Northeast Corridor Annual Report: Infrastructure and Operations

Fiscal Year 2021

March 2022

March 2022

Northeast Corridor Annual Report: Infrastructure and Operations

Fiscal Year 2021

A report by the
Northeast Corridor Commission

In partnership with:

Massachusetts Department of Transportation (MassDOT)
Massachusetts Bay Transportation Authority (MBTA)
Rhode Island Department of Transportation (RIDOT)
Connecticut Department of Transportation (CTDOT)/CT*rail*
Metropolitan Transportation Authority (MTA)
MTA Metro-North Railroad (Metro-North)
MTA Long Island Rail Road (LIRR)
New Jersey Transit (NJ TRANSIT)
Southeastern Pennsylvania Transportation Authority (SEPTA)
Pennsylvania Department of Transportation (PennDOT)
Delaware Department of Transportation (DelDOT)
Maryland Department of Transportation (MDOT) Maryland Transit Administration (MTA) / Maryland Area Regional Commuter (MARC)
District Department of Transportation (DDOT)
Virginia Railway Express (VRE)
Amtrak
U.S. Department of Transportation (USDOT)

Passengers waiting to board at Moynihan Train Hall (NY)

Contents

A MARC train departs Union Tunnel (MD)

Letter from the Executive Director

Northeast Corridor (NEC) operators, right-of-way infrastructure (RoW) owners, and project sponsors endured another challenging year, providing safe and reliable transportation options while delivering infrastructure investments amid the coronavirus pandemic. RoW infrastructure owners and project sponsors adjusted plans and contended with public health conditions and supply chain issues that impacted workforce availability and project delivery. The NEC Annual Report for federal fiscal year 2021 provides insight on the current state of infrastructure investment, ridership trends, and train performance.

Despite the uncertainty and new challenges that emerged because of the pandemic, the NEC Commission and its member agencies remain steadfast in our commitment to modernize and improve the NEC rail system through increased collaboration, transparency, and accountability.

The Commission released CONNECT NEC 2035 (C35) in July 2021, after two years of intensive collaboration, data gathering, and refinement of technical analyses. C35 is a 15-year action plan for the most ambitious reinvestment program in the NEC's history and represents a new way of planning—a multi-agency, multi-year shared action plan guided by a long-term vision for a modern and resilient railroad with safer, more reliable, and more frequent service; connections to new markets; and reduced travel times between communities.

A few months after C35's release, enactment of the historic Infrastructure Investment and Jobs Act in November 2021 initiated a new era for the NEC and will support implementation of the CONNECT NEC Program. Though C35 gives the NEC a significant head start on understanding what needs to be built, most projects face years of vital pre-construction activity including detailed engineering, workforce development, and contracting. We must also transform our organizations into trusted capital project delivery partners that execute plans on scope, on schedule, and on budget. This report demonstrates that much work is needed to improve the delivery of capital plans.

We are committed to being good stewards of these new dollars and our members are embarking down the long road of ramping up the resources to sustain an aggressive investment program for the next 15 years. We look forward to working with Congress and the Administration to ensure that the nation's busiest passenger rail corridor meets the needs of generations to come.

Mitch Warren
Executive Director
Northeast Corridor Commission

Executive Summary

Federal fiscal year 2021 (FY21) spans October 1, 2020 through September 30, 2021—a period where the United States continued to endure the coronavirus pandemic. Thanks to federal support through coronavirus relief packages, Northeast Corridor Commission members continued to fund ongoing capital renewal of basic infrastructure assets, while NEC operators restored service levels to meet the needs of customers.

Infrastructure

NEC project sponsors invested nearly $1.9 billion in infrastructure in FY21, above FY20 investment of $1.4 billion

The pandemic continues to impact capital investment as agencies respond to changing financial and public health conditions. Collective NEC infrastructure investment grew from $1.4 billion in FY20 to $1.9 billion in FY21. NEC project sponsors invested $741.5 million in the capital renewal of basic infrastructure and $1,126.4 million in special projects in FY21 (40% and 60% of total spending, respectively). Accomplishments included the completion of five special projects, the announcement of significant federal actions to advance major backlog projects, critical property acquisition for the Hudson Tunnel Project, and continued collaboration on right-of-way and station projects that will benefit both intercity and commuter service on the NEC main and branch lines.

Overall adherence to planned expenditure improved but significant concerns remain

This year's report continues to measure plan adherence as expenditures that fall within 20% of the planned expenditure in the approved Capital Investment Plan. NEC project sponsors spent $1.9 billion, which is consistent with the overall planned spending level for FY21. The overall percent of plan spent was 99% in FY21—compared to 77% in FY20. However, analyses indicate that right-of-way (RoW) infrastructure owners and project sponsors, despite improvement in adherence to overall planned expenditure, struggle with very low plan adherence for capital renewal by geography and for individual special projects. Data quality issues also continue to prevent evaluation of important capital program delivery metrics beyond expenditures.

Project pre-construction creates a future pipeline of projects for construction

The Infrastructure Investment and Jobs Act creates a new funding landscape that will support a significant ramp up of NEC infrastructure investment. This historic level of funding will begin with critical pre-construction activities that build a pipeline of projects funded for construction. Pre-construction work requires an orchestration of staff completing technical designs, establishing credible construction costs, and securing in-house or contracted resources for construction. Stakeholder coordination and agreement execution is also a time-consuming part of the pre-construction process.

Operations

Service and ridership levels continue to rebound, while reliable train performance improves

At the end of FY21, service levels increased by 8% to an average of 1,840 weekday trains (or 86% of pre-pandemic service levels), while ridership levels increased more substantially by 80% with 429,000 average weekday trips (or 45% of pre-pandemic ridership levels). Thanks to federal support, most NEC operators restored most of their services by the end of the fiscal year. Ridership grew substantially month over month as service was restored.

NEC train service reliability has improved since the start of the pandemic, generally due to lower service levels, which create fewer opportunities for delay. Fewer NEC intercity and commuter trains were late, annulled, or terminated in FY21 (6.4%) compared to FY20 (7.6%). Most agencies experienced consistent reliability throughout the year.

Infrastructure failures are still the dominant source of delays and are attributed to half of FY21 major service incidents

Infrastructure, mechanical, and transportation remain the top three categories of delay in FY21. Infrastructure delays were largely caused by infrastructure failures, which have been the least impacted by the pandemic: this subcategory decreased 51% since FY19 (i.e., the last pre-pandemic year) and caused nearly the same amount of delay minutes in FY20 and FY21. There were only 12 major service incidents in FY21, but half are attributed to infrastructure failures. Signal and catenary systems failures accounted for most of these incidents.

Hurricane Ida highlights the importance of past resiliency improvements and demonstrates the vulnerability of older infrastructure

With climate change increasing the frequency of severe damage from flooding events, Hurricane Ida proved that without major overhauls, NEC operators could not sustain or quickly recover operations during floods. RoW owners and project sponsors have planned for and know how to incorporate resilient infrastructure to mitigate the worst impacts from flooding and allow for quicker recoveries.

Challenges and Recommendations

The findings in this report have routinely indicated that infrastructure-related issues, particularly infrastructure failures, are the dominant source of delays. And while NEC project sponsors invested record levels of expenditures in FY21, NEC RoW owners and project sponsors struggle greatly to deliver capital projects according to plan.

Successful implementation of the CONNECT NEC Program requires RoW owners and project sponsors to not only be accountable for their capital program delivery, but also to quickly ramp up their investments and sustain an aggressive program for the next 15 years. The recommendations in this report are organized around three implementation barriers—**workforce development, agreements, and coordination**—and incorporate past Annual Report recommendations.


The Northeast Corridor consists of four right-of-way infrastructure owners (Amtrak, MBTA, Connecticut DOT, and MTA Metro-North Railroad) and multiple station owners and service providers.
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
DC
Washington
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 The Way To Go.
SEPTA
MARC
VRE
AMTRAK

1. Introduction

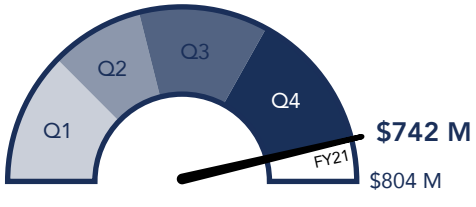
Northeast Corridor-Wide Summary

Federal fiscal year 2021 (FY21) spans October 1, 2020 through September 30, 2021—a period where the United States continued to endure the coronavirus pandemic. The start of the fiscal year saw a surge in COVID-19 cases and deaths, which began to subside in February 2021 when vaccines became more widely available. Northeast Corridor (NEC) operators and project sponsors remained responsive to changing conditions throughout the fiscal year to sustain passenger rail service for customers, ensure a safe and healthy workforce, and support vital infrastructure work.

Federal support through coronavirus relief packages in FY20 and FY21 provided emergency assistance for individuals, families, and businesses affected by the pandemic. This package included billions in federal assistance for Amtrak and NEC commuter rail operators and was critical to maintaining intercity and commuter rail operations along the corridor. NEC Commission members continued to fund ongoing capital renewal of basic infrastructure assets. And NEC operators restored service to 80% of pre-pandemic service levels to meet the needs of customers, with some operators near 100%.

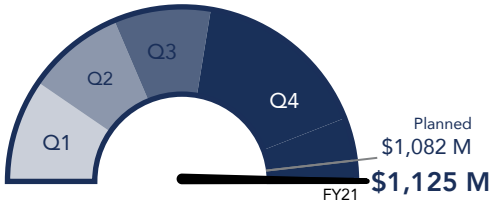
However, the pandemic created further uncertainty in the last quarter of FY21 with the emergence of the highly transmissible delta variant. NEC operators and project sponsors remain vigilant of and responsive to the changing conditions of the pandemic.

Figure 1-1. Metrics at a glance, FY21



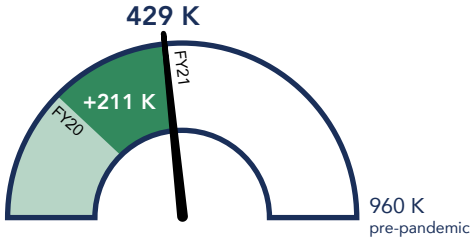
Capital Renewal Expenditure

The reported expenditure on capital renewal compared to the total planned expenditure for FY21



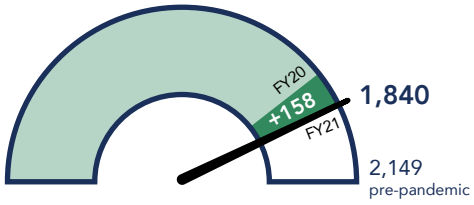
Special Projects Expenditure

The reported expenditure on special projects compared to the total planned expenditure for FY21



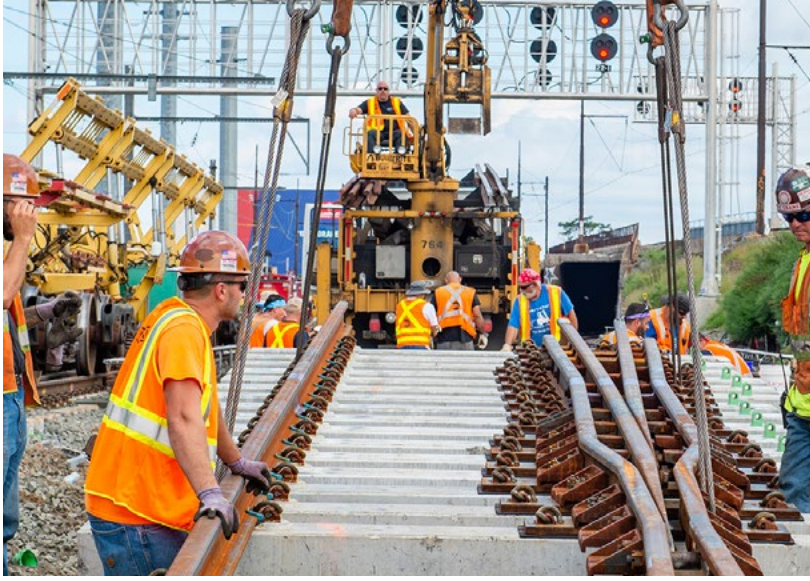
Average Daily Ridership

The average number of unlinked passenger trips made to or from an NEC station on a weekday at the end of FY21 compared to pre-pandemic and FY20 average ridership



Average Daily Trains

The total number of revenue trains operated on the NEC at the end of FY21 compared to pre-pandemic and FY20 average train count



Above left: President Joe Biden speaks at an April 2021 event in Philadelphia, PA celebrating Amtrak's 50th anniversary. **Above right:** MTA Long Island Rail Road crews install new track at Harold Interlocking in Queens, NY.

Background

The Northeast Corridor

The Northeast Corridor—both the NEC main line from Boston, MA to Washington, DC and connecting corridors to Harrisburg, PA; Spuyten Duyvil, NY; and Springfield, MA—hosts the passenger rail operations of eight commuter railroads, Amtrak's intercity services, and six freight railroad services. The NEC, long the nation's busiest passenger railroad, has been a cornerstone of the region's development and continues to be a driver of its economic success. There were over 800,000 daily trips on the NEC in 2019—775,000 on commuter rail and 45,000 on Amtrak's intercity services. If the NEC shut down for just a single day, it would cost the economy $100 million in lost productivity due to additional congestion and other transportation impacts.

The 457-mile main line still includes many bridges and tunnels that date back to the period between the Civil War and the New Deal. The NEC's state-of-good-repair (SOGR) backlog must be addressed to prevent further impacts to service reliability, which can jeopardize the economic well-being of the Northeast region and the entire nation. The historic Infrastructure Investment and Jobs Act will create a new funding landscape to support a significant ramp of NEC infrastructure investment.

The coronavirus pandemic dramatically reduced all travel throughout the U.S. and the world and created tremendous uncertainty regarding NEC agencies' capital budgets and programming activities. Amtrak and commuter agencies were able to survive a challenging FY21 thanks to emergency federal support, capital plan adjustments, and resiliency amid changes to service and operations.

Above left: MARC conductors on board a train near Baltimore, MD. **Above right:** MTA Mask Force volunteers distribute masks. In October, pink masks were distributed to raise awareness during Breast Cancer Awareness Month in New York, NY.

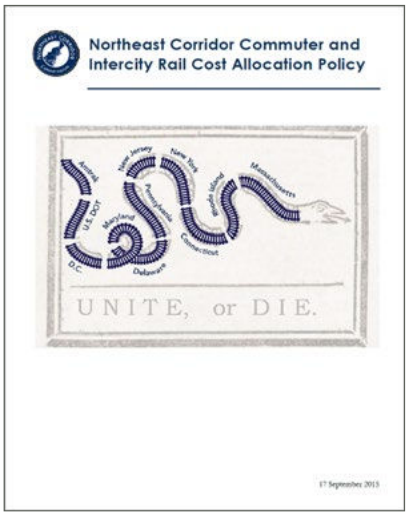
When the nation fully emerges from the pandemic, the Northeast Corridor Commission (the Commission) expects rail travel to rebound and continue to be a critical mode of travel for many people, including those without access to a car. Capital investment can both ensure the future viability of this service and contribute to recovery from the pandemic's economic challenges.

The Northeast Corridor Commission

The Commission was authorized by Congress in 2008 (49 U.S.C. § 24905) to develop coordinated strategies to improve 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, Commission member agencies will achieve a level of success that far exceeds the potential reach of any individual organization.

The Commission is 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.

The NEC Commuter and Intercity Rail Cost Allocation Policy. The Cost Allocation Policy was adopted by the Commission in September 2015 and renewed in October 2020. The Policy outlines a partnership built on three pillars: (1) operator cost sharing; (2) transparency, collaboration, and accountability; and (3) federal partnership.



NEC Commission plans and reports. NEC plans and reports, including the CONNECT NEC Program, the Capital Investment Plan (CIP), and this Annual Report, are key components of the transparency, collaboration, and accountability pillar. These processes are intended to enhance coordination on service goals, associated capital investments, and the resources required to implement them.

The state governments of the Northeast, the federal government, eight commuter rail agencies, and Amtrak came together through the Commission as never before to develop CONNECT NEC 2035 (C35)—a multi-agency, multi-year, shared action plan guided by a long-term vision. C35 was released in July 2021 and includes a detailed and efficient sequencing of infrastructure investments over 15 years. If fully funded and resourced, the CONNECT NEC Program will achieve significant progress on improving service and eliminating the state-of-good-repair (SOGR) backlog, while keeping this critical system running safely and reliably, and supporting our economy.

C35 identifies long-term service objectives and associated capital investments; the CIP demonstrates how the Commission and its member agencies could advance C35 in the near-term. Year One of the CIP is an implementation plan constrained by available funding and resources and serves as the baseline for quarterly and annual capital program delivery reporting, summarized each year in the NEC Annual Report. Capital program delivery reporting is meant to establish a uniform understanding of capital activities and support greater accountability between all parties.

The NEC Annual Report is called for in the Policy and required by statute. The NEC Annual Report summarizes corridor activity during the prior federal fiscal year, including train operations and performance, ridership and service trends, capital program delivery, and progress in assessing and eliminating the NEC state-of-good-repair backlog. The Annual Report may also include recommendations on these subjects, as appropriate.

Above: NEC Commission members and staff announce CONNECT NEC 2035 at a July 2021 press conference in Moynihan Train Hall (NY).

Figure 1-2. NEC Commission plans and reports

CONNECT 2035

The implementation of C35 would result in a modern and resilient railroad with safe, reliable, and more frequent service; connections to new markets; and reduced travel times between communities.

Capital Investment Plan

A five-year plan that integrates NEC agencies' planned infrastructure investment detail. Year One of the CIP serves as an implementation plan and the baseline for capital program delivery reporting.

Annual Report

A report that documents the operational performance of NEC trains, the delivery of Year One of the CIP, and contains recommendations for improvement.

2. Infrastructure

The Commission approved the FY21-25 NEC Capital Investment Plan in October 2020, which identified each agency's capital investments planned for federal fiscal year 2021 based on available funding known at the time. This section summarizes the capital investments made by NEC owners and project sponsors during FY21, including notable progress and accomplishments and adherence to plan.

NEC project sponsors invested nearly $1.9 billion in infrastructure in FY21, above FY20 investment of $1.4 billion

The pandemic continues to impact capital investment as agencies respond to changing financial and public health conditions. Collective NEC infrastructure investment grew from $1.4 billion in FY20 to $1.9 billion in FY21—thanks to continued federal support through coronavirus relief packages and the efforts of project sponsor staffs and workforces. NEC project sponsors invested $741.5 million in the capital renewal of basic infrastructure and $1,124.6 million in special projects in FY21 (40% and 60% of total spending, respectively). Total capital renewal spending in FY21 was moderately higher (~$78.7 million) than FY20, while special project spending was significantly higher (~$422.4 million) than FY20.

Types of capital investment

- **Capital renewal of basic infrastructure** includes the routine repair or replacement of existing basic infrastructure assets to keep the NEC safe for train operations and is managed by the infrastructure owner.
- **Special projects** include "major backlog projects" which represent the complete overhaul or replacement of major bridges and tunnels and "improvement projects" aimed at creating new infrastructure above and beyond existing assets or replacing existing assets with markedly superior ones. Special projects are coordinated by any NEC Commission member agency.

This is the highest level of investment in NEC infrastructure for capital renewal and special projects since the creation of the Commission. This increase was despite the budgetary and workforce challenges created by the pandemic. But significant additional progress is required to invest the historic funding levels made available in the Infrastructure Investment and Jobs Act to begin implementing the ambitious CONNECT NEC Program.

FY21 capital renewal expenditures by quarter were steady but dipped in the second quarter (January through March 2021) largely attributed to typical winter slowdowns plus reduced workforce availability from the winter surge of coronavirus cases and two major regional snowstorms that affected work on the right-of-way. Special project quarterly expenditure exceeded prior years, with the highest spending occurring in the fourth quarter. A large portion of the fourth quarter expenditure is attributed to a major property acquisition in Manhattan necessary for the Hudson Tunnel Project. The acquisition, executed by Amtrak in August 2021, was possible after the release of FTA's and FRA's joint Final Environmental Impact Statement/Record of Decision in May 2021.

