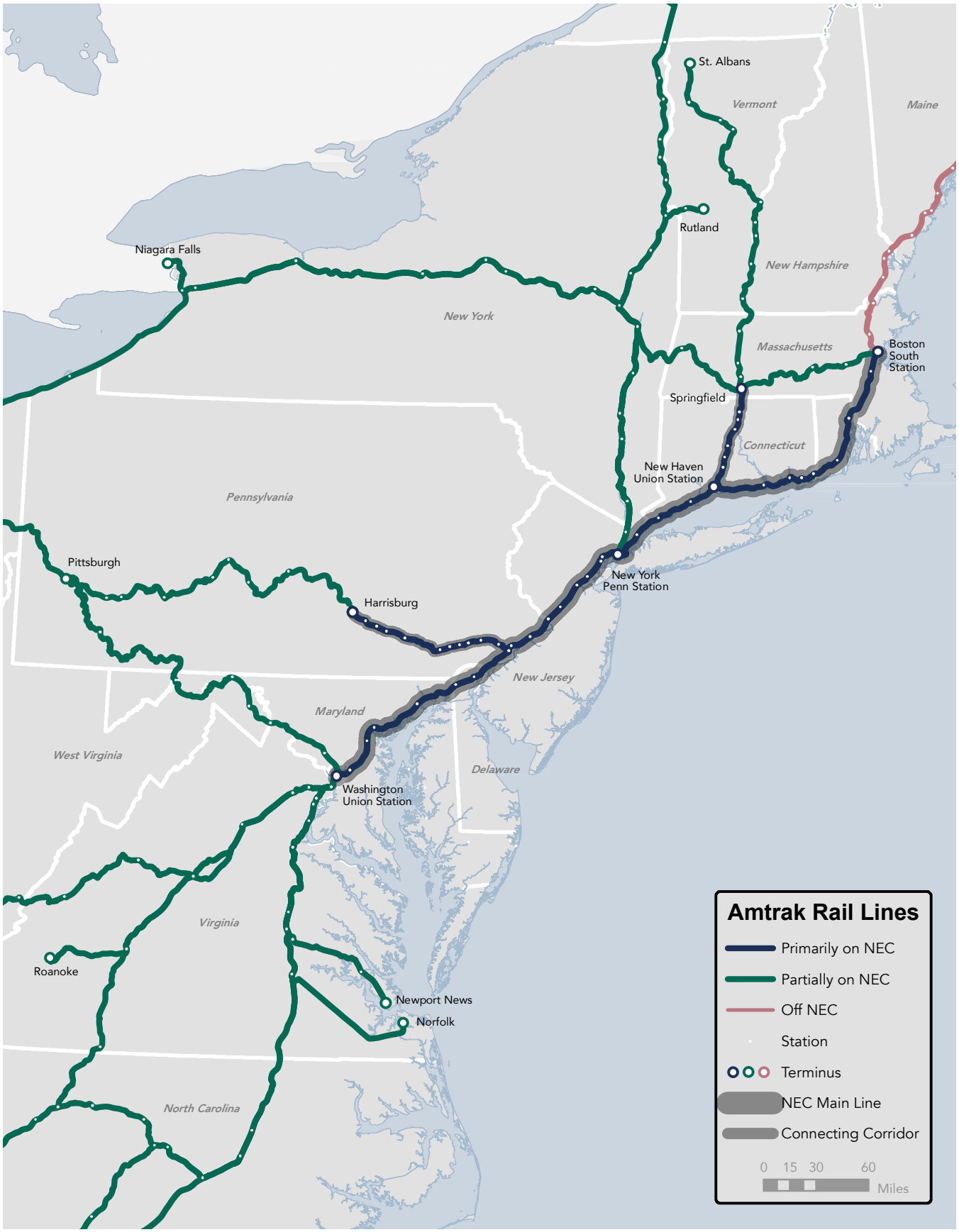
32 VRE trains operated on the NEC each weekday

100% of VRE trains

4,500 VRE passenger trips on the NEC each weekday



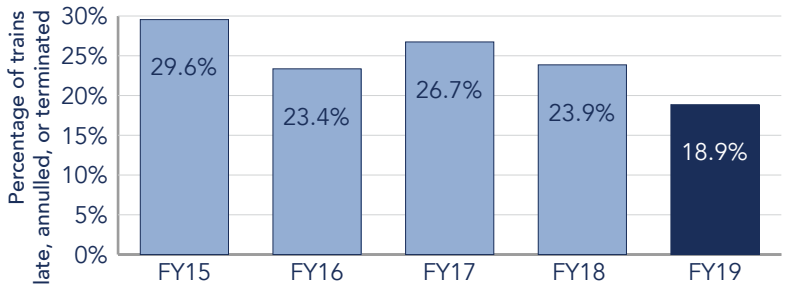
25% of all VRE trips


St. Albans
Vermont
Maine
Rutland
Niagara Falls
New Hampshire
New York
Massachusetts
Boston South Station
Springfield
Connecticut
New Haven Union Station
Pennsylvania
Pittsburgh
New York Penn Station
Harrisburg
New Jersey
Maryland
West Virginia
Delaware
Washington Union Station
Virginia
Roanoke
Newport News
Norfolk
North Carolina
Amtrak Rail Lines
Primarily on NEC
Partially on NEC
Off NEC
Station
Terminus
NEC Main Line
Connecting Corridor
0 15 30 60
Miles

Amtrak

Performance

	FY18	FY19
Percent NEC trains late, annulled, or terminated	23.9%	18.9%
Percent NEC trains not completed	0.75%	0.18%
Avg min late per NEC train	67.5	62.3



Train-delay minutes by cause

	FY18	FY19		% Change
Infrastructure	111,293	104,879	↓	-5.8%
Mechanical	60,946	54,552	↓	-10.5%
Transportation	63,114	67,079	↑	6.3%
Passenger	28,009	21,657	↓	-22.7%
Weather	34,591	27,690	↓	-20.0%
Third-Party	41,086	23,137	↓	-43.7%
Freight	856	2,749	↑	221.1%
Other	17,200	11,264	↓	-34.5%
Total	**357,095**	**313,007**	↓	**-12.3%**

Ridership and service

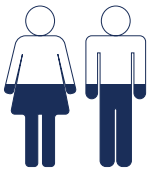
	FY18	FY19
Estimated NEC trips (weekday)	42,000	45,000
Scheduled NEC trains (weekday)	150	157

Table note: See page 64 for ridership methodology and assumptions.

157 Amtrak trains operated on the NEC each weekday

52% of Amtrak trains

45,000 Amtrak passenger trips on the NEC each weekday



51% of all Amtrak trips

Ridership methodology and 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 FY21 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 FY20 NEC Cost Allocation Model submissions in which agencies submitted their January 2019 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, 2018 – Sept 30, 2019)	
MBTA	2018 ridership is available publicly via www.mass.gov/lists/2018-commuter-rail-counts. Due to limited data availability for 2019, an inflation factor is applied to 2018 ridership using FTA system-wide monthly ridership data for commuter rail. 2019 inflation rate and historical ridership is estimated based on the National Transit Database data publicly available via www.transit.dot.gov/ntd/transit-agency-profiles/massachusetts-bay-transportation-authority.	State fiscal year (July 1, 2018 – June 30, 2019)	MBTA historical ridership is an estimate at this time due to limited data availability
CT*rail*	NEC Cost Allocation Model submission	State fiscal year (July 1, 2018 – June 30, 2019)	CT*rail* ridership includes both Shore Line East passengers from New London to New Haven, CT and passengers on the new Hartford Line commuter rail service. Shore Line East passengers between New Haven and Stamford are included in MNR's ridership figures.
MNR	NEC Cost Allocation Model submission	State fiscal year (Jan 1, 2019 – Dec 31, 2019)	MNR ridership includes both CT*rail* Shore Line East passengers traveling between New Haven and Stamford, CT and all other New Haven Line passengers.
LIRR	Publicly-available: LIRR 2019 Ridership Book. (provided by the agency, not yet published at the time of publication).	State fiscal year (Jan 1, 2019 – Dec 31, 2019)	
NJ TRANSIT	NEC Cost Allocation Model submission	State fiscal year (July 1, 2018 – June 30, 2019)	
SEPTA	Publicly-available: "Fiscal Year 2020 Annual Service Plan" (published June 2019) via www.septa.org/strategic-plan/reports.html.	State fiscal year (July 1, 2017 – June 30, 2018)	
MARC	NEC Cost Allocation Model submission	Federal fiscal year (Oct 1, 2018 – Sept 30, 2019)	
VRE	NEC Cost Allocation Model submission	State fiscal year (July 1, 2018 – June 30, 2019)	

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B. Infrastructure

NEC-wide capital renewal summary

Figure B-1. BCC obligations by operator and owner territory, FY19

Capital renewal of basic infrastructure investments can be funded with Baseline Capital Charges (BCCs) allocated to operators[1] based on methods described in the NEC Commuter and Intercity Rail Cost Allocation Policy. According to the Policy, right-of-way owners must invest operators' BCCs on eligible assets within the operators' service territories in the year the BCCs are contributed.[2] Figure B-1 below shows the FY19 BCC obligations for each service operator by RoW owner territory.

	RoW Owner Territory				
Service Operator	**Amtrak**	**MBTA**	**CTDOT**	**MNR**	**Total**
Amtrak	$237.94 M	$9.05 M	$14.30 M	$2.10 M	**$263.39 M**
MBTA	$1.35 M	$15.06 M			**$16.40 M**
RIDOT	$1.89 M				**$1.89 M**
CTDOT (Shore Line East)	$3.83 M		$0.96 M		**$4.79 M**
CTDOT (Hartford Line)[1]	$0 M		$0 M		**$0 M**
CTDOT (New Haven Line)			$40.64 M		**$40.64 M**
MNR				$11.36 M	**$11.36 M**
LIRR[2]	$22.29 M				**$22.29 M**
NJ TRANSIT[3]	$75.32 M				**$75.32 M**
SEPTA	$35.46 M				**$35.46 M**
DelDOT	$2.25 M				**$2.25 M**
Maryland DOT	$14.70 M				**$14.70 M**
VRE	$0.51 M				**$0.51 M**
Total FY19 BCC Obligations	**$395.55 M**	**$24.10 M**	**$55.90 M**	**$13.47 M**	**$489.02 M**

Table notes: (1) The FY19 Cost Allocation Model did not include BCC obligations for the Hartford Line. (2) LIRR's obligation is subject to revision based on actual expenditures per Amtrak-LIRR agreement. (3) NJ TRANSIT's FY19 BCC obligation reflects the NJ TRANSIT-Amtrak BCC variance approved by the Commission in August 2019.

[1] The Policy defines "operator" as an entity responsible for, or established to provide, commuter or intercity passenger rail transportation, that is subject to the cost-sharing requirements set forth in 49 U.S.C. § 24905(c). This includes Amtrak, the Massachusetts Bay Transportation Authority, the Rhode Island Department of Transportation, the Connecticut Department of Transportation, the New York Metropolitan Transportation Authority, New Jersey Transit Corporation, the Southeastern Pennsylvania Transportation Authority, the Delaware Department of Transportation, the Maryland Department of Transportation, Virginia Railway Express, any successor agencies and any entity created by one or more such agencies for the purpose of operating, or contracting for the operation of, commuter or intercity service.

[2] The Policy (Section 6.3) allows owners, under certain conditions, to invest an operator's BCCs beyond the year they are contributed. The Policy also allows owners to apply operators' BCCs to system-wide projects (investments that span multiple BCC segments and/or are not physically located in their service territory) if certain criteria are met.

Figure B-2. Actual capital renewal expenditure by operator and owner territory, FY19

RoW owners assign service operators' BCCs to fund eligible capital renewal investments. In some cases, RoW owners invest in their territory above the BCC obligated amount. Figure B-2 shows capital renewal expenditures by right-of-way owner territory as assigned to each service operator.

	RoW Owner Territory				
Service Operator	**Amtrak**	**MBTA**	**CTDOT**	**MNR**	**Total**
Amtrak	$345.76 M	$5.79 M	$14.30 M	$1.87 M	**$367.71 M**
MBTA	$1.35 M	$9.63 M			**$10.98 M**
RIDOT	$1.89 M				**$1.89 M**
CTDOT (Shore Line East)	$3.83 M		$0.96 M		**$4.79 M**
CTDOT (Hartford Line)	$6.12 M		$0 M		**$6.12 M**
CTDOT (New Haven Line)			$128.58 M		**$128.58 M**
MNR				$10.10M	**$10.10 M**
LIRR[1]	$19.80 M				**$19.80 M**
NJ TRANSIT	$75.32 M				**$75.32 M**
SEPTA	$35.46 M				**$35.46 M**
DelDOT	$2.25 M				**$2.25 M**
Maryland DOT	$14.70 M				**$14.70 M**
VRE	$0.51 M				**$0.51 M**
Total FY19 Actual Expenditure	**$506.99 M**	**$15.42 M**	**$143.84 M**	**$11.96 M**	**$678.21 M**

Table note: (1) Subject to revision per Amtrak-LIRR agreement.

Figure B-3. Comparison of actual capital renewal expenditure and BCC obligation, FY19

Figure B-3 shows the difference between FY19 capital renewal expenditures as assigned to each service operator and the FY19 BCC obligation for each operator. In most cases, RoW owners spent the service operators' BCCs in their territories. However, MBTA and MNR spent $8.7 million and $1.5 million less than Amtrak's BCC obligation in their respective territories. On the other hand, both Amtrak and CTDOT spent significantly more than the obligated amount ($108 million and $88 million, respectively) in their own territories.

	RoW Owner Territory				
Service Operator	**Amtrak**	**MBTA**	**CTDOT**	**MNR**	**Total**
Amtrak[1]	+$107.82 M	-$3.26 M	$0 M	-$0.23 M	**+$104.32 M**
MBTA	$0 M	-$5.43 M			**-$5.43 M**
RIDOT	$0 M				**$0 M**
CTDOT (Shore Line East)	$0 M		$0 M		**$0 M**
CTDOT (Hartford Line)[2]	+$6.12 M		$0 M		**+$6.12 M**
CTDOT (New Haven Line)			+$87.94 M		**+$87.94 M**
MNR				-$1.27 M	**-$1.27 M**
LIRR[3]	-$2.49 M				**-$2.49 M**
NJ TRANSIT	$0 M				**$0 M**
SEPTA	$0 M				**$0 M**
DelDOT	$0 M				**$0 M**
Maryland DOT	$0 M				**$0 M**
VRE	$0 M				**$0 M**
Total FY19 Difference (Actual Minus Obligation)	**+$111.44 M**	**-$8.69 M**	**+$87.94 M**	**-$1.50 M**	**+$189.19 M**

Table notes: (1) Per agreement by MBTA and Amtrak, unspent FY18 and FY19 BCCs in MBTA-owned territory will be used as the local match for the Federal-State Partnership for State of Good Repair Grant obtained by MBTA for Tower 1 Interlocking. (2) The FY19 Cost Allocation Model did not include BCC obligations for the Hartford Line. (3) Subject to revision per Amtrak-LIRR agreement.

MBTA

Capital renewal

MBTA is the right-of-way infrastructure owner for the Attleboro Line, a section of the NEC Main Line from Boston South Station to the Massachusetts/Rhode Island state line. MBTA continues train operations into Amtrak-owned territory until Wickford Junction, RI.

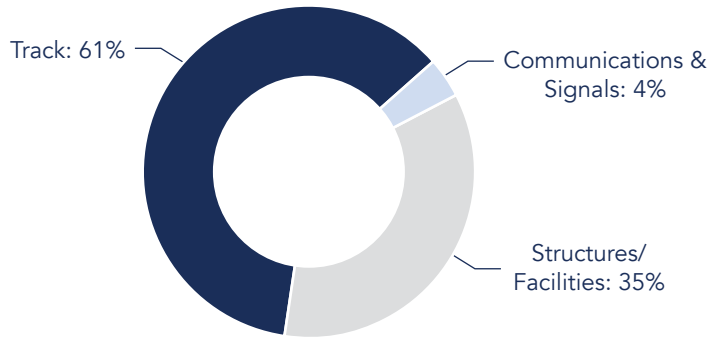
$16.9 million

TOTAL **CAPITAL RENEWAL** INVESTMENT IN MBTA TERRITORY

$11.0 million

CONTRIBUTED BY MBTA

Capital renewal investment by asset type



Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators		FY19 expenditure by segment
		Amtrak	MBTA	
1. Boston South Station to MA/RI state line[1]	MBTA	$5,787,002	$9,632,707	**$15,419,709**
2. MA/RI state line to Providence	Amtrak	$166,256	$1,349,844	**$1,516,100**
FY19 total capital renewal expenditure by agency		**$5,953,258**	**$10,982,551**	**$16,935,809**

Table note: (1) In BCC segment 1, MBTA did not spend Amtrak's full FY19 BCC obligation of $9,046,498. Per agreement by MBTA and Amtrak, unspent FY18 and FY19 BCCs in MBTA-owned territory will be used as the local match for the Federal-State Partnership for State of Good Repair Grant obtained by MBTA for Tower 1 Interlocking.

MBTA special projects

$15.6 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY MBTA

Special Project	FY19 expenditure
Back Bay Concourse Improvements	$100,000
Back Bay Station Leasehold Improvements	$500,000
Back Bay Station Platform Ventilation Package 2	$556,000
Back Bay Station Stairway Pressurization Package 1	$4,376,261
Boston South Station	$704,454
Boston South Station Component: Tower 1	$2,126,825
MBTA Station Improvements - Ruggles Street Station	$154,952
MBTA Station Improvements - South Attleboro Station	$3,572,812
MBTA Station Improvements - Mansfield Station	$3,499,863
FY19 total special project expenditure	**$15,591,167**

RIDOT

Capital renewal

Amtrak is the right-of-way infrastructure owner where MBTA operates on a portion of the NEC Main Line from the Massachusetts/Rhode Island state line to Wickford Junction, RI. MBTA operates on behalf of RIDOT between Providence and Wickford Junction.

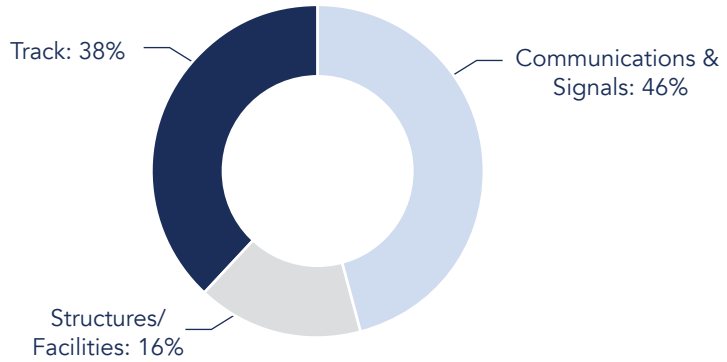
$5.2 million

TOTAL **CAPITAL RENEWAL** INVESTMENT IN RIDOT TERRITORY

$1.9 million

CONTRIBUTED BY RIDOT

Capital renewal investment by asset type



Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators		FY19 expenditure by segment
		Amtrak	RIDOT	
3. Providence to Wickford Junction[1]	Amtrak	$3,345,115	$1,890,788	**$5,235,903**
FY19 total capital renewal expenditure by agency		**$3,345,115**	**$1,890,788**	**$5,235,903**

Table note: (1) In BCC segment 3, MBTA operates on behalf of RIDOT, while RIDOT is responsible for charges in this segment.

RIDOT special projects

Special Project	FY19 expenditure
Pawtucket/ Central Falls Station	$6,007,560
RIDOT Stations: Warwick/ T.F. Green Airport	$106,605
FY19 total special project expenditure	**$6,114,165**

$6.1 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY RIDOT

CTDOT

Capital renewal

Amtrak is the right-of-way infrastructure owner along the Shore Line East—a section of the NEC Main Line from New London to New Haven, CT—and along the Hartford Line—from New Haven, CT to Springfield, MA. CTDOT is the right-of-way infrastructure owner for a portion of the New Haven Line from New Haven, CT to the Connecticut/New York state line.