Figure 2-1. FY21 NEC capital investment by type (millions)

Type	FY21 Planned Expenditure	FY21 Actual Expenditure	FY21 Percent of Plan Spent	FY20 Actual Expenditure	Percent Change Actual Expenditure
Capital Renewal of Basic Infrastructure	$803.6	$741.5	92.3%	$662.8	+11.9%
Special Projects	$1,081.8	$1,124.6	104.0%	$702.2	+60.2%
NEC-Wide Total Investment	**$1,885.3**	**$1,866.1**	**99.0%**	**$1,365.0**	**+36.7%**

Figure 2-2. Total capital expenditure, FY16-21 (millions)

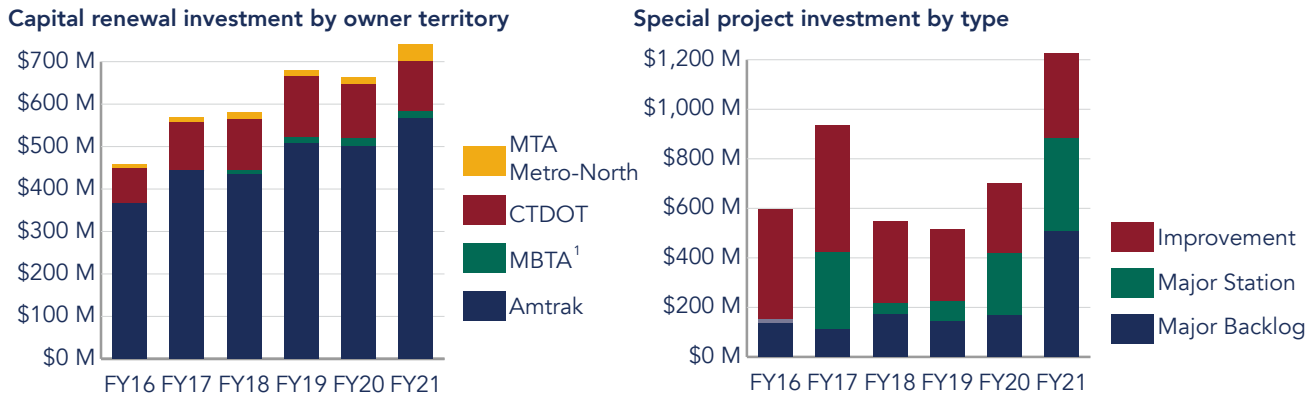
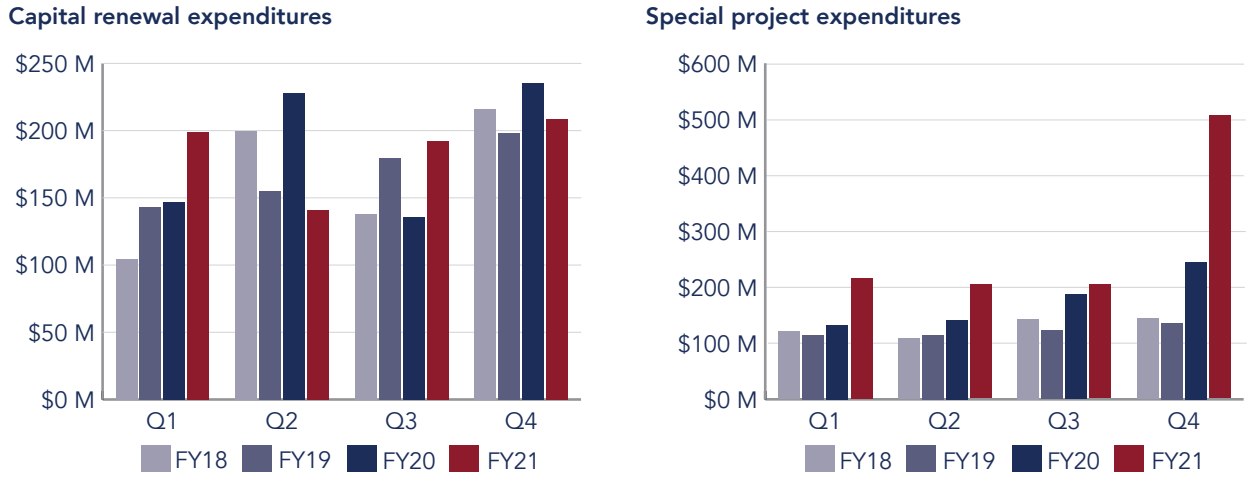


Figure note: (1) For capital renewal, MBTA assumed the role of right-of-way owner beginning in FY18. Prior to FY18, Amtrak maintained MBTA territory.

Figure 2-3. Quarterly capital investment, FY18-21 (millions)



FY21 Progress and Accomplishments

Capital renewal

Of the $741.5 million invested in capital renewal in FY21, $566.2 million (or 76%) was funded by Baseline Capital Charges (BCCs) paid to or expended by right-of-way (RoW) infrastructure owners for their territories. Per the NEC Cost Allocation Policy, as discussed in the Introduction, each operator contributes a BCC, which is based on each operator's relative use of NEC infrastructure and updated annually through the NEC Cost Allocation Model. Approximately $175.3 million (or 24%) of the total investment in capital renewal was funded through other available funds beyond BCCs. Connecticut DOT, MTA Metro-North Railroad, and Amtrak invested in their respective territories at or above their FY21 BCC obligations.

Figure 2-4. Capital renewal expenditures and funding sources by RoW Owner, FY21 (millions)

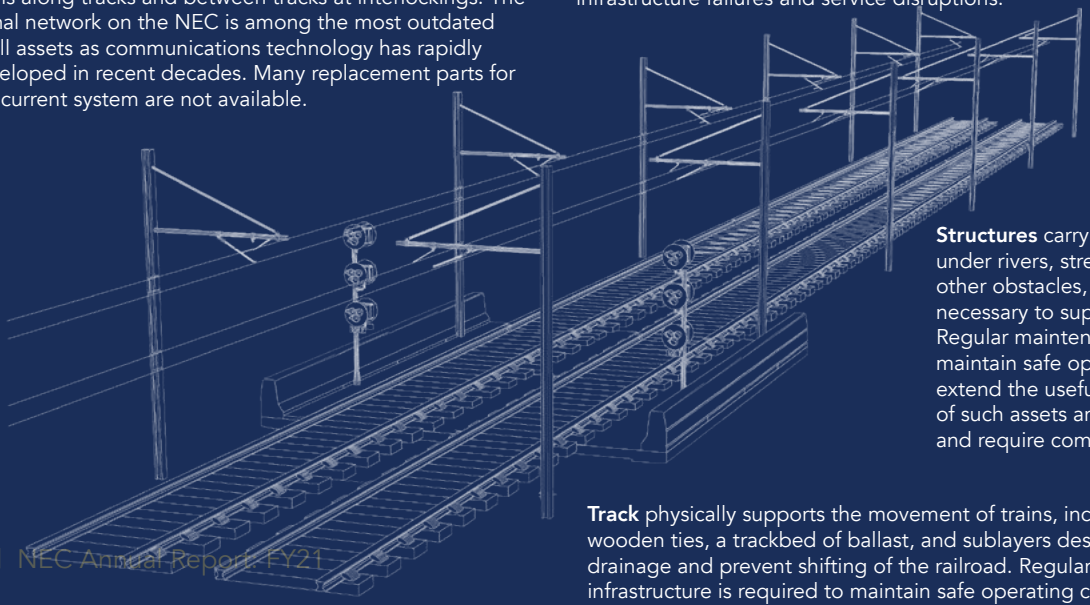
RoW Owner	FY21 Actual Expenditure	Funding sources		FY21 BCC Obligation	FY21 BCC Obligation Met
		BCCs	Other Capital Sources		
Amtrak-owned territory	$565.4	$465.1	$100.3	$483.5[1]	Yes
MBTA-owned territory	$17.1	$17.1	$0.0	$28.5	No
Connecticut DOT-owned territory	$120.0	$67.6	$52.3	$67.6	Yes
MTA Metro-North-owned territory	$39.0	$16.3	$22.7	$16.3	Yes
Total capital renewal	**$741.5**	**$566.2**	**$175.3**	**$595.9**	

Table note: (1) Subject to revision per Amtrak-MTA Long Island Rail Road agreement.

Basic Infrastructure Assets

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.

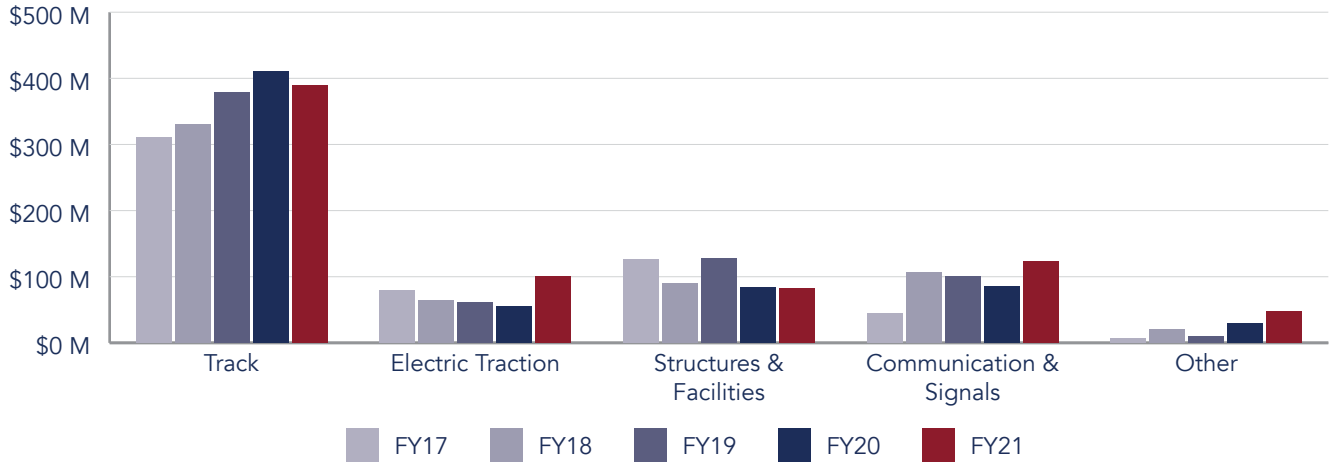
Electric traction systems draw power from the regional electric grid and distribute it to trains through a complex system of frequency converters, transmission lines, substation facilities, and overhead catenary lines. Many such assets that date back to the 1930s limit train speeds and are a frequent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



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.

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.

Figure 2-5. Capital renewal expenditure by asset type, FY21 (millions)



RoW infrastructure owners continued to invest heavily in track in FY21, while investments in communications & signals and electric traction assets increased by 45% and 84% over FY20, respectively. Connecticut DOT, for example, is nearing completion of the last two segments of the Auto-Tension Catenary Replacement Project, which will mark the end of a 20-year long project to update the catenary across the entire New Haven Line. On the Springfield Line, Amtrak replaced over 37,000 wood ties between New Haven and Windsor, CT under its Production Wood Tie/Timber Replacement Program. Additional highlighted capital renewal accomplishments are on the following page.

Special projects

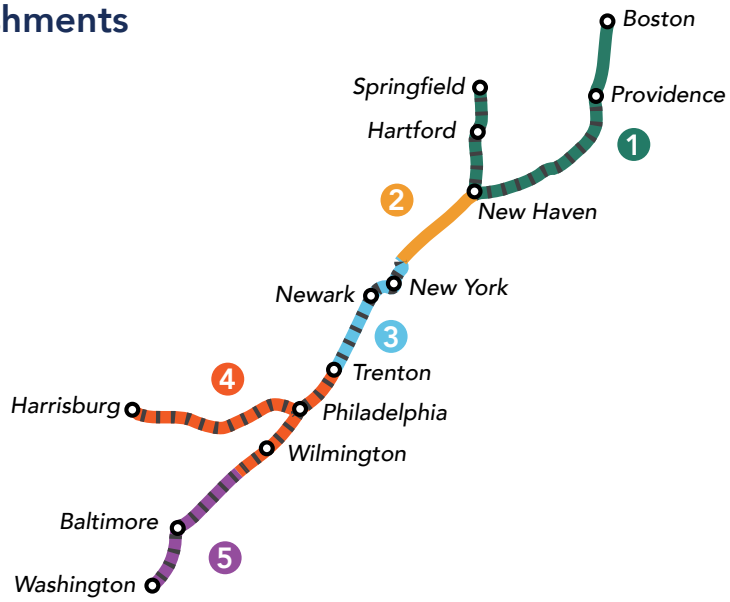
NEC project sponsors invested over $1,124.6 million in FY21 to advance special projects. Accomplishments, which are submitted by project sponsors and highlighted on the following page, included the completion of five special projects, the announcement of significant federal actions to advance major backlog projects, and continued collaboration on right-of-way and station projects that will benefit both intercity and commuter service on the NEC main and branch lines. FY21 special project investments in planning and design are helping advance a pipeline of projects for implementing the CONNECT NEC Program with infrastructure law funding. See page 25 to learn more about pre-construction.

FY21 NEC Infrastructure Accomplishments

In FY21, right-of-way infrastructure owners and project sponsors invested nearly $1.9 billion in state-of-good-repair and improvement projects throughout the Northeast Corridor.

Major federal actions completed in FY21 are allowing projects to proceed, such as the award of federal grants and completion of environmental reviews.

Projects are underway at major stations and along the right-of-way, throughout the NEC main and branch lines.



1 New England — FY21 Investment: $125 M

Capital Renewal

- MBTA's interlocking steel replacement, joint elimination, out-of-face surfacing, spot undercutting and tie/timber production programs all exceeded planned units delivered.
- MBTA upgraded passenger information systems at Forest Hills, Readville, Sharon, Mansfield, and Canton-Junction Stations.
- Amtrak replaced over 37,000 wood ties on the Springfield Line in Connecticut between New Haven and Windsor under its Production Wood Tie/Timber Replacement Program.
- Amtrak completed installation of a new retaining wall near Shoreline Junction in Connecticut.

Special Projects

- Amtrak completed service and inspection facility improvements at Southampton St. Yard in Boston necessary to support the introduction of the next-generation Acela fleet.
- MBTA completed final design for Track 3 electrification in Mansfield.
- MBTA completed Phase 1 of the Back Bay Station: Platform Ventilation project and will advance Phases 2 and 3 in FY22.
- MBTA completed final design for the Boston South Station: Tower 1 Interlocking project.
- Rhode Island DOT completed final design and began construction on the new Pawtucket/Central Falls Station, which is scheduled to enter revenue service in FY22.

2 Connecticut-Westchester (NHL) — FY21 Investment: $301 M

Capital Renewal

- Connecticut DOT is nearing completion of a 20-year program to replace all catenary on the New Haven Line with a new system that performs better in extreme temperatures.
- Connecticut DOT completed bridge timber replacement on 3 bridges under its Bridge Timber Program.
- Metro-North completed Phase 4 of the Undergrade Bridge Rehabilitation Program: Willet Ave and Highland Road Bridge Replacements consisting of the new bridge components for Track 1, after completing work on Track 2 and Track 4, which re-entered service earlier this year.

Special Projects

- Connecticut DOT and Amtrak were awarded Federal-State Partnership for State of Good Repair grants for the Walk Bridge Replacement ($79.7 million) and Connecticut River Bridge Replacement ($65.3 million) projects.
- Connecticut DOT completed final design for the Walk Bridge Replacement and the Stamford Station Improvements projects.

3 New York City Metro — FY21 Investment: $935 M

Capital Renewal

- Amtrak completed the low-level platform replacement at Metropark Station.
- Under Amtrak's Rail Replacement Program, 15 miles of rail in New Jersey and curve patches in 4 locations were replaced.
- Amtrak completed Track 9 and Track 12 rehab at New York Penn Station.
- Amtrak completed miter rail replacement on Portal Bridge.

Special Projects

- Moynihan Train Hall opened to Amtrak and MTA Long Island Rail Road passengers in January 2021, greatly expanding passenger capacity.
- FRA/FTA issued a final environmental impact statement and joint record of decision in May 2021 for the Hudson Tunnel Project.
- NJ TRANSIT executed a full funding grant agreement with FTA for construction of Portal North Bridge
- MTA received a FONSI for Penn Station Access, marking the completion of the NEPA process.
- NJ TRANSIT received a $18.2 million Federal-State Partnership for State of Good Repair grant for improvements to Trenton Transit Center.
- MTA completed the East End Gateway, a new entrance to New York Penn Station at 7th Avenue.

4 Mid-Atlantic North — FY21 Investment: $208 M

Capital Renewal

- Amtrak installed 21 turnouts on the Harrisburg Line and NEC Main Line in the Mid-Atlantic North region as part of the Turnout Renewal Program.
- Amtrak completed four undergrade bridge rehabilitations.
- Amtrak completed ride quality improvements with improvements to the bridge approaches, track panels between bridges, and viaduct on 5 bridges.
- Amtrak replaced block ties on Track 8 and Track 10 at Philadelphia 30th Street Station.

Special Projects

- Amtrak and FRA approved the Philadelphia 30th Street Station District Plan Implementation project to initiate state-of-good-repair and station improvements.
- SEPTA completed the Walnut Street Tunnel rehab and installed a new turnback track as part of the Southwest Connection Improvement Project.
- Pennsylvania DOT completed final design for Phase 1 Zoo Interlocking improvements on the Harrisburg Line in Philadelphia.
- SEPTA, Amtrak, and Pennsylvania DOT were awarded a $15.9 million Federal-State Partnership for State of Good Repair grant for renewal of the Harrisburg Line Signal System between Paoli and Overbrook.

5 Mid-Atlantic South — FY21 Investment: $157 M

Capital Renewal

- Amtrak completed 3 culvert replacements and undergrade bridge upgrades.
- Amtrak replaced 2.5 miles of fencing at 4 locations between Baltimore, MD and Washington, DC.
- Under the Mid-Atlantic South Track Program, Amtrak completed 183 joint eliminations, 26 miles of spot surfacing, and 2.3 miles of spot undercutting.

Special Projects

- Amtrak completed the Maryland Section Reliability Improvements Project, which upgraded 28 miles of track to increase maximum speeds.
- Amtrak began construction on Baltimore Penn Station: Infrastructure Improvements, which includes two new platforms.
- Amtrak began work on the new Track 22 at Washington Union Station, which will serve through-running trains on the lower level.
- Maryland Transit Administration received a $9.4 million Federal-State Partnership for State of Good Repair grant and a $3.1 million CRISI grant for two projects at its Martin's Yard storage facility in Middle River, MD.

Above: Representatives from the State of New Jersey, Amtrak, and NJ TRANSIT celebrate the signing of the full funding grant agreement for the Portal North Bridge on January 14, 2021.

Progress in eliminating the state-of-good-repair backlog

A state of good repair (SOGR) means assets are within their useful life or are in a condition to perform as designed. The SOGR backlog refers to the population of assets, both large bridges and tunnels (major backlog) and basic infrastructure, on the NEC that are no longer in this condition. An asset's useful life can vary from a few years to many decades, after which it should be replaced. Some assets can operate safely beyond their useful life, though they can become more expensive to maintain and more vulnerable to failures that cause service disruptions.

The Commission released CONNECT NEC 2035 (C35) in July 2021, a 15-year plan representing the most ambitious reinvestment program in the NEC's history and a new way of planning: a multi-agency, multi-year, shared action plan guided by a long-term vision. The C35 project delivery analysis created a road map to vastly reduce the SOGR backlog over 15 years. C35 proposes:

- To complete all major backlog projects over the next 15 years. Total project cost estimates may fluctuate between plans as projects advance design but is currently estimated at $27 billion.
- Major investment in basic infrastructure capital renewal to reduce that backlog and make meaningful progress towards bringing all assets to a state of good repair by 2035. Overall projected basic infrastructure capital renewal spending over 15 years is $38.9 billion.

During FY21, Commission staff continued to work with Amtrak, the largest RoW infrastructure owner on the NEC, on a new approach to assessing the SOGR backlog using percent of assets in a state of good repair based on condition where possible rather than the dollar value of assets beyond a particular age. Work is still in progress. Commission staff will update the proposed methodology when additional progress is made with Amtrak and begin working with the other RoW infrastructure owners on a similar approach.

Delivering Year One of the FY21-25 NEC Capital Investment Plan

The FY21-25 Capital Investment Plan (CIP) was developed during an uncertain time for funding, ridership, and workforce availability. Commission member agencies stated up front that budget and workforce uncertainties may likely result in deferred or canceled capital projects in FY21. The United States economy experienced additional challenges related to inflation and supply chain shortages—both of which have impacted the transportation industry since the approval of the CIP. As a result, more adjustments than normal were expected in FY21 and likely to appear in future Annual Reports. That said, it is important to measure and improve plan adherence, which was a major challenge even before the pandemic.

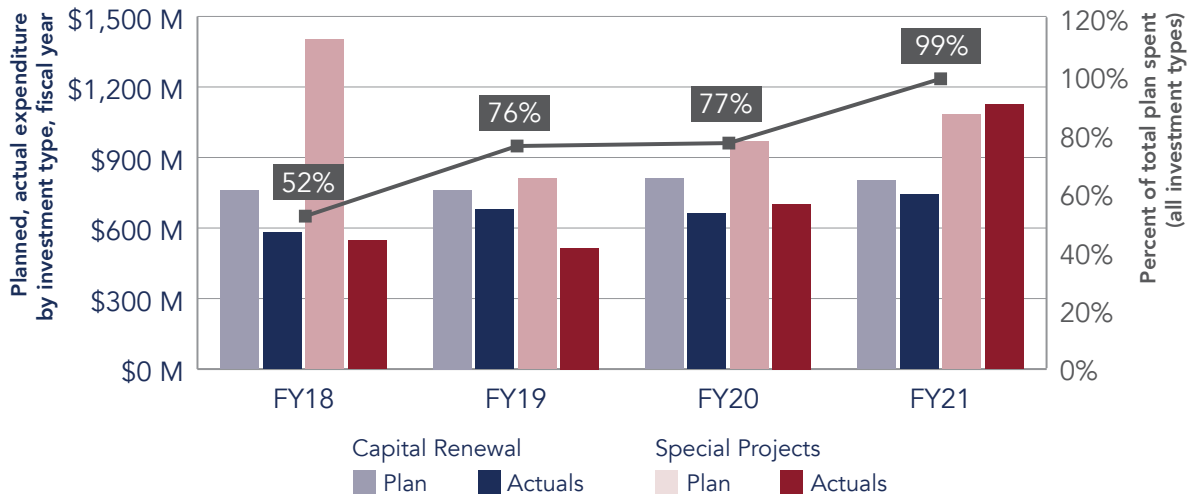
This year's Annual Report continues to measure plan adherence as expenditures that fall within 20% of the planned expenditure approved in Year One (FY21) of the CIP.

However, using expenditures alone to measure plan adherence can be imperfect. Measuring progress and plan adherence using multiple factors in addition to expenditure, such as planned units, locations, or schedule milestones, presents a more holistic view of annual capital investment. Nevertheless, fiscal year expenditure remains the most comprehensive tool to measure progress at this time due to NEC planning and reporting data limitations—see page 23 for more detail. It is expected that future Annual Reports will include more measurements of plan adherence as the Commission continues to improve its planning and reporting processes each year.

Overall adherence to planned expenditure improved in FY21 but significant concerns remain

NEC project sponsors spent $1.9 billion, which is consistent with the overall planned spending level for FY21. Project sponsors invested more in infrastructure in FY21 than in past years. The overall percent of plan spent was 99% in FY21—compared to 77% and 76% in FY20 and FY19, respectively. The percent of plan spent for special projects was higher than for capital renewal investments (104% vs. 92%, respectively), an improvement from prior years.

Figure 2-6. Planned and actual expenditures and plan adherence, FY18-FY21



Capital renewal adherence to plan

Overall percent of plan spent. Connecticut DOT and Amtrak spent 91% and 90% of the total planned expenditure for their respective territories. MBTA spent 71% of total planned expenditure, while Metro-North exceeded plan at 203%. Metro-North moved some work originally programmed for FY20 into FY21 and took advantage of increased track availability in light of COVID-related reduced service to complete additional work. Two of the four RoW infrastructure owners spent within 20% of plan in FY20.

Figure 2-7. Capital renewal plan adherence by RoW owner, FY21 (millions)

RoW Owner	Miles of RoW Owned[1]	FY21 Planned Expenditure	FY21 Actual Expenditure	Percent of Plan Spent
Amtrak-owned territory	697.8	$629.0	$565.4	90%
MBTA-owned territory	37.9	$42.2	$17.1	71%
Connecticut DOT-owned territory	46.2	$131.2	$120.0	91%
MTA Metro-North-owned territory	9.8	$19.2	$39.0	203%
Total	**791.7**	**$803.6**	**$741.5**	**92%**

Table Notes: (1) RoW miles owned is approximate and includes the NEC main line and connecting corridors.

Capital renewal programs versus projects. RoW owners' capital renewal plans include two types of investments: (1) programs which are typically cyclical in nature, may include both planned and reactive work, and sometimes cross multiple locations; and (2) standalone projects which typically focus on one location or asset with a discrete start and end date. Example programs include Amtrak's Production Wood Tie/Timber Replacement Program and MTA Metro-North's Track Program. Example projects include Amtrak's Conestoga to Royalton Transmission Line Replacement Project and Connecticut DOT's Atlantic Street Bridge Project.

Programs and projects have different management and planning requirements, which may lead to variation in plan adherence. Programs have consistently performed better than projects since the Commission began this analysis in FY19.

Figure 2-8. Capital renewal programs and projects plan adherence, all RoW owners, FY21 (millions)

Type	Total number in FY21 Plan	FY21 Planned Expenditure	FY21 Actual Expenditure	Percent of Plan Spent
Programs	85	$518.8	$533.8	103%
Projects	83	$284.8	$207.7	73%
Total	**168**	**$803.6**	**$741.5**	**92%**

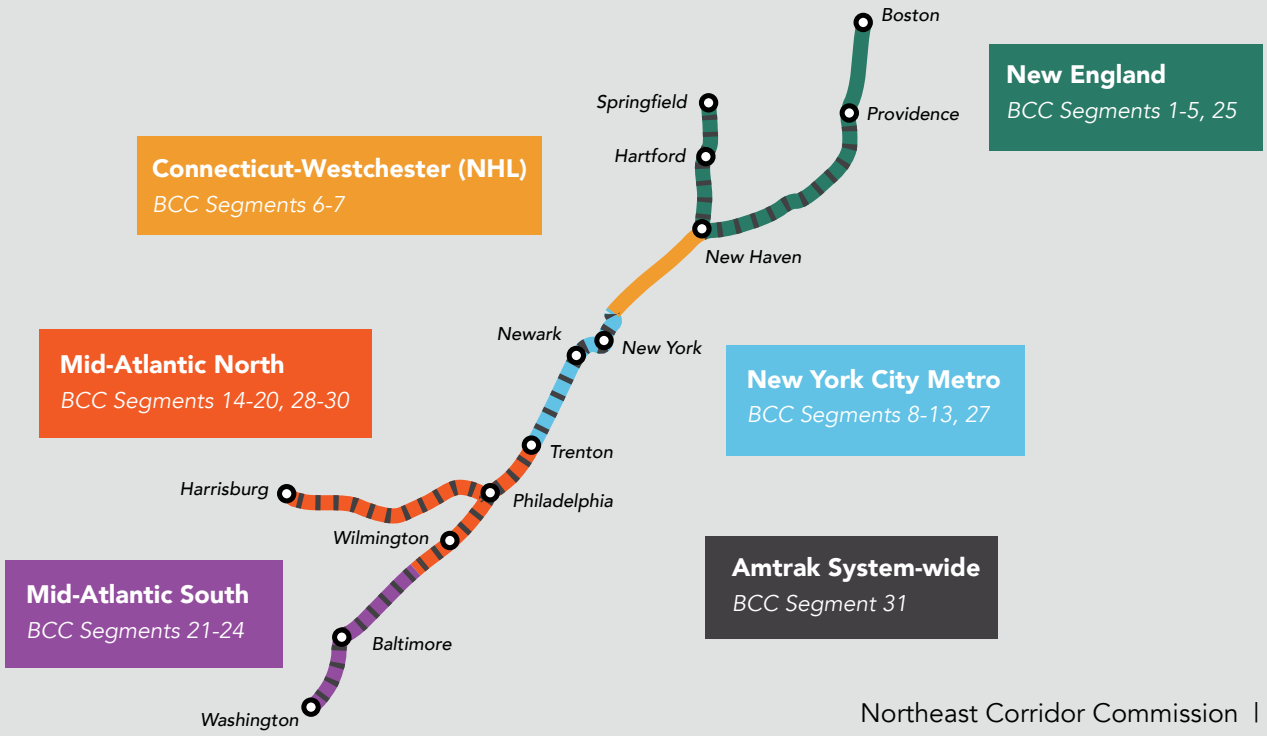
Baseline Capital Charge segments and capital reporting regions

NEC RoW infrastructure owners invest operators' Baseline Capital Charges (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. **NEC planning and reporting organizes those BCC segments into six capital reporting regions:**

New England | Connecticut-Westchester | New York City Metro | Mid-Atlantic North | Mid-Atlantic South | Amtrak System-wide

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

*Segment 26 is exempt from the plan



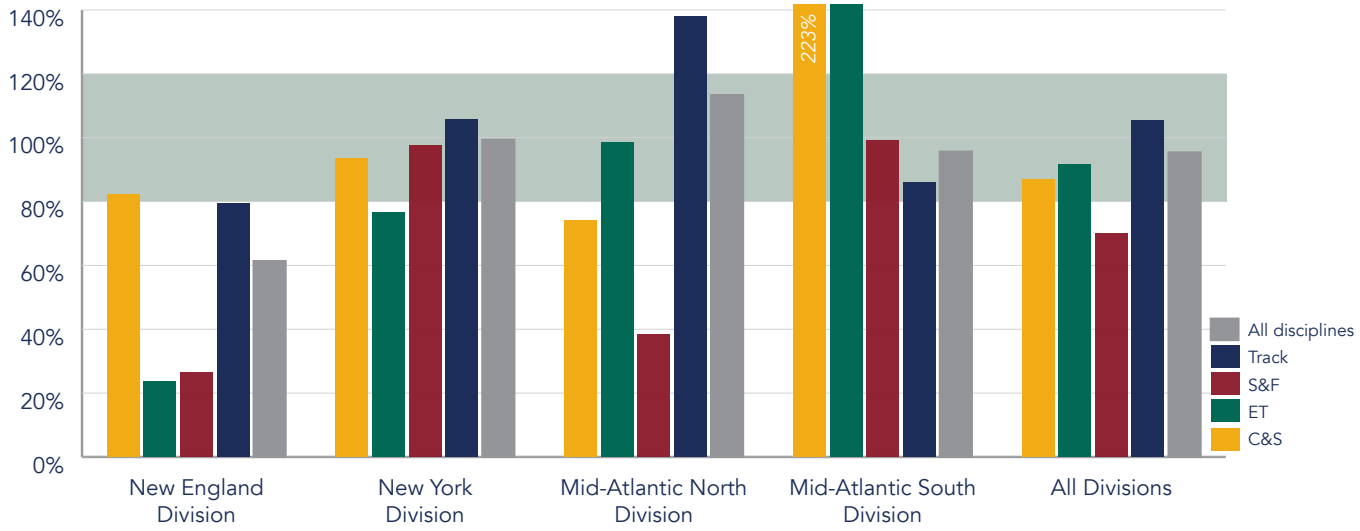


Above: Infrastructure investments include both the capital renewal of basic infrastructure and special projects, such as major backlog projects and improvement projects aimed at creating new infrastructure above and beyond existing assets.

Amtrak system-wide versus regionally-managed capital renewal programs. Amtrak's engineering portfolio in FY21 was structured into system-wide and regionally-managed projects and programs. Amtrak's total spending on system-wide production programs (such as undercutting and concrete tie replacement) was close to its FY21 plan at 107%, similar to FY20 and FY19 plan adherence. System-wide production programs renew the basic track infrastructure of the corridor. Additional detail on specific capital renewal programs is available in the Appendix.

Amtrak's regionally-managed programs—when analyzed across all Amtrak regional divisions and disciplines—spent 96% of plan. These programs target six key areas: track, structures, substations, signals, facilities, and catenary. Across all disciplines, regionally-managed programs in Amtrak's New York, Mid-Atlantic North, and Mid-Atlantic South regional divisions were within 20% of plan across all disciplines. Spending on regionally-managed programs was within 20% of plan in three of the four disciplines, across all regional divisions.

Figure 2-9. Amtrak regionally-managed programs plan adherence, FY21

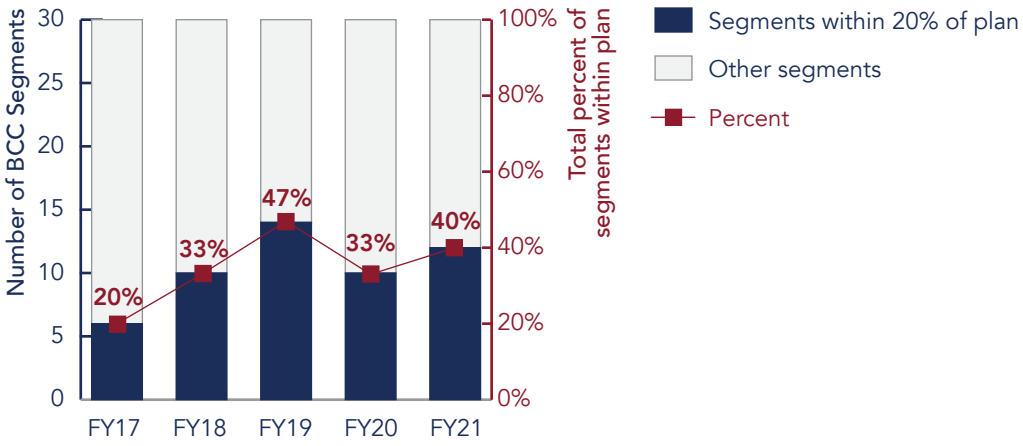


Above: The capital renewal of basic infrastructure includes the routine repair or replacement of existing basic infrastructure assets, to keep the NEC safe for train operations. Investments in track assets have steadily grown year-over-year.

Capital renewal spending by geography. A geographic analysis of plan adherence shows that RoW infrastructure owners saw some improvement from FY20, but still struggle with low plan adherence by geography. NEC RoW infrastructure owners are required to demonstrate each year their ability to spend an operator's BCC in that operator's territory. Therefore the NEC is split into BCC segments, each with distinct set of operators as described on page 19, and Year One of the CIP includes an associated fiscal year planned expenditure by segment. RoW owners spent within 20% of the BCC segment-level planned expenditure in 12 out of 30 segments in FY21, versus nine segments in FY20 and 14 segments in FY19.

Adjustments to planned expenditures in the first half of the year as a result of workforce needs and funding uncertainty before the passage of additional federal relief led to shifts in planned work between BCC segments. These adjustments may have contributed to the overall rate of plan adherence by BCC segment.

Figure 2-10. Capital renewal plan adherence by BCC Segment, FY17-21



Special project adherence to plan

NEC project sponsors spent approximately 104% of the total planned FY21 special project expenditures, an improvement over FY20. By agency, only Connecticut DOT spent within 20% of their planned expenditure, while some agencies significantly over- or underspent.

Figure 2-11. Special project plan adherence by project sponsor, FY21 (millions)

Project Sponsor	Number of Special Projects in Plan	FY21 Planned Expenditure	FY21 Actual Expenditure	Percent of Plan Spent
Amtrak [1]	30	$334.9	$516.1	154%
MBTA	8	$112.7	$12.3	11%
Rhode Island DOT	3	$35.5	$16.2	46%
Connecticut DOT	8	$148.0	$159.7	108%
MTA [2]	7	$128.0	$309.2	242%
NJ TRANSIT	14	$203.2	$58.1	29%
SEPTA	5	$27.6	$13.5	49%
Pennsylvania DOT	6	$32.0	$19.1	60%
Delaware DOT	3	$51.5	$20.3	40%
MDOT MTA / MARC	1	$0.0	<$0.1	n/a
VRE	1	$8.4	<$0.1	0%
Total	**86**	**$1,081.8**	**$1,124.6**	**104%**

Table notes: (1) The Hudson Tunnel Project incurred a $379 million expenditure largely due to property acquisition in the last quarter of FY21 that was not anticipated when the FY21 planned expenditure was determined. (2) MTA expenditures include $214 million for New York Penn Station LIRR Concourse: Reconstruction (Near Term) not included in the FY21-25 CIP.

Plan adherence as measured by expenditure at the individual project level worsened in FY21. Only five of 86 (or 5.8%) special projects spent within 20% of plan. Analysis of the variance explanations provided by project sponsors noted some delays due to impacts from the pandemic such as workforce shortages, funding availability, scope reduction, or limited access to the project site. Other noted delays included additional time needed for interagency coordination and negotiations for project agreements or NEPA or Section 106 requirements; changes or modifications to the project scope or design; and/or delays related to awarding contracts. Figure 2-14 highlights special projects with the highest dollar-value variances in FY21. All explanations of variance can be found in the Appendix.

Figure 2-12. Special project plan adherence by number of projects, FY17-21

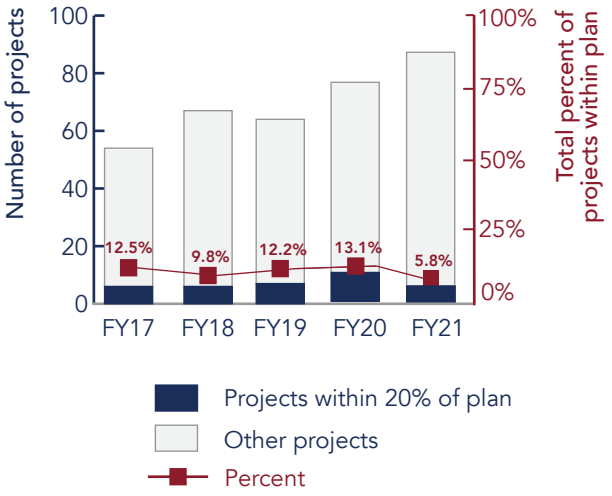


Figure 2-13. Special projects plan vs. actual by project sponsor, FY21 (millions)

The projects below are the five projects where FY21 actual expenditure was within 20% of plan.

Project Name	Project Sponsor	FY21 Planned Expenditure	FY21 Actual Expenditure	Percent of Plan Spent
Connecticut River Bridge Replacement	Amtrak	$4.6	$4.5	98%
Next Generation High Speed Fleet Infrastructure: Ivy City/Washington Terminal Yard Facility Improvements	Amtrak	$22.4	$21.5	96%
Pawtucket/Central Falls Station	Rhode Island DOT	$18.5	$16.1	87%
Princeton Junction Station Improvements	NJ TRANSIT	$0.7	$0.8	110%
Southwest Connection Improvement Project	SEPTA	$6.3	$7.1	114%

Beyond expenditures

The Commission collects data to measure plan adherence using multiple factors beyond expenditures. To track adherence to planned scope and schedule, RoW owners report production units delivered (e.g., number of ties) for certain capital renewal programs and project sponsors report on the achievement of special project milestones (e.g., completion of environmental review) throughout the year. The data is not comprehensive but identifies delivery challenges to be addressed for CONNECT NEC implementation. The Commission plans to work with RoW owners and project sponsors to improve the future availability and quality of non-expenditure metrics for evaluating capital program delivery challenges including the impact of workforce.

Capital renewal units. Analyzing expenditure and unit data together can provide insight of how RoW owners delivered their capital renewal programs. Unit data refers to the number of assets that are replaced through a capital renewal program—such as a linear foot of rail, each turnout, or other measurable item. Some capital renewal programs deliver multiple types of units, while other programs deliver one or two unit types. Challenges faced by production programs may include broad industry challenges like COVID-19, inflation, and supply shortages; or challenges specific to individual programs. Expenditure and unit data together can show if programmatic work is being delivered efficiently, on budget, and in the number of units planned.

- The Track Laying System Concrete Tie Replacement Program, which replaces concrete ties and rail simultaneously, spent 84% of planned expenditures and replaced 44% of planned ties and 45% of planned feet of rail. Amtrak identified a defect with the rail fasteners in the middle of the production season, which reduced units delivered under this program. Prior to identifying the defect, Amtrak incurred costs related to equipment mobilization and material delivery and staging.
- The Rail Replacement Program spent 165% of planned expenditures and delivered 48% of planned feet of rail. Five weekend curve patch rail installations were canceled on short notice due to pandemic-related workforce issues. This led Amtrak to incur costs to prepare for work that could no longer be completed and contributed to the under-delivery. This program's original FY21 budget did not appropriately account for the cost of prep work and was later revised higher.
- The Turnout Renewal Program, which replaces the equipment that allows a train's movement between tracks, spent 118% of planned expenditures and delivered 60% of planned units. Two turnout renewals at Lane Interlocking incurred actuals twice as high as their planned budgets due to track alignment issues that required additional surfacing and signals work. Some turnout renewal locations were delayed into FY22 to accommodate Amtrak's response to Hurricane Ida and material issues. Finally, the program's planned units figure incorrectly included several turnout removals in addition to the planned turnout renewals, which drove the under delivery slightly higher.

There are several challenges to track a RoW owner's capital program delivery by units. First, some RoW owners do not systematically provide planned or actual units for most capital renewal programs. Second, data quality issues persist for both planned and/or actual units, which prevents the Commission from using or analyzing the unit data comprehensively with expenditure data. The Commission plans to work with RoW owners to resolve capital renewal unit data availability and quality issues with the goal to better track plan adherence and provide more nuanced analyses on capital program delivery.

Special project milestones. Milestones are used to track progress in achieving both major and intermediate goals specific to a project. Milestones are currently determined by individual project managers and are often inconsistently defined. In FY21, 40% of planned special project milestones were achieved within the fiscal year. Two-thirds of FY21 project milestones not achieved were associated with pre-construction activities, caused by delays to design and interagency coordination. The Commission plans to work with project sponsors to align and standardize planned milestones for the FY23-27 CIP.

Figure 2-14. Highlighted special projects explanations of variance, FY21 (millions)

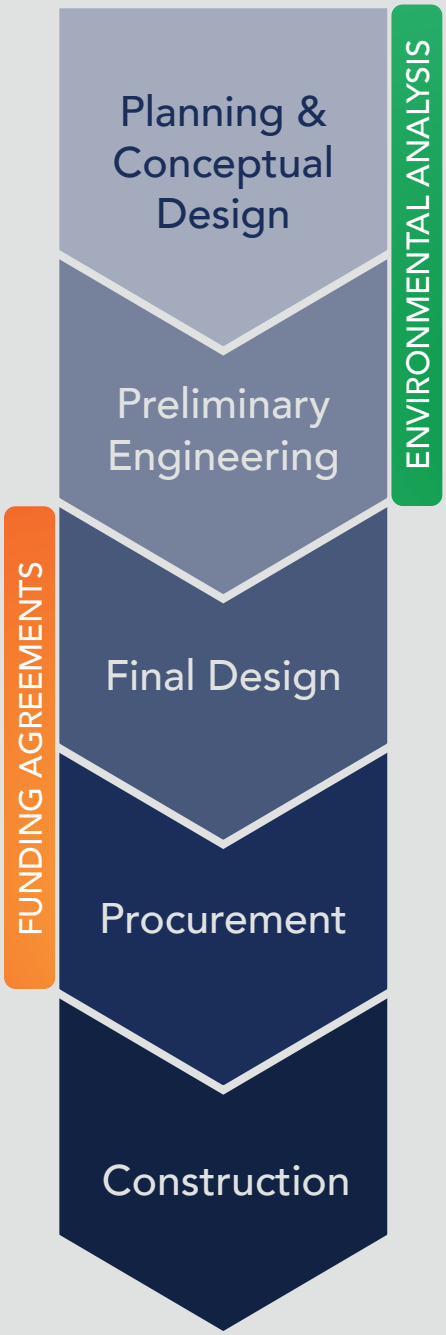
The projects below are the ten projects with the greatest variance between FY21 planned and actual expenditures, by dollar value.