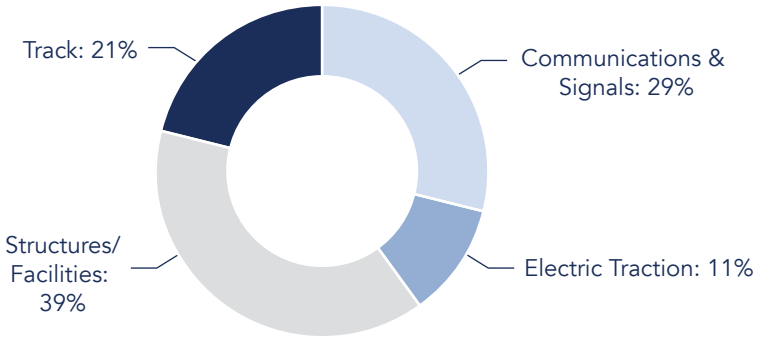
$183.4 million

TOTAL **CAPITAL RENEWAL** INVESTMENT IN CTDOT TERRITORY

$139.5 million

CONTRIBUTED BY CTDOT

Capital renewal investment by asset type



Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators				FY19 expenditure by segment
		Amtrak	CTDOT Shore Line East	CTDOT Hartford Line	CTDOT New Haven Line	
5. New London to New Haven	Amtrak	$26,176,511	$3,834,853			**$30,011,364**
6. New Haven to CT/NY state line	CTDOT	$14,298,552	$956,878	$0	$128,583,392	**$143,838,823**
25. Springfield to New Haven	Amtrak	$3,434,362		$6,116,569		**$9,550,931**
FY19 total capital renewal expenditure by agency		**$43,909,425**	**$4,791,731**	**$6,116,569**	**$128,583,392**	**$183,401,117**

CTDOT special projects

Project	FY19 expenditure
CT*rail* Hartford Line Commuter Station Improvements	$3,753,510
CT*rail* Hartford Line Rail Program Phase 3B - 5	$55,420
Devon Bridge Replacement	$627,263
New Haven Line Network Infrastructure Upgrade	$6,970,748
New Haven Line Stations Improvements	$2,623,756
New Haven Yard Master Complex Improvements	$16,094,183
Saugatuck River Bridge Replacement	$87,538
SLE Station Improvements	$1,384,213
Walk Bridge Program	$106,868,746
FY19 total special project expenditure	**$138,465,378**

$138.4 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY CTDOT

MNR

Capital renewal

MNR is the right-of-way infrastructure owner for a portion of the New Haven Line from Connecticut/New York state line to New Rochelle, NY.

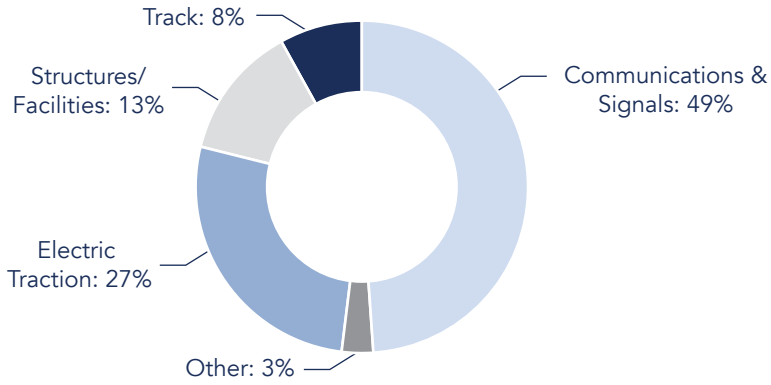
$12.0 million

TOTAL **CAPITAL RENEWAL** INVESTMENT IN MNR TERRITORY

$10.1 million

CONTRIBUTED BY MNR

Capital renewal investment by asset type



Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators		FY19 expenditure by segment
		Amtrak	MNR	
7. CT/NY state line to New Rochelle[1]	MNR	$1,867,286	$10,096,840	**$11,964,126**
FY19 total capital renewal expenditure by agency		**$1,867,286**	**$10,096,840**	**$11,964,126**

Table note: (1) In BCC segment 7, MNR did not spend Amtrak's full FY19 BCC obligation of $2,101,666.

MNR special projects

Special Project	FY19 expenditure
Penn Station Access	$11,352,574
FY19 total special project expenditure	**$11,352,574**

$11.4 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY MNR

LIRR

Capital renewal

Amtrak is the right-of-way infrastructure owner where LIRR operates on portions of the NEC Main Line.

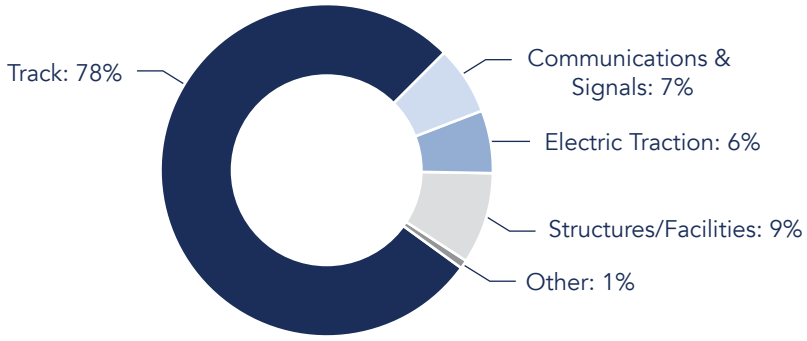
$49.1 million

TOTAL **CAPITAL RENEWAL** INVESTMENT IN LIRR TERRITORY

$19.8 million

CONTRIBUTED BY LIRR[1]

Capital renewal investment by asset type



Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators			FY19 expenditure by segment
		Amtrak	LIRR[1]	NJ TRANSIT	
9. Harold to F Interlocking	Amtrak	$10,074,556	$0		**$10,074,556**
10. F Interlocking to Penn Station New York	Amtrak	$1,725,424	$0	$0	**$1,725,424**
11. Penn Terminal	Amtrak	$16,249,307	$19,795,840	$1,276,569	**$37,321,715**
FY19 total capital renewal expenditure by agency		**$28,049,287**	**$19,795,840**	**$1,276,569**	**$49,121,696**

Table note: (1) LIRR's obligation is subject to revision based on actual expenditures per Amtrak-LIRR agreement.

LIRR special projects

Special Project	FY19 expenditure
East River Tunnel - Right of Way Infrastructure Improvements	$20,790,717
Penn Station New York - LIRR Projects	$27,323,351
River-to-River Rail Resiliency Projects (R4)	$334,227
FY19 total special project expenditure	**$48,448,295**

$48.4 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY LIRR

MTA Capital Construction

MTA Capital Construction is the coordinating agency for one project on the NEC Main Line.

MTA Capital Construction special projects

Special Project	FY19 expenditure
Harold Interlocking	$39,892,097
FY19 total special project expenditure	**$39,892,097**

$39.9 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY MTA CAPITAL CONSTRUCTION

NJ TRANSIT

Capital renewal

Amtrak is the right-of-way infrastructure owner where NJ TRANSIT operates on the NEC Main Line.

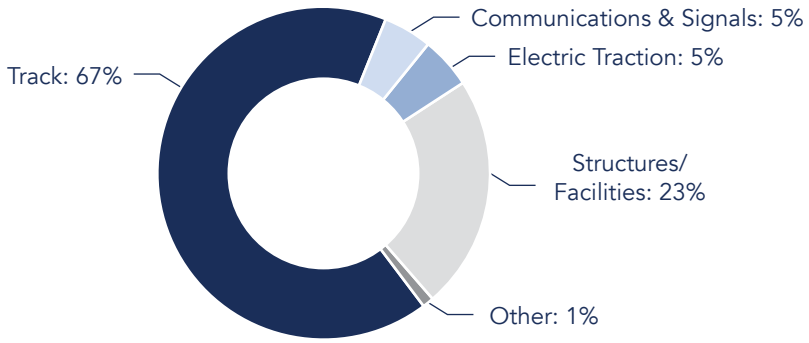
$140.3 million

TOTAL **CAPITAL RENEWAL** INVESTMENT
IN NJ TRANSIT TERRITORY

$75.3 million

CONTRIBUTED BY NJ TRANSIT

Capital renewal investment by asset type



Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators				FY19 expenditure by segment
		Amtrak	LIRR	NJ TRANSIT	SEPTA	
10. F Interlocking to Penn Station New York	Amtrak	$1,725,424	$0	$0		**$1,725,424**
11. Penn Terminal	Amtrak	$16,249,307	$19,795,840	$1,276,569		**$37,321,715**
12. Penn Station New York to Trenton[1]	Amtrak	-$1,048,093		$68,668,693		**$67,620,601**
13. Trenton to Morris[1]	Amtrak	-$143,125		$5,373,210	$0	**$5,230,085**
16. Shore to Girard	Amtrak	$7,320,424		$0	$0	**$7,320,424**
17. Girard to Philadelphia 30th Street	Amtrak	$21,038,681		$0		**$21,038,681**
FY19 total capital renewal expenditure by agency		**$45,142,618**	**$19,795,840**	**$75,318,472**	**$0**	**$140,256,930**

Table note: (1) Negative values result from the reversal of accruals within a RoW owner's accounting system during the fiscal year.

NJ TRANSIT special projects

Special Project	FY19 expenditure
Delco Lead Project	$5,855,000
Elizabeth Station	$6,810,000
Gateway: Portal North Bridge - Early Action Construction	$5,812,257
Gateway: Portal North Bridge - Full Construction	$6,023,824
New Brunswick Station	$1,830,526
NJ TRANSITGRID	$7,229,000
Princeton Junction Station	$24,000
FY19 total special project expenditure	**$33,584,607**

$33.6 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS**
COORDINATED BY NJ TRANSIT

SEPTA

Capital renewal

Amtrak is the right-of-way infrastructure owner where SEPTA operates on portions of both the NEC Main Line and the connecting corridor from Philadelphia to Harrisburg, PA.

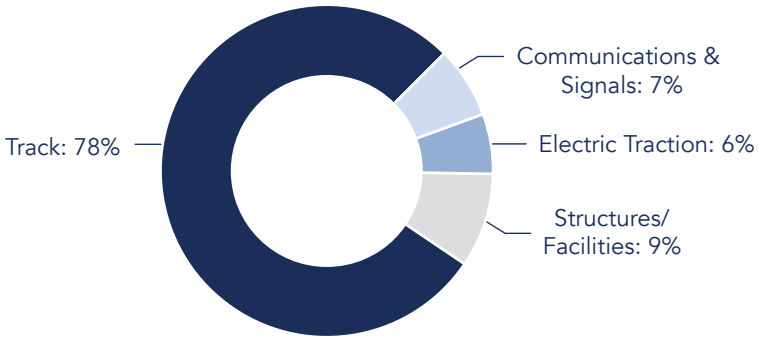
$66.6 million

TOTAL **CAPITAL RENEWAL** INVESTMENT IN SEPTA TERRITORY

$35.5 million

CONTRIBUTED BY SEPTA

Capital renewal investment by asset type



Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators			FY19 expenditure by segment
		Amtrak	NJT	SEPTA	
13. Trenton to Morris[1]	Amtrak	-$143,125	$5,373,210	$0	**$5,230,085**
14. Morris to Holmes	Amtrak	$390,980		$17,420,349	**$17,811,329**
15. Holmes to Shore	Amtrak	$7,537,690		$0	**$7,537,690**
16. Shore to Girard	Amtrak	$7,320,424	$0	$0	**$7,320,424**
19. Arsenal to Marcus Hook[1]	Amtrak	$11,174,126		-$6,314	**$11,167,812**
29. 36th St to Thorndale	Amtrak	-$476,366		$18,042,724	**$17,566,358**
FY19 total expenditure by agency		**$25,803,729**	**$5,373,210**	**$35,456,760**	**$66,633,698**

Table note: (1) Negative values result from the reversal of accruals within a RoW owner's accounting system during the fiscal year.

SEPTA special projects

Project	FY19 expenditure
30th Street West Catenary Replacement	$1,009,391
Ardmore Station ADA Improvements	$522,591
Exton Station Improvements	$4,884,193
Frazer Rail Shop and Yard Upgrade	$8,190,433
Southwest Connection Improvement Program	$8,654,780
Villanova Station Improvements	$2,483,022
Levittown Station Improvements	$5,193,847
FY19 total special project expenditure	**$30,938,257**

$30.9 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY SEPTA

PennDOT

PennDOT is the coordinating agency for projects on the connecting corridor from Philadelphia to Harrisburg, PA

PennDOT special projects

Project	FY19 expenditure
Automatic Block Signal (ABS) Design Park to Paoli	$431,072
Coatesville Train Station 4th Avenue Streetscape	$81,388
Coatesville Train Station Final Design	$567,761
Downingtown Station Early Action Property Acquisition	$2,550,840
Harrisburg Train Station Roof and Observation Room Final Design and Construction	$77,943
Lancaster Station Parking and Concourse Extension	$0
Middletown Train Station Final Design	$455,445
Mount Joy Train Station Construction	$13,114,401
Parkesburg Early Action Parking and Access Design	$0
FY19 total special project expenditure	**$17,278,850**

$17.3 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY PENNDOT

DelDOT

Capital renewal

Amtrak is the right-of-way infrastructure owner where SEPTA operates on a portion of the NEC Main Line. SEPTA operates on behalf of DelDOT between Marcus Hook, PA and Newark, DE.

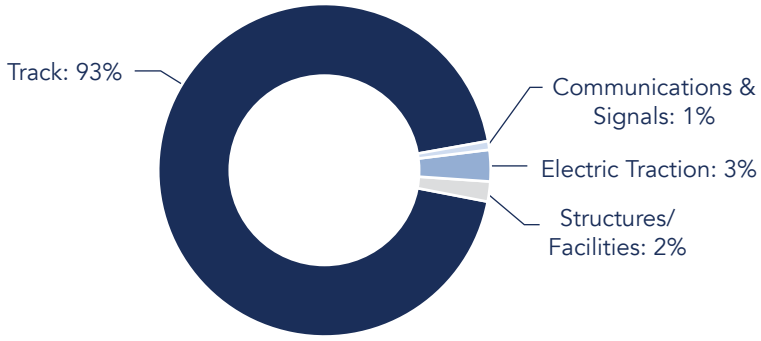
$35.2 million

TOTAL **CAPITAL RENEWAL** INVESTMENT IN DELDOT TERRITORY

$2.3 million

CONTRIBUTED BY DELDOT

Capital renewal investment by asset type



Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators		FY19 expenditure by segment
		Amtrak	DelDOT	
20. Marcus Hook to Bacon[1]	Amtrak	$32,932,399	$2,254,875	**$35,187,274**
FY19 total capital renewal expenditure by agency		**$32,932,399**	**$2,254,875**	**$35,187,274**

Table note: (1) In BCC segment 20, SEPTA operates under contract with DelDOT, while DelDOT is responsible for charges in this segment.

DelDOT special projects

Special Project	FY19 expenditure
Claymont Regional Transportation Center	$4,986,457
Delaware Third Track Program	$2,451,664
Newark (DE) Regional Transportation Center	$12,048,435
FY19 total special project expenditure	**$19,486,556**

$19.5 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY DELDOT

Maryland DOT

Capital renewal

Amtrak is the right-of-way infrastructure owner where MARC operates on a portion of the NEC Main Line.

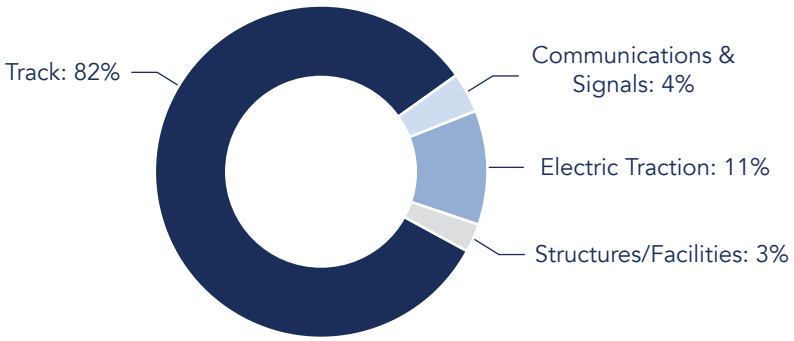
$101.6 million

TOTAL **CAPITAL RENEWAL** INVESTMENT
IN MARYLAND DOT TERRITORY

$14.7 million

CONTRIBUTED BY MARYLAND DOT

Capital renewal investment by asset type



Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators			FY19 expenditure by segment
		Amtrak	Maryland DOT	VRE	
22. Perryville to WAS	Amtrak	$84,835,529	$14,699,584		**$99,535,113**
23. Washington Union Terminal	Amtrak	$2,074,011	$0	$0	**$2,074,011**
FY19 total capital renewal expenditure by agency		**$86,909,541**	**$14,699,584**	**$0**	**$101,609,124**

Maryland DOT special projects

Special Project	FY19 expenditure
BWI Thurgood Marshall Airport Station Interim Improvements	$5,046,095
MARC Storage Improvements - Martin Airport	$2,075,625
FY19 total special project expenditure	**$7,121,720**

$7.1 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS**
COORDINATED BY MARYLAND DOT

VRE

Capital renewal

Amtrak is the right-of-way infrastructure owner where VRE operates on a portion of the NEC Main Line.

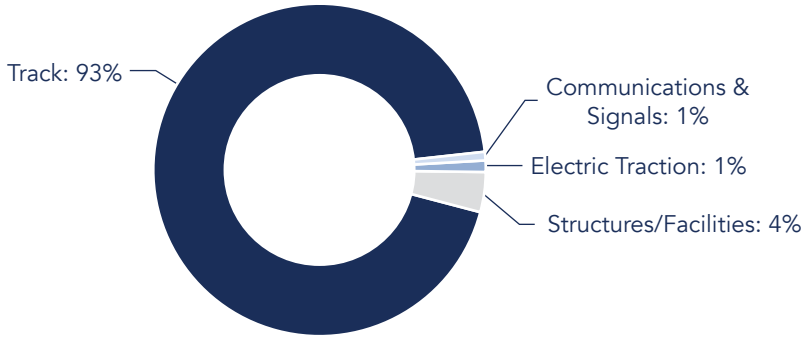
$3.6 million

TOTAL **CAPITAL RENEWAL** INVESTMENT IN VRE TERRITORY

$0.5 million

CONTRIBUTED BY VRE

Capital renewal investment by asset type



Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators			FY19 expenditure by segment
		Amtrak	Maryland DOT	VRE	
23. Washington Union Terminal	Amtrak	$2,074,011	$0	$0	**$2,074,011**
24. WAS to CP Virginia	Amtrak	$1,060,344		$514,861	**$1,575,204**
FY19 total capital renewal expenditure by agency		**$3,134,355**	**$0**	**$514,861**	**$3,649,216**

VRE special projects

Special Project	FY19 expenditure
VRE Midday Storage Facility	$594,579
FY19 total special project expenditure	**$594,579**

$0.6 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY VRE

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Capital renewal

Amtrak is the right-of-way infrastructure owner for most of the NEC Main Line (excluding the New Haven Line in New York and Connecticut; and the Attleboro Line in Massachusetts). Amtrak-territory also includes the connecting corridors to Harrisburg, PA; to Spuyten Duyvil; and to Springfield, MA.

Capital renewal investments by BCC segment

BCC Segment	RoW owner	Operators					
		Amtrak	MBTA	RIDOT	CTDOT Shore Line East	CTDOT Hartford Line	CTDOT New Haven Line
1. BOS to MA/RI state line[1]	MBTA	$5,787,002	$9,632,707				
2. MA/RI state line to Providence	Amtrak	$166,256	$1,349,844				
3. Providence to Wickford Junction[2]	Amtrak	$3,345,115		$1,890,788			
4. Wickford Junction to New London	Amtrak	$10,679,879					
5. New London to New Haven	Amtrak	$26,176,511			$3,834,853		
6. New Haven to CT/NY state line	CTDOT	$14,298,552			$956,878	$0	$128,583,392
7. CT/NY state line to New Rochelle[3]	MNR	$1,867,286					
8. New Rochelle to Harold	Amtrak	$1,758,214					
9. Harold to F Interlocking	Amtrak	$10,074,556					
10. F Interlocking to Penn Station NY	Amtrak	$1,725,424					
11. Penn Terminal	Amtrak	$16,249,307					
12. Penn Station NY to Trenton[4]	Amtrak	-$1,048,093					
13. Trenton to Morris[4]	Amtrak	-$143,125					
14. Morris to Holmes	Amtrak	$390,980					
15. Holmes to Shore	Amtrak	$7,537,690					
16. Shore to Girard	Amtrak	$7,320,424					
17. Girard to Philadelphia 30th Street	Amtrak	$21,038,681					
18. Philadelphia 30th St to Arsenal	Amtrak	$1,789,410					
19. Arsenal to Marcus Hook[4]	Amtrak	$11,174,126					
20. Marcus Hook to Bacon[5]	Amtrak	$32,932,399					
21. Bacon to Perryville	Amtrak	$15,759,345					
22. Perryville to WAS	Amtrak	$84,835,529					
23. Washington Union Terminal	Amtrak	$2,074,011					
24. WAS to CP Virginia	Amtrak	$1,060,344					
25. Springfield to New Haven	Amtrak	$3,434,362				$6,116,569	
27. Spuyten Duyvil to PSNY	Amtrak	$15,036,548					
28. Penn to 36th St	Amtrak	$0					
29. 36th St to Thorndale[4]	Amtrak	-$476,366					
30. Thorndale to Harrisburg	Amtrak	$19,846,360					
31. Amtrak System-wide	Amtrak	$53,020,156					
FY19 total capital renewal expenditure by agency		**$367,710,885**	**$10,982,551**	**$1,890,788**	**$4,791,731**	**$6,116,569**	**$128,583,392**

Table notes: (1) In BCC segment 1, MBTA did not spend Amtrak's full FY19 BCC obligation of $9,046,498. Per agreement by MBTA and Amtrak, unspent FY18 and FY19 BCCs in MBTA-owned territory will be used as the local match for the Federal-State Partnership for State of Good Repair Grant obtained by MBTA for Tower 1 Interlocking. (2) In BCC segment 3, MBTA operates on behalf of RIDOT, while RIDOT is responsible for charges in this segment.