Project Name	Project Sponsor	FY21 Planned Expenditure	FY21 Actual Expenditure	Explanation of variance as submitted by the project sponsor
Gateway: Hudson Tunnel Project	Amtrak	$35.7	$378.7	The variance reflects property acquisition costs, which were not reflected in the original planned expenditure for FY21. As part of its commitment to the Hudson Tunnel Project and on behalf of its project partners, Amtrak is responsible for property acquisition needed for the project in Manhattan. In summer 2021, following issuance of the NEPA Record of Decision, Amtrak acquired 260 12th (Block 675, Lot 1) Avenue via eminent domain, a property needed for a construction shaft and future ventilation facility for the new tunnel.
New York Penn Station LIRR Concourse: Reconstruction (Near Term)	MTA	TBD	$214.5	None. FY21 Planned Expenditure was not provided in the FY21-25 CIP.
NJ TRANSITGRID	NJ TRANSIT	$76.4	$4.9	In Q1 of FY21, the NJ TRANSIT Board of Directors committed to a re-imagined path forward for the TRANSITGRID. The Board created an Energy and Sustainability Policy Committee to ensure that renewable energy technologies are incorporated into the project. This new approach prompted a change to the previously assumed procurement and construction schedule, resulting in a lower than anticipated expenditure during FY21.
Gateway: Portal North Bridge	NJ TRANSIT	$66.7	$5.6	Minor delays associated with the procurement process resulted in the award of the contracts for both general construction and construction management services occurring in Q1 of FY22. As a result, expenditures during FY21 were below planned. Spending will be normalized and increased once the physical start of construction begins.
South Attleboro Station Accessibility Improvements	MBTA	$45.1	$2.5	Construction funding for the project was reallocated due to COVID-19 funding constraints.
Next Generation High Speed Fleet Infrastructure: Sunnyside Yard Facility Improvements	Amtrak	$41.6	$3.7	The original planned FY21 expenditure anticipated an award and Notice to Proceed to a General Contractor in FY21 Q2. However, a delay in obtaining a labor clearance (which was not received until August 2021) precluded a general contract from being awarded, thereby delaying heavy construction work activities until FY22.
Harold Interlocking	MTA	$100.0	$62.1	Award of the construction contract for the Eastbound Reroute (EBRR) and a separate contract for electric traction catenary work were both delayed by COVID-19 issues and Amtrak outage planning. The Eastbound Reroute will create a bypass for eastbound Amtrak trains at the interlocking, thereby reducing the number of train conflicts.
New Haven Line Yard and Facility Program	Connecticut DOT	$1.0	$34.0	Track outages and project coordination among the construction projects
Walk Bridge Program	Connecticut DOT	$130.0	$101.6	Most of the schedule changes for this major project are due to permit coordination
Moynihan Train Hall: Phase 2	Amtrak	$50.7	$22.4	Substantial completion was declared in FY2021. Moynihan Train Hall: Phase 2 remains in the financial closeout process as the project partners finalize negotiations.

Stages of a Project

Most capital projects on the Northeast Corridor follow a similar process with several pre-construction activities that must occur before construction can begin. The time required for each activity can vary by project scale, complexity, and delivery method. Some of these activities may include site visits to the right-of-way; however, most of the activities can occur off-site and in office settings. At each stage, new cost estimates and timelines are created, as the project becomes more refined.

The pre-construction phase of a project can often last several years as the environmental analysis and design work further develops the concept into a detailed plan and estimated costs for construction.



Planning and conceptual design identifies the scope of the project, the study area, and goals the proposed project will need to achieve. Conceptual designs will outline one or more design concepts to be pursued.

Preliminary engineering identifies the technical solutions needed to construct the proposed project. Progress in this phase is measured in intermediate design levels such as 30%, 60%, 90% design. At each intermediate level, new construction cost and schedule estimates are expected as the specifics of the design are refined.

Final design refines the chosen technical solution and determines the plan and methods for constructing the project.

Procurement includes the bid and award of construction contracts and the acquisition of construction materials. Some projects are delivered in a design-build contract where final design and construction are procured through the same contract. Additionally, if property acquisition is necessary, it will take place during this time.

Construction refers to the physical work at the project site to build the designed improvement.

Other critical elements:

Environmental analysis can occur before or during preliminary engineering. This entails determining environmental impacts a project will create or exacerbate, and if applicable, outlining mitigation strategies. Permits are issued in accordance with requirements from state or local governments; federal requirements such as the National Environmental Policy Act (NEPA) or the National Historical Preservation Act; and/or other agencies such as the U.S. Coast Guard.

Funding agreements among relevant parties are negotiated and secured to determine how the costs of the project will be allocated and may take time to execute.

Spotlight on Pre-Construction

Project pre-construction creates a future pipeline of projects for construction

The Infrastructure Investment and Jobs Act creates a new funding landscape that will support a significant ramp up of infrastructure investment in the Northeast Corridor. This includes not only several NEC projects that are now able to begin construction, but also a large number of projects in the NEC Capital Investment Plan that are in the pre-construction phase. Most of the work in the next few years will ramp up at the offices of NEC operators, project sponsors, and the broader transportation and construction industries that support the development of projects. This historic level of funding will begin with critical pre-construction activities that build a pipeline of projects funded for construction.

Pre-construction work requires an orchestration of staff completing technical designs, establishing credible construction costs, and securing in-house or contracted resources for construction

The Walk Bridge Program is a major backlog project led by Connecticut DOT to replace the 125-year-old Norwalk River Railroad Bridge and complete several interrelated enabling infrastructure projects. The pre-construction phase of a project can often last several years as the environmental analysis and design work further develops the concept into a detailed plan and estimated costs for construction. Complicated existing site conditions and local permitting regulations can add steps to the pre-construction process.

Coordination among staffs from Connecticut DOT, Amtrak, and MTA Metro-North advanced construction of several smaller, enabling projects while the permitting process continues for the major bridge replacement. Concurrently with the design work, Connecticut DOT and Amtrak staff partnered to secure funding matches and submitted two successful grant applications for the Federal-State Partnership for SOGR Program. Federal Transit Administration formula funds and Hurricane Sandy Relief funds are providing additional funding. As the pre-construction phase comes to a close, construction on the major bridge replacement is estimated to begin in 2022 and last approximately six years, following the receipt of the remaining construction permits.

Walk Bridge Program

Stakeholder coordination and agreement execution is a time-consuming part of pre-construction process

Two projects undertaking vital pre-construction work include state-of-good-repair improvements and next-generation Acela upgrades at New Carrollton Station, located between Baltimore, MD and Washington, DC. Projects at New Carrollton, like many others throughout the NEC, must coordinate across multiple operators and infrastructure owners.

New Carrollton Station

AMTRAK

Operates intercity trains at this station.

Owns the right-of-way infrastructure.

Owns the station building and platform used by Amtrak and MARC trains.

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION — MARYLAND TRANSIT ADMINISTRATION

Operates MARC commuter trains at this station.

MARC customers use shared Amtrak station facilities.

M metro

Operates local Metrorail trains at this station.

Owns the station and the right-of-way adjacent to the Northeast Corridor.

Owns the parking facilities.

NS NORFOLK SOUTHERN

Operates freight trains through this area, per an access agreement with Amtrak.

Both projects are currently close to moving into construction after many years of close coordination through the pre-construction phase. Beginning in FY20, Amtrak staff and a consultant team worked closely with WMATA staff for the necessary roadway worker protection training to complete a site survey of the station. By the end of FY21, Amtrak staff had completed its technical design work; secured most of the appropriate approvals, permits, and funding sources; and began the construction procurement process with the goal of proceeding with construction in 2022.

Pre-construction work is vital to ensure a pipeline of Northeast Corridor projects are ready for construction

Pre-construction activities are very complex and require time-consuming coordination. Predictable funding through the infrastructure law should encourage project sponsors to move more quickly through those processes where there are reasonable assurances projects can enter and complete construction. It is vital to address the challenges associated with interagency coordination and to seek greater efficiencies in the pre-construction process—as noted in Challenges and Recommendations on starting page 40. With approximately 150 special projects advancing in the next five years, the Commission plans to facilitate improved coordination of projects in support of successful implementation of the CONNECT NEC Program.

3. Operations

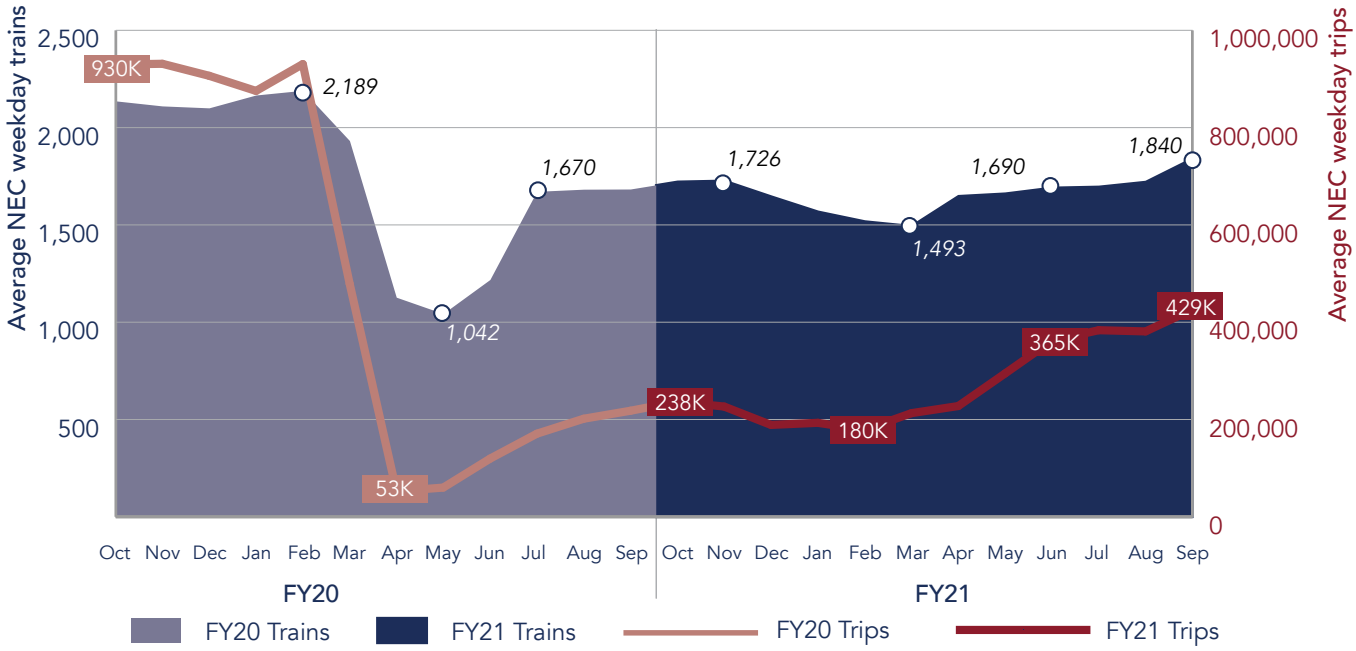
This section summarizes NEC operations during federal fiscal year 2021 using available data for service and ridership, train performance, and major service incidents. Analyzing NEC operations, including trends over time, helps track how well the corridor serves its customers and also helps agencies identify ways to improve service.

Service and Ridership

Service and ridership levels continue to rebound, ending FY21 with the highest observed levels since the coronavirus pandemic began

The Northeast Corridor experienced historically high ridership and a slight increase in service in at the beginning of FY20 with 930,000 average weekday trips and 2,137 average weekday trains. The coronavirus pandemic caused ridership to plummet in March 2020, and NEC operators have since attempted to match service levels with ridership demands or to sustain sufficient service levels to allow for physical distancing and/or ensure essential workers could get to their jobs. Since the start of the pandemic, service and ridership levels have gone through periods of growth and decline based on coronavirus infection rates (i.e., among customers and agency staffs) and operators' finances (i.e., financial support from the federal government), but at the end of the FY21 were the highest observed levels since March 2020.

Figure 3-1. Average NEC weekday trains and trips by month, FY20-21



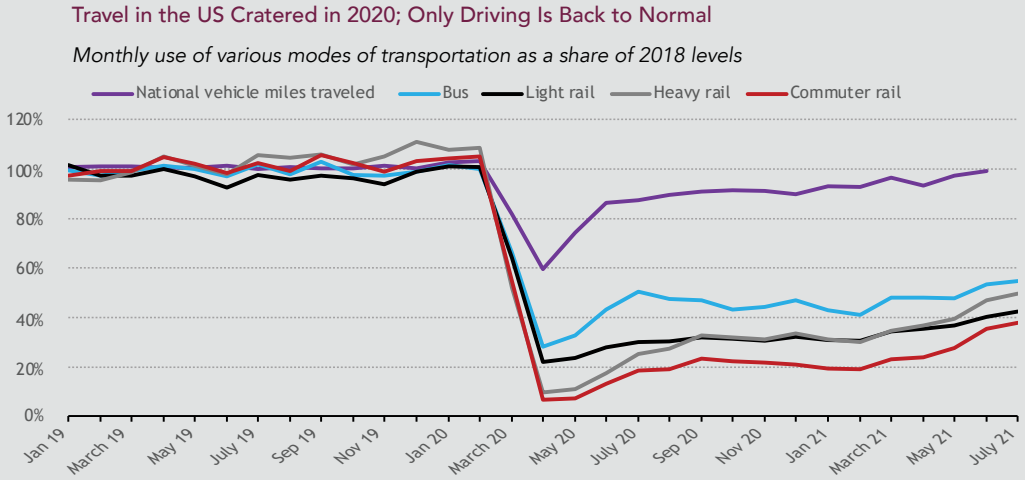
Service levels at the end of the fiscal year in September 2021 increased by 8% to an average of 1,840 weekday trains—or 86% of pre-pandemic service levels. After nearly a year of operating with pandemic ridership levels, agencies began to reduce service between December 2020 and March 2021. Operators had been providing service at a financial loss and attempted to right-size service in the face of continued financial uncertainty. Thanks to federal support, operators restored service in April. Most NEC operators restored most of their services by September but are still adjusting levels due to low ridership demands or changing travel patterns.

Ridership levels increased more substantially than service in FY21. Over the course of the fiscal year, service grew 8% while ridership rose 80%. This indicates that individual trains are carrying more passengers than earlier in the pandemic. Average weekday trips rose from 238,000 in October 2020 to 429,000 in September 2021. Ridership declined at the beginning of the fiscal year as agencies reduced service, but ridership grew substantially month over month as service was restored and vaccines became more widely available. Between February and June average weekday trips doubled. Concerns over and increased cases of the delta coronavirus variant slowed ridership growth in the final months of the year. By the end of FY21, trips on the corridor averaged 45% of pre-pandemic ridership compared to the same period in 2019.

Ridership trends in the United States

The coronavirus pandemic fundamentally changed how people travel. The American Public Transportation Association released report "On the Horizon: Planning for Post-Pandemic Travel" in November 2021 and documented the changes in demographics, employment, and travel during the pandemic:

> "Several trends in the pandemic period stand out. First, by June 2021, driving had returned to 2018 levels. Second, a large share of riders has returned to using transit. Nationwide, as of July 2021, buses were carrying about 55 percent of the passengers they did in 2018, and use of heavy and light rail was at about 50 and 40 percent of 2018 levels, respectively. Commuter rail, heavily dependent on offices downtown, has been the slowest service to recover."



The pandemic changed the way people live, work, and travel. Commuter and intercity rail ridership has been slow to recover despite eased restrictions. Workplaces in certain sectors have adapted to remote work situations and are slow to return to pre-pandemic commuting norms. These trips were a significant portion of pre-pandemic commuter and intercity rail ridership.

The ridership recovery rate on larger operators (i.e., MBTA, MTA Long Island Rail Road, MTA Metro-North Railroad, NJ TRANSIT, and SEPTA) continues to be higher than the recovery on smaller systems (i.e., CT*rail*, MARC, and VRE). Ridership recovery has also varied by metro area, with New York City-area commuter rail ridership at 47% of pre-pandemic levels while Washington/Baltimore-area ridership ended the year at 21% of pre-pandemic levels. Year-end ridership on Amtrak's Northeast Regional trains was 67% of pre-pandemic levels while Acela ridership has only recovered to 45% of pre-pandemic levels, when compared to the same period in 2019.

Figure 3-2. Average NEC weekday trains and trips by operator, FY21

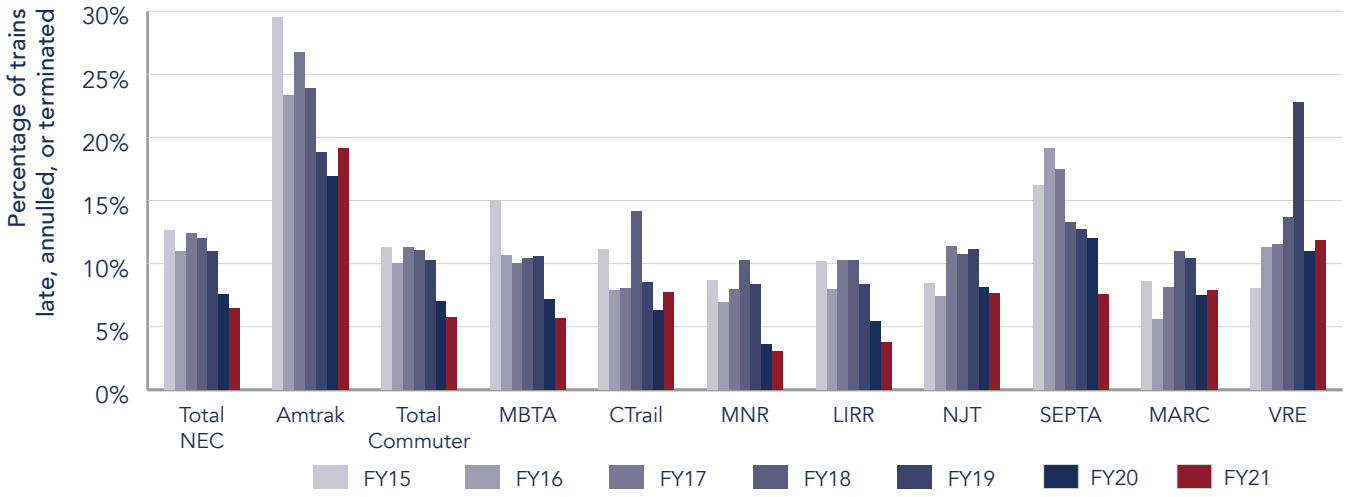
Operator	Average NEC Weekday TRAINS					Average NEC Weekday TRIPS				
	Q1	Q2	Q3	Q4	FY21 Average	Q1	Q2	Q3	Q4	FY21 Average
Amtrak	75	69	74	95	**78**	9,248	9,255	19,968	30,206	**17,169**
MBTA	279	181	311	315	**269**	18,854	8,749	13,644	21,935	**15,796**
CT*rail*	28	28	28	36	**30**	205	188	352	492	**309**
Metro-North	191	195	194	203	**196**	27,062	26,328	39,273	48,938	**35,400**
LIRR	451	398	389	393	**407**	96,735	87,803	131,688	173,206	**122,358**
NJ TRANSIT	378	376	383	388	**381**	51,687	50,659	71,441	101,038	**68,706**
SEPTA	213	212	217	224	**217**	12,121	10,933	17,000	19,272	**14,832**
MARC	64	47	47	65	**56**	2,799	2,465	3,283	4,281	**3,207**
VRE	18	18	23	32	**23**	259	260	413	586	**380**
Total	**1,696**	**1,523**	**1,666**	**1,751**	**1,659**	**218,970**	**196,640**	**297,062**	**399,954**	**278,157**

Train Performance

Reliable train performance continued in FY21 with fewest delays in Commission record

NEC train service reliability has improved since the start of the pandemic, generally due to lower service levels, which create fewer opportunities for delay. Fewer NEC intercity and commuter trains were late, annulled, or terminated in FY21 (6.4%) compared to FY20 (7.6%) and FY19 (11.0%). Most agencies experienced consistent reliability throughout the year with minor fluctuations around major service incidents or service adjustments. Reliability worsened in the second half of the year on Amtrak, VRE, and MARC due to increased outages for capital projects and train conflicts, both on- and off-corridor.