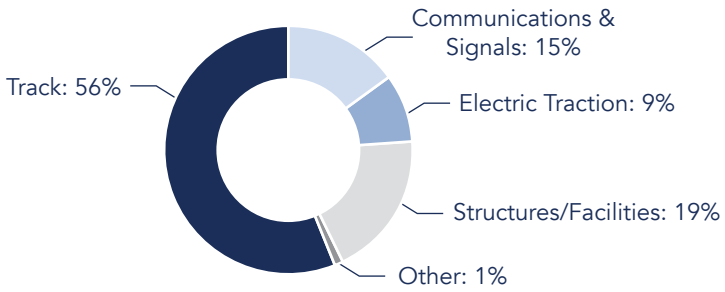
$678.2 million

TOTAL **CAPITAL RENEWAL** INVESTMENT
IN AMTRAK TERRITORY

$367.7 million

CONTRIBUTED BY AMTRAK

Capital renewal investment by asset type



Operators							FY19 expenditure by segment	BCC
MNR	LIRR[6]	NJ TRANSIT	SEPTA	DelDOT	Maryland DOT	VRE		
							$15,419,709	1
							$1,516,100	2
							$5,235,903	3
							$10,679,879	4
							$30,011,364	5
							$143,838,822	6
$10,096,840							**$11,964,126**	7
							$1,758,214	8
	$0						**$10,074,556**	9
	$0	$0					**$1,725,424**	10
	$19,795,840	$1,276,569					**$37,321,715**	11
		$68,668,693					**$67,620,601**	12
		$5,373,210	$0				**$5,230,085**	13
			$17,420,349				**$17,811,329**	14
			$0				**$7,537,690**	15
		$0	$0				**$7,320,424**	16
		$0					**$21,038,681**	17
							$1,789,410	18
			-$6,314				**$11,167,812**	19
				$2,254,875			**$35,187,274**	20
							$15,759,345	21
					$14,699,584		**$99,535,113**	22
					$0	$0	**$2,074,011**	23
						$514,861	**$1,575,204**	24
							$9,550,931	25
							$15,036,548	27
							$0	28
			$18,042,724				**$17,566,358**	29
							$19,846,360	30
							$53,020,156	31
$10,096,840	**$19,795,840**	**$75,318,472**	**$35,456,760**	**$2,254,875**	**$14,699,584**	**$514,861**	**$678,213,145**	

Table notes continued: (3) In BCC segment 7, MNR did not spend Amtrak's full FY19 BCC obligation of $2,101,666. (4) Negative values result from the reversal of accruals within a RoW owner's accounting system during the fiscal year. (5) In BCC segment 20, SEPTA operates under contract with DelDOT, while DelDOT is responsible for charges in this segment. (6) LIRR's obligation is subject to revision based on actual expenditures per Amtrak-LIRR agreement.

Amtrak special projects

Special Project	FY19 expenditure
Baltimore & Potomac Tunnel Replacement	$4,215,108
Baltimore Penn Station Infrastructure Improvements	$701,767
Baltimore Penn Station Master Plan	$956,243
Connecticut River Bridge Replacement	$1,854,777
East River Tunnel Rehabilitation	$5,618,682
Fitter Interlocking	$298,290
Gateway: Harrison Fourth Track	$0
Gateway: Hudson Tunnel Project	$9,568,267
Gateway: Hudson Yards Concrete Casing	$2,692,711
Gateway: Planning and Program Management	$6,146,185
Gateway: Sawtooth Bridge	$98,505
Hanson Interlocking	$23,555,443
Maryland Section Reliability Improvements	$2,904,970
Moynihan Station (Phase 2)	$39,248,170
New Jersey HSR Improvement Program	$13,651,436
Newark Penn Station Platform Rehabilitation	$22,110
Next Generation High Speed Fleet Infrastructure: Ivy City/ Washington Terminal Yard Facility Improvements	$610,340
Next Generation High Speed Fleet Infrastructure: Ride Quality Investment	$360,995
Next Generation High Speed Fleet Infrastructure: Safety Mitigation	$1,702,117
Next Generation High Speed Fleet Infrastructure: Southampton St. Yard Facility Improvements	$532,406
Paoli Transportation Center - Phase 1 (ADA & Infrastructure)	$14,902,836
Pelham Bay Bridge Replacement	$49,237
Philadelphia 30th Street Station District Plan Implementation	$2,101,425
Susquehanna River Bridge Replacement	$3,608,270
Washington Union Station: Claytor Concourse Modernization Program	$3,300,721
Washington Union Station: Subbasement Program (formerly Track 22 Rehabilitation)	$2,216,908
Washington Union Station Long Term Station Expansion (formerly 2nd Century Plan)	$2,043,002
Washington Union Station Near Term Rail Program	$2,822,406
FY19 total special project expenditure	**$145,783,327**

$145.8 million

TOTAL INVESTMENT IN **SPECIAL PROJECTS** COORDINATED BY AMTRAK

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Capital renewal

Amtrak: Projects over $5M

Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
30th St Sta Façade Restoration. C.EN.100039	$16,000,500	$14,993,752	$1,006,748	1) Continued work on SEPTA property; continued rebuilding long room parapet wall, aluminum windows, scaffold removal on north light court; continued installation of limestone, tuck pointing, install sealant, blast, prime and paint 2 remaining bayson north elevation is 99% complete on North facade; and continued demolition of limestone, lead tees installation, tuck pointing, cleaning on 8th floor roof. 2) Stone replacement and tuckpointing at 29th and 30th St viaduct, blasting and painting work, reconstruction of cast iron mullions. 3) Continued miscellaneous repairs at lower ten feet of masonry wall around the building, cleaned granite base around the building, cleaned and washed the northwest and northeast pavillion wall at the 5th floor north roof.	1) Weather conditions remain an issue due to exterior nature of project. The project schedule will extend into 2021. Unforeseen additional work items and Amtrak-driven additional scope. Budget: the EAC for the total project cost is $143.2M including the use of contingency. Schedule: additional scope as part of CO#4 and CO#5 for Mark I Restoration contract extended the Mark 1 schedule another 6 months until Aug 2019. 2) Work shutdown lasted from Jan 2019-Mar 2019 due to pending approval of funding for North Recessed Parapet Wall. 3) Delay in getting approval from Engineering for funds for unforeseen conditions; delay in processing the contract modification by Procurement - $9.4M underspend for these reasons.
Penn Station NY Scada Phase II Project. C.EN.100081	$4,441,831	$275,573	$4,166,258	1) Construction activities will continue with SCADA - Contractor Work Package #1 and Amtrak Protection for Fiber Cable Installation and Termination. 2) Continued Final Design, construction/ commissioning of Work Package 1 and constructing Work Package 2.	1) Project budget is currently being evaluated based on new changes. Project estimate and budget will be updated to reflect changes in the near future. 2) Project budget and schedule have been updated based on recent change order #3. Project Management budget has also increased due to this change. 3) Current FY19 expenditure forecast is exceeding available FY19 funding by $1.1M.
NEC CETC Consolidation Project. C.EN.100119	$5,546,840	$562,514	$4,984,326	1) CETC build has been successfully installed in Boston; call to review Amtrak requirements for Crew & Consist data. 2) Final merge activities completed, All-In-One Test Servicer delivered to Philadelphia CETC, CETC v7.0.57 successfully installed in Boston and Wilmington 3) NS-IETMS final merge activities complete; Charles FEOT pre-test complete; ARINC hardware refresh servers installed 4) Completed set up of network connection from Keolis to ARINC AIM host and supported CETC Wilmington, Boston South Station, Harrisburg Line and Springfield Line.	1) Amtrak is currently descoping the project with the Vendor (ARINC); actuals spend through FY18 is less than forecast; remaining cost ($243.5K) is pushed into FY19. 2) Delivery of hardware refresh release 58 by ARINC delayed the project completion date.
Safe Harbor Frequency Converter Replacement Project. C.EN.100347	$6,374,301	$4,555,905	$1,818,396	1) installed the required parts for the installation of the rotor and the rotor was installed; unit breaker work was completed for now, testing will begin prior to commissioning. 2) Completed site work, cavitation repair work and commissioning; Water Wheels 1, 2, 3 and SFC put back into service; performed walk-through and site assessment. 3) Project completed, waiting for the final invoice from Brookfield 4) Final invoice was received and project will be closed out once the payment is processed.	1) 3 units are from the 1930s so it is not possible to assess the conditions of the units prior to opening them for rehab. During this phase it is possible to find that they need replacement, which has not been accounted for in the budget; a change order may need to be issued due to encountering the work being more extensive than previously estimated. 2) discovered the work is more extensive than previously estimated - project requires an additional $747K for FY19 and PM worked on funding request.

Project data including expenditures, accomplishments, and explanation of variances are published as submitted by coordinating agencies.

Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
Q Interlocking C&S Equipment Replacement Project. C.EN.100676	$5,272,942	$2,636,196	$2,636,746	1) Initiated installation of Trough, pull boxes, cable and foundations for houses 2) Continue troughing, cross track digs, pull boxes and installation of foundations for houses 3) Trough is 95% complete for Phase I, 2700 feet of bore pipe installed between High Speed Rail bldg through platform 25; continued cross track excavations and set the Communications Hut. 4) Received 90% design documents and commenced review and completed trough for Phase I. 5) Continued fabrication of the communications huts and preliminary site work, as well as the coordination of final design with Ready Track project.	1) Other projects are affecting the schedule due to the fact that forces have been pulled to other projects. At this time, the FY19 AOP Approved funding is sufficient compared to the FY19 Forecast. 2) The final design is charged under a different project which needs to be reconciled. 3) Limited resources are being devoted to this project and getting track outages is difficult.
East River Tunnels Track Replacement Project. C.EN.100755	$533,350	$22,192	$511,158	1) No work planned for Fiscal Year 2019. Process invoice for Road Maintenance Service for jet vacuum and video services to National Water Main Services in the amount of $6,400. 2) Request to reducing FY19 funding for $100K was approved. 3) Performed site walk to finalize scope and quantities with each discipline.	1) The budget and funding needed are being reevaluated and a deeper dive will be taken to assess the effects of the changing scope against the budgetary needs. 2) lack of manpower resources needed to complete work and lack of adequate track outages (physical and power outages) to complete work. 3) A lack of available surfacing equipment that can operate in the tunnels, due to other work, may delay project.
East River Tunnels Track Replacement Project. C.EN.100756	$533,350	$8,038	$525,312	1) No work planned for Fiscal Year 2019. Process invoice for Road Maintenance Service for jet vacuum and video services to National Water Main Services in the amount of $6,400. 2) Request to reducing FY19 funding for $100K was approved. 3) Performed site walk to finalize scope and quantities with each discipline.	1) The budget and funding needed are being reevaluated and a deeper dive will be taken to assess the effects of the changing scope against the budgetary needs. 2) lack of manpower resources needed to complete work and lack of adequate track outages (physical and power outages) to complete work. 3) A lack of available surfacing equipment that can operate in the tunnels, due to other work, may delay project.
Penn Station Infrastructure Renewal Program. C.EN.101104	$35,197,317	$30,644,630	$4,552,687	1) Completed installation of the 515A turnout, 513 nose panel, 523 turnout, 517A turnout and replacement of the third rail on Line 2 up to the 513 turnout. Began work on Track 18 direct fixation (completion of work that was started in FY18). 2) Completed work on Track 18 direct fixation; completed replacement of Tk17 including the 605 TO and began prep work on Tk16. 3) Completed #105 TO and started summer work on 561A TO at station; started building 561/563/565 crossovers in Yard. 4) Completed replacements of 561/563/565 crossovers and started to build the #103 and #435 switch panels for installation in FY20.	1) Obtaining track outages is problematic, as is a lack of sufficient manpower resources due to competing priority projects or unexpected operational emergencies that require resources.
Sunnyside Yard Frequency Converter Upgrade Project. C.EN.101239	$1,330,524	$355,938	$974,586	1) Started site survey and GRP work. 2) Procured contractor to do the site utility survey work. 3) completed site survey and GPR work and commenced draft of full survey and geotechnical report 4) Procurement released RFP for 30% Preliminary Engineering services and continued review of bidder proposals.	1) Construction will have to take place in an active facility providing ET to Amtrak's North River Tunnels, East River Tunnels, Sunnyside Yard and NYP.

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Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
Fair Interlocking Renewal Project. C.EN.101277	$3,200,100	$7,333,747	-$4,133,647	1) Project change PMs at the end of Q1 and scope was revisited to make sure all parties (Track, C&S, Plng) understand the full scope, schedule and budget for the project. C&S continued trenching and installation of conduit and signal express cables and signal power cables in preparation for the turnout replacements scheduled for Q419 and continued efforts to convert existing machines to electric control. 2) Completed final SOW and budget for Track portion. 3) Completed final SOW, schedule and budget for Fair I/L; continued air to electric switch conversion for Switch 75 at Fair I/L; started coordination with Track department about #43 crossover and #68 switch 4) Continued design of W86 crossover to 68 turnout, completed replacement of #16 switch and #21 crossover, removed W86a switch.	1) Complete scope for the project remains to be finalized. The current scope may only include Phase 1 of the project and discussions are on-going with Planning, Track and C&S Departments. Future discussions will take place with Transportation, NJT & SEPTA. Budget: the original budget is based on pre-conceptual design for Phase 1 only. Current project budget is preliminary and still under development as complete scope is finalized. 2) Submitted request to increase FY19 budget from $4.9M to $6.4M to cover remaining FY19 forecast; hazardous materials (soil and ballast samples tested positive for PCBs) need to be abated by third party and work procedures may need to be revised.
Perry Interlocking Renewal Project. C.EN.101285	$5,333,500	$6,852,282	-$1,518,782	1) Material acquisition and Lead Time for X0's 32 and 43. 2) Preparation for installation of crossovers 32 & 43. 3) On-going switch welding 4) Completed ET installation, System Integration and switch welding.	1) Schedule: team is preparing for the installation to take place over four approved 55 hour outages starting Apr 2019-May 2019. ET will be pulling OCS wire for 45 days after May 2019 when track and C&S are complete. 2) Additional labor costs incurred, budget to increase to reflect this and schedule pushed back. 3) Schedule was delayed due to Train Operations removing one or more 55-hour outages.
Mystic, CT - Veltri Interlocking Renewal Project. C.EN.101309	$1,099,000	$649,735	$449,265	1) Management of the project and the procurement process for selecting a designer began. 2) A design contract was awarded to Gannett Fleming and the design began. 3) Amtrak began design review and began providing RWP for the designer 4) Design and review are on-going and Amtrak continued providing RWP for the designer	1) There is a large schedule variance due to the design, which was planned to start at the beginning of Q2 but did not start until the end of Q2. At this time, the FY19 AOP Approved funding is slightly insufficient compared to the FY19 Forecast. 2) The current ROM for construction will need revision as design is developed; the schedule variance is high as the design did not start as planned.
New Hackensack Substation 42 Control House Project. C.EN.101535	$3,289,203		$3,289,203	1) Designer completed the 100% design for the project. Amtrak started reviewing the 100% design. 2) Amtrak completed the 100% design review.	1) Permits from NJ Transit and Conrail for staging for crane picks. Cost associated for both permits and flag protection is unknown and will need to be included once obtained. Obtaining permits has been problematic in the past and can seriously affect the project schedule. 2) Schedule and Budget at risk if not get NJT Property Access and Use Permit and if cut-over of existing substation is not functioning properly.
Trenton, NJ Interchange Extension Project. C.EN.101592	$1,600,050	$976,341	$623,709	1) No construction took place during the first quarter of 2019. The expenditures during the quarter were for project management and travel expenses. Construction is approximately 83% complete and is expected to continue in the second quarter of 2019, starting in January with an anticipated completion date in February 2019. 2) Completed installation of #8 TO/switch and installation of about 1200 linear feet of yard track at Milham Yard. 3) Started closeout process, completed payment for outstanding invoices, completed close-out of open purchase requisitions. 4) The project is complete, as is the closeout process.	1) EAC for the project is $6.8M. 2) Lack of manpower and track outages needed to complete work.

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Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
Metuchen Frequency Converter - Equipment Upgrades Project. C.EN.101747	$8,856,077	$2,285,941	$6,570,137	1) Change orders #1 and 2 submitted and awaiting approval. 2) Continued administering progress meetings with key stakeholders; confirmed SOW and configuration to be issued to subcontractor for shop drawing design. 3) Finalized engineering design of controller and configuration to be issued to subcontractor for shop drawing design. 4) Continued with material procurement, performed pre-construction activities and revised schedule to reflect Jan 2020 power outage.	1) PECO will be issued a contract mod for approved additional scope; updated schedule to be issued after contract mod takes effect and will address revised scope of work and durations. Budget: the EAC for total project cost is $9M. Scope: two admin change orders were submitted related to the additional scope. Schedule: the Master Schedule will be impacted as a significant long lead item was a component of the approved change order. 2) PECO has delayed invoicing due to internal accounting issues. Awaiting confirmation from PSE&G that summer 2019 power outage will cause monetary fees on Amtrak. 3) Amtrak is negotiating a waiver from PSE&G on summer rate cost hikes anticipated with a summer 2019 power outage from the Rotary Frequency Converter; a rate hike would impact Amtrak's core operating costs. 4) Potential cost delay due to extension of contract in order to address the Jan 2020 power outage.
Clark to Ham Constant Tension Upgrade Project. C.EN.101765	$7,466,900		$7,466,900	1) Obtain Amtrak Board approval for project. 2) Obtained Amtrak Board approval for project; developed SOW document for CMS contractor; developed outline for future materials procurement 3) inspected / completed repairs of foundations previously constructed and evaluated potential modifications to current temporary platform extensions 4) B&B Production field forces provided mock-up modification options for temporary platforms, selected preferred option and began to obtain quotes for required material.	1) Experienced difficulty obtaining Amtrak Board Approval for project. The EAC for the total project cost is $166.8M, which includes a reduction in the original estimate associated with elimination of project office space, equipment and construction efficiencies. 2) Challenges include getting sufficient track outages, poor weather, emergency railroad maintenance, below grade interferences with caisson foundation construction and possible minor shifts in catenary structure locations.
Washington to Boston ARINC to AMTEC Software Upgrade Project. C.EN.101767	$6,212,732	$3,035,754	$3,176,977	1) Amtrak began to design the replacement of the SED and NEC primary and backup components for the AMTEC System, all Software modifications, and Communication Track model were created in preparation to begin database simulation for the MID-Atlantic Division. 2) Completed Phase 1 and began preparations for Phase 2, network configuration and cable management. 3) Testing and commissioning the Wilmington CNOC Facility, which will put in service the Harrisburg Line and all Mid-Atlantic division for the AMTEC project. 4) Continued to build Track models and database components for all field equipment in the New England Division.	1) Q2: Still waiting on the additional funding that was originally requested to fund this project properly 2) Additional funding have been requested and should be approved before FY19 is complete to adjust to the proper budget 3) Limited resources could affect Phase 2's project schedule.
Supervisory Control Data Acquisition (SCADA) Replacement Project. C.EN.101779	$533,350	$86,426	$446,924	1) Management of the project began and the preliminary design was completed. 2) SOW prep was completed and RFP was issued for design-build contractor 3) Procurement of design-build contractor is on-going 4) Selected design-build contractor.	1) The SOW will be defined further before the bid opening for a design-build vendor. After award, the project budget may change as the budget is currently based on a ROM estimate. At this time the available funding does not cover the estimated budget. The IT investment committee is reviewing the project to ensure it is funded as needed. 2) project will transition from Eng to IT depart which will require robust coordination; IT has separate numbers to charge time spent on this project, which could result in variances between planned and actuals. 3) Contract award was planned to occur in May but slipped due to procurement taking longer than planned.

Project data including expenditures, accomplishments, and explanation of variances are published as submitted by coordinating agencies.

Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
Conestoga to Royalton Transmission Line Replacement Project. C.EN.101785	$1,920,060	$1,021,726	$898,334	1) executed design contract with HNTB; HNTB given NTP in Nov 2018; design kick-off mtg occurred in Dec 2018. 2) received NS approval to enter NS ROW and conducted LiDAR Survey on NS ROW 3) Received concept design, reviewed comments and incorporated them for FRA. 4) Received 30% project design and submitted 30% design to NS for review and comment, and completed conventional survey on trail to substation.	1) Additional borings will be needed at each structure for precast foundations. Increase to design cost will result in cost savings during construction. A change order from the contractor pending. 2) not having Long Lead material timely will impact both cost and schedule to the project; inability to access NS ROW will impact both project cost and schedule; historical research of the area may impact project schedule by delaying field execution 3) Additional historical evaluation are required due to the increased height of the transmission structures.
Kearny to Waverly - Transmission Tower Upgrade Project. C.EN.101787	$517,350	$58,056	$459,294	1) Complete 90% design, continue to obtain SHPO/NEPA approval. 2) Review 90% design and provide comments, begin 100% design accepting Risk #2 from Risk Register, continue to obtain NEPA/ SHPO approval. 3) continue 100% design and continue to obtain NEPA/SHPO approval	1) Need to accelerate construction activities to start in (possibly as early as Sept 2019) due to safety concern with existing towers, including significant loss of steel section at crossbeam supports. Reprogramming required and early procurement needed to secure contractor and necessary materials for accelerated construction. 2) Schedule risk due to possible funding shortage for construction activities for multi-year project; budget risk due to advancing final design without NEPA/SHPO approval 3) Resources that are needed per a labor clearance agreement are not confirmed.
Brandy to Ragan Section Improvements Project. C.EN.201126	$3,733,450	$4,106,561	-$373,111	1) Construction of the Brandy to Ragan Section Improvement Project continues and is approximately 70% complete. Completed installation of the 91 crossover at Yard Interlocking, installed concrete panels and completed welding of rail joints at Ragan I/L. 2) completed building and installation of #19 TOs along with track shift of the Shellpot Branch into the Industrial Track for future DE 3rd Track work in FY20. 3) Approved $10M scope reduction of project by stakeholders.	1) Concern that current budget for replacement of Orange Street Bridge ($7.6M) may not cover actual expended costs. Estimate will be revisited for further analysis. 2) Project has overspent FY19 funding budget by $129K. 3) Project currently overspent by $135K 3) Lack of manpower resources and adequate track outages (physical and power outages) continue to be challenges.
Zoo to Paoli Catenary Structure Upgrade Project. C.EN.201264	$362,678	$102,757	$259,921	1) Completion of final design on-going. 2) Continued to complete final design 3) Received final design 4) Completed review of Bryn Mawr final design and submitted comments.	1) Schedule: at risk due to possible funding shortage for multi-year construction project and insufficient internal coordination for track outages. 2) schedule at risk due to contractor supplying long lead material for substation.

Project data including expenditures, accomplishments, and explanation of variances are published as submitted by coordinating agencies.

Amtrak: Continuous Maintenance Production Programs

Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
NEC System Undercutting Program. C.EN.100269	$66,459,743	$56,324,388	$10,135,355	1) Northern Undercutter surfaced Track 2 Guildford-Brook; Southern Undercutter completed cut/surface on Track 3 Bowie-Grove and began on Bridge-Grove Tk2. 2) Q2: undercutter was down and performed winter work, prep work, support functions (installed CWR & ties, Vac Train) in prep for production season to begin in April. 3) 151,700 track feet undercut 3) Q4 undercutting: Bowie to Grove TK 1 3,380 feet; Brandford to Mill River TK 2 7,186 feet; Guilford to Brook TK 2 32,344 feet; Carroll to Bowie TK 1 30,621 feet; Carrol to Bowie TK2 21,520 feet.	-
NEC Surfacing Program. C.EN.101649	$28,374,220	$27,847,502	$526,718	1) Q1 work: 58.6 linear miles surfaced; 42.1 linear miles off program spot surfaced. 2) Q2: 96.3 linear miles surfaced; 32.3 linear miles off program spot surfaced 3) 81.5 linear miles surfaced; 36.6 miles spot surfaced 4) 63.4 linear miles pass surfaced (334,856 feet).	1) The Surfacing Program frequently has schedule reprioritizations due to the nature of surfacing work. These reprioritizations are caused due to unexpected surfacing conditions, emergency situations, competing priorities for track time, and equipment maintenance. 2) Higher expenditure than expected in Q4 due to additional scope added to the project and unexpected travel time.
TLS Concrete Tie Replacement Program. C.EN.101652	$60,801,900	$59,592,694	$1,209,206	1) in Q1 installed 20,329 concrete ties and 84,713 feet of CWR; surfaced 11,654 feet of track from Morris to West Fair on Track 1; disposed of 26K feet of old rail and unloaded 40k feet of new rail for future work. 2) Q2: most of the work completed was prep work for the upcoming production season which starts in April; MP83-Gunpow 8,738 ties installed and 36,648 ft of CWR installed; 120,290 ft of old rail picked up 3) Q3: 33,983 ties and 137,017 feet of CWR installed 4) Q4: Iron to Ruthby TK A 5 ties installed; Perry to Prince TK 2 4,043 ties installed; Landlith to Holly TK 2 13,354 ties installed; Shore to Holmes 208 ties installed; 68,230 feet CWR installed.	1) The current forecast exceeds the budget. Budgetary needs will be re-evaluated after the first full month of Production in the FY19 season.
NEC Tie-timber Replacement Program. C.EN.101656	$20,454,155	$35,772,366	-$15,318,211	1) 15,836 ties/timbers replaced in Q1. 2) Q2: 7,069 ties/timbers were installed (Biddle-Gunpow, Emora-735, SSY and Loop Tracks, Fair I/L, WAS). 3) Q3 6,557 ties/timbers were installed (WAS, SSY, Fair I/L) 4) Q4: 4,937 ties/timbers replaced in Washington Terminal and the following divisions: Mid Atlantic Division, New England, New York.	1) production Tie/Timber gangs have been consistently behind schedule. True Budget Variance is approaching $10M. Organizational responsibilities need to be defined. Schedule and Estimate must be updated. Reprogramming request to be resubmitted due to a timing issues in the new FY. During the normal production season, NED does not have a dedicated production tie gang, as the production forces are absorbed by the undercutter operation. 2) Planned winter work at some of the yards that should have been charged to NEC Support Facilities were instead charged to incorrect account; worked to moved the charges to the correct account. 3) A new programming request for $6.7M was submitted because spent extra time to perform work at Biddle Elmora, Philadelphia and Paul's Valley; additionally force account charges from the Division were higher than anticipated.

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Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
NEC Turnout Renewal Program. C.EN.101660	$11,377,647	$13,602,528	-$2,224,880	1) One I/L installed at Girard. Installed switch at Prince. One #2 TO installed at Prince I/L. Continued building switch panels for the upcoming production season. Switches will be built for Oak and Magnolia. Work continued from I/Ls that were installed during FY18 at Bay, Biddle, Erie and Hunter. 2) Q2: two TOs were installed at Magnolia March; TOs were built for future installations 3) #13 Turnout was installed at Branford 4) In Q4 the following turnouts were installed: Oak #43, Grundy #23, WYE Brg. in Ivy City.	1) Due to late switch delivery the switches planned for Edison have been pushed to later years; submitted a reprogramming request of $2.5M
NEC Rail Replacement Program. C.EN.101661	$10,133,650	$4,995,231	$5,138,419	1) Q2 CWR installed: Groton to High St Tk2 9,894 ft; Ragan to Davis Tk3 39,429 ft; Swift to Dock Tk3 3,096 ft 2) Q3: 2,400 feet of CWR was installed on the AB Line from Groton to High St, Track 1.	1) due to weather conditions and issues with equipment, only 50% of planned rail was installed, from Ragan to Davis; a reprogramming was requested to reduce project budget by $4.25M
National Surfacing Program. C.EN.101668	$3,696,116	$5,649,126	-$1,953,011	1) spot surfacing in the National program for Q1: 44.64 linear miles of surfacing on the AH Line, 1.33 linear miles on the AS Line. 2) Q2: 30.2 linear miles surfaced on the AH line and 9.3 linear miles spot surfaced on the AS Line. 3) Q4: 16.8 linear miles (89,019 feet) surfaced.	1) The Surfacing Program frequently has schedule reprioritizations due to the nature of surfacing work. These reprioritizations are caused due to unexpected surfacing conditions, emergency situations, competing priorities for track time, and equipment maintenance. 2) A reprogramming request for an additional $1.8M was submitted; a dedicated unit was assigned to the AH line for FY19 which was not in the original plan; this will result in added pass feet for the FY and an increased SOW. 3) A reprogramming request for an additional $750K was approved. Q3 underspend was due to vacations and open positions 4) Underspend captured in Q4 because work was being charged to the wrong project.
National Tie Timber Replacement Program. C.EN.101673	$5,704,533	$10,819,033	-$5,114,499	1) 68 ties replaced on the AS Line, 163 on the AH Line. 2) Q2: 2,277 ties/timbers installed for the National program, on the AH Line (Paoli-Thorn), the AS Line (MP21.5-23.8), and the AX Line 3) Q3: 11,628 ties/timbers replaced on the Harrisburg Line from Paoli-Thorn Track 1; division gangs installed an additional 374 ties/timbers on the Harrisburg Line 4) Q4: Production gang replaced 6,957 ties/timbers on the Harrisburg Line between Paoli to Thorn and division gangs replaced 176 ties/timbers on the following lines: Springfield, Harrisburg, and Albany.	1) Reprogramming of $4.5M was approved; Paoli to Thorn Track 4 will be moved to FY20
National Turnout Renewal Program. C.EN.101675	$10,634,256	$10,029,188	$605,068	1) Prep work and building of turnouts. Work for the National Turnout Renewal Program does not start until Mar 2019 when the force account will work at Caln I/L installing 1 turnout. Costs to date reflect the prep work and building of turnouts. 2) work did not start until March 3) In Q3 installed the following turnouts: Downs #69, Downs #73, Thorn #57, Thorn #61 4) In Q4 the following turnouts were installed: JO 131 at Zoo, Paoli #25, Spring #46; panels were built in Paoli #25 and 18 joints were welded at Thorn #61.	1) Due to changes in scope (removal of Overbrook), a reprogramming request to reduce the budget by $1.7M has been submitted

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Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
NEC Total Track Replacement Program. C.EN.101774	$1,600,050	$3,949,896	-$2,349,846	1) prep work was performed which included the building of a platform wall barrier. Other costs for this project were for field supervision, support, transport and distribution of materials, supplies and project management related tasks. 2) Q2: removed existing block ties and installed 1,660 new block ties; for Independent Track, unclipped running rail, cut existing rail into sections and removed existing rail and installed 1,440 ft of new running rail. 3) In Q4 teams worked on clean-up and disposal of materials.	1) The estimate for this project is higher than the budget; a reprogramming of $250K is being submitted 2) The cost to dispose of hazardous concrete material exceeded the planned amount; a reprogramming request of $1.55M has been submitted

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Amtrak: Other Projects and Programs

Project name		FY19 Planned expenditure	FY19 Actual expenditure	Variance
C.EN.100120	INT DOCK INTERLOCKING - INTERLOCKING RENEWAL C&S/ET	$736,023	$1,390,599	-$654,576
C.EN.100123	APP ENGINEERING ASSET MANAGEMENT SYSTEM	$4,266,800	$3,484,247	$782,553
C.EN.100203	INTB MID-ATLANTIC DIVISION-INTERLOCKING LIGHTING UPGRADES	$373,345	-$43,776	$417,121
C.EN.100316	STA PENN STATION NEW YORK - ESCALATOR REPLACEMENT	$7,466,900	$1,716,191	$5,750,709
C.EN.100331	SYS ELECTRIC TRACTION DESIGN REVIEW	$469,348	$301,108	$168,240
C.EN.100333	SYS TRACK - FUTURE DESIGN	$366,470	$150,651	$215,819
C.EN.100371	SAFE EMPLOYEE ARC FLASH PROTECTION	$853,360	-$3	$853,363
C.EN.100418	SYS ENGINEERING CAPITAL PROGRAM - PROJECT MANAGEMENT	$6,933,550	$6,815,871	$117,679
C.EN.100422	BGMS STRUCTURES - MOVABLE BRIDGE COMPONENT DESIGN	$119,930	$271,541	-$151,611
C.EN.100477	SYS STRUCTURES BRIDGES/TUNNELS/WALLS - FUTURE DESIGN	$1,239,734	$718,962	$520,772
C.EN.100478	SYS C&S LANCASTER SHOP EQUIPMENT PURCHASE/UPGRADES	$213,340	$143,200	$70,140
C.EN.100562	INT AMTRAK NEC MAD SOUTH – INTERLOCKING UPGRADES	$800,025	$860,552	-$60,527
C.EN.100563	INT AMTRAK NEC MAD NORTH – INTERLOCKING UPGRADES	$1,280,040	$1,650,552	-$370,512
C.EN.100578	STA HARRISBURG LINE STATIONS - STATION IMPROVEMENTS	$2,133,400	$325,369	$1,808,031
C.EN.100618	CAT ELECTRIC TRACTION TRAINING FACILITY - UPGRADES	$186,673	$238,802	-$52,129
C.EN.100627	STA 30TH STREET STATION - ELEVATOR REPLACEMENT	$3,200,100	-$15,288	$3,215,388
C.EN.100649	RAD PENN STATION NY - RADIO SYSTEM UPGRADES DESIGN & INSTALL	$106,670	$18,582	$88,088
C.EN.100709	BGMS NJ008.50 DOCK BRG-UPGR CTRL LINE/EMGY BCKUP ENG/AUX DRV	$266,675	$693,858	-$427,183
C.EN.100727	INT DAVISVILLE INTERLOCKING - UPGRADE TO MICROLOK 2	$1,066,700	$2,244,423	-$1,177,723
C.EN.100739	TKAP WASHINGTON TO BOSTON - RAIL LUBRICATOR REPLACEMENT	$533,350	$458,395	$74,955
C.EN.100750	GEOM AMTRAK SYSTEM - SURFACING PROGRAM DEVELOPMENT	$394,679	$193,165	$201,514
C.EN.100764	XINR AMTRAK NATIONAL - CROSSING UPGRADES	$1,013,365	$1,445,312	-$431,947
C.EN.100788	RAD NORTHEAST CORRIDOR - RADIO VOTER UPGRADES	$320,010	$399,215	-$79,205
C.EN.100837	STA 30TH STREET STATION - HVAC AIR HANDLERS UPGRADES	$3,200,100	$84,048	$3,116,052
C.EN.100846	CABF WAS TO NEW YORK-INSTALL REDUNDANT COMM CBL	$1,600,050	$839,501	$760,549
C.EN.100850	STA WASHINGTON TERM & IVY CITY-FACILITY ELECTRICAL UPGRADES	$533,350	$75,242	$458,108
C.EN.100940	INTB NEW YORK DIV - INTERLOCKING LIGHTING FIXTURE UPGRADES	$266,675	$289,025	-$22,350

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Project name		FY19 Planned expenditure	FY19 Actual expenditure	Variance
C.EN.101110	BGTI STRUCTURES - BRIDGE TIE DESIGN	$64,002	$50,296	$13,706
C.EN.101116	STA PENN STATION NEW YORK - FACILITIES UPGRADES	$3,200,100	$624,337	$2,575,763
C.EN.101178	TIES CONCRETE TIE - REDESIGN OF CONCRETE TIES	$533,350	$136,511	$396,839
C.EN.101211	STA NEW ENGLAND DIVISION - STATION CONSTRUCTION UPGRADES	$2,666,750	$4,272,107	-$1,605,357
C.EN.101221	STA MID ATLANTIC DIVISION - STATION CONSTRUCTION UPGRADES	$5,333,500	$1,834,466	$3,499,034
C.EN.101243	TOWR MID ATLANTIC DIVISION-TRANSPORTATION FACILITY UPGRADES	$426,680	$40,972	$385,708
C.EN.101244	TUN MID ATLANTIC DIVISION - TUNNEL UPGRADES	$1,066,700	$501,212	$565,488
C.EN.101256	BGTI NED SPRINGFIELD LINE - BRIDGE TIMBER REPLACEMENT	$533,350		$533,350
C.EN.101276	STA NEW YORK DIVISION - STATION CONSTRUCTION UPGRADES	$2,133,400	$3,148,707	-$1,015,307
C.EN.101354	NET C&S SYSTEM - NETWORK UPGRADES	$266,675		$266,675
C.EN.101358	TEL NEW YORK DIVISION - REPLACE COMM EQUIPMENT HOUSES	$106,670	$39,036	$67,634
C.EN.101359	TEL MID-ATLANTIC DIVISION - REPLACE COMM EQUIPMENT HOUSES	$106,670	$86,181	$20,489
C.EN.101415	RAD AMTRAK SYSTEM-RADIO SITE BACKUP AND EMERGENCY PWR UPGRS	$156,977	$23,593	$133,383
C.EN.101417	NET NEC - IT AND POLICE VIDEO BANDWIDTH AUGMENTATION	$1,600,050		$1,600,050
C.EN.101418	SUB NEW ENGLAND DIVISION - SUBSTATION SCADA-RTU UPGRADES	$1,338,709	$342,253	$996,456
C.EN.101420	TEL AMTRAK SYSTEM - OPERATIONS VOICE RECORDING SYS UPGRS	$320,010	$4,326	$315,684
C.EN.101426	TEL MID-ATLANTIC DIVISION - COMM SHELTER ALARM SYSTEM UPGRS	$106,670	$20,195	$86,475
C.EN.101474	INT AMTRAK NEC NYD WEST - INTERLOCKING UPGRADES	$1,280,040	$1,586,792	-$306,752
C.EN.101508	TUN NRT 11TH AVE VENT SHAFT - AUTOMATIC TRANSFER SWITCH UPGR	$1,386,710	$499,406	$887,304
C.EN.101510	SWHT NEW ENGLAND DIVISION - ENERGY EFFICIENT SW HEATER REPL	$320,010		$320,010
C.EN.101517	SAFE ELECTRIC TRACTION EMPLOYEE ARC FLASH PROTECTION	$266,675		$266,675
C.EN.101528	BGMS NY010.25 SPUYTEN DUYVIL-SANDY DAMAGE MECH-ELECTRICAL	$533,350	$1,902,200	-$1,368,850
C.EN.101593	RAD WASHINGTON 1ST STREET TUNNEL - RADIO IMPROVEMENTS	$373,345	$46,510	$326,835
C.EN.101607	PTC SPRINGFIELD LINE - PTC INSTALLATION WAYSIDE	$4,480,140	$3,693,518	$786,622
C.EN.101608	STA PENN STATION NY - STATION CHILLED WATER SYSTEM UPGRADE	$320,010		$320,010
C.EN.101611	CAT AMTRAK ELECTRIFIED TERRITORY-OSHA FALL PROTECTION STUDY	$789,358	$121,535	$667,823
C.EN.101622	TUN NORTH RIVER TUNNELS - TUNNEL IMPROVEMENTS	$1,226,705	$499,414	$727,291
C.EN.101624	TUN EAST RIVER TUNNELS - TUNNEL IMPROVEMENTS	$800,025	$571,742	$228,283
C.EN.101625	TUN EMPIRE TUNNEL - TUNNEL IMPROVEMENTS	$1,066,700	$1,345,578	-$278,878