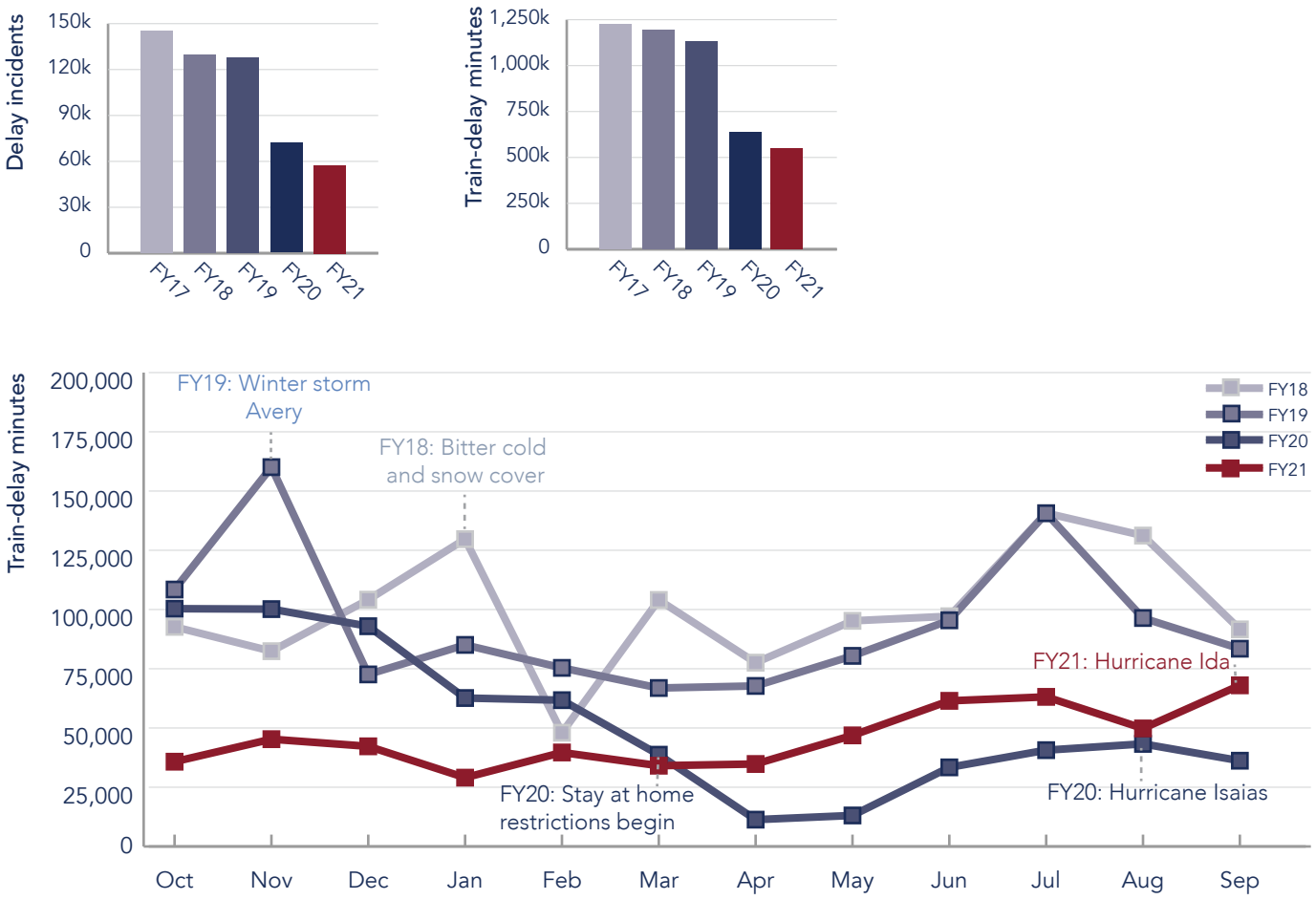
Figure 3-3. Percent trains late, annulled, or terminated by operator, FY15-21



Train delays—by both total number of delay incidents and by total train-delay minutes—continue to decrease. There were 57,000 delay incidents and 550,000 train-delay minutes in FY21, a 19% and 14% decrease from FY20, respectively. Service-level fluctuations in recent years have complicated the direct comparison of train-delay minutes. Delays have remained low even when controlling for service: There were 227 train-delay minutes per ten thousand miles in FY21—5% lower than the average for FY20 and 33% lower than the most recent pre-pandemic year.

The amount of train delays has also been relatively consistent month to month since the start of the pandemic. Monthly train-delay minutes since June 2020 have stayed between 25,000 and 75,000 minutes, while in other years monthly train-delay minutes could vary by as much as 90,000. Train-delay minutes began to increase in May as passengers returned. Additional time was needed to load passengers while maintaining social distancing. Train delays also peaked sightly in September due to Hurricane Ida—see page 37 for more.

Figure 3-4. Total train delays, FY17-21



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; programmed maintenance including any late clearings; and speed restrictions.
- **Mechanical**: Locomotive failure; coach failure; and disabled train ahead.
- **Transportation**: Train dispatching and routing; train interference; and crew availability.
- **Weather**: Precipitation; wind; excessive cold or heat; slippery rail; and weather-related infrastructure failures.
- **Third-Party**: Trespassers; police action; bridge openings; debris on tracks; and utility failure.
- **Passenger**: Passenger loading time; passenger behavior or injury; and holding for connections.
- **Other**: No report provided; delay cause unknown; and derailment.
- **Freight**: Freight train interference.

The Commission in FY21 audited the assignment of delay cause code across agencies. As delay cause codes were added over the years, slight differences in classifications were introduced. The delay causes in the combined corridor wide database were updated this year to standardize reporting. Data from previous years has been updated to reflect this change.

Infrastructure failures are still the dominant source of delays

Infrastructure, mechanical, and transportation remain the top three categories of delay. The stability of the top three categories underscores that while train performance can improve with reduced service, capital investments that ensure reliable service for riders remain critically important, especially as service levels are restored and/or increased.

Infrastructure delays were largely caused by infrastructure failures, which accounted for 64% of this category's train-delay minutes in FY21. The 152,000 delay minutes attributed to infrastructure failures are more than programmed maintenance and speed restrictions combined. Infrastructure failures have been the least impacted by the pandemic: this subcategory decreased 51% since FY19 (i.e., the last pre-pandemic year) and caused nearly the same amount of delay minutes in FY20 and FY21.

Figure 3-5. Train-delay minutes by cause, FY21

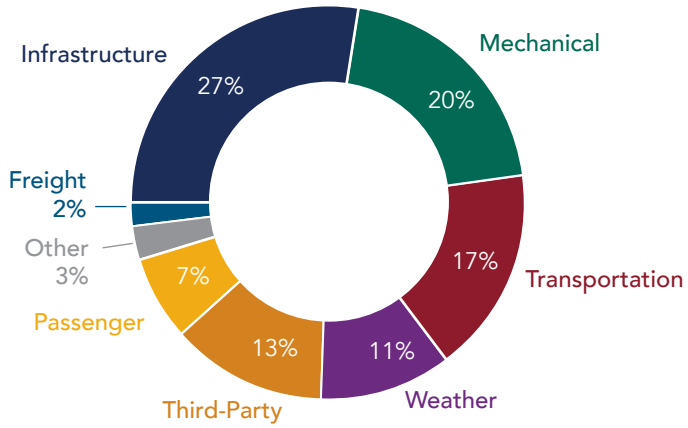
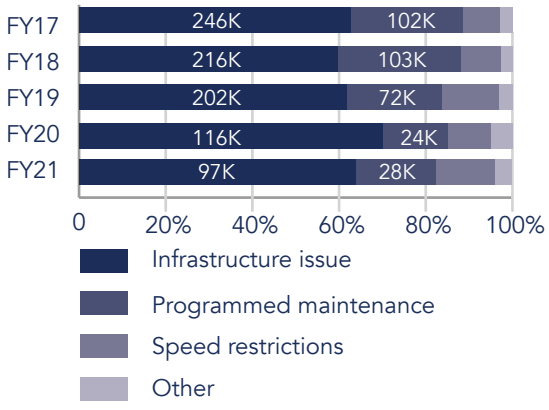


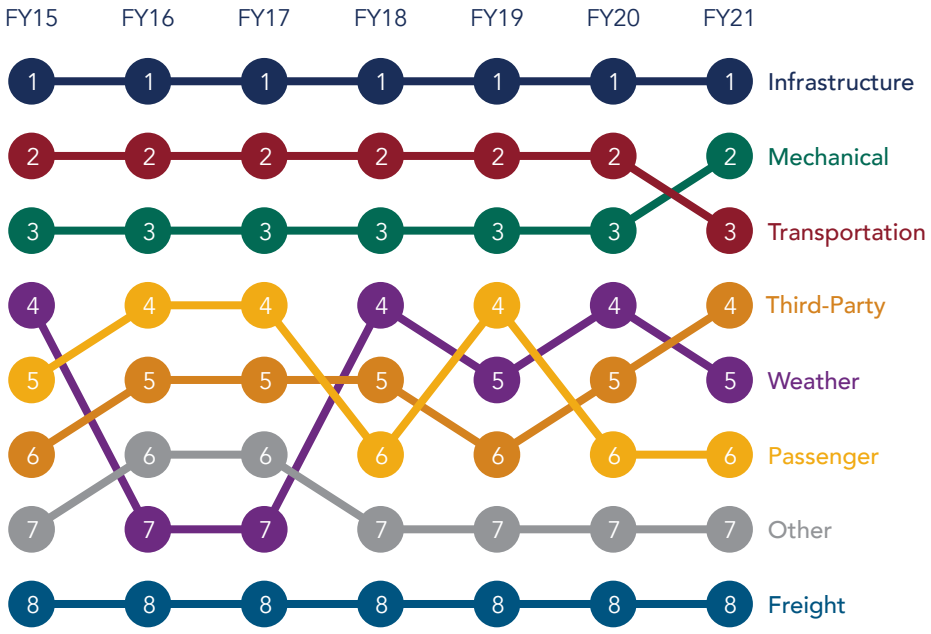
Figure 3-6. Infrastructure-related delay minutes, FY17-21



Mechanical and transportation were the second and third largest categories of delay in FY21, though both categories have had significantly fewer minutes of delay since the start of the pandemic. These two categories also experienced unique issues due to the pandemic, such as late starts or canceled trains due to intermittent shortages of transportation and mechanical crews from surges of coronavirus cases.

Third-party delays (which include delays due to trespassers on the right-of-way, bridge openings, and other cases) were another category of delay that was less affected by the pandemic, decreasing by only 27% since FY19. As a result, third-party incidents became the fourth largest source of delay in FY21. There were three major service incidents this year that resulted from trespassers or trackside fires.

Figure 3-7. Rank of train-delay minutes by category, FY15-21



Above: MTA Metro-North Railroad continues to provide service during a winter storm in February 2021 (NY).

Fewer major service incidents occurred in FY21, but half are attributed to infrastructure failures

Major service incidents are single events that generate multiple train delays. These incidents typically shut down operations over a stretch of the NEC and require an extended period of time to resolve. Major service incidents are identified by analyzing train performance data and cross-referencing that data with daily operations reports from NEC operators.

There were only 12 major service incidents in FY21, as compared to 31 and 85 incidents in FY20 and FY19, respectively. There were likely fewer major service incidents in both FY20 and FY21 because reduced service translated into fewer events on the corridor. With fewer trains operating, there are both fewer trains with the potential to be directly affected by incidents and more capacity available for trains to navigate around trouble spots.

The majority of incidents occurred during the first quarter from October through December 2020, with the most disruptive incident of the quarter being a nor'easter that occurred on December 15 and produced over a foot of snow for most of the region. Some agencies reduced their schedules in advance, while MTA LIRR and NJ TRANSIT experienced the most service disruptions with numerous annulments.

Half of the FY21 major service incidents are attributed to infrastructure failures. Signal and catenary systems failures accounted for most of these incidents. When these systems fail in high traffic areas, they cause significant delays even if they are quickly repaired. On February 8, signal power was lost between Newark, NJ and Penn Station, NY for only 20 minutes at the start of the morning peak period. This incident resulted in over a thousand minutes of train delay as Amtrak and NJ TRANSIT trains became backed up going into the Hudson Tunnel.

Figure 2-15. Notable FY21 major service incidents

A complete list of major service incidents is available in the Appendix.

December 15, 2020: Nor'easter

Corridor-wide

Between December 15 and 17, a powerful nor'easter hit the Northeastern United States and produced over a foot of snow for most of the region. Some agencies had reduced their schedules in advance. MTA LIRR and NJ TRANSIT experienced the most service disruptions with numerous annulments.

336	3,711	127
Total trains affected	Total train-delay minutes	Total trains not completed

February 7, 2021: Signal Power Failure

Shore to Girard in Philadelphia, PA

Signal power was lost near Girard Interlocking just before midnight on February 6. A Rule 241 was put in place, which allows the RoW infrastructure owner to control all train movements and requires dispatching permission for all train operators. Amtrak crews, in this incident, notified NJ TRANSIT and SEPTA staff that this stretch of the corridor could not support passenger rail service. At 8 AM, crews found a parted insulator wire laying across a crossbeam near Mantua Interlocking that had grounded the signal system. The wire was repaired, but power still would not hold. At 12:58 PM, crews found more hanging wires between Shore and Girard. Signal power was fully restored at 9:43 PM.

60	1,857	31
Total trains affected	Total train-delay minutes	Total trains not completed

September 16, 2021: Catenary System Failure

Portal Interlocking in Secaucus, NJ

At 5:05 PM, an NJ TRANSIT train's pantograph became entangled in downed catenary wires at the west end of Portal Interlocking. Track 3 was deenergized and an approaching Amtrak train was offloaded at Secaucus Junction Station so that it could rescue passengers on the stranded train. Trains headed out of New York Penn Station were limited to one track for the evening as the catenary was repaired. Trains were delayed by over an hour moving through this area.

118	3,126	35
Total trains affected	Total train-delay minutes	Total trains not completed

Spotlight on Resiliency

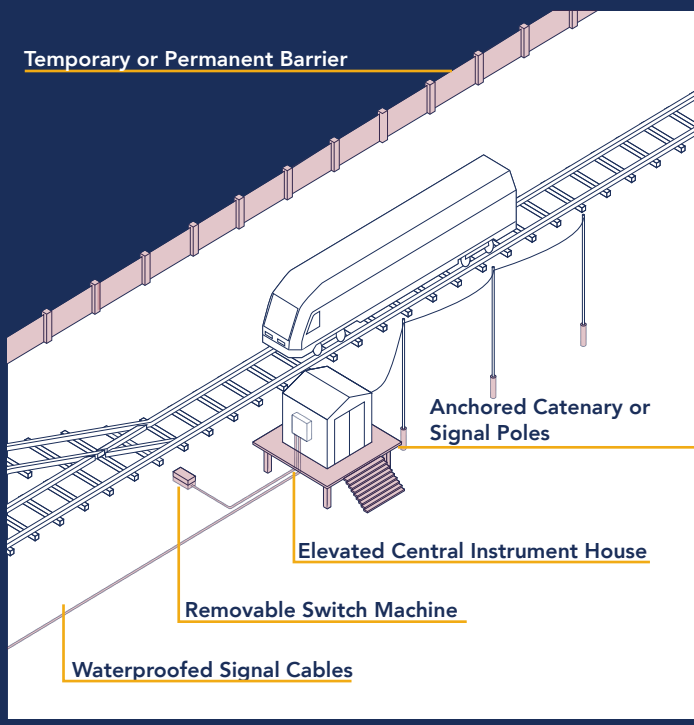
Hurricane Ida highlights the importance of past resiliency improvements and demonstrates the vulnerability of older infrastructure

Hurricanes have been increasing in frequency and intensity, a trend expected to accelerate with climate change, creating greater risk of flooding throughout the Northeastern United States. Hurricanes and their related flooding can cause a broad range of damage to the railroad. They can inundate and wash away tracks, damage electronics, and knock down lines that power trains. This risk is compounded by the scale of the corridor's state-of-good-repair backlog, which leaves key assets and stretches of the corridor vulnerable to more frequent flooding events. Older assets are more prone to failure generally and are not resilient to the unique challenges posed by flooding.

Responding to the need for resilient infrastructure

Right-of-way infrastructure owners in recent decades have been updating the design of basic infrastructure to help mitigate the damage of flood water and enable more rapid restoration of service. Rainfall from Hurricane Isabel in 2003, for example, submerged Trenton Station under five feet of water. Amtrak subsequently installed raised platforms for the Central Instrument House (which contains sensitive communications and signals equipment that controls switch movements) at the nearby Fair Interlocking, which was protected during this year's flooding from Hurricane Ida. More modern equipment has been designed to withstand or prevent water damage, like when engineering forces are able to remove electronic components from a modern interlocking's switch machines to prevent prolonged exposure to water during flooding events.

Infrastructure Resiliency Strategies



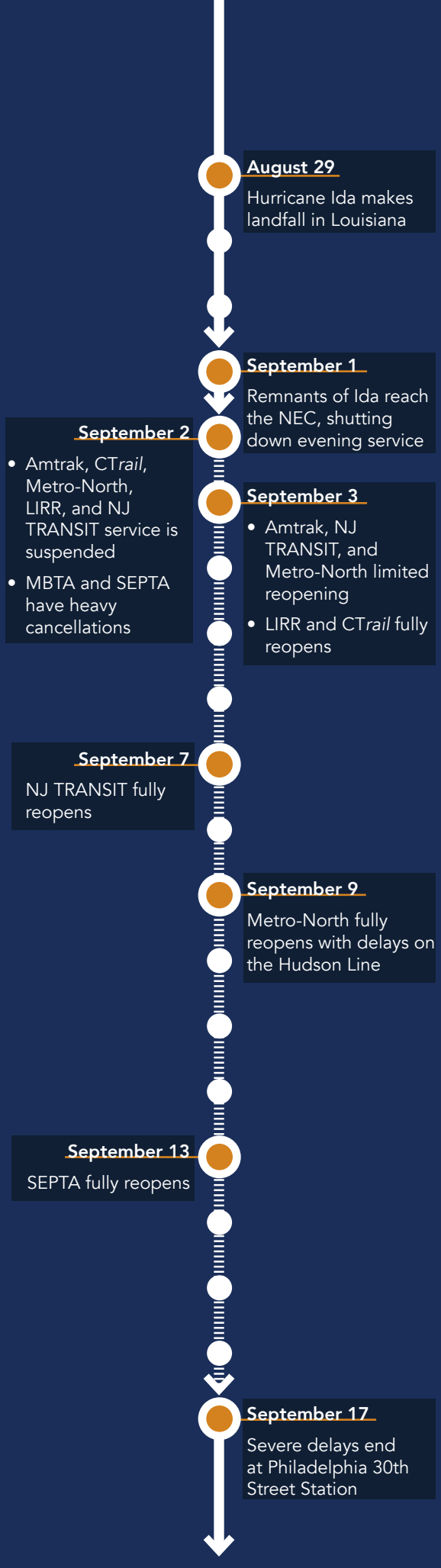
Funding from the U.S. Department of Transportation supported NEC operators such as Amtrak, Connecticut DOT, MTA Metro-North, and SEPTA after Hurricane Sandy in 2012 in implementing infrastructure improvements to adapt to more severe weather events. The funds first helped project sponsors make several extensive repairs to damaged infrastructure, including tunnels, catenary structures, and signal equipment, that allowed for safe and reliable operation on the corridor. Once the corridor was repaired, strategic investments in were made throughout the affected area to harden most vital and sensitive assets. Projects have been underway to improve the resiliency of some signal and catenary equipment and to prevent flood waters from entering tunnels. As the intensity of hurricanes has increased over the years, new areas of the corridor have proven to be vulnerable without further investment.

Hurricane Ida disrupts and severs NEC service

Flooding events on the NEC resulting from Hurricane Ida were the most disruptive major service incident during FY21. Remnants of the hurricane brought record rainfall, sporadic tornadoes, and flash flooding on the evening of September 1. Trains across the region were canceled and offloaded when it was safe. The storm downed catenary wires from Pennsylvania to Connecticut and left numerous locations with water above the rails.

The storm caused over a thousand canceled trains and 8,400 minutes of train delays. Amtrak, CT*rail*, Metro-North, and NJ TRANSIT suspended most if not all NEC services while SEPTA and MBTA operated with heavy delays and cancellations. Infrastructure owners rapidly redeployed workforces to inspect and repair the railroad. Crews worked tirelessly through the night and into the following day but much damage could not be quickly repaired. The extended water exposure damaged underground wires, broke switch machines and signal huts, and destabilized areas of ballast, making large portions of the corridor inoperable. The NEC was operable by September 3.

Despite reopening, repairs continued in some areas that experienced greater damage for weeks. Water flooded the tracks at 30th Street Station in Philadelphia, which submerged Phil and Penn Interlocking's signal cables and damaged signal relays at signal houses dating from the 1930's. Efforts to pump water and replace and/or repair damaged components continued for 17 days after the storm. Operations through the station during this time were heavily delayed because switches were moved manually and only when necessary. Communications & signals crews were pulled from local turnout renewal projects to instead drain and repair the damage at 30th Street Station.



Above: The remnants of Hurricane Ida brought record rainfall and flooded many parts of the NEC, including Philadelphia, PA.

Deploying more resilient infrastructure

With climate change increasing the frequency of severe damage from flooding events, Ida proved that without major overhauls, NEC operators could not sustain or quickly recover operations during floods. RoW infrastructure owners and project sponsors have planned for and know how to incorporate resilient infrastructure to mitigate the worst impacts from flooding and allow for quicker recoveries. Funding through the Infrastructure Investment and Jobs Act and coordinated capital investments through the CONNECT NEC Program will create a more resilient railroad, built to modern safety standards, with enhanced reliability.

4. Challenges and Recommendations

Northeast Corridor Commission member agencies, as described in prior NEC Annual Reports and in the Commission's Cost Allocation Policy, contend with a range of challenges as they work to operate, maintain, and invest in the nation's busiest passenger rail corridor. Planning and coordination among NEC agencies have been a key focus for the Commission since its establishment in 2011.

The state governments of the Northeast, the federal government, eight commuter rail agencies, and Amtrak came together through the Commission as never before to develop CONNECT NEC 2035 (C35)—a multi-agency, multi-year, shared action plan guided by a long-term vision. C35 was released in July 2021 and, if fully funded and resourced, represents a detailed and efficient sequencing of infrastructure investments over 15 years to achieve significant progress on improving service and eliminating the state-of-good-repair (SOGR) backlog, while keeping this critical system running safely and reliably, and supporting our economy.