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Project name		FY19 Planned expenditure	FY19 Actual expenditure	Variance
C.EN.101627	STA PENN STATION NEW YORK-LIFE SAFETY FACILITY IMPROVEMENTS	$1,066,700	$98,546	$968,154
C.EN.101646	TKRH WESTSIDE CONNECTION TUNNEL - TRACK INFRASTRUCTURE UPGRS	$5,333,500	$10,933,850	-$5,600,350
C.EN.101647	BLST AMTRAK NEC - SPOT UNDERCUTTING PROGRAM	$7,680,240	$5,499,803	$2,180,437
C.EN.101648	FAST AMTRAK NEC - CONCRETE TIE FASTENER HARDWARE	$266,675	$21,681	$244,994
C.EN.101650	STIP AMTRAK NEC - RIDE QUALITY IMPROVEMENT PROGRAM	$3,200,100	$1,499,744	$1,700,356
C.EN.101651	DRAN AMTRAK NEC - DRAINAGE-ROADBED IMPROVEMENTS	$8,693,605	$3,006,096	$5,687,509
C.EN.101653	TKAP AMTRAK NEC - WAYSIDE DETECTOR REPLACEMENT PROGRAM	$213,340	$91,453	$121,887
C.EN.101655	RAIL AMTRAK NEC - JOINT ELIMINATION PROGRAM	$7,200,225	$8,102,001	-$901,776
C.EN.101657	TIES AMTRAK NEC - CONCRETE TIE REPLACEMENT PROGRAM	$9,525,631	$17,890,115	-$8,364,484
C.EN.101658	TURN AMTRAK NEC - INTERLOCKING STEEL RENEWAL PROGRAM	$7,271,520	$11,531,958	-$4,260,438
C.EN.101662	SUB AMTRAK NATIONAL - SUBSTATION UPGRADES	$4,426,805	$3,399,332	$1,027,473
C.EN.101663	CAT AMTRAK NATIONAL - CATENARY HARDWARE RENEWAL	$266,675	$294,769	-$28,094
C.EN.101665	SIGP AMTRAK NATIONAL - SIGNAL POWER UPGRADES	$160,005	$14,052	$145,953
C.EN.101666	TRN AMTRAK NATIONAL - TRANSMISSION LINE UPGRADES	$426,680	$73,145	$353,535
C.EN.101667	BLST AMTRAK NATIONAL - SPOT UNDERCUTTING PROGRAM	$1,600,050	$383,536	$1,216,514
C.EN.101669	DRAN AMTRAK NATIONAL - DRAINAGE-ROADBED IMPROVEMENTS	$6,400,200	$8,202,889	-$1,802,689
C.EN.101672	RAIL AMTRAK NATIONAL - JOINT ELIMINATION PROGRAM	$1,226,705	$1,097,944	$128,761
C.EN.101674	TURN AMTRAK NATIONAL - INTERLOCKING STEEL RENEWAL PROGRAM	$880,028	$820,618	$59,410
C.EN.101678	BGUG AMTRAK NATIONAL - UNDERGRADE BRIDGE UPGRADES	$1,066,700	$4,845	$1,061,855
C.EN.101679	CULV AMTRAK NATIONAL - CULVERT UPGRADES	$320,010	$371,944	-$51,934
C.EN.101680	MOFW AMTRAK NATIONAL - MOFW BASE UPGRADES	$677,355	$46,001	$631,354
C.EN.101684	TEL AMTRAK NATIONAL - COMMUNICATION SYSTEM UPGRADES		$34,847	-$34,847
C.EN.101686	POLE AMTRAK NATIONAL - CATENARY POLE UPGRADES	$106,670		$106,670
C.EN.101688	SUB AMTRAK NEC - SUBSTATION UPGRADES	$4,709,481	$9,370,052	-$4,660,572
C.EN.101689	CAT AMTRAK NEC - CATENARY UPGRADES	$2,666,750	$4,934,604	-$2,267,854
C.EN.101690	POLE AMTRAK NEC - CATENARY POLE UPGRADES	$1,600,050	$1,200,545	$399,505
C.EN.101691	FREQ AMTRAK NEC - FREQUENCY CONVERTER UPGRADES	$4,058,794	$2,445,025	$1,613,769
C.EN.101692	SWHT AMTRAK NEC - ELECTRIC TRACTION SW HTR IMPROVEMENTS	$2,080,065	$2,491,556	-$411,491
C.EN.101693	TRN AMTRAK NEC - TRANSMISSION LINE UPGRADES	$880,028	$2,584,231	-$1,704,204

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Project name		FY19 Planned expenditure	FY19 Actual expenditure	Variance
C.EN.101694	SIGP AMTRAK NEC - SIGNAL POWER UPGRADES	$1,600,050	$2,585,679	-$985,629
C.EN.101695	CATC AMTRAK NEC - CONSTANT TENSION CATENARY HARDWARE RENEWAL	$640,020	$403,235	$236,785
C.EN.101696	BGTI AMTRAK NEC - BRIDGE TIMBER REPLACEMENT	$5,333,500	$10,811,073	-$5,477,573
C.EN.101697	BGUG AMTRAK NEC - UNDERGRADE BRIDGE UPGRADES	$4,266,800	$3,753,984	$512,816
C.EN.101698	CULV AMTRAK NEC - CULVERT UPGRADES	$3,200,100	$1,073,319	$2,126,781
C.EN.101701	INT AMTRAK NEC - C&S INTERLOCKING UPGRADES	$536,916	$462,675	$74,241
C.EN.101704	SWHT AMTRAK NEC - C&S SWITCH HEATER IMPROVEMENTS	$400,013		$400,013
C.EN.101705	BGMS AMTRAK NEC - MOVABLE BRIDGE UPGRADES	$800,025	$1,018,533	-$218,508
C.EN.101706	BGSG AMTRAK NEC - SIGNAL BRIDGE UPGRADES	$2,666,750	$434,887	$2,231,863
C.EN.101707	WALL AMTRAK NEC - RETAINING WALL UPGRADES	$1,066,700	$307,793	$758,907
C.EN.101708	BGMS AMTRAK NATIONAL - MOVABLE BRIDGE UPGRADES	$261,342	$138,900	$122,441
C.EN.101709	WALL AMTRAK NATIONAL - RETAINING WALL UPGRADES	$533,350	$17,098	$516,252
C.EN.101710	FEN AMTRAK NATIONAL - FENCE UPGRADES	$320,010	$445,144	-$125,134
C.EN.101711	FEN AMTRAK NEC - FENCE UPGRADES	$6,400,200	$4,816,206	$1,583,994
C.EN.101712	BGSG AMTRAK NATIONAL - SIGNAL BRIDGE UPGRADES	$533,350		$533,350
C.EN.101713	RAIL AMTRAK NEC - INSULATED JOINT REPLACEMENT PROGRAM	$3,520,110	$1,938,851	$1,581,259
C.EN.101714	CETC AMTRAK SYSTEM-MOFW ENHANCED EMPLOYEE PROTECTION SYSTEM	$224,007		$224,007
C.EN.101719	FAST AMTRAK NATIONAL - CONCRETE TIE FASTENER HARDWARE	$53,335		$53,335
C.EN.101720	RAIL AMTRAK NATIONAL - RAIL REPLACEMENT PROGRAM	$2,133,400	$1,205	$2,132,195
C.EN.101722	RAIL AMTRAK NATIONAL - INSULATED JOINT REPLACEMENT PROGRAM	$549,351	$227,041	$322,309
C.EN.101723	STIP AMTRAK NATIONAL - RIDE QUALITY IMPROVEMENT PROGRAM		$1,587,678	-$1,587,678
C.EN.101726	CETC AMTK NEC-TECHNOLOGY RENEWAL PROGRAM	$2,072,065	$706,168	$1,365,896
C.EN.101727	XINR AMTRAK NEC - CROSSING UPGRADES	$640,020	$148,785	$491,235
C.EN.101732	RAD AMTRAK NEC - RADIO SYSTEM UPGRADES	$533,350	$275,629	$257,721
C.EN.101740	INT AMTRAK NEC - SWITCH CONVERSION AIR TO ELECTRIC	$160,005		$160,005
C.EN.101743	INT NEW YORK DIVISION EAST - INTERLOCKING UPGRADES	$320,010	$1,245,362	-$925,352
C.EN.101744	INT NEW ENGLAND DIV WEST- INTERLOCKING UPGRADES	$426,680	$457,490	-$30,810
C.EN.101748	TEL NEW ENGLAND DIVISION - FIBER OPTIC SYSTEM UPGRADES	$3,200,100		$3,200,100
C.EN.101751	INT NEW ENGLAND DIV EAST – INTERLOCKING UPGRADES	$288,009	$251,534	$36,475

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Project name		FY19 Planned expenditure	FY19 Actual expenditure	Variance
C.EN.101752	TEL HARRISBURG LINE - FIBER OPTIC SYSTEM UPGRADES	$1,333,375		$1,333,375
C.EN.101753	ABS WASHINGTON TO NEW YORK - UPGRADE SIGNAL SYSTEM TO 562	$7,366,499	$6,572,478	$794,021
C.EN.101758	PTC AMTRAK NATIONAL - PTC SPLIT-POINT DERAIL PROGRAM	$480,015	$149,016	$330,999
C.EN.101762	PTC AMTRAK NEC - PTC SPLIT-POINT DERAIL PROGRAM	$320,010	$137,244	$182,766
C.EN.101766	NET AMTRAK NATIONAL - C&S NETWORK UPGRADES	$586,685		$586,685
C.EN.101769	CETC PHILADELPHIA PA - 8TH FLOOR FAIL-SAFE CETC OPERATIONS	$2,026,730		$2,026,730
C.EN.101770	ABS HARRISBURG LN PARK TO ZOO - UPGRADE SIGNAL SYSTEM TO 562	$4,077,038	$6,170,425	-$2,093,387
C.EN.101773	STA NEW CARROLLTON MD - ELEVATOR/ESCALATORS REPLACEMENT	$213,340		$213,340
C.EN.101777	INRL SPRING INTERLOCKING - INTERLOCKING RENEWAL	$266,675	$8,748	$257,927
C.EN.101791	BGMS NY010.25 SPUYTEN DUYVIL - FENDER SYSTEM UPGRADES	$5,333,500	$182,218	$5,151,282
C.EN.101793	STA 30TH STREET STATION–PERIMETER ELECTRONIC LOCKING SYSTEM	$1,066,700	$391	$1,066,309
C.EN.101794	RAIL AMTRAK NEC - RAIL GRINDING	$106,670	$153,718	-$47,048
C.EN.201034	ACSE AMTRAK OWNED-POSITIVE TRAIN CONTROL (PTC) INSTALLATION	$8,646,133	$8,369,941	$276,191
C.TR.100074	STA NEW ENGLAND DIV - INSTALL TRAIN APPROACH MESSAGE SYS	$201,459	$232,173	-$30,714

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Connecticut DOT

Project name		FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
Substation replacements at Woodmont (Substation No. 964), Devon (Substation No. 865), East Bridgeport (Substation No. 814), Bridgeport (Substation No. 736), East Norwalk (Substation No. 537), and South Norwalk (Substation No. 524)		$10,000,000	$6,914,432	$3,085,568	Five of the six substations are live. The sixth substation will be brought on line in December.	None to report.
NHL - ALL Movable Bridge Repairs (Menash)	Cos Cob Interim Repairs. DOT03010173CN	$10,000,000	$5,535,117	$4,464,884	Majority of work Completed. Minor items will be completed next year	None to report.
	SAGA Interim Repairs. DOT03010177CN.				Miter rail construction complete	None to report.
	DEVON Repairs. DOT03010139CN.				Project completed	None to report.
NHL CT - Bridges - Sound Beach / Tomac Ave - Construction		$2,000,000	$5,046,033	-$3,046,033	Majority of work completed, project scheduled for completion by the end of the year(2019.)	None to report.
NHL CT - Bridges - Atlantic Street Bridge, Stamford including Yard/Platform/Catenary		$20,000,000	$48,853,365	-$28,853,365	Major construction of the Atlantic street Bridge was completed in October 2019.	None to report.
NHL CT - Signal System Replacement Phase 1	Signal System. DOT03010154CN.	$12,000,000	$23,293,497	-$11,293,497	Completed install of north side Track 3 & south side 4 aerial copper signal cables CP235 to CP241. Completed install of north side Track 3 aerial fiber optic cable CP235 to CP240. Completed install of south side Track 4 aerial fiber optic cable Darien Station to CP241. Completed install of track wires at all Tracks for CP230 CIL, TCML308, ML318, ML354, ML369. Completed Install of track wires for Tracks 1&3 at TCML364, TCML379 and ML384. Completed install of foundations, ground grids, and track wires for Tracks 2&4 at TCML401. Continued install of pull vaults and track wires for CP229. Began install of track wires for CP234.	None to report.
	Signal System Phase 3/4. DOT03010XXXCN.				Project waiting for funding. No impact on schedule.	None to report.
NHL CT - Network Infrastructure Upgrade - All Phases	Network Infrastructure Upgrade Phase 2. DOT03000178PE, DOT03000178CN.	$14,000,000	$6,970,749	$7,029,251	Project nearing completion	None to report.
	Network Infrastructure Upgrade Phase 3. DOT03000202PE, DOT03000202CN.				The design phase of Phase 3 has been completed. Bid opened October 23, 2019.	None to report.
	Network Infrastructure Upgrade Phase 4. DOT03000XXXPE, DOT03000XXXCN.				Design will commence once Phase 3 is in construction.	None to report.

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Project name		FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
NHL CT - Track Program (C Program) (Menash)	C-32. DOT03000206CN.	$18,500,000	$9,619,742	$8,880,258	Procured the switches, switches being delivered to Metro-North.	None to report.
	C-31. DOT03000190CN				CP 272 switches are installed. Replace rail Track 4 CP 225-CP 261 and Track 2 and 1 Curves 26A and 26B CP 223-CP 229. Install ties Track 1 CP223- CP 229.	None to report.
	C-30. DOT03000182CN.				Majority of work completed, project scheduled for completion by the end of the year(2019.)	Project scheduled for completion by 12/2019. Delays due to track availability
NHL CT - Catenary Replacement - Segments C1A and C2 - Construction		$20,000,000	$12,728,433	$7,271,567	Track 4 was returned into service in section C-1A. Punch list work underway.	Project Completion date has been pushed to 5/15/20. Required deconfliction with other projects for track availability.
NHL S program/ Timber Program	S-22 Program. DOT03000195CN.	$5,000,000	$2,950,046	$2,049,954	Majority of work completed, project scheduled for completion by the end of the year(2019.)	None to report.
	S-23 Program. DOT03000XXXCN.				The construction phase is on-going for multiple bridges (phase 1). Phase 2 bridges are in final stage of design, Construction will start Spring 2020.	None to report.
	Bridge Timber Program. DOT03000161CN.				Project is Ongoing, Planned 9 bridges for timber replacement on NH Main line, 4 bridges are complete,due to Track outages and resources 5 Bridges are will be completed in next year.	None to report.
NHL CT - Bridge Replacement/Repair Program		$5,000,000	$0	$5,000,000	Program on-going	None to report.
NHL CT - Bridge Design		$1,900,000	$1,567,884	$332,116	Program on-going	None to report.
Positive Train Control		$30,000,000	$18,262,741	$11,737,259	Completed wayside radio antenna upgrade at CP235 and CP240W. Completed software updates for wayside radios at CP230, CP255 & CP257. Continued work to resolve overheat condition for wayside instrumentation units (WIU) at CP272, 273 & 274. Began work to install power service connections from radio node to wayside radio cases at Fairfield and Greens Farm locations.	None to report.
Milford Culvert Replacement			$1,366,992	$1,366,992	Project is substantially complete, punch list items pending.	[Not in OYIP]
Devon HighTowers Emergency Dec			$729,793	$729,793	Project is complete.	[Not in OYIP]

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MBTA

Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
ROW Fence Upgrades	$1,103,200	$1,252,299	-$149,099	2,800 LF of impass security fencing installed in Hyde Park, MA, and Foxboro, MA.	Additional fence scope added in FY19.
Southwest Corridor Water Infiltration Remediation - Design/ Study	$200,000	$0	$200,000	N/A	Placeholder - no agreement to start any work yet.
Pedestrian Footbridge Drain Upgrades - MP221	$300,000	$0	$300,000	N/A	Placeholder - no agreement to start any work yet.
Upgrade Emergency Egress Stairways	$750,000	$0	$750,000	N/A	Placeholder - no agreement to start any work yet.
South Station Pit Lighting Upgrades	$1,037,943	$887,652	$150,291	Completed the installation of Pit Lighting at South Station, agreed to a change order to add scope to install pit lights at Back Bay, completed design for Back Bay, and procured a contractor.	Additional scope added to install Pit Lighting at Back Bay Station.
Backbay Tunnel Ductwork Upgrades - Construction	$500,000	$198	$499,802	N/A	Placeholder - no agreement to start any work yet.
South Bay Transformer and Generator Upgrades	$211,443	$0	$211,443	N/A	Placeholder - no agreement to start any work yet.
Rt 128 Escalator Elevator Upgrades	$2,681,317	$2,866,660	-$185,343	The two interior elevators and escalators upgrades completed and placed back into service.	Additional scope to upgrade control systems to escalators.
Rt 128 Roof Upgrades	$516,876	$482,864	$34,012	New rubber membrane roof installation completed.	Project completed under budget.
Rt 128 HVAC and Mechanical Upgrades	$500,000	$0	$500,000	N/A	Placeholder - no agreement to start any work yet.
Readville Material Control Warehouse	$300,000	$0	$300,000	N/A	Placeholder - no agreement to start any work yet.
Undergrade Bridge Upgrades	$360,858	$0	$360,858	N/A	Placeholder - no agreement to start any work yet.
TAMS - Canton Junction Sta - TAMS Upgrades	$685,958	$0	$685,958	N/A	Placeholder - no agreement to start any work yet.
TAMS - Ruggles Sta - TAMS Upgrades	$362,708	$0	$362,708	N/A	Placeholder - no agreement to start any work yet.
South Bay INT - Microlok II and Comm Bldg Upgrades - LL Material	$1,500,000	$0	$1,500,000	N/A	Placeholder - no agreement to start any work yet.
HB/DED Upgrades	$299,265	$0	$299,265	N/A	Placeholder - no agreement to start any work yet.
Power and Express Cable Upgrades	$1,404,000	$51,003	$1,352,997	MBTA and Amtrak reached an agreement on the project and began long lead material procurement for the project.	Long lead material delivery delayed and arriving in FY20 Q1.

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Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
M3 Switch Machine Upgrades	$327,905	$235,248	$92,657	Completed the installation of 5 switch machines - 3 less than planned.	Switch machine replacements reduced.
Switch Heater Upgrades	$350,000	$0	$350,000	N/A	Placeholder - no agreement to start any work yet.
Tie/Timber Program	$653,599	$1,349,078	-$695,479	1,459 tie/timbers installed in FY19 - 659 more than planned.	Production team availability and mild winter allowed for an increase in tie/timber production in FY19.
Tower One INT - Slip Switch Upgrades - 911/1011	$1,750,000	$513	$1,749,487	MBTA and Amtrak reached an agreement on the project and slip switch material was ordered.	Date of execution of agreement pushed install schedule back one year.
INT Steel Replacement Program	$665,790	$334,200	$331,590	Completed the installation of 3.45 units of interlocking steel - 1.45 units more than planned.	Additional scope added to the program.
Transfer INT - Crossover Replacement - 12 Crossover	$1,816,078	$1,571,055	$245,023	Read 31 crossover and first phase of Transfer 12 crossover installed in FY19.	Equipment and track time availability delayed Transfer 12 crossover six months.
Transfer INT - Crossover Replacement - 21 Crossover	$1,697,726		-$1,697,726		
Read INT - Crossover Replacement - 31 Crossover	$1,861,480		$1,861,480		
Insulated Joint Upgrades	$161,200	$191,795	-$30,595	Replaced 32 insulated joints in FY19 - 12 more than planned.	Additional scope added to the program.
Joint Elimination Program	$285,950	$217,512	$68,438	Completed 52 thermite welds in FY19 - 2 more than planned.	Additional scope added to the program.
Tree Cutting	$1,000,000	$521,771	$478,229	Removed 92 trees, trimmed 805, and cleared brush over a work area of 8.63 miles.	Reduced tree crew sizes which lowered overall expenditures on program.
Out of Face Surfacing	$1,200,000	$2,243,511	-$1,043,511	Completed 118,698 pass-feet of out-of-face surfacing in FY19.	Additional scope added to the program.
Spot Surfacing	$790,614	$2,556,207	-$1,765,593	Completed 66,183 feet of spot surfacing - 1,183 feet more than planned.	Additional scope added to the program.
Spot Undercutting	$150,000	$271,439	-$121,439	Completed 336 feet of spot undercutting - 156 feet more than planned.	Additional scope added to the program.
South Station Tie and Rail Upgrades	$2,726,887	$0	$2,726,887	N/A	Placeholder - no agreement to start any work yet.
PTC Split Point Derail Project	[Not in OYIP]	$291,964	$291,964	Completed the punchlist items on the split point derail project.	Project completed under budget.
Power/Express/Comm. Cable Upgrades	[Not in OYIP]	$0	$0	Note duplicate entry - see row 29.	Note duplicate entry - see row 29.
Interlocking LED Signal Upgrades	[Not in OYIP]	$94,738	$94,738	MBTA and Amtrak reached an agreement and long lead materials procured.	Material procurement delayed the installation of the LED bulbs.