The operations findings in this report have routinely indicated that infrastructure-related issues, particularly infrastructure failures, are the dominant source of delays—making the case to address the NEC's SOGR backlog. The infrastructure findings in this report indicate that while NEC project sponsors invested record levels of expenditures in FY21, NEC right-of-way (RoW) infrastructure owners and project sponsors struggle greatly to deliver capital projects according to plan. While plan adherence according to annual level of expenditure appears to be improving over time, the limited data available beyond expenditures suggests that adherence to planned annual scope and schedule is rare. And more and better data needs to be collected and analyzed to understand how annual challenges in delivering on scope, schedule, and budget play out over the lives of multi-year projects.

Successful implementation of the CONNECT NEC Program requires RoW infrastructure owners and project sponsors to not only be accountable for the delivery of capital projects they lead and projects led by others that rely on their workforces, but also to quickly ramp up their workforces and other resources to sustain an aggressive program for the next 15 years. The Commission has created an Implementation Working Group—facilitated by Commission staff and comprised of members representing a subset of Commission member agencies—to identify the barriers to successful implementation of CONNECT NEC and to establish mechanisms through the Commission and its members to improve capital project delivery coordination and capacity.

The recommendations in this report are organized around three implementation barriers identified by the working group and incorporate past Annual Report recommendations.

Workforce Development

Growth in workforce levels—for both management and construction—are needed to advance the ambitious investments proposed in CONNECT NEC. This includes, for example, sufficient management workforce levels to carry out vital pre-construction activities (see spotlight on page 25 for more details) and to execute construction contracts on the NEC. The recruitment, training, and retention of a highly skilled construction workforce is needed to ensure infrastructure investments are delivered and must occur both at member agencies and within the broader private sector construction industry.

The Commission is refining forecasts of workforce needed to deliver the CONNECT NEC Program. The Commission will also work with its members to explore opportunities for innovative workforce development programs.

Agreements

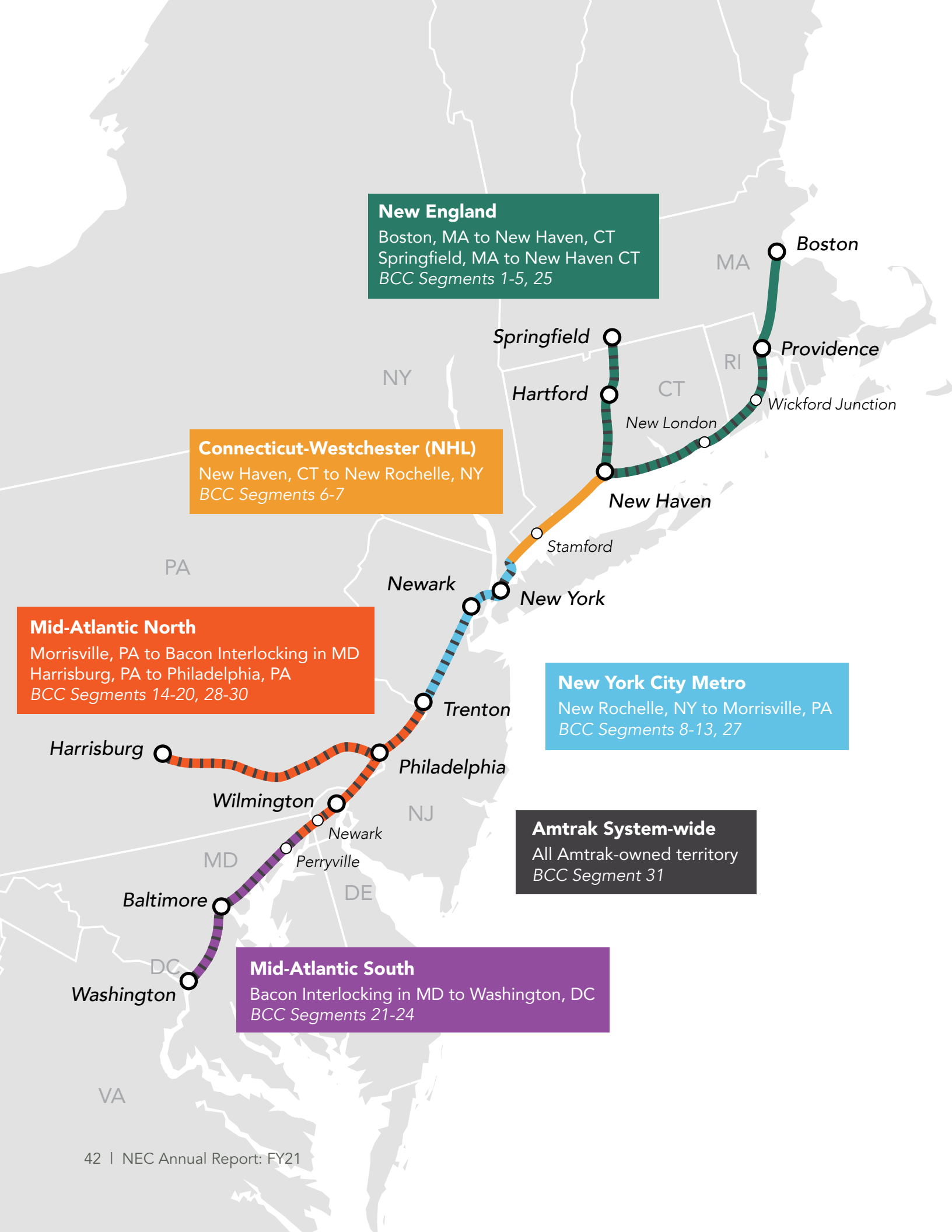
Agreements—whether they are related to labor and contracting capabilities, project-related agreements between project partners, or obligating a federal grant—can be obstacles to efficient capital program delivery. Existing labor agreements that restrict the type of work that can be contracted out may inhibit successful implementation of CONNECT NEC at a time of significant workforce shortages. Project agreements to determine scope, schedule, budget, and cost shares between project partners can take years to negotiate and often delay projects.

The Commission will seek to develop corridor-wide best practices, recommendations, or standard operating procedures to improve agreements and the agreement-making process. This work will also include continued harmonization of federal requirements, as Commission member agencies have struggled to comply with multiple sets of rules when applying both FTA and FRA funding to a project.

Coordination

A multi-agency, multi-year, shared action plan like the CONNECT NEC Program requires close coordination among Commission member agencies and external stakeholders. Successful coordination means keeping all projects on schedule and is key when agencies are sharing resources such as workforces and track outages. Advancing projects according to schedule, already an incredible challenge today, will be even more important in the future.

The Commission will develop an Implementation Coordination Program (ICP) to create and manage implementation tools and processes. This effort will include defining critical path pre-construction and construction milestones (including considering innovative construction means and methods), facilitating effective interagency communication, tracking and monitoring progress against milestones, and developing early warning systems for schedule risk, and promoting ongoing coordination among Commission member agencies.


New England
Boston, MA to New Haven, CT
Springfield, MA to New Haven CT
BCC Segments 1-5, 25
Boston
MA
Springfield
Providence
RI
NY
Hartford
CT
Wickford Junction
New London
Connecticut-Westchester (NHL)
New Haven, CT to New Rochelle, NY
BCC Segments 6-7
New Haven
Stamford
PA
Newark
New York
Mid-Atlantic North
Morrisville, PA to Bacon Interlocking in MD
Harrisburg, PA to Philadelphia, PA
BCC Segments 14-20, 28-30
New York City Metro
New Rochelle, NY to Morrisville, PA
BCC Segments 8-13, 27
Trenton
Harrisburg
Philadelphia
Wilmington
NJ
Amtrak System-wide
All Amtrak-owned territory
BCC Segment 31
Newark
MD
Perryville
DE
Baltimore
DC
Mid-Atlantic South
Bacon Interlocking in MD to Washington, DC
BCC Segments 21-24
Washington
VA

Appendix

Appendix: Infrastructure Summary

NEC-Wide Capital Renewal

Figure A-1. BCC obligations by operator and owner territory, FY21

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 A-1 below shows the FY21 BCC obligations for each service operator by RoW owner territory.

		RoW Owner Territory				
Service Operator		**Amtrak**	**MBTA**	**Connecticut DOT**	**MTA Metro-North**	**Total**
Amtrak		$283,910,982	$10,782,411	$17,114,900	$2,526,015	**$314,334,307**
MBTA		$1,595,049	$17,670,677			**$19,265,726**
Rhode Island DOT		$2,162,417				**$2,162,417**
Connecticut DOT	Shore Line East	$4,537,484		$1,074,478		**$5,611,962**
	Hartford Line	$6,581,618		$225,275		**$6,806,893**
	New Haven Line			$49,221,409		**$49,221,409**
MTA	Metro-North Railroad				$13,767,295	**$13,767,295**
	Long Island Rail Road [1]	$27,213,858				**$27,213,858**
NJ TRANSIT [2]		$92,578,465				**$92,578,465**
SEPTA		$43,316,183				**$43,316,183**
Delaware DOT		$2,748,695				**$2,748,695**
MDOT MTA / MARC		$18,233,967				**$18,233,967**
VRE		$637,199				**$637,199**
Total FY21 BCC Obligations		**$483,515,917**	**$28,453,088**	**$67,636,062**	**$16,293,310**	**$595,898,377**

Table notes: (1) LIRR's obligation is subject to revision based on actual expenditures per Amtrak-LIRR agreement. (2) NJ TRANSIT's FY21 BCC obligation reflects the NJ TRANSIT-Amtrak BCC variance for Portal North Bridge, 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 subject to the Policy. This includes Amtrak, the New York Metropolitan Transportation Authority, the Connecticut Department of Transportation, the Delaware Department of Transportation, the Maryland Department of Transportation, the Rhode Island Department of Transportation, the Southeastern Pennsylvania Transportation Authority, New Jersey Transit Corporation, the Massachusetts Bay Transportation Authority, Virginia Railway Express, any successor agencies, and any entity created to operate, or contract for the operation of, commuter or intercity passenger rail service.

[2] The Policy (Appendix 1.6.2.1 and Section 3.4.2.2) 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 A-2. Actual capital renewal expenditure by operator and owner territory, FY21

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 A-2 shows capital renewal expenditures by right-of-way owner territory as assigned to each service operator.

		RoW Owner Territory				
Service Operator		**Amtrak**	**MBTA**	**Connecticut DOT**	**MTA Metro-North**	**Total**
Amtrak		$384,172,628	$6,493,081	$17,114,900	$2,526,015	**$410,306,624**
MBTA		$1,595,049	$10,641,140			**$12,236,189**
Rhode Island DOT		$2,162,417				**$2,162,417**
Connecticut DOT	Shore Line East	$4,537,484		$1,074,478		**$5,611,962**
	Hartford Line	$6,581,618		$225,275		**$6,806,893**
	New Haven Line			$101,544,233		**$101,544,233**
MTA	Metro-North Railroad				$36,508,970	**$36,508,970**
	Long Island Rail Road [1]	$8,803,820				**$8,803,820**
NJ TRANSIT		$92,578,465				**$92,578,465**
SEPTA		$43,316,183				**$43,316,183**
Delaware DOT		$2,748,695				**$2,748,695**
MDOT MTA / MARC		$18,233,967				**$18,233,967**
VRE		$637,199				**$637,199**
Total FY21 Actual Expenditure		**$565,367,525**	**$17,134,221**	**$119,958,886**	**$39,034,985**	**$741,495,617**

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

Figure A-3. Comparison of actual capital renewal expenditure and BCC obligation, FY21

Figure A-3 shows the difference between FY21 capital renewal expenditures as assigned to each service operator and the FY21 BCC obligation for each operator. Collectively, right-of-way owners spent an additional $146 million above BCC obligations on capital renewal. Amtrak, CTDOT, and Metro-North each spent at levels above the service operators' BCCs in their territories. However, MBTA spent $11 million less than the BCC obligation in their territory.

		RoW Owner Territory				
Service Operator		**Amtrak**	**MBTA**	**Connecticut DOT**	**MTA Metro-North**	**Total**
Amtrak		$100,261,646	-$4,289,330	-	-	**$95,972,316**
MBTA		-	-$7,029,537			**-$7,029,537**
Rhode Island DOT		-				**-**
Connecticut DOT	Shore Line East	-		-		**-**
	Hartford Line	-		-		**-**
	New Haven Line			$52,322,824		**$52,322,824**
MTA	Metro-North Railroad				$22,741,675	**$22,741,675**
	Long Island Rail Road [1]	-$18,410,038				**-$18,410,038**
NJ TRANSIT		-				**-**
SEPTA		-				**-**
Delaware DOT		-				**-**
MDOT MTA / MARC		-				**-**
VRE		-				**-**
Total FY21 Difference (Actual Minus Obligation)		**$81,851,608**	**-$11,318,867**	**$52,322,824**	**$22,741,675**	**$145,597,240**

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

Figure A-4. Capital renewal investments by BCC segment, FY21

		Amtrak BCCs	MBTA BCCs	Rhode Island DOT BCCs	Connecticut DOT BCCs		
					Shore Line East	Hartford Line	New Haven Line
1. BOS to MA/RI state line [1]	MBTA	$6,493,081	$10,641,140				
2. MA/RI state line to Providence	Amtrak	$373,231	$1,595,049				
3. Providence to Wickford Junction [2]	Amtrak	$200,597		$2,162,417			
4. Wickford Junction to New London	Amtrak	$6,411,675					
5. New London to New Haven	Amtrak	$5,780,020			$4,537,484		
6. New Haven to CT/NY state line	CTDOT	$17,114,900			$1,074,478	$225,275	$49,221,409
7. CT/NY state line to New Rochelle	Metro-North	$2,526,015					
8. New Rochelle to Harold	Amtrak	$3,327,779					
9. Harold to F Interlocking	Amtrak	$10,332,590					
10. F Interlocking to Penn Station NY	Amtrak	$3,257,141					
11. Penn Terminal	Amtrak	$14,623,716					
12. Penn Station NY to Trenton	Amtrak	$10,882,446					
13. Trenton to Morris	Amtrak	$983,788					
14. Morris to Holmes	Amtrak	$6,283,968					
15. Holmes to Shore	Amtrak	$2,118,355					
16. Shore to Girard	Amtrak	$17,118,952					
17. Girard to Philadelphia 30th Street	Amtrak	$8,533,394					
18. Philadelphia 30th St to Arsenal	Amtrak	$2,487,215					
19. Arsenal to Marcus Hook	Amtrak	$13,316,010					
20. Marcus Hook to Bacon [3]	Amtrak	$35,133,170					
21. Bacon to Perryville	Amtrak	$2,844,036					
22. Perryville to WAS	Amtrak	$59,080,341					
23. Washington Union Terminal	Amtrak	$9,863,798					
24. WAS to CP Virginia	Amtrak	$0					
25. Springfield to New Haven	Amtrak	$14,308,707				$6,581,618	
27. Spuyten Duyvil to PSNY	Amtrak	$4,771,846					
28. Penn to 36th St	Amtrak	$5,321					
29. 36th St to Thorndale	Amtrak	-$3,096					
30. Thorndale to Harrisburg	Amtrak	$14,435,450					
31. Amtrak System-wide	Amtrak	$37,440,533					
FY21 total capital renewal expenditure by agency		**$310,044,979**	**$12,236,189**	**$2,162,417**	**$5,611,962**	**$6,806,893**	**$49,221,409**

Table notes: (1) In BCC segment 1, MBTA spent below the BCC obligation of $28 million. BCCs were allocated proportionally per the Cost Allocation Policy. Per agreement by MBTA and Amtrak, unspent FY18-21 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. (3) In BCC segment 20, SEPTA operates under contract with DelDOT, while DelDOT is responsible for charges in this segment. (4) Subject to revision per Amtrak-LIRR agreement.

MTA BCCs		NJ TRANSIT BCCs	SEPTA BCCs	Delaware DOT BCCs	MDOT MTA / MARC BCCs	VRE BCCs	Other Capital Funds	FY21 total capital renewal expenditure
Metro-North Railroad	Long Island Rail Road							
							$0	$17,134,221
							$0	$1,968,280
							$0	$2,363,014
							$638,454	$7,050,129
							$647,395	$10,964,899
							$52,322,824	$119,958,886
$13,767,295							$22,741,675	$39,034,985
							$299,367	$3,627,146
	$0						$6,190,593	$16,523,183
	$3,475,531	$0					$65,737	$6,798,409
	$5,328,289	$23,766,753					$0	$43,718,758
		$68,811,712					$789	$79,694,947
		$0	$0				$0	$983,788
			$0				$0	$6,283,968
			$0				$0	$2,118,355
		$0	$4,715,379				$0	$21,834,331
		$0					$724,309	$9,257,703
							$1,311,290	$3,798,505
			$5,522,134				$0	$18,838,144
				$2,748,695			$32,324	$37,914,189
							$290,537	$3,134,573
					$18,233,967		$129,537	$77,443,845
					$0	$634,769	$209,935	$10,708,502
						$2,430	$0	$2,430
							$42,458	$20,932,783
							$330,974	$5,102,820
							$0	$5,321
			$33,078,670				$0	$33,075,574
							$1,041,992	$15,477,442
							$88,305,954	$125,746,487
$13,767,295	$8,803,820	$92,578,465	$43,316,183	$2,748,695	$18,233,967	$637,199	$175,326,144	$741,495,617

Appendix: Operations Summary

Major Service Incidents

Major service incidents are single events that can generate multiple train delays. Major service 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 FY21 because it identifies major service 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.

Figure A-5. Major service incidents by date, FY21

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train-delay minutes	Total trains not completed
Quarter 1 (8 major service incidents)				**830**	**13,368**	**232**
1	10/13/2020 5:00 AM 3 hours 30 mins	Trespasser Strike	**Location:** Woodside, Queens, NY - (Off-Corridor) **Description:** A woman was struck by an out-of-service work train hauling equipment on the LIRR tracks near Woodside station at 5 AM. LIRR temporarily suspended service between Jamaica and New York Penn Station. Limited city-bound service resumed at 6:20 AM. Full service did not resume until the end of the morning peak.	94	1,059	47
2	10/14/2020 5:38 AM 14 hours	Signal Power Failure	**Location:** Lane to Hunter Interlocking, Newark, NJ **Description:** A spliced signal cable failed causing a loss of signal power between Lane and Hudson interlockings at 5:38 AM. Signal power was sequentially restored to the affected interlockings. NJT experienced heavy delays on three lines and canceled trains to allow for the reduced capacity. Signal power was restored by 7:39 AM, but residual delays continued through the peak.	73	1,749	5
3	11/2/2020 Day-long	Weather - Wind and Snow	**Location:** New York City Metro Region Wide **Description:** A snowstorm with extremely high winds hit New York City, northeast New Jersey, and southern Connecticut. The high winds downed across the service area of Metro-North and LIRR. Slippery conditions mixed with high winds made conditions dangerous for passengers and trains.	81	1,165	13
4	11/16/2020 3:22 AM 15 hours 18 mins	Signal Failure	**Location:** Hicksville, Long Island, NY - (Off-Corridor) **Description:** At 3:22 AM, signal problems near LIRR's Hicksville station caused significant delays on the Babylon, Ronkonkoma, and Port Jefferson branches throughout the AM peak period.	63	1,082	16
5	11/18/2020 7:00 AM 13 hours 35 mins	Trackside Interference - Fire	**Location:** North Tube, Hudson River Tunnels **Description:** Rail grinding caused a tie fire in the in the North Tube at 7 AM. Smoke coming from the impedance bond was observed by passing trains. By 8:35 AM the fire had been extinguished and a piece of debris had been located under the impedance bond. During this time NJT experienced heavy delays on trains headed to/from New York Penn Station.	68	1,488	3
6	12/14/2020 11:47 AM 48 hours 38 mins	Communication System Failure	**Location:** Harold Interlocking, New York **Description:** At 11:47 AM, Penn Station Control Center (PSCC) lost communication with various satellite interlockings at Harold. LIRR signal specialists appeared on the scene and the problem appeared to be resolved within the hour but problems quickly returned. At 1:53 PM, PSCC was able to gain supervisory control over Harold using the back up control system, ARINC. The primary control system was not able to be restored for two day. Long Island Railroad experienced heavy delays and cancellations while Amtrak and NJ Transit had lesser congestion related delays.	104	1,466	21