Project data including expenditures, accomplishments, and explanation of variances are published as submitted by coordinating agencies.

Metro-North Railroad

Project name	FY19 Planned expenditure	FY19 Actual expenditure	Variance	Submitted accomplishments	Submitted explanation of variance
Rebuild Retaining Walls	$1,080,000	$21,475	$1,058,525	Pre-construction work associated with the reconstruction of the retaining wall at Port Chester. Work is expected to begin in Q3, FFY2020.	Work planned for FY2019 was delayed to FY2020
Undergrade Bridge Rehabilitation	$4,360,000	$697,713	$3,662,287	Pre-construction work associated with the reconstruction of Willet Avenue Bridge (MP 25.74) and Highland Road Bridge (MP 25.83). Work is expected to begin Q3, FFY2020.	Work planned for FY2019 was delayed to FY2020
Cyclical Track Program	$7,410,000	$0	$7,410,000	n/a	Work planned for FY2019 was diverted, work performed elsewhere in Metro-North system
Catenary Painting	$250,000	$22,271	$227,729	Pre-RFP work for catenary painting program.	Work planned for FY2019 was delayed due to inability to schedule necessary track outages
Cyclical Repl. Insulated Joints	$117,000	$0	$117,000	n/a	Work planned for FY2019 was diverted, work performed elsewhere in Metro-North system
Purchase MoW Equipment	$475,200	$811,336	-$336,136	Maintenance of Way Department commissioned new pieces of equipment, included two Hammer Spikers and Track Stabilizer and Production Tamper.	n/a
Replace Timbers - Undergrade Bridges	$100,000	$621,775	-$521,775	Timbers replacement on two open deck bridges: Mamaroneck Av (MP 20.37), Tracks 1 & 2; and Locust Av (MP 23.71), Tracks 4 & 2	n/a
Railroad Protective Liability	$232,000	$11,123	$220,877	n/a	n/a
Independent Engineer	$392,000	$98,537	$293,463	n/a	n/a
Program Administration	$123,500	$131,809	-$8,309	n/a	n/a
Program Scope Development	$279,400	$57,969	$221,431	n/a	n/a
Bridge 23	Not In OYIP	$2,165,931	N/A	Final commissioning of Bridge 23 substation replacement underway, including New Rochelle substation and Bridge 23 substation	Schedule was extending due to the needs identified in final commissioning and testing, as well as availability of resources from Con Edison
Replace Substations 128 and 178	Not In OYIP	$210,527	N/A	Ongoing design of the replacement of two substations along the NEC segment of the New Haven Line	Elements are critical shared assets on the NEC segment
Positive Train Control	Not In OYIP	$5,831,720	N/A	PTC implementation and testing continued throughout FFY2019, and will continue in FFY2020.	Work continued through FY2019, will continue in FY2020
Customer Communication	Not In OYIP	$250,098	N/A	Initiated rollout of new upgraded customer service information systems at New Rochelle	Added to program due to shared benefit of assets at New Rochelle station
GIS Expansion	Not In OYIP	$13,906	N/A	Ongoing GIS documentation of rail assets in NYS, including the NEC	GIS documentation supports project development throughout the Metro-North system, including NEC segment
MoW Inspection Car	Not In OYIP	$108,545	N/A	Procurement of new MoW vehicles to support NYS maintenance work, including the NEC	Asset provides shared benefit to users of Metro-North's NEC segment
Purchase Two Catenary Maintenance Vehicles	Not In OYIP	$898,942	N/A	Completed procurement of new MoW vehicles to support maintenance of catenary structures in NYS	Assets provide shared benefit to users of Metro-North's NEC segment
Autonomous Track Geometry Measurement System	Not In OYIP	$10,449	N/A	Ongoing implementation and support of Autonomous Track Geometry Measurement units on Metro-North rolling stock.	Asset provides shared benefit to users of Metro-North's NEC segment

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Special Projects

Amtrak		
Baltimore & Potomac Tunnel Replacement		
FY19 OYIP Expenditure & Scope	$30,000,000	• Continue design development of project, including geotechnical investigation; prepare bid packages for early action/ enabling projects; and prepare for real estate acquisition.
FY19 Actual Expenditure & Accomplishments	$4,215,108	• Continued development of advanced utility, track (Charles Interlocking Configuration), and bridge (Franklintown, Lafayette, Warwick) design. • Continued development of a comprehensive Project Delivery Plan identifying major elements, cash flow, and required resources • Engaged Strategic Stakeholders regarding project implementation • Began Developing Benefit-Cost Analysis (BCA) for Project to support future grant applications • Completed Context Sensitive Design Guidelines and Conducted HABS/HAER Documentation (as required by the Section 106 Programmatic Agreement) • Engaged property owner/real estate developer for key properties related to Intermediate Ventilation Facility. • Coordinated with BGE (local utility company) regarding utility relocations and new utility service.
Variance & Explanation	$25,784,892	• Design development has not progressed at the anticipated rate due to requirements for third party stakeholder agreements, resulting in less than anticipated expenditures.
Baltimore Penn Station Infrastructure Improvements		
FY19 OYIP Expenditure & Scope	$14,000,000	• Bidding for Construction; Award for Construction; and Start construction of Platform 5
FY19 Actual Expenditure & Accomplishments	$701,767	• Completed 100%/IFB Drawing and Spec set. • Brought third party CM Firm under contract. • Completed initial Constructability Review of Drawings and Specifications.
Variance & Explanation	$13,298,233	• The procurement process for bringing the CM firm on board delayed the Constructability review from occurring until late summer/early fall of 2019 rather than early to Mid-summer 2019, which delayed the project. The original spend plan projections were based on the assumption that construction work was going to begin in the summer of 2019. The delay to the constructability review led to a delay in the bid set being finalized, which led to a delay of bringing the General Contractor on board.
Baltimore Penn Station Master Plan		
FY19 OYIP Expenditure & Scope	$9,980,260	• The Baltimore Penn Station State of Good Repair (SOGR) program is advancing the first group of projects, titled "1.A & 1.B" into construction in FY19. These projects include the full station and concourse roof replacement, along with associated drainage systems through the structure and cellar slab. In addition to the roof and drainage work at the station, this group of SOGR projects includes localized façade repairs, fire proofing, and relocating critical electrical equipment. Additionally, ongoing negotiations and execution of development agreements with the selected Master Developer Partner, and completion of the Master Plan for Baltimore Penn Station, are anticipated.
FY19 Actual Expenditure & Accomplishments	$956,243	• Board approval and Amtrak execution of the Master Development Agreement with Penn Station Partners • Re-organized scope of full design construction work for Baltimore Penn Station into a consolidated Design-Build Contract with the Master Developer • Initiated design with the Master Development design team.
Variance & Explanation	$9,024,017	• The original SOGR limited construction work anticipated in FY19 was re-organized under the Master Development Agreement to allow for full station redesign and construction. This reduced the anticipated spend from $9.9M to only $1M in 2019. • Design for the full program was dependent on a notice to proceed with conditions precedent and not reached until the end of FY19; the bulk of Amtrak's design costs will occur over FY20-21 prior to construction ramping up.
Connecticut River Bridge Replacement		
FY19 OYIP Expenditure & Scope	$3,705,861	• Complete Preliminary Design phase.
FY19 Actual Expenditure & Accomplishments	$1,854,777	• Completed 30% design (Phase A) • Obtained funding to complete final design (Phase B) • Budget (CPI)-1.17— Spending within budget • Progress vs. Schedule (SPI)-1.13— Project ahead of schedule
Variance & Explanation	$1,851,084	• Currently there are no significant variances in Scope, Schedule or Budget.

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Amtrak		
East River Tunnel Rehabilitation		
FY19 OYIP Expenditure & Scope	$9,000,000	• (1) Complete all weekend survey outages and required weeknight outages for existing conditions documentation and structural repair catalog. • (2) Hold full-day design progress seminar in late calendar 2018 (similar to one held in May 2018) to update the subject matter experts on design progress given extended timeline of 60% (due to limited weekend survey outages). • (3) Receive final Repair Prioritization Report and Repair Designs (Q4 calendar 2018). • (4) Progress design in all disciplines toward a 60% design deliverable in Q3 calendar 2019. • (5) Refine work/safety planning for an in-tunnel fire/smoke test to evaluate multiple smoke and heat detection systems for possible inclusion in design. • (6) Complete all NEPA environmental sampling (air, noise, vibration; traffic; hazardous materials) to inform FRA and seek appropriate Class of Action (Categorical Exclusion or Environmental Assessment). Progress the selected CoA. • (7) Initiate 90% design toward end of FY19.
FY19 Actual Expenditure & Accomplishments	$5,618,682	• Completing the most significant structural assessment outages as well as the critical path survey weekend outages was a crucial step to holding the remainder of the design schedule. With survey data collection and processing complete, the full effort of the design team was able to be applied to move the design forward. FY19's primary accomplishment of progress toward the 60% design milestone is on schedule for delivery in December 2019. This phase likely included the most significant gross effort and production with regard to the contract package completeness, expanding the drawing set from 172 to over 1000 drawings. The remaining milestones will be more refinement than raw production. • The 2019 Fire Detection Test Program was a critical first step in determining the appropriate design criteria for the best-suited flame/smoke/heat detection technologies in the tunnels. This multi-discipline effort included excellent coordination between engineering, transportation and fire and life safety as well as with external stakeholders like FDNY and the LIRR Fire Marshal. These live fire tests are, to my knowledge, the first of their kind in the body of an active (and historic) rail tunnel.
Variance & Explanation	$3,381,318	• The previously-explained underspend (due to delayed weekend outages) was overcome and the subsequent budget return process was executed accurately, resulting in a FY19 spend that was within 7% of the adjusted budget. • Scope is anticipated to grow beyond the tunnel extents in FY20 due to both system redundancy requirements and logical system termination points identified during the 60% design effort. • The milestone schedule has held through FY19 ever since the weekend outage delay impacts were absorbed in late 2018.
Fitter Interlocking (formerly Yale Interlocking)		
FY19 OYIP Expenditure & Scope	$673,328	• HNTB (Designer of Record) to complete environmental permitting and wetland mitigation design. Amtrak to begin procurement of long lead items, labor clearances, and RFP development for contractors.
FY19 Actual Expenditure & Accomplishments	$298,290	• HNTB progressed wetland mitigation design, coordinated proper permits and approvals from CTDEEP, USACE, and local Town stakeholders • Amtrak Force Account work has begun for cable relocation and survey • Real Estate has begun negotiations for easements • Amtrak has finalized a funding agreement with CTDOT for construction • Amtrak C&S Design in Phila. have provided updates to signal plans for HNTB to revise
Variance & Explanation	-$298,290	• C&S Lancaster Shop personnel were not able to begin LL procurement or any construction due to signal plan revisions by PHL • Advanced tasks for construction prep were unable to begin before a funding agreement with CTDOT was secured
Gateway: Harrison Fourth Track		
FY19 OYIP Expenditure & Scope	$1,000,000	• Complete 30% preliminary design and process NEPA documents for approval with FRA.
FY19 Actual Expenditure & Accomplishments	$0	• No work was completed this year. Scope deferred to FY20.
Variance & Explanation	$1,000,000	• Delay of project due to ongoing negotiations of design phase agreement.

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Amtrak		
Gateway: Hudson Tunnel Project		
FY19 OYIP Expenditure & Scope	$27,300,000	• Completion of PE and NEPA, development of contract packages, and additional design activities.
FY19 Actual Expenditure & Accomplishments	$9,568,267	• Completed major contract packaging effort for design-build procurement of Hudson River Tunnel civil works. Initiated and progressed a security assessment with law enforcement agencies to assess the threat, vulnerability, risks and security criteria for design of the new tunnel. Initiated supplemental geotechnical boring investigations in response to industry input.
Variance & Explanation	$17,731,733	• Final design of tunnel systems deferred to FY20, reducing FY19 scope.
Gateway: Hudson Yards Concrete Casing		
FY19 OYIP Expenditure & Scope	$12,500,000	• Construction of Utility Relocation Project, an early works element of Hudson Yards Concrete Casing Section 3 (HYCC-3). Begin full construction of HYCC-3, contingent upon funding and agreement with developer and partners.
FY19 Actual Expenditure & Accomplishments	$2,692,711	• All delays to construction are as a result of ongoing business negotiations among Related, LIRR, and Amtrak.
Variance & Explanation	$9,807,289	• Multi-party coordination remains an issue and a drag on the overall schedule.
Gateway: Planning and Program Management		
FY19 OYIP Expenditure & Scope	$10,000,000	• Ongoing project management of the Gateway Program, including staff salaries, Gateway Development Corporation (GDC) contribution, office rent, Project management consultants, and outside counsel.
FY19 Actual Expenditure & Accomplishments	$6,146,185	• The states of New York and New Jersey have passed identical bills creating the Gateway Development Commission, a bi-state agency responsible for carrying out the Gateway Program, which will be eligible to receive federal grants and loans. New financial plans were submitted for Hudson Tunnel Project and Portal North Bridge, respectively, to the FTA's Capital Investment Grant program. A structural assessment and load testing of Dock Bridge was initiated and is underway.
Variance & Explanation	$3,853,815	• An owner's rep contract was removed from the scope in FY 19, reducing the budget.
Gateway: Sawtooth Bridge		
FY19 OYIP Expenditure & Scope	$8,300,000	• Await the issuance of the FONSI document from the FRA then begin Preliminary Engineering for the project
FY19 Actual Expenditure & Accomplishments	$98,505	• Final administrative draft of environmental assessment (EA) was submitted to FRA. Awaiting publication and issuance of FONSI.
Variance & Explanation	$8,201,495	• Extended review of Environmental Assessment deferred start of Preliminary Engineering (PE) to FY20. None of the funding set aside for PE was spent in FY 19, only consultant fees and staff support for NEPA effort.
Hanson Interlocking		
FY19 OYIP Expenditure & Scope	$30,000,000	• Planned activities for FY19 include installation of: catenary poles, C&S huts & signal wire, signal bridges, and crossovers.
FY19 Actual Expenditure & Accomplishments	$23,555,443	• Installed 4 crossovers (#'s 12,21,23,32) • Installed 73 of 80 catenary pole foundations • Installed Location A and B with new Landover Communication Interface Hub (CIH) platform
Variance & Explanation	$6,444,557	• Besides work completed in FY19, it was thought that the C&S/ET trough would be installed in FY19 but due to equipment procurement issues it was delayed to FY20. In addition, the duct bank work for PEPCO is to take place after the trough installation. Being that the Trough was delayed, the duct bank was as well. Additionally, the easement was received from WMATA to complete the access road in April; C&S requested that the road be completed prior to trough installation; the trough was originally thought to start in June/July so the foundations came to a stop for a couple weeks to finish the road (same contractor). Because of the that, foundations were pushed 2 weeks which shifted completion to October of 2019 (FY20).

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Amtrak		
Maryland Section Reliability Improvements		
FY19 OYIP Expenditure & Scope	$16,731,623	• Design Work: (1) ET catenary design for new track alignment; (2) C&S signal system modification design; and (3) PTC system modification design & programming. • Construction work: (1) Track construction - Align track No 1 per new track alignment design; (2) ET construction - Align catenary to match new track 1 alignment; (3) C&S construction - Upgrade signal system to match posted track speeds (likely to be completed in FY20); and (4) Install and test new PTC encoders (likely to be completed in FY20).
FY19 Actual Expenditure & Accomplishments	$2,904,970	• 1. Engineering survey crews completed marking the designed throws on Track 2 rail ahead of the planned track production from Hanson to Grove interlockings • 2. Completed 100% design of ET catenary for Grove to Bridge interlockings. • 3. Track and ET Catenary new alignment construction completed for the Hanson to Grove Interlocking section.
Variance & Explanation	$13,826,653	• 1. The construction in block between Grove to Bridge was rescheduled to FY20. Slower than expected projected production was scheduled to impact other projects. The rescheduling resulted in lower than anticipated project spending. • 2. The work on Track 1 (track throw) is still occurring, but the funding has changed to the Track Department Undercutter Program and will thus be captured by Amtrak's Capital Renewal Program.
Moynihan Station (Phase 2)		
FY19 OYIP Expenditure & Scope	$79,800,000	• The Moynihan Train Hall is projected to experience its greatest activity during FY19 with significant spends on the Platform Ventilation Fan Plant work and the back-of-house construction to support the needed improvements for the Amtrak passenger area, the concourse and Amtrak operations.
FY19 Actual Expenditure & Accomplishments	$39,248,170	• Installation of platform ventilation system fan room equipment was completed. • Design of Amtrak back of house fit-out was completed. Notice to proceed with construction was issued to Skanska. • Amtrak and Empire State Development concurred on a wayfinding strategy for the Moynihan Train Hall.
Variance & Explanation	$40,551,830	• Construction of the back of house fit-out was delayed several months due to an extended bidding process and resolution of other change order related issues; this reduced the FY19 actual spend value.
New Jersey HSR Improvement Program		
FY19 OYIP Expenditure & Scope	$27,641,565	• Fixed termination wire renewal with completion of SAP installation track 2 Midway-County; Constant tension installation track 2 Midway to CP Clark; Wire crossovers at Midway Interlocking and place interlocking back into service; Installation of SAP assemblies Ham to CP Clark on all tracks; Program management & other support of ET planned work.
FY19 Actual Expenditure & Accomplishments	$13,651,436	• Completed fixed termination wire renewal track 2 Midway to County completing the final track under this project. • Completed constant tension wire installation track 2 CP Clark to Midway, returning the track to service. This completes the final track for the constant tension upgrade under this project. • Completed installation of SAP assemblies all 4 tracks Midway to County
Variance & Explanation	$13,990,129	• Wire production on Track 2 was significantly impacted by weather and division emergencies throughout May-September. The Tesmec Work Car (part of the Production Wire Equipment) caught fire on 7/1/19 sustaining significant damage and is out of service until further notice. The combined schedule impact for the completion of Track 2 wiring from weather and equipment issues was approximately 5-6 weeks. Each component experienced an underspend throughout the FY due to several factors, with the most significant variance/delay in schedule noted above, as well as the reduction in staff associated with all components.
Newark Penn Station Platform Rehabilitation		
FY19 OYIP Expenditure & Scope	$1,500,000	• Design to start 10/1/18
FY19 Actual Expenditure & Accomplishments	$22,110	• Consultant began structural assessment in September 2019 (completion planned for April 2020).
Variance & Explanation	$1,477,890	• RFP process was delayed in FY19 Q3.

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Amtrak		
Next Generation High Speed Fleet Infrastructure: Ivy City/ Washington Terminal Yard Facility Improvements		
FY19 OYIP Expenditure & Scope	$1,400,000	• Construction proposal received for retrofit of S&I facility; anticipate NTP by end of June 2018.
FY19 Actual Expenditure & Accomplishments	$610,340	• Completed 90% design for S&I Facility Improvements • Submitted Letters of Interest for General Construction services • Submitted requests for Labor Clearances • Progress on North Storage Tracks design on-track with revised schedule
Variance & Explanation	$789,660	• Variance in scope: additional work needed to survey existing substation at Ivy City Yard in order to support Wayside Power needs • Variance in schedule: approximately 6 month lapse in project during PM transition (resignation of prior PM in March 2019, new PM hired in September 2019); minor progress made on projects during this transition, but overall design schedule was delayed. The project is currently back on-track and achieving the originally intended completion dates for construction is achievable and on-progress. Team has developed contingency plans in the event of any further delays to assure operations is not adversely affected with arrival of new trainsets
Next Generation High Speed Fleet Infrastructure: Ride Quality Investment		
FY19 OYIP Expenditure & Scope	$10,094,455	• Design Work: (1) Develop requirements for reference surfacing database; (2) Conduct survey of all tracks on the Northeast Corridor between Washington and Boston; (3) Includes post-processing (converting raw data into usable format). • Procurement of Surfacing Equipment: (1) Work with Amtrak Procurement to release purchase order for 3 High Speed Tampers with Ballast Regulators and Stabilizer systems; (2) Selected Tamper manufacture expected to start building equipment.
FY19 Actual Expenditure & Accomplishments	$360,995	• Completed NEC Baseline Survey Scope of Work specifications and released for vendor bids. • HNTB completed Engineering Part 2 – Research GPS and Automated Measuring Systems & Methods. • HNTB completed Engineering Task 3A Part 1 & 2 FINAL – Research GPS and Automated Measuring Systems & Methods.
Variance & Explanation	$9,733,460	• Funding for the purchase of the 3 sets of Reference Surfacing track equipment (High Speed Tampers) was transferred to the Capital Equipment Purchase Program.
Next Generation High Speed Fleet Infrastructure: Safety Mitigation		
FY19 OYIP Expenditure & Scope	$20,300,000	• Fencing and adjacent track work continues; design concepts for PTSO to be developed. Fencing: there will be eight fencing-guiderail locations for FY19, as follows: New York Division New Brunswick, NJ. MP 35; Hamilton, NJ. MP 53; Trenton, NJ. MP 56 Mid-Atlantic Division Newark, DE. MP 35.6; Baltimore, MD. MP 101.2; Odenton, MD. MP 114 New England Division West Kingston, RI. MP 158; Foxboro, MA. MP 205. Track work: two locations where non-Amtrak owned siding need to be upgraded to meet the conditions required by the FRA waiver are: Merckens Chocolate Lead - 3700 feet, MP 204.2-204.8, adjacent to Main Track 2, Mansfield MA; Blaine Chemical lead (owner unknown) - 2800 feet, MP 204.3-204.8, adjacent to Main Track 1, Mansfield MA.
FY19 Actual Expenditure & Accomplishments	$1,702,117	• 1. Twelve locations were completed with fencing and/or guiderail out of the 21 original to date, including As-Built drawings. • 2. 41,801 LFT of fencing has been installed to date. • 3. $13.8 million spent to date on fencing for Safety Mitigation.
Variance & Explanation	$18,597,883	• Delay on approval from a property owner on the leasing agreement at a Massachusetts NEC mitigation location has continued to delay completion; Amtrak Real Estate is still in negotiations on this matter. Additionally, procurement delays to award the NTP for survey firms and fencing contractors occurred in FY19 Q4.
Next Generation High Speed Fleet Infrastructure: Southampton St. Yard Facility Improvements		
FY19 OYIP Expenditure & Scope	$1,400,000	• Construction proposal received for retrofit of S&I facility; anticipate NTP by end of June 2018.
FY19 Actual Expenditure & Accomplishments	$532,406	• Completed 90% design for S&I Facility Improvements • Submitted Letters of Interest for General Construction services • Submitted requests for Labor Clearances
Variance & Explanation	$867,594	• Variance to schedule: approximately 6 month lapse in project during PM transition (resignation of prior PM in March 2019, new PM hired in September 2019); minor progress made on projects during this transition, but overall design schedule was delayed. The project is currently back on-track and achieving the originally intended completion dates for construction is achievable and on-progress. Team has developed contingency plans in the event of any further delays to assure operations is not adversely affected with arrival of new trainsets.

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Amtrak		
Paoli Transportation Center - Phase 1 (ADA & Infrastructure)		
FY19 OYIP Expenditure & Scope	$7,000,000	• Complete construction (high level platform and pedestrian overpass in service)
FY19 Actual Expenditure & Accomplishments	$14,902,836	• Full length high-level boarding platform is now in use for all passenger boarding
Variance & Explanation	-$7,902,836	• Contractor delays prevented the station/platform opening to occur in the Spring of 2019; the FY19 overspend was related to the overall increase of the project budget due to scope increases for the railroad infrastructure portions of the work as well as contractor cost increase due to unforeseen issues in the field.
Pelham Bay Bridge Replacement		
FY19 OYIP Expenditure & Scope	$1,000,000	• Begin the NEPA process assuming Amtrak has a Class of Action determination by the FRA as to NEPA requirements for either EA or EIS.
FY19 Actual Expenditure & Accomplishments	$49,237	• NEPA coordination with FRA has been complete. Amtrak will commence NEPA work in FY20.
Variance & Explanation	$950,763	• Amtrak budgeted $1M in FY19 with the understanding that the FRA would issue a class action determination by Q1 FY19 to commence the NEPA work, but the FRA's class action determination was delayed and the NEPA work did not commence in 2019; it is now due to commence in Q1 of FY20.
Philadelphia 30th Street Station District Plan Implementation		
FY19 OYIP Expenditure & Scope	$2,280,000	• The FY19 planned activities will focus on advancing the master developer procurement process, including the development of Amtrak technical and performance requirements for 30th Street Station, technical and financial analysis of proposals via a multi-tiered Committee review process, and negotiation of terms among bidders to drive a best value proposal.
FY19 Actual Expenditure & Accomplishments	$2,101,425	• The RFP was issued to the short list in February 2019. The Program structure for the RFP is a performance-based design, build, operate, maintain Project. The RFP prescribes design-build and facility management standards with an accompanying incentive-based milestone payment with a financial penalty system in order to guarantee the Developer will deliver a first-class station and continue to maintain it as such. • From March to September 2019 the project team has engaged in multiple negotiations with each of the bidding teams resulting in an iterative RFP and Development Agreement negotiation process to leverage the competitive field and drive towards the best market approach for the Project. • The Final RFP, Lease Development Agreement and Technical Provisions were issued early October 2019 and anticipates selection of a Best Value Proposal by Summer 2020.
Variance & Explanation	$178,575	• No significant variances to report.
Susquehanna River Bridge Replacement		
FY19 OYIP Expenditure & Scope	$6,000,000	• Advancing 60% Final Design
FY19 Actual Expenditure & Accomplishments	$3,608,270	• Completed an interim 50% Design Workshop
Variance & Explanation	$2,391,730	• No significant variances to report.
Washington Union Station Component: Claytor Concourse Modernization Program		
FY19 OYIP Expenditure & Scope	$22,600,000	• Ongoing construction of the Amtrak Police Department and Electric Workshop Relocation Project. Finalization of the Concourse Modernization Project design. Complete procurement of and contract award to a General Contractor for construction of the Concourse Modernization Project. Begin construction of the Concourse Modernization Project.
FY19 Actual Expenditure & Accomplishments	$3,300,721	• Demolition of former site of APD project complete; construction started for the Electric Workshop relocation; location agreed upon by Amtrak leadership for new Metropolitan Lounge
Variance & Explanation	$19,299,279	• The project has been delayed due to the complex ownership structure at Union Station. FRA has determined that USRC should deliver the project on behalf of Amtrak, which will take time to define and implement. Originally construction was supposed to begin in late FY19, but now it is contemplated for FY21. Additionally, the Amtrak Police Department building was descoped to a smaller facility.

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Amtrak		
Washington Union Station Component: Subbasement Program (formerly Track 22 Rehabilitation)		
FY19 OYIP Expenditure & Scope	$10,400,000	• Construction commences for Track 22 project. Design completion for Subbasement Reconstruction.
FY19 Actual Expenditure & Accomplishments	$2,216,908	• Initiation of construction services for Track 22 Rehabilitation; completed ET and site clean up prep work prior to contractor mobilization. Completed 60% design of Subbasement Structural Replacement. Worked with FRA and building owners to redefine State of Good Repair priorities for the Project.
Variance & Explanation	$8,183,092	• Procurement for Track 22 took longer than anticipated. Subbasement design delay while working with FRA to determine column removal and alternate method for design/construction
Washington Union Station Long Term Station Expansion (formerly 2nd Century Plan)		
FY19 OYIP Expenditure & Scope	$1,400,000	• Continuation of activities to support and advance the Station Expansion Project, including support for the EIS, Terminal Infrastructure and Constructability review.
FY19 Actual Expenditure & Accomplishments	$2,043,002	• Identified a draft new alternative with FRA and USRC for the Station Expansion EIS. Advanced constructability and planning efforts in support of the EIS.
Variance & Explanation	-$643,002	• Generally on plan in terms scope, schedule and budget. No major variances.
Washington Union Station Near Term Rail Program		
FY19 OYIP Expenditure & Scope	$7,900,000	• Electrification of Tracks 8&9 – construction complete Q2 FY19; Crew Base Renovation – design complete Q1 FY19; construction manager NTP Q1 FY19; construction begins Q2 FY19; Satellite Commissary Relocation - construction manager NTP Q1 FY19; construction begins Q2 FY19; Substation 25A – design complete Q4 FY19; Tracks 15/16 – no planned activity in FY19.
FY19 Actual Expenditure & Accomplishments	$2,822,406	• Completed construction of Electrification of Tracks 8&9, under budget. 90% design milestone for Substation 25A relocation. 90% design milestone for Crew Base Renovation and Expansion project; engaged Construction Manager to perform constructability and value engineering activites.
Variance & Explanation	$5,077,594	• Design delays in Crew Base and Substation 25A due to site specific design coordination and challenges. Satellite Commissary project determined to be redesigned in location previously identified for APD building for safety and operational reasons.

Connecticut DOT		
CT*rail* Hartford Line Commuter Station Improvements		
FY19 OYIP Expenditure & Scope	$3,000,000	• North Haven, West Hartford, Windsor and Windsor Locks Stations will be in Design. The Windsor Locks station has the highest priority. This station will include the design of platforms, MOW track, siding track, and the Bridge Street at grade crossing. Windsor design will also advance to Final Design during this period. Track work at the Windsor Station with the exception of the gauntlet track will be installed prior to October 2018 under Phase 3A North.
FY19 Actual Expenditure & Accomplishments	$3,753,510	• Windsor Lock Station- 60 % design completed 11/4/19 • Windsor Station- 90% design review completed on 10/3/19
Variance & Explanation	$753,510	• None
CT*rail* Hartford Line Rail Program Phase 3B - 5		
FY19 OYIP Expenditure & Scope	$5,000,000	• Track design for Phase 3B will be active during this period. Cleaning of existing culverts and waterways will need to be completed to evaluate the condition of existing culverts. Surveys, borings and environmental activities will occur. Design reviews and design meetings will be with Amtrak.
FY19 Actual Expenditure & Accomplishments	$55,420	• Design on-going.
Variance & Explanation	-$4,944,580	• None

Project data including expenditures, accomplishments, and explanation of variances are published as submitted by coordinating agencies.

Connecticut DOT		
Devon Bridge Replacement		
FY19 OYIP Expenditure & Scope	$2,000,000	• Begin preliminary engineering and advance design to 15% and 30% levels
FY19 Actual Expenditure & Accomplishments	$627,263	• Preliminary design (15%) has been completed
Variance & Explanation	-$1,372,737	
New Haven Line Network Infrastructure Upgrade		
FY19 OYIP Expenditure & Scope	$5,000,000	• The design for Phase 3 is on-going and will be complete by the end of 2018. Phase 3 will install security cameras at the Greens Farms, Westport, East Norwalk, South Norwalk, Rowayton, Darien, and Noroton Heights railroad stations. Phase 3 also installs security cameras at the Saga Bridge. Once the processing phase is complete, the construction phase of the project will start in the Summer 2019.
FY19 Actual Expenditure & Accomplishments	$6,970,748	• The design of Phase 3 has been completed
Variance & Explanation	$1,970,748	• None.
New Haven Line Stations Improvements		
FY19 OYIP Expenditure & Scope	$5,000,000	• The construction phase of the Stamford Station Improvements project is on-going. It is anticipated that all the elevator and escalator work will be complete by the end of the Fall 2018 and the construction phase of the project will be complete by the end of 2018. The other two projects (Pedestrian Bridge and Parking Garage) are in the design phase.
FY19 Actual Expenditure & Accomplishments	$2,623,756	• The construction phase of the Stamford project is complete
Variance & Explanation	-$2,376,244	• None.
New Haven Yard Master Complex Improvements		
FY19 OYIP Expenditure & Scope	$30,000,000	• Construction: Complete Yard Power Upgrade Project; Complete Central Distribution Warehouse/Brewery Street Gate Project; Commence East End Connector Project; Commence/Complete Stores Building Demolition; Commence/Complete M-8 Parts Storage Warehouse; Commence West End Yard project. • Design: Complete West End Yard design; Commence S&I Building design; Continue Pedestrian Bridge Overpass design
FY19 Actual Expenditure & Accomplishments	$16,094,183	• Completed Yard Power upgrade project in 2019. Stores building demolition completed.
Variance & Explanation	-$13,905,817	• None.
Saugatuck River Bridge Replacement		
FY19 OYIP Expenditure & Scope	$3,000,000	• During the specified period the consultant (AECOM) will start design following negotiations for the revised scope and the design will progress toward 60%.
FY19 Actual Expenditure & Accomplishments	$87,538	• The Department has decided to postpone the design of this bridge.
Variance & Explanation	-$2,912,462	

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Connecticut DOT		
SLE Station Improvements		
FY19 OYIP Expenditure & Scope	$6,000,000	• Additional platform, pedestrian bridge, and parking will begin construction for the Clinton Station.
FY19 Actual Expenditure & Accomplishments	$1,384,213	• Construction of the station started 3/15/2019
Variance & Explanation	$4,615,787	• None.
Walk Bridge Program		
FY19 OYIP Expenditure & Scope	$80,000,000	• Progressing the design of the Walk Bridge and other program projects from the current 60% to 90% and then 100% design plans. The two advanced projects necessary to support construction of the Walk Bridge, the CP243 interlocking and the Danbury Dockyard improvements, are currently in construction phase and will continue throughout all of FY19.
FY19 Actual Expenditure & Accomplishments	$106,868,746	• 90 % design review completed in November 2019. CP243 Track 4 work completed. Dockyard track 2 and 4 work completed. Completed the construction of the Ann Street Bridge.
Variance & Explanation	$26,868,746	

Delaware DOT		
Claymont Regional Transportation Center		
FY19 OYIP Expenditure & Scope	$8,500,000	• Catenary design work will continue. The design build team will be selected in the fall of 2018 and design will be finalized. Construction activities for the station may begin in the spring of 2019.
FY19 Actual Expenditure & Accomplishments	$4,986,457	• Clearing and grubbing work, debris removal, soil borings and testing and all other construction preparation work was performed as scheduled.
Variance & Explanation	-$3,513,543	• No variances were experienced.
Delaware Third Track Program		
FY19 OYIP Expenditure & Scope	$910,000	• The final inspection for the project was held during the summer of 2018. The contractor will be finalizing punch list work in the fall of 2018.
FY19 Actual Expenditure & Accomplishments	$2,451,664	• Amtrak performed work in accord with its FY19 and FY20 Third Track work schedules.
Variance & Explanation	$1,541,664	• No variances were experienced.
Newark (DE) Regional Transportation Center		
FY19 OYIP Expenditure & Scope	$40,952,884	• Parking lot construction will be completed. Station building construction will be on-going. Catenary and railroad signal foundation work will begin after the project is awarded in the fall of 2018. Design of the platform and Track A will be on-going.
FY19 Actual Expenditure & Accomplishments	$12,048,435	• Work progressed as scheduled with minimal delay. The building was enclosed and interior work was performed including but not limited to installation of HVAC system, ceiling panels, flooring, interior walls and bathroom construction. All catenary foundations were located and installation of foundations commenced.
Variance & Explanation	-$28,904,449	• Delaware DOT's underspend was driven primarily by unanticipated site conditions that arose during the performance of certain catenary and signal foundation work (Contract 3A) at the Newark (DE) Regional Transportation Center project. Several conflicts with the planned installation of new catenary foundations were discovered. Additionally, a leaking utility water line was discovered which prevented some work from proceeding. The aforementioned are being addressed by all project parties.

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Long Island Rail Road		
East River Tunnel - Right of Way Infrastructure Improvements		
FY19 OYIP Expenditure & Scope	$5,500,000	• Stray Current work anticipated in 2019. Communications Antenna replacement will continue in ERT 3 or 4. Total track replacement will continue in ERT Line 4 pending available weekend outages (ERT Line 3 was completed in 2016). (The 1st Avenue substation replacement will not be included in the 2019 work, since this project will be completed in Fall 2018.)
FY19 Actual Expenditure & Accomplishments	$20,790,717	• Amtrak Penn station SOGR Project replaced station tracks 16, 17 and 18; and replacement of interlocking Switches 605, 607,105,561, 563 and 565. • ERT Stray Current consultant progressed in determining cause of incorrect voltage readings at Long Island City and First Avenue shafts. Consultant has suggested adjusting output voltages of the stray current cabinets in order to better protect shafts and tube shells from stray DC current. • LIRR Radio Antenna Equipment Construction began March 2019. Work continues to progress on ERT Lines 3 and 4 with available outages. Project is currently 50% complete - ahead of schedule.
Variance & Explanation	$15,290,717	• Long Island Rail Road's overspend was driven primarily by scope changes for the East River Tunnel – Right of Way Infrastructure Improvements project. The 1st Avenue substation work, which was originally supposed to be complete in FY18, was delayed and therefore added to the FY19 scope. Furthermore, a joint project with Amtrak to address SOGR track and switch replacement at Penn Station was added to the FY19 scope further increasing the FY19 expenditure.
Penn Station New York - LIRR Projects		
FY19 OYIP Expenditure & Scope	TBD	• If the Governor's initiative for the 33rd Street corridor expansion at Penn Station is approved, construction will begin in September 2019, which will include lighting improvements. Refurbishment of elevators and escalators will continue, and staircase replacements. The installation of a heating plant will be ongoing as part of the HVAC system replacement. Platform #9 construction will commence, to include lighting, line-of-sight ceiling, column cladding, granite floor tiles, painting and tactile strips.
FY19 Actual Expenditure & Accomplishments	$27,323,351	• Penn Station Concourse Improvements Project - Construction commenced in June, work platform shield installed, Temporary Ticket Office construction commenced, train Platform Level steel framing for the future escalator pit commenced as well as relocation of utility conduits and fire stand pipe. Demolition commenced on half the Existing Ticket Office and the old Duane Reade retail space. Elevator/Escalator Refurbishment Project - Refurbished 9 escalators and one Elevator. Completed 100% Design of 4 Staircases for Platform 11.
Variance & Explanation	$27,323,351	• The only variation was the Penn Station HVAC Plant construction as a singular project. It will now be added to the scope of the Penn Station Concourse Improvements Project.
River-to-River Rail Resiliency Projects (R4)		
FY19 OYIP Expenditure & Scope	$20,000,000	• 2019 activities: Construction of the Queens Portals flood walls. The construction of the West Side Yard flood walls will need to be coordinated with the Related Developer's construction of the WSY Overbuild Project.
FY19 Actual Expenditure & Accomplishments	$334,227	• The FTA approved the NEPA Approval of the Noise and Vibration Studies for the West Side Yard Walls and Queens ERT Portals. The Designer STV completed the Division 1 contract documents for the West Side Yard Walls and Queens Perimeter Walls. STV started contract verbiage for the contract options related to the coordination of the WSY Overbuild Developer Project and the Amtrak Gateway Tunnel Project.
Variance & Explanation	-$19,665,773	• The variance was the $20M estimated expenditure for the WSY and Queens Portal Flood Wall construction, which was not awarded. Instead, consultant design spending continued for the contract document completion and coordination with the WSY Overbuild and Amtrak Gateway tunnel project.

Maryland DOT		
BWI Thurgood Marshall Airport Station Interim Improvements		
FY19 OYIP Expenditure & Scope	$6,274,000	• Planned activities for FY19 include continuation of construction. BGE transformer arriving in August to be connected and then moved from station to trailer.
FY19 Actual Expenditure & Accomplishments	$5,046,095	• Project was substantially completed in FY19.
Variance & Explanation	-$1,227,905	• None

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Maryland DOT		
MARC Storage Improvements - Martin Airport		
FY19 OYIP Expenditure & Scope	$2,247,000	• FY19 planned activities include real estate acquisition. MTA RE will either negotiate for purchase of required ROW or successful condemnation through legal proceedings. Additional, delivery of design to MTA Procurement for Advertisement of Invitation for bid contingent on real estate acquisition.
FY19 Actual Expenditure & Accomplishments	$2,075,625	• Right of way purchase completed in FY19.
Variance & Explanation	-$171,375	• None

MBTA		
Back Bay Concourse Improvements		
FY19 OYIP Expenditure & Scope	$2,000,000	• Boston Properties (BP) has signed a long term lease and has assumed operational control of the concourse level of Back Bay Station. In accordance with the lease agreement, Boston Properties will be responsible for the maintenance, security, repairs and cleaning of the concourse level of the station. BP is also responsible for designing and constructing $32M of major concourse level station improvements including; new entrance doors, windows, lighting, renovated rest rooms, new retail space and public waiting areas, and a revised concourse layout.
FY19 Actual Expenditure & Accomplishments	$100,000	• Design was stopped at 30% level as BP waited for MBTA's Stair Ventilation (PK 1) to complete. BP is now proposing to restart design effort. BP is also dependent upon MBTA power for proposed retail shells so they need added MBTA design details on location of an Eversource vault as well as other key power and SOGE design details before they can complete their 60% design.
Variance & Explanation	-$1,900,000	• Not submitted
Back Bay Station Leasehold Improvements		
FY19 OYIP Expenditure & Scope	$1,000,000	• Study infrastructure needs, such as power and mechanical system upgrades, commence full design, and bid work
FY19 Actual Expenditure & Accomplishments	$500,000	• Developed the foundation for design for jet fans for smoke control/life safety as well as indoor and outdoor air quality.
Variance & Explanation	-$500,000	• Not submitted
Back Bay Station Platform Ventilation Package 2		
FY19 OYIP Expenditure & Scope	$1,000,000	• We are engaged in the conceptual/preliminary design phase and are working with a citizens advisory committee on ventilation options. We expect to be in full design in FY2019 and for that design to be completed by the end of the FY.
FY19 Actual Expenditure & Accomplishments	$556,000	• Developed load analysis for sizing a new unit substation as well as identified major SOGR scope items such as expansion joints and HVAC upgrades.
Variance & Explanation	-$444,000	• Not submitted
Back Bay Station Stairway Pressurization Package 1		
FY19 OYIP Expenditure & Scope	$5,000,000	• Complete installation of Stairs 5 and 6 ventilation systems
FY19 Actual Expenditure & Accomplishments	$4,376,261	• Successfully overcame numerous unforeseen conditions, permitting and Amtrak coordination issues to install major project components and prepare project for testing and commissioning phase.
Variance & Explanation	-$623,739	• Schedule delayed due to unforeseen conditions, change orders/risk reallocation actions, and coordination issues with Amtrak and national grid.