Major NEC incidents by date, FY21 continued on the next page >>

	Date, start time, and duration	Incident type	Location and description	Total trains affected	Total train-delay minutes	Total trains not completed
7	12/15/2020 Day-long	Weather - Snow	**Location:** Corridor-Wide **Description:** Between December 15 and 17, a powerful nor'easter hit the Northeastern United States and produced over a foot of snow for most of the region. Some agencies had reduced their schedules in advance. LIRR and NJT experienced the most service disruptions with numerous annulments.	336	3,711	127
8	11/11/2020 11:57 PM 21 hours 46 mins	Police Activity	**Location:** Bacon Interlocking, North East, MD **Description:** At 11:42 AM, police placed a hold on both tracks between Prince and Bacon interlockings. Local police were searching for an armed murder suspect who was later cornered near the Bacon CIH house. The hold was released with restricted speeds at 3:22 PM.	11	1,648	0
Quarter 2 (2 major service incidents)				**119**	**3,055**	**32**
9	2/8/2021 8:06 AM 20 mins	Signal Power Failure	**Location:** Dock to "A", Newark, NJ to PSNY **Description:** At 8:06 AM signal power was lost between Dock and "A" interlocking for approximately 20 minutes. The outage at this bottle neck caused lasting delays that extended past the AM peak for NJT.	59	1,198	1
10	2/7/2021 11:57 PM 21 hours 46 mins	Signal Power Failure	**Location:** Shore to Girard, Philadelphia, PA **Description:** Just before midnight signal power was lost between Girard interlocking and the NY Division. A Rule 241 was put in place and NJT and SEPTA were notified that the corridor could not support commuter service. At 8 AM, a parted insulator wire was found across a crossbeam near Mantua interlocking grounding the signal system. The wire was repaired, but power still would not hold. At 12:58 PM more hanging wires were found between Shore and Girard. Signal power was not fully restored until 9:43 PM.	60	1,857	31
Quarter 4 (2 major service incidents)				**1,666**	**11,494**	**1,071**
11	9/1/2021 to 9/17/2021	Weather - Hurricane	**Location:** NEC-Wide **Description:** "As the remnants of Hurricane Ida crossed over the Mid-Atlantic and northeast, heavy rain, sporadic tornadoes and flash flooding affected several areas across the Northeast Corridor. By 8PM wires were reported down east of Fair, and water was reported above the rail in multiple locations. An NJT train with 200 passengers on board became stuck at Newark as water rose around the train. There was no safe way to evacuate passengers until the water receded. At 30th street station, as the banks of the Schuylkill River flooded water began to flood the baggage tunnels where many electrical components were housed. An electrical fire was started as water entered the electrical panel. The fire tripped vial systems for railroad operations. In total high water was observed in Newark Airport, 30th street station and on the Springfield and Harrisburg Line. The flooding caused Amtrak and many of agencies between Connecticut and New Jersey to cancel service the next day. Despite the flooding there were not any significant washouts but there was significant damage to the electrical components of the signal system. Damages were worst in the Philadelphia area where Penn interlocking and the lower level of 30th street station had flooded. Signal issues persisted for weeks after the hurricane significantly delaying NJ Transits Atlantic City line."	1,548	8,368	1,036
12	9/16/2021 5:06 PM	Catenary System Failure	**Location:** Portal Interlocking, Secaucus, NJ **Description:** At 5:05 PM, an NJ Transit Train's pantograph became entangled in downed catenary wires at the west end of Portal Interlocking. Track 3 was deenergized and an approaching Amtrak train was offloaded at Secaucus Station and was used to rescue the passengers on the stranded train. Trains headed out of Penn Station New York were limited to one track for the evening as the catenary was repaired. Trains were delayed by over an hour moving through this area.	118	3,126	35
FY21 Total (12 major incidents)				**2,615**	**27,917**	**1,335**

Ridership Methodology and Assumptions

Trips are considered on the NEC if at least some portion of the travel occurs on the 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. Estimates are derived from monthly ridership data (i.e., total number of trips per month) from the FTA's National Transit Database (NTD). As NTD data are not NEC-specific in many cases, the Commission calculated and applied an "NEC share" to each agency's system-wide ridership figures based on publicly available station-level ridership data or prior Cost Allocation Model submissions. Amtrak does not submit data to the NTD, but compatible monthly ridership data is publicly available.

Figure A-6. FY21 ridership estimate methodology.

Operator	Share of total ridership that occurs entirely or partially on the NEC	Share of total ridership that occurs on weekdays	Source used to calculate shares	Services Included
Amtrak	100.00%[1]	90.00%	N/A. All NEC trips reported in Amtrak Monthly Performance Reports (Oct 2020 - Sep 2021)	Northeast Regional, Acela, Hartford Line, Keystone Service
MBTA	62.25%	90.00%	2018 MBTA Station-level Counts	Providence Line; trips on other lines that start or end at an NEC station
CT*rail*	100.00%	90.00%	N/A. All trips reported to NTD are on the NEC.	All
Metro-North	39.28%	86.80%	2021 MTA Metro-North Station-level counts	New Haven Line trips that include travel on the NEC
LIRR	87.20%	87.35%	2021 MTA LIRR Station-level counts	Trips that begin or end at New York Penn Station
NJ TRANSIT	81.52%	92.31%	2021 NJ TRANSIT Station-level counts	Northeast Corridor; trips on other lines that start or end at an NEC station
SEPTA	52.92%	90.98%	2019 SEPTA Station-level counts	Trenton Line, Wilmington-Newark Line, Paoli-Thorndale Line; trips on other lines that start or end at 30th Street Station
MARC	93.87%	90.81%	FY21 MARC Station-level counts	Penn Line; trips on other lines that start or end at Washington Union Station
VRE	22.85%	100.00%	FY21 VRE Station-level counts	Trips that begin or end at Washington Union Station

Table notes: (1) Amtrak has the ability to report total trips on a monthly basis for each individual route so ridership on NEC services can be separated from Amtrak's total ridership figures. Currently, trips on other Amtrak state-supported or long distance routes on the NEC main or branch lines are not included in Amtrak's ridership figures. (2) FY20 ridership figures are included in this report as comparison. An explanation of the methodology used to calculate FY20 ridership is available in the FY20 Annual Report.

As agencies conduct and provide new station-level ridership counts, NEC shares will be re-calibrated. In the long-term, if agencies implement new technical capabilities and are able to report ridership actuals (e.g., an origin-destination matrix on a monthly basis), these actuals can replace the estimation methodology described above.

This page left intentionally blank.

Region: New England

Infrastructure and Operations Detail

Operators: Amtrak, MBTA, CT*rail*

RoW Owners: MBTA, Amtrak

BCC Segments

1: Boston South Station to MA/RI State Line

2: MA/RI State Line to Providence

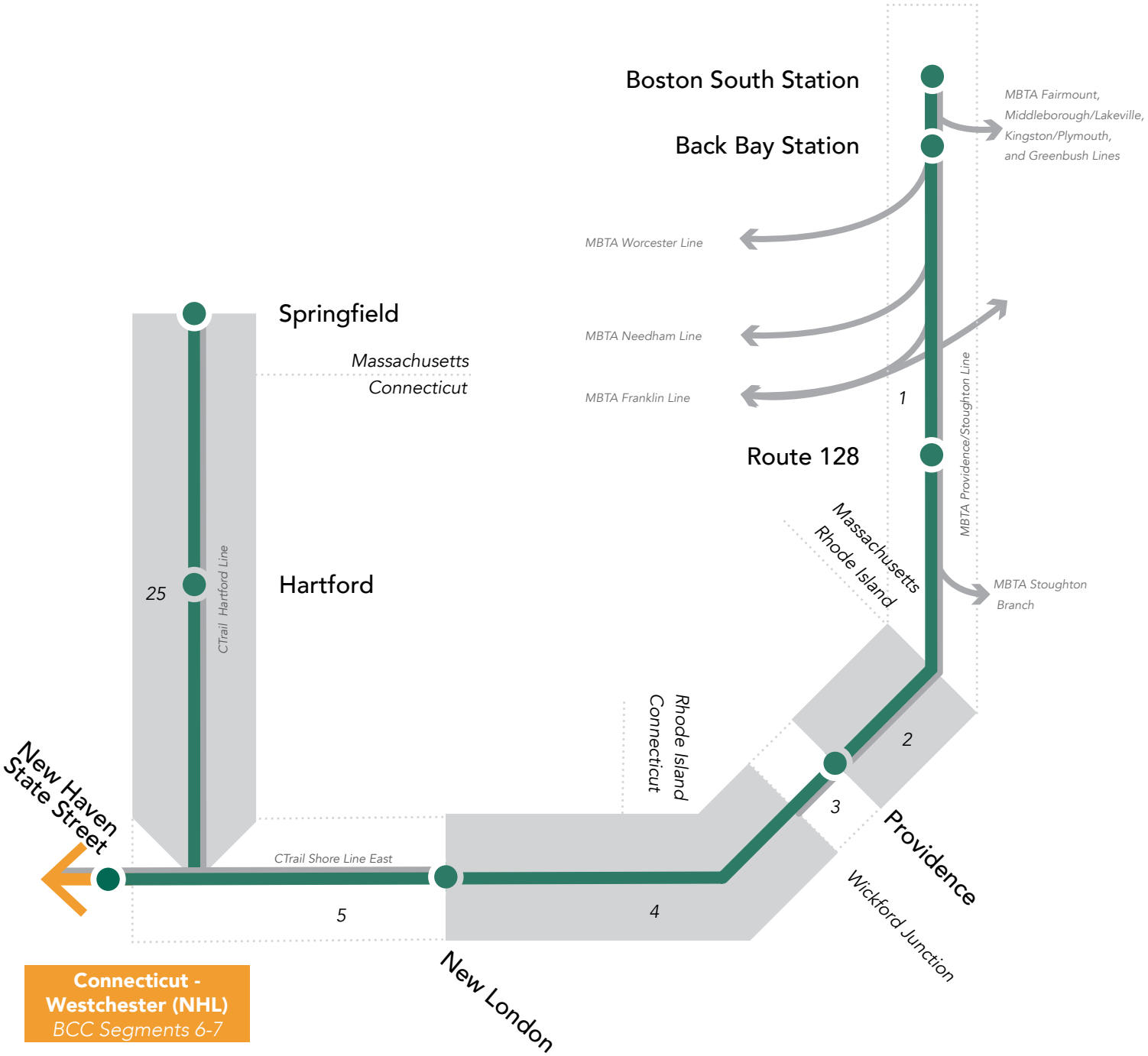
3: Providence to Wickford Junction

4: Wickford Junction to New London

5: New London to New Haven

25: Springfield to New Haven

New England
BCC Segments 1-5; 25



Not all intermediate stations shown.

Infrastructure: Special Projects

Amtrak, MBTA, Rhode Island DOT, and Connecticut DOT coordinated work on 18 special projects throughout the New England region. In total, $64 million was invested in FY21 (36% of plan).

Special Projects Detail: New England

Amtrak		**FY21 Actual Expenditure: $18,010,731**
Connecticut River Bridge Replacement		
FY21 Planned Expenditure & Scope	$4,600,000	Complete final design and environmental permitting
FY21 Actual Expenditure & Accomplishments	$4,492,696	Received and completed review of 90% design submission, received pre-100% design submission, completed NEPA Phase II, completed CT Department of Energy and Environmental Protection Shellfish Commission and Harbor Management Commission consultations, obtained some FRA grants and CT Department of Transportation cost sharing for construction cost, and FRA approved Phase III Data Recovery Plan. ☑ 90% Design: Achieved March 2021 ➔ Final Design: *Deferred to February 2022*
Variance & Explanation	-$107,304	Due to the COVID-19 pandemic, first quarter work has been reduced to environmental and pre-construction permitting only, which delayed the design development and submissions.
Fitter Interlocking		
FY21 Planned Expenditure & Scope	$3,000,000	Resume construction with post-COVID funding. Complete procurement of material, complete signal cable relocation and Lancaster shop to complete construction of signal facilities.
FY21 Actual Expenditure & Accomplishments	$1,785,135	Division C&S workforce progressed signal cable relocation on Track 1. Lancaster Shop made limited progress on central instrument house (CIH) construction. The project team developed and released the construction request for proposals for civil work, drainage improvements, foundations, structural steel fabrication, and electrical and OCS installations. Bids were received exceeding the initial estimate and a funding increase is being requested for FY22. ☑ Begin general contractor procurement: Achieved May 2021 ➔ C&S complete cable relocation: *Deferred to December 2021* ➔ Lancaster Shop Deliver CIH: *Deferred to December 2021*
Variance & Explanation	-$1,214,865	Division Signal workforce was delayed resuming work on cable relocation due to material issues as well as additional support required for surfacing on other lines. Availability of the vacuum train has also been an issue. Signal work is being deferred into FY22. Additionally, there are delays in resuming work on the CIH and A Location due to design changes, and the Lancaster Shop has been awaiting signal programming changes These changes took more time than anticipated to be checked and released to the shop, and CIH completion is now targeted for December 2021.
Next Generation High Speed Fleet Infrastructure: Southampton St. Yard Facility Improvements		
FY21 Planned Expenditure & Scope	$8,800,000	Complete S&I facility modifications including fabrication, delivery, installation, testing and commissioning of all specialty equipment, installation of new roof access platforms, installation of new Alstom trailer, and installation of associated utility improvements.
FY21 Actual Expenditure & Accomplishments	$10,629,910	Substantially completed S&I modifications, and completed watermain improvements for high-speed rail (HSR) facility. ☑ S&I Mods Substantial Completion: Achieved February 2021 ➔ S&I Mods Final Completion: *Deferred to December 2021*
Variance & Explanation	$1,829,910	Variance due to required inclusion of watermain scope for HSR facility.

Special Projects Detail: New England continued on the next page >>

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

Veltri Interlocking		
FY21 Planned Expenditure & Scope	$2,000,000	Complete design and begin construction of interlocking.
FY21 Actual Expenditure & Accomplishments	$1,102,990	Both 90% design (Nov.) and 100% design submitted to Amtrak (Sept.). Network configuration schematic signed by all parties and FRA. Environmental permits were developed and reviewed by Amtrak, and historical reports and approvals were submitted. ➔ Final Design: *Deferred to December 2021* ➔ Lancaster Shop Complete: *Deferred to January 2022* ➔ Procurement Start: *Deferred to January 2022*
Variance & Explanation	-$897,010	The project did not receive FY21 funding, resulting in a 3+ month project delay. Amtrak also requested changes to the overhead contact system and signal design, resulting in delay of the 100% design submission to September. Lancaster Shop's planned activities in FY21 were delayed due to the lighting standard revision, as well as delays with other projects in the shop.
MBTA		**FY21 Actual Expenditure: $6,634,872**
Attleboro Line Track 3 Extension: Transfer to Junction		
FY21 Planned Expenditure & Scope	$5,000,000	Begin the design and permitting for phase one of the project.
FY21 Actual Expenditure & Accomplishments	$243,082	Completed delivery of final conceptual design report. ☑ Complete feasibility study: Achieved September 2021
Variance & Explanation	-$4,756,918	Feasibility study costs less than anticipated.
Attleboro Line Track 3 OCS Installation		
FY21 Planned Expenditure & Scope	$3,058,319	Complete the design and construction of a new Overhead Catenary System including the installation of all appurtenances and structural supports required for the electrification of track 3 between Thatcher and Holden Interlockings.
FY21 Actual Expenditure & Accomplishments	$163,564	Completed the 100% design phase of the project. ☑ Phase III Final Design: Achieved September 2021 ➔ Phase III Construction NTP to be Issued: *Deferred to FY22*
Variance & Explanation	-$2,894,755	Design completion delayed pushing construction into FY22.
Back Bay Station: Platform Ventilation (Phases 1, 2, and 3)		
FY21 Planned Expenditure & Scope	$26,000,000	30% design will be achieved at beginning of FY21 Q1, and the MBTA will pout out a RFP/RFQ for new design services for final design and CPS.
FY21 Actual Expenditure & Accomplishments	$300,000	MM selected as designer, continued negotiations on final scope and price ☑ Re-procure Final Design and CPS: Achieved December 2020 ☑ Substantial Completion - Phase 1: Achieved June 2021 ☑ Final Completion - Phase 1: Achieved July 2021 ☑ Closeout Completion - Phase 1: Achieved October 2021 ➔ Substantial Completion - Phases 2 and 3: *Deferred to February 2022* ➔ Final Completion - Phases 2 and 3: *Deferred to March 2022* ➔ Closeout Complete - Phases 2 and 3: *Deferred to May 2022*
Variance & Explanation	-$25,700,000	NTP has been delayed to on-going negotiations w/designer; Construction anticipated start 2023
Boston South Station: Tower 1 Interlocking		
FY21 Planned Expenditure & Scope	$11,050,000	Final design of all packages (special trackwork procurement, signal procurement, MBTA signal contractor package, Amtrak contractor trackwork package. Bid phase support for MBTA and Amtrak, Agency support, Begin purchase of long lead procurement items (1st special trackwork package, some signal equipment for Amtrak Lancaster shop)., CPS support for initial long lead procurement package (special trackwork submittal reviews)
FY21 Actual Expenditure & Accomplishments	$3,670,768	None submitted. ☑ 90% Plans, Specifications, & Estimates: Achieved March 2021 ☑ Signal Design Completed (1005): Achieved June 2021 ☑ 100% Plans, Specifications, & Estimates: Achieved August 2021
Variance & Explanation	-$7,379,232	Change of project delivery from Amtrak to MBTA required design duration adjustments. Some additional design work required to finalize the design per MBTA contracting requirements and bid document preparation. The MBTA is in the process of coordinating with Amtrak on finalizing the details of the scope.

Special Projects Detail: New England continued on the next page >>

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

MBTA Pawtucket Layover Facility		
FY21 Planned Expenditure & Scope	$7,000,000	Pawtucket Phase III Design will be completed within the FY21. The design includes the installation of a Train Inspection Shed encompassing three tracks of the layover. The Train Inspection Shed will incorporate Phase I Track Inspection Pit and Phase II Fluid Handling Equipment. The train inspection shed will allow for light to intermediate maintenance of locomotives serving the Providence Line.
FY21 Actual Expenditure & Accomplishments	$1,483,426	Pawtucket Layover Phase II Completed, Phase III 15% completed, Phase III 30% Design completed ➔ Phase III Final Design: *Deferred to June 2022* ➔ Phase III Construction NTP to be Issued: *Deferred to September 2022*
Variance & Explanation	-$5,516,574	Scope creep on the project has delayed the progress and expenditure on the design. A majority of the expenditure has been pushed back to FY22.
Ruggles Street Station Accessibility Improvements: Phase 1		
FY21 Planned Expenditure & Scope	$12,500,000	Substantial completion of construction anticipated in November 2020, with final completion in December 2021 and closeout complete in Summer 2021.
FY21 Actual Expenditure & Accomplishments	$7,530,930	Opened new Track 2 platform and elevators 728, 850 and 851. ☑ Substantial Completion: Achieved December 2021 ➔ Final Completion: *Deferred to January 2022* ➔ Closeout Complete: *Deferred to February 2022*
Variance & Explanation	-$4,969,070	Delays in finishing elevators 848 and 851 reduced actual expenditures in FY21.
Ruggles Street Station Accessibility Improvements: Phase 2		
FY21 Planned Expenditure & Scope	$3,000,000	Progress to and complete 100 % design
FY21 Actual Expenditure & Accomplishments	$960,161	Currently advancing design to 75% level. Held internal and external stakeholder engagement meetings, met with safety and code officials to vet design at 30% level. Held alternatives analyses workshops at 30% milestone to optimize design of egress and circulation, and to better meet code. ☑ Complete 15% Design: Achieved April 2021 ☑ Complete 100% Design: Achieved June 2021
Variance & Explanation	-$2,039,839	Delay in spending due to recent alternative analyses workshops and change in invoice submissions from consultant.
South Attleboro Station Accessibility Improvements		
FY21 Planned Expenditure & Scope	$45,100,000	South Attleboro Accessibility Improvements Project Final Design will be completed in FY 2021. South Attleboro Accessibility Improvements Project Construction NTP will be issued in FY 2021.
FY21 Actual Expenditure & Accomplishments	$2,510,733	75% Design Milestone Completion ➔ Final Design Completion: *Deferred to March 2022* ➔ NTP for Construction: *Deferred to November 2022*
Variance & Explanation	-$42,589,267	Construction Funding for the project was reallocated due to COVID-19 conditions. The only remaining budget is approx $7 million for design.
Rhode Island DOT		**FY21 Actual Expenditure: $16,202,860**
Pawtucket/Central Falls Station		
FY21 Planned Expenditure & Scope	$18,500,000	The Project is a design / build format and will complete design and environmental permitting. Construction of Station will continue with completion of retaining walls, relocation of the freight rail track, completion of both northbound and southbound platform foundations, and related signal work.
FY21 Actual Expenditure & Accomplishments	$16,051,860	Construction of major components throughout FY21 including relocation of a freight rail track; foundations for project structures including retaining walls; beginning of structural steel erection; and installation of new communication and signal system by Amtrak. ☑ Complete environmental permitting: Achieved November 2020 ☑ Complete 100% design: Achieved February 2021 ☑ Relocate freight rail track: Achieved February 2021 ☑ Relocate utilities: Achieved August 2021 ➔ Complete northbound platform foundation: *Deferred to October 2021* ➔ Complete Retailing Wall Construction: *Deferred to October 2021* ➔ Complete southbound platform and elevator foundation: *Deferred to October 2021*
Variance & Explanation	-$2,448,140	The variance was a result of being further along in final design in FY21 as part of a design-build project, and working with our partners at Amtrak to develop alternative construction means and methods to stay within budget.