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MBTA		
Boston South Station		
FY19 OYIP Expenditure & Scope	$831,772	• 1. Completion of Preliminary Engineering Plans and response to comments; • 2. Completion of Station Ventilation Study; • 3. NEC Future Assessment; • 4. Finalize Rail and Transit Operational Report; • 5. Complete Existing Conditions report if additional access is provided to USPS and Layover sites; • 6. Finalize Construction Phasing Plan and Schedule; • 7. Complete Funding Strategy Report; • 8. Complete Project Readiness Document; and • 9. Ongoing stakeholder and project coordination.
FY19 Actual Expenditure & Accomplishments	$704,454	• Not submitted
Variance & Explanation	-$127,318	• Not submitted
Boston South Station Component: Tower 1		
FY19 OYIP Expenditure & Scope	$2,235,273	• 1. Ongoing Tower 1 design and agency/stakeholder coordination; • 2. 30% Tower 1 design to MassDOT/MBTA/Amtrak/FRA - October 2018; • 3. 60% Tower 1 design to MassDOT/MBTA/Amtrak/FRA - April 2019; and • 4. 90% Tower 1 design to MassDOT/MBTA/Amtrak/FRA - August 2019.
FY19 Actual Expenditure & Accomplishments	$2,126,825	• Not submitted
Variance & Explanation	-$108,448	• Not submitted
MBTA Station Improvements - Mansfield Station		
FY19 OYIP Expenditure & Scope	[Not in OYIP]	• [Not in OYIP]
FY19 Actual Expenditure & Accomplishments	$3,499,863	• Not submitted
Variance & Explanation	-$3,499,863	• Not submitted
MBTA Station Improvements - Ruggles Street Station		
FY19 OYIP Expenditure & Scope	$12,000,402	• The construction of the new platform, complete accessible paths and concrete sidewalks, replace four (4) existing elevators and construct one (1) new elevator in the lower busway and complete all remaining work. Preliminary design work to be completed to address alternate accessible egress for the Orange Line platforms.
FY19 Actual Expenditure & Accomplishments	$154,952	• Not submitted
Variance & Explanation	-$11,845,450	• Not submitted
MBTA Station Improvements - South Attleboro Station		
FY19 OYIP Expenditure & Scope	$500,000	• Design contract awarded August 2018 for 1 year duration
FY19 Actual Expenditure & Accomplishments	$3,572,812	• Not submitted
Variance & Explanation	$3,072,812	• Not submitted

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Metro-North Railroad		
Penn Station Access		
FY19 OYIP Expenditure & Scope	$26,000,000	• It is anticipated that the General Engineering contract will be awarded and preliminary design will be underway. In addition, the environmental assessment will be prepared and coordination with FTA ongoing.
FY19 Actual Expenditure & Accomplishments	$11,352,574	• During FY19, a Memorandum of Understanding and a Design Phase Agreement were executed with Amtrak, which allowed the PSA project to advance into the Design Phase. MTA and the General Engineering Consultant are coordinating closely with Amtrak to refine the proposed alignment. The Environmental Assessment was submitted to the FTA, and issues raised by FTA and FRA have been addressed. Proof of Concept operations simulations, as well as power simulations, have been conducted.
Variance & Explanation	-$14,647,426	• Not submitted

MTA Capital Construction		
Harold Interlocking		
FY19 OYIP Expenditure & Scope	$14,000,000	• Complete trackwork connection to Westbound Bypass approach; project and program management.
FY19 Actual Expenditure & Accomplishments	$39,892,097	• Completed trackwork connection to Westbound Bypass east approach. • Demolished Amtrak buildings 8 and 8A; commenced demolition of Amtrak building 7. • Demolished the old G02 Substation, clearing a portion of the area needed for the East approach of the Eastbound Reroute tunnel. • Catenary and troughing work progressed.
Variance & Explanation	$25,892,097	• MTA Construction and Development's overspend at Harold Interlocking is driven by earlier starts to Eastbound Reroute work and Amtrak Building demolitions, more Westbound Bypass track connection work carried over into Fed FY19 than expected, faster than expected Force Account direct work and procurements, and continued administrative, management and insurance costs.

NJ TRANSIT		
Delco Lead Project		
FY19 OYIP Expenditure & Scope	$20,000,000	• Notice-to-Proceed is anticipated to be issued for Construction Contract GC.01 in September 2018, allowing work to begin in the field. The activities for Construction Contract GC.02 are expected to advance to the 100% level of design completion. Thereafter, the contract will be advertised, bid and awarded with an anticipated NTP issued in July 2019.
FY19 Actual Expenditure & Accomplishments	$5,855,000	• The Construction Management team was selected for the Project. The issuance of Notice-to-Proceed to the CM however is now contingent upon the start of construction. Design activities continue towards reaching a 100% completion in mid-2020.
Variance & Explanation	-$14,145,000	• Due to on-going easement and other related technical discussions between NJ Transit and Amtrak all bids for Contract GC.01 were canceled. The scopes-of-work for GC.01 and GC.02 are now being combined into one contract. The untimely cancellation of Contract GC.01, and the reconsideration of scope by combining 2 contracts into 1, has led to a decrease in the anticipated expenditure of both design and construction funding from a projection of $20.0M to approximately $5.9M in actual expenditures incurred.
Elizabeth Station		
FY19 OYIP Expenditure & Scope	$15,000,000	• Notice-to-Proceed is anticipated to be issued to the successful bidder, allowing construction work to proceed.
FY19 Actual Expenditure & Accomplishments	$6,810,000	• Notice-to-Proceed was issued in November 2018 to the Design / Build contractor Anselmi & DeCicco of Maplewood, NJ. Design activities continued to advance.
Variance & Explanation	-$8,190,000	• Due to both engineering and construction issues that arose after the issuance of NTP, the start of the design activities under this D/B contract was delayed a bit. This delay has directly contributed to a decrease in the anticipated expenditure of both design and construction funding from a projection of $15M to approximately $6.8M in actual expenditures incurred.

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NJ TRANSIT		
Gateway: Portal North Bridge		
FY19 OYIP Expenditure & Scope	$8,000,000	• The initial construction Contract GC.01 is currently underway and includes the following work that is anticipated to be completed during FY19: the construction of a pier within the Hackensack River to accept the delivery of labor, equipment and materials; construction of a 500' long retaining wall and railroad embankment; construction of 2 Transmission Towers that support the NEC's 138kv lines; construction of a temporary Fiber Optic Line, and; utility relocation activities. The procurement phase to pre-qualify, bid and award Contract GC.02 to the successful contractor is scheduled to begin and be completed during FY'19. FTA is currently reviewing the project for entry into the Engineering phase of FTA's Capital Investment Grant program, which is a statutory requirement before the project can be considered for a construction grant award.
FY19 Actual Expenditure & Accomplishments	• $5,812,257 • $6,023,824	• Early Action Construction: All five (5) major construction activities funded by the $16M TIGER Grant were completed under budget and on-time in February 2019. This included the following; the construction of a pier within the Hackensack River to accept the delivery of labor, equipment and materials; construction of a 540' long x 30' tall retaining wall and railroad embankment; construction of 2 Transmission Towers that support the NEC's 138kv lines; construction of a 2,000' long temporary Fiber Optic Line spaced equidistant over 10 steel poles, and; utility relocation activities. Initiatives are currently underway with the contractor to possibly add additional work to the contract. • Full Construction: The Project's Financial Plan was prepared over the Spring and Summer, and was later resubmitted to the FTA and other federal agencies in September 2019. The plan includes a modified listing of local funding sources and the amounts intended to be received from each.
Variance & Explanation	-$3,836,081	• Due to concerns raised by New Jersey's Utility and Transportation Contractor's Association (UTCA) with contract bidding criteria, the procurement phase to pre-qualify, bid and award Contract GC.02 was delayed from its previously scheduled start of July 2019. Additionally, the FTA is still reviewing the project for entry into the Engineering phase of FTA's Capital Investment Grant program, which is a statutory requirement before the project can be considered eligible for a construction grant award. From a funding expenditure point of view, the $6.0M actually expended during the FY '19 (and not $8.0M) is partially reflective of not being able to finalize certain real estate transactions as previously projected. Additionally, continued delays in the start of any Project's actual construction activities will always have a direct affect on anticipated expenditure projections.
New Brunswick Station		
FY19 OYIP Expenditure & Scope	$4,000,000	• Obtain NJ Transit Board approval to begin the rehabilitation of the Elevator Tower. Advertise, Bid and Award the Escalator Replacement contract. Advance the design of the Walkway Overpass to a 100% level of design completion and advertise the construction contract. The design phase of the platform extension project will be completed and, the construction contract is anticipated to be publicly advertised.
FY19 Actual Expenditure & Accomplishments	$1,830,526	• Notice-to-Proceed was successfully issued to the Elevator Tower contractor in February 2019. The design of the Walkway Overpass continued to advance to a 100% level of design completion. The design phase of the platform extension project advanced to a 90% level of design completion.
Variance & Explanation	-$2,169,474	• With regards to Escalator Replacement Project the advertisement of the contract has been pushed back due to the need to address certain funding issues. This delay led to a decrease in the amount of funding anticipated to be expended from $4.0M to approximately $1.8M during the fiscal year.
NJ TRANSITGRID		
FY19 OYIP Expenditure & Scope	$35,000,000	• Advance the designs of both the Distributed Generation (DG) system and the Central Power Plant (CPP) to a 20% level of completion; Advertise, Bid and Award both the DG and CPP contacts. Issue Notice-to-Proceed to the DBOM contract for the Central Power Plant.
FY19 Actual Expenditure & Accomplishments	$7,229,000	• A Categorical Exclusion (CE) was received on the Distributed Generation (DG) system Project in November 2018 and thus, has allowed design phase activities on the DG system to advance to a 100% level of design completion. The Advertisement of the DG construction contract occurred in June 2019. Design activities for the Central Power Plant (CPP) also continued to advance.
Variance & Explanation	-$27,771,000	• The release of the Project's Draft Environmental Impact Statement (DEIS), and the ultimate receipt of the Record of Decision (ROD) that is required to be issued by the FTA, remain outstanding goals yet to be accomplished. This will continue to have a direct impact on the amount of funding anticipated to be expended as although $35M was projected to be expended during the fiscal year, only about $7.2M in costs were actually incurred by NJ Transit during the fiscal year.
Princeton Junction Station		
FY19 OYIP Expenditure & Scope	$600,000	• Award the construction contract and issue Notice-to-Proceed to the winning Contractor to begin the platform rehabilitation work.
FY19 Actual Expenditure & Accomplishments	$24,000	• The construction contract was advertised in July 2019 and, Notice-to-Proceed was issued to the winning Contractor in August 2019 to begin the platform rehabilitation work.
Variance & Explanation	-$576,000	• Due to the issuance of NTP to the contractor in August 2019 the predominant portion of the work will not occur until FY20. As a consequence, the amount of costs actually incurred by NJ Transit in FY '19 at $24k was considerably less than the $600k in anticipated projected costs.

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Pennsylvania DOT		
Harrisburg Line Station Improvements		
FY19 OYIP Expenditure & Scope	N/A	• N/A
FY19 Actual Expenditure & Accomplishments	N/A	• Note that in the FY19 OYIP, Pennsylvania DOT planned investments were included as one project: "Harrisburg Line Station Improvements."The agency subsequently broke out their investments into 9 projects listed below for the FY19 Annual Report. For the purposes of this Annual Report, project-level variance analysis (such as in Figure 16 on page 29) treats PennDOT's FY19 investments as single project.
Variance & Explanation	N/A	
Automatic Block Signal (ABS) Design Park to Paoli		
FY19 OYIP Expenditure & Scope	N/A	• N/A
FY19 Actual Expenditure & Accomplishments	$431,072	• Design completed in December 2019
Variance & Explanation	-$431,072	• Not submitted
Coatesville Train Station 4th Avenue Streetscape		
FY19 OYIP Expenditure & Scope	N/A	• N/A
FY19 Actual Expenditure & Accomplishments	$81,388	• Not submitted
Variance & Explanation	-$81,388	• Improved access to station construction contract advertised June 4, 2019 with bid opened July 8, 2019
Coatesville Train Station Final Design		
FY19 OYIP Expenditure & Scope	N/A	• N/A
FY19 Actual Expenditure & Accomplishments	$567,761	• Revised 90% design plans submitted to Amtrak for approval
Variance & Explanation	-$567,761	• Not submitted
Downingtown Station Early Action Property Acquisition		
FY19 OYIP Expenditure & Scope	N/A	• N/A
FY19 Actual Expenditure & Accomplishments	$2,550,840	• Property acquired in first quarter 2019
Variance & Explanation	-$2,550,840	• Not submitted

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Pennsylvania DOT		
Harrisburg Train Station Roof and Observation Room Final Design and Construction		
FY19 OYIP Expenditure & Scope	N/A	• N/A
FY19 Actual Expenditure & Accomplishments	$77,943	• Design completed in spring 2019
Variance & Explanation	-$77,943	• Building permits were not paid in 2019 and design needs to be updated to current IBC code. Project to be bid in spring of 2020
Lancaster Station Parking and Concourse Extension		
FY19 OYIP Expenditure & Scope	N/A	• N/A
FY19 Actual Expenditure & Accomplishments	$0	• PennDOT negotiated a design review agreement with Amtrak
Variance & Explanation		• New Activity based on parking demand at station
Middletown Train Station Final Design		
FY19 OYIP Expenditure & Scope	N/A	• N/A
FY19 Actual Expenditure & Accomplishments	$455,445	• Station Construction package advertised 12/19/2019. Norfolk Southern track shift completed November 2019
Variance & Explanation	-$455,445	• Amtrak track shift scheduled to start in September 2019 did not occur. Work to start in January 2020 with the same completion date
Mount Joy Train Station Construction		
FY19 OYIP Expenditure & Scope	N/A	• N/A
FY19 Actual Expenditure & Accomplishments	$13,114,401	• Construction complete and station open for service in October 7, 2019
Variance & Explanation	-$13,114,401	• Not submitted
Parkesburg Early Action Parking and Access Design		
FY19 OYIP Expenditure & Scope	N/A	• N/A
FY19 Actual Expenditure & Accomplishments	$0	• PennDOT and Amtrak agreement on project details and funding
Variance & Explanation		• Design to start in first quarter of 2020

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Rhode Island DOT		
Pawtucket/ Central Falls Station		
FY19 OYIP Expenditure & Scope	$8,000,000	• A design/build procurement is currently under way. The DB team is expected to be awarded and final design completed in FFY19.
FY19 Actual Expenditure & Accomplishments	$6,007,560	• Existing track relocation preliminary engineering and design underway; signal design underway; established Amtrak material procurement mechanism to meet FTA Buy America regulations; budget expenditures less than anticipated due to existing track relocation.
Variance & Explanation	-$1,992,440	• Unanticipated change to relocate existing main line track due to safety concerns affected the project preliminary engineering and design but remains on schedule. Less funds spent since permanent construction did not begin as anticipated. Anticipate to complete design and permitting, relocate existing track and begin permanent construction of the station and bus hub.
RIDOT Stations: Warwick/ T.F. Green Airport		
FY19 OYIP Expenditure & Scope	$500,000	• RIDOT and Amtrak will jointly conduct a study of the infrastructure and costs associated with bringing intercity service to TF Green. This analysis is intended to be a precursor to preliminary engineering.
FY19 Actual Expenditure & Accomplishments	$106,605	• Draft conceptual design alternatives; draft environmental assessment document
Variance & Explanation	-$393,395	• Less funds were spent than anticipated because the project is 3 months behind schedule. The project is expected to be complete by the end of the calendar year.

SEPTA		
30th Street West Catenary Replacement		
FY19 OYIP Expenditure & Scope	$2,200,000	• During FY19 design will be finalized and the project will be bid. Construction is expected to start at the beginning of FY20.
FY19 Actual Expenditure & Accomplishments	$1,009,391	• Project entered Final Design.
Variance & Explanation	-$1,190,609	• Project was temporarily put on hold pending the resolution of the PA Turnpike Lawsuit and uncertainty with State funding.
Ardmore Station ADA Improvements		
FY19 OYIP Expenditure & Scope	$1,256,448	• The project will be bid in the fall of 2018 and construction is expected to begin in the spring of 2019. The project schedule is contingent upon availability of Amtrak support.
FY19 Actual Expenditure & Accomplishments	$522,591	• Construction began on a shared-use station to make the facility ADA-accessible.
Variance & Explanation	-$733,857	• Project was temporarily put on hold pending the resolution of the PA Turnpike Lawsuit and uncertainty with State funding.
Exton Station Improvements		
FY19 OYIP Expenditure & Scope	$6,679,800	• Planned activities for FY19 include the continuation and substantial completion of construction.
FY19 Actual Expenditure & Accomplishments	$4,884,193	• Construction is substantially complete.
Variance & Explanation	-$1,795,607	• Project schedule was delayed due to contractor issues.

Project data including expenditures, accomplishments, and explanation of variances are published as submitted by coordinating agencies.

SEPTA		
Frazer Rail Shop and Yard Upgrade		
FY19 OYIP Expenditure & Scope	$12,875,408	• Planned activities for FY19 include the completion of Phase 2 construction, completion of Phase 3 design and bidding of Phase 3 construction.
FY19 Actual Expenditure & Accomplishments	$8,190,433	• Phases 1 and 2 of the Frazer Yard Expansion are complete and the final Phase is underway. The expanded yard will be one of two locations for SEPTA's new multi-level regional rail fleet.
Variance & Explanation	-$4,684,975	• Project was temporarily put on hold pending the resolution of the PA Turnpike Lawsuit and uncertainty with State funding.
Levittown Station Improvements		
FY19 OYIP Expenditure & Scope	[Not in OYIP]	• [Not in OYIP]
FY19 Actual Expenditure & Accomplishments	$5,193,847	• Construction is substantially complete.
Variance & Explanation	-$5,193,847	• Project closeout took longer than originally expected.
Southwest Connection Improvement Program		
FY19 OYIP Expenditure & Scope	$14,639,988	• During FY19 design will be finalized and construction will continue with planned summer outages.
FY19 Actual Expenditure & Accomplishments	$8,654,780	• The two week summer outage was successfully completed without any delays to schedule and new rail has been installed at Arsenal and Civic Interlockings.
Variance & Explanation	-$5,985,208	• Work was completed under budget.
Villanova Station Improvements		
FY19 OYIP Expenditure & Scope	$2,542,558	• Planned activities in FY19 include the close-out of Phase 1 construction and completion of Phase 2 design.
FY19 Actual Expenditure & Accomplishments	$2,483,022	• Construction is complete and the project is closed out.
Variance & Explanation	-$59,536	• Project was completed under budget.

VRE		
VRE Midday Storage Facility		
FY19 OYIP Expenditure & Scope	$17,650,000	• Confirm State of Good Repair (SGR) option; initiate preliminary design; receive NEPA clearance from FTA; initiate RE acquisition process; execute design and real estate agreement with Amtrak.
FY19 Actual Expenditure & Accomplishments	$594,579	• Received NEPA clearance from FTA; completed preliminary design
Variance & Explanation	-$17,055,421	• VRE's underspend was due to continuing coordination of the Midday Storage Replacement Facility project's preliminary design and related real estate and construction agreements with Amtrak.

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