Special Projects Detail: New England continued on the next page >>

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

Providence Station Improvements		
FY21 Planned Expenditure & Scope	$14,000,000	FD consultant will be given NTP in FY21 and FD will be completed in the same year. A contractor will be given NTP and construction will begin.
FY21 Actual Expenditure & Accomplishments	$151,000	RIDOT solicited for, and awarded, a design consultant. The consultant has submitted 30% and 60% plan sets, the latter of which is currently under review. ➔ Complete Final Design: *Deferred to January 2022* ➔ Begin construction: *Deferred to September 2022* ➔ Procure contractor: *Deferred to September 2022* ➔ Procure long lead items: *Deferred to September 2022*
Variance & Explanation	-$13,849,000	In FY21, efforts to get project agreements in place with Amtrak took longer than expected which delayed the project start. Adherence to project schedule is dependent on reaching an agreement with Amtrak. Additionally, COVID-related issues delayed site visits. Overall and in accordance with RIDOT's federal grant, the project is on schedule and on budget.
Warwick/T.F. Green Airport Station Expansion		
FY21 Planned Expenditure & Scope	$3,000,000	Utilizing funding from a FRA CRISI grant, RIDOT will issue NTP to a consultant for PE/NEPA. It is expected NEPA will be completed during FY21, while the 30% plans will be completed shortly into FY22.
FY21 Actual Expenditure & Accomplishments	$0	Solicited design consultant, awarded contract, and held kick-off meetings. ☑ NTP to be issued: Achieved September 2021 ➔ Complete NEPA: *Deferred to May 2023*
Variance & Explanation	-$3,000,000	Efforts to get project agreements in place with FRA took longer than expected which delayed the project start. A CRISI grant agreement is now in place with FRA which confirmed a new schedule baseline that the project will be measured against. Currently in accordance with RIDOT's new federal grant, the project is on schedule and on budget.
Connecticut DOT		**FY21 Actual Expenditure: $17,812,220**
Hartford Line Rail Program: Phases 3B - 5		
FY21 Planned Expenditure & Scope	$2,000,000	Complete Final Design at Windsor Locks.
FY21 Actual Expenditure & Accomplishments	$10,131,400	The design of the various railroad stations was completed and the Hartford Line Program continues to improve the service. ☑ Completed Windsor Locks Design: Achieved January 2021 ➔ Complete North Haven Design: *Deferred to March 2022*
Variance & Explanation	$8,131,400	None submitted
Shore Line East Station Improvements		
FY21 Planned Expenditure & Scope	$1,000,000	Complete Final Design
FY21 Actual Expenditure & Accomplishments	$7,088,928	The new Clinton Railroad structure is almost complete. The upgrades provide a better service for Shore Line East customers. ☑ Complete Clinton Construction: Achieved August 2021 ➔ Final Design - Technology Upgrade: *Deferred to November 2022*
Variance & Explanation	$6,088,928	Scope changes such as a new backup generator have revised the project completion.
Shore Line East Track & Catenary Improvements (FY22)		
FY21 Planned Expenditure & Scope	$10,000,000	Start construction
FY21 Actual Expenditure & Accomplishments	$591,892	The design was completed to a 95% level. Once the property issues are resolved by Amtrak, the design will be finalized. ➔ Construction New London Track 6: *Deferred to April 2022*
Variance & Explanation	-$9,408,108	Property issues are being resolved by Amtrak.

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

Infrastructure: Capital Renewal

In the New England region, Baseline Capital Charges (BCCs) are allocated by Amtrak, MBTA, Rhode Island DOT, and Connecticut DOT (for Shore Line East and Hartford Line service only) to fund the capital renewal of basic infrastructure on the NEC Main Line from Boston, MA to New Haven, CT and the NEC Branch Line from Springfield, MA to New Haven, CT. In total, $60 million was invested in FY21 (75% of plan).

BCC Segment	RoW owner	Operators					FY21 expenditure by segment
		Amtrak	MBTA	RIDOT	Connecticut DOT (CT*rail*)		
					Shore Line East	Hartford Line	
1: Boston South Station to MA/RI State Line	MBTA	$6,493,081	$10,641,140	-	-	-	**$17,134,221**
2: MA/RI State Line to Providence	Amtrak	$373,231	$1,595,049	-	-	-	**$1,968,280**
3. Providence to Wickford Junction	Amtrak	$200,597	-	$2,162,417	-	-	**$2,363,014**
4. Wickford Junction to New London	Amtrak	$7,050,129	-	-	-	-	**$7,050,129**
5. New London to New Haven	Amtrak	$6,427,415	-	-	$4,537,484	-	**$10,964,899**
25. Springfield to New Haven	Amtrak	$14,351,165	-	-	-	$6,581,618	**$20,932,783**
FY21 total capital renewal expenditure by operator		**$34,895,618**	**$12,236,189**	**$2,162,417**	**$4,537,484**	**$6,581,618**	**$60,413,326**

FY21 Expenditure

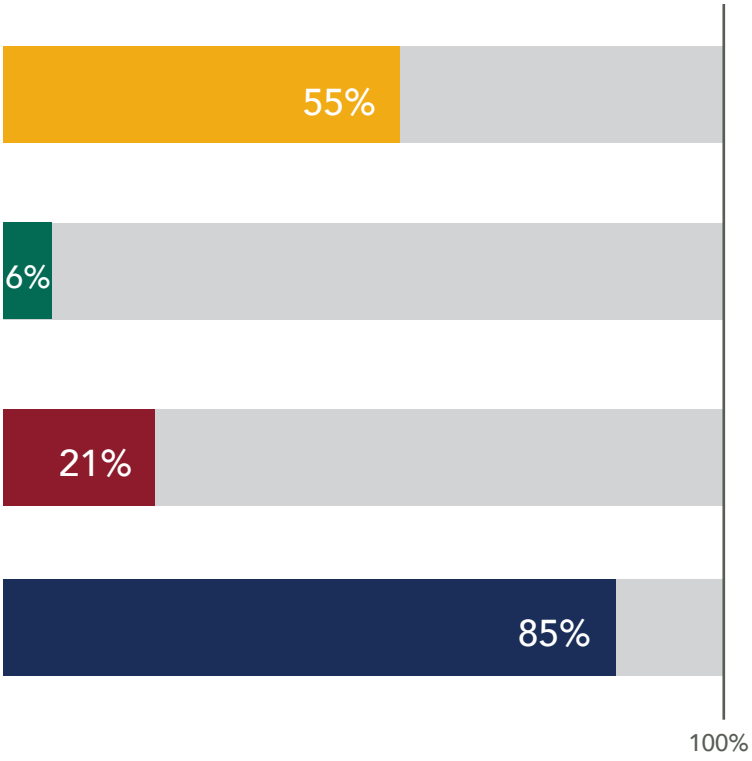
COMMUNICATION & SIGNALS
$11.4 MILLION

ELECTRIC TRACTION
$0.4 MILLION

STRUCTURES & FACILITIES
$2.6 MILLION

TRACK
$45.9 MILLION

Plan Adherence



This page left intentionally blank.

Capital Renewal Detail: New England [MBTA-owned; BCC Segment 1]

Project/Program	FY21 Planned Expenditure	FY21 Actual Expenditure	Expenditure Variance	Submitted project/program accomplishments in FY21	Submitted project/program explanation of variance
Battery Bank Replacement Program	$138,880	$167,722	$28,842	Replaced 84 batteries in FY21 between Mansfield I/L and Junction I/L.	Project costs higher than anticipated.
CWR Replacement Program	$715,000	$0	-$715,000	Project deferred from FY21 program.	Project deferred from FY21 program.
Emergency Egress Upgrades Project	$1,000,000	$0	-$1,000,000	Project deferred from FY21 program.	Project deferred from FY21 program.
Fuse Upgrade Program	$146,556	$0	-$146,556	Project deferred from FY21 program.	Project deferred from FY21 program.
Gas Hot Air Switch Blower Program	$450,000	$0	-$450,000	Project deferred from FY21 program.	Project deferred from FY21 program.
Hawk Hot Box / Dragging Equipment Detector Upgrade Project	$300,000	$5,008	-$294,992	Project agreement executed between MBTA and Amtrak. Material / equipment procurements commenced for the hot box / dragging equipment detectors.	Delays in material / equipment procurement have pushed anticipated project completion date to the summer of 2022.
Insulated Joint Program	$194,195	$68,193	-$126,002	Replaced six insulated joint in FY21 between MP190.9 and MP229.0.	Program short of target goal of 20 insulated joints (vs. 6 actual).
Interlocking Crossover Replacement Program	$750,000	$681,245	-$68,755	Broad 102/21 slip switch delivered and prep work started.	Broad 102/21 slip switch installation delayed due to component issues with switch package. Installation to be re-scheduled for spring 2022.
Interlocking RTU Upgrades Project	$481,087	$281,990	-$199,097	Holden I/L and Mansfield I/L designs issued for construction. Amtrak review comments returned to designer for 60% designs for Junction I/L and Hebronville I/L. Materials delivered for the project and C&S began prep work at Holden I/L.	Duration of design phase of project longer than anticipated. Installations anticipated to be completed in April 2022.
Interlocking Steel Replacement Program	$276,067	$426,310	$150,243	Replaced 6 units of interlocking steel in FY21 between MP190.9 and MP229.0.	Program exceeded target goal of 5 units (vs. 6 actual).
Joint Elimination Program	$269,250	$412,561	$143,311	Completed 78 welds in FY21 between MP190.9 and MP229.0.	Program exceeded target goal of 50 welds (vs. 78 actual).
M3 Switch Machine Program	$375,995	$64,355	-$311,640	Replaced five switch machines in FY21 between MP190.9 and MP229.0.	Program short of target goal of 8 switch machines (vs. 5 actual).
Out Of Face Surfacing Program	$1,076,891	$2,197,430	$1,120,539	Completed 131,012 pass-feet of out-of-face surfacing in FY21 between MP190.9 and MP229.0.	Program exceeded target goal of 80,000 pass feet (vs. 131,012 actual).
Power and Express Cable Upgrade Project	$1,000,000	$1,460,833	$460,833	Reached approximately 90% completion for cable installation for the project.	Duration of construction longer than anticipated due to field conditions and resource availability.
RoW Fence Upgrades Program	$1,250,000	$596,353	-$653,647	Completed the installation of 2,800 linear feet of impasse fencing along Track 3 in Hyde Park, MA.	Scope completed per plan. Project costs less than anticipated.
Rail Grinding Program	$0	$202,510	$202,510	Completed 69.99 miles of rail grinding in FY21 between MP190.9 and MP229.0.	Scope completed per plan. Project costs less than anticipated.
Readville Material Control Warehouse Project	$1,545,697	$150,865	-$1,394,832	Completed 100% design for the project.	Due to vandalism damage to trailers, project has been put on hold pending MBTA direction.

Capital Renewal Detail: New England [MBTA-owned; BCC Segment 1] continued on the next page >>

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

Capital Renewal Detail: New England [MBTA-owned; BCC Segment 1] cont.

Project/Program	FY21 Planned Expenditure	FY21 Actual Expenditure	Expenditure Variance	Submitted project/program accomplishments in FY21	Submitted project/program explanation of variance
South Station Tie and Rail Replacement Project	$2,726,887	$0	-$2,726,887	Project deferred from FY21 program.	Project deferred from FY21 program.
Southampton Street and South Bay I/L Upgrades Project	$2,885,148	$1,592,928	-$1,292,220	Completed the 100% design phase for the South Bay I/L upgrades as well as for the generators and transformer replacements. Began the DTMF switch installations.	Installation of DTMF switches behind schedule.
Spot Surfacing Program	$1,725,895	$2,590,436	$864,541	Completed 34,511 feet of spot surfacing in FY21 between MP190.9 and MP229.0.	Program short of target goal of 65,000 feet (vs. 34,511 actual).
Spot Undercutting Program	$303,469	$157,688	-$145,781	Completed 543 feet of spot undercutting in FY21 between MP190.9 and MP229.0.	Program exceeded target goal of 180 feet (vs. 543 actual).
Switch Heater Cabinet / Control Program	$350,000	$0	-$350,000	Project deferred from FY21 program.	Project deferred from FY21 program.
TAMS Upgrades Project: Various Stations	$3,228,565	$2,542,603	-$685,962	New signs and speakers placed into service at Forest Hills, Readville, Sharon, Mansfield, and Canton-Junction Stations. Began installing new signs and cabling at Hyde Park Station.	Project delayed due to arrival of long lead materials. Project anticipated to be complete in December 2021.
Tie/Timber Program	$686,687	$2,591,047	$1,904,360	Replaced 1,512 tie/timbers in FY21 between MP190.9 and MP229.0.	Program exceeded target goal of 1,500 ties/timbers (vs. 1,512 actual).
Track Circuit Protection Program	$100,000	$239,852	$139,852	Completed surge protector replacements in FY21 between Hebronville I/L and Cove I/L on the AB line and Cabot I/L and Loop I/L on the TD Line.	Project costs higher than anticipated.
Track Lead Replacement Program	$370,000	$7,799	-$362,201	Replaced track leads at Mansfield I/L and Junction I/L.	Program work less than anticipated resulting in lower than planned costs.
Tree Cutting Program	$1,050,625	$696,494	-$354,131	Completed 20 weeks of tree cutting in FY21.	Program short of target goal of 50 weeks (vs. 20 actual).
Undergrade Bridges Program: Capital Maintenance	$454,135	$0	-$454,135	Project deferred from FY21 program.	Project deferred from FY21 program.
Undergrade Bridges Program: Upgrades	$360,858	$0	-$360,858	Project deferred from FY21 program.	Project deferred from FY21 program.
BCC Segment 1 Total	**$24,211,887**	**$17,134,221**	**-$7,077,666**		

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

Capital Renewal Detail: New England [Amtrak-owned; BCC Segment 2-5, 25]

Accomplishments and explanations of variance are submitted by Amtrak for the entire project or program. Therefore, they will include activities across all relevant segments, including those outside of the New England region. All data is published, as submitted by the RoW owner.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Amtrak Owned Positive Train CTRL (PTC) Installation. PG00085. C.EN.201034.	5	$0	$200,998	$200,998	In the first quarter of FY21, PTC was completely implemented by the Federal Mandated date of December 31, 2020. This included interoperability at all boundary locations with MBTA in New England. For the remainder of the fiscal year we concentrated on upgrading the system to include additional functionality requested by the FRA including D2 Mitigation, Boxcars, Back to Back which required upgraded OBC Software as well as reprogramming and replacement of Transponders and WIU's. This work is ongoing into FY22.	For FY21 we successfully spent 97% of our approved budget. Our goal was to spend with a +/- 5% variance and this was achieved with this program
ET Linear Assets Research and Development Program. PG00086. C.EN.101873.	5	$0	$42,452	$42,452	This program consists of several different projects which result from research and development of improvements to Amtrak's electric traction system. The project got a late start due to COVID-19 and did not start until January of 2021. The majority of the funding was for a contract to design and install 6 new signal power huts in the NEC. Design did begin on this project and reached approximately 30% complete by the end of the fiscal year. Additional projects dealt with reducing faults on the catenary due to wildlife or other weather element in the New England Division and Mid Atlantic Divisions. All of these projects have started and are currently underway.	The fiscal year started with an AOP of $1,490,585 and was reduced to $266,056 due to the late start, delays in receiving materials and issues with the acceptability of the design for the signal power huts. We spent 55% of the revised budget. We anticipated being able to accrue for the work done by the designer for the Signal Power huts which would have brought us close to 10% of the revised budget, but the plans submitted just before the end of the fiscal year were not at a point that was acceptable to Amtrak and charges could not be accrued.
Fence Upgrades. PG00069. C.EN.101854.	2	$1,257,862	$1,187,838	-$70,023	Fence upgrades (approximately 13,300') completed at 4 locations in Amtrak's New England Division: • Providence, RI • Madison, CT • Charleston, RI • Stonington, CT	All planned work for FY21 was accomplished.
	4	$778,678	$567,301	-$211,378		
	5	$810,075	$858,519	$48,445		
	25	$0	$7,501	$7,501		
Moveable Point Frog Switch Machine Rod Replacement. P000160. C.EN.101894.	3	$84,772	$0	-$84,772	In FY21, all of the Movable Point Frog rod packages planned for F Interlocking except for 1 location were installed. We also installed rod packages at Lane Interlocking but still have 3 locations left to do there. All other locations were moved to FY22 due to material acquisition issues.	The final AOP was $101,986 and the final spend for FY21 was $101,734 so variance was negligible.
	4	$72,785	$0	-$72,785		

Capital Renewal Detail: New England [Amtrak-owned; BCC Segments 2-5, 25] continued on the next page >>

Capital Renewal Detail: New England [Amtrak-owned; BCC Segments 2-5, 25] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New England Catenary. PG00029. C.EN.101836.	2	$68,882	$49,909	-$18,973	**Catenary Hardware Renewal:** Continued installation of insulator beads. **Southampton Street Yard Motor Operated Disconnect Units:** Completed the replacement of the three MODs at Southampton Street Yard planned for FY21. **Track 4 OCS Renewals:** Completed the installation of the Track 4 OCS upgrades into service in Attleboro, MA. **View Interlocking Lighting Upgrades:** Received materials, mobilized, and began prep work for the LED installations.	View Interlocking Lighting materials delayed pushing scheduled completion date out into FY22.
	3	$68,882	$68,324	-$559		
	4	$68,882	$0	-$68,882		
	5	$103,346	$95,799	-$7,548		
New England Communications. PG00030. C.EN.101837.	3	$139,639	$54,330	-$85,309	Received materials for the next ten SCADA/RTU locations to be upgraded.	Cutover and testing of the existing SCADA/RTUs from the ARINC system to the AMTEC system on-going delaying the planned FY21 installations. Expected testing completion date is mid-January 2022. New SCADA/RTU installations anticipated to start once the cutover/testing of existing system is complete.
	4	$103,998	$122,073	$18,075		
	5	$451,634	$218,976	-$232,658		
New England Facilities. PG00031. C.EN.101838.	2	$0	$12,345	$12,345	**Southampton Street Yard Facility Water Main Upgrades:** Procurement phase commenced for contractor. **Southampton Street Yard Sub 579 Switchgear and Transformer Replacement:** Procurement phase commenced for switch gear in Q4. Delivery anticipated in FY22 Q1. **Hamden MOFW Facilities Upgrades Project:** Completed procurement for overhead doors. Anticipate to begin HVAC / Roof design in Q1 FY22 with construction anticipated Q2/Q3 FY22. **Southampton Street Yard Energy Efficiency Upgrades:** Reached substantial completion on the interior upgrades (framing, insulation, sheetrock). Long lead time for overhead doors to push schedule for project into FY22.	Southampton Street Yard Facility Water Main Upgrades experienced delays during the contractor procurement phase pushing the scheduled construction start until FY22.
	4	$0	$17,435	$17,435		
	25	$359,847	$0	-$359,847		

Capital Renewal Detail: New England [Amtrak-owned; BCC Segments 2-5, 25] continued on the next page >>

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

Capital Renewal Detail: New England [Amtrak-owned; BCC Segments 2-5, 25] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New England Signals. PG00033. C.EN.101839.	2	$54,698	-$46,555	-$101,253	**RTU Upgrades:** Continued design efforts reaching the 60% - 100% design level. Installations anticipated in FY22. **Track Circuit Protection:** Completed installations in Rhode Island and substantially completed installations in Connecticut on the AB Line. **Impedance Bonds:** Reached substantial completion for Connecticut locations on the AB Line. Rhode Island planned for FY22. **Switch Machines Upgrades:** Materials delivered for installation locations on the AB line planned in FY22. **Grade Crossing Upgrades:** Reached substantial completion for upgrades at Hayden Station Road and Macktown Road with punch-list work planned to be requested in FY22.	Grade crossing recorders project delayed based on coordination and further evaluation of the technical requirements between IT and Engineering. Cable upgrades project in Mystic, CT, installation delayed based on material delivery delays.
	3	$218,079	$323,165	$105,086		
	4	$603,535	$971,495	$367,960		
	5	$329,559	$1,144,250	$814,690		
	25	$2,553,777	$849,615	-$1,704,162		
New England Structures. PG00034. C.EN.101840.	4	$563,138	$181,883	-$381,254	**Conn. River Bridge (CT49.73) Steel Upgrades and Bridge Timbers:** Contract awarded, pre-construction activities commenced with contractor, and bridge timber material began to be delivered. **Niantic River Grease Shield:** Completed the installation of the grease shield. **Shoreline Junction Retaining Wall:** Complete the installation of the retaining wall. **Moveable Bridge Projects:** Completed replacement in Mystic, CT of first gearbox and commenced procurement for second gearbox anticipated to be installed in FY22. Material delivered for Shaw's Cove wedge screw jack anticipated to be installed in FY22. Began mobilizing and prep work for the CT106.89 Conn. River Bridge segmental girder and tread plate replacements.	Experienced delays during contractor procurement phase for the Conn. River Bridge (CT49.73) Steel Upgrades and Bridge Timbers project which pushed construction until FY22.
	5	$1,404,069	$732,864	-$671,204		
	25	$5,545,291	$897,635	-$4,647,656		
New England Substations. PG00035. C.EN.101841.	4	$477,102	$0	-$477,102	**View Interlocking Commercial Power Upgrades:** Completed installation of small pad mounted transformer. Wiring to be completed in FY22. **Substation Assessments:** Third party completed substation assessments and provided report for condition and proposed improvements at Branford, New London, Warwick, and Sharon. **Norton Transformer Replacement:** Bids received for Norton Transformer and under technical evaluation. Expect to install in FY22.	Experienced delays during the procurement process and with equipment delivery for Substation Batteries, Sharon/New London Substation Breaker/Relays and Vacuum Bottle Replacements, and Sump Pumps Replacements.
	5	$439,323	$70,133	-$369,190		

Capital Renewal Detail: New England [Amtrak-owned; BCC Segments 2-5, 25] continued on the next page >>

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

Capital Renewal Detail: New England [Amtrak-owned; BCC Segments 2-5, 25] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New England Track. PG00036. C.EN.101842.	2	$2,228,396	$512,800	-$1,715,595	**Track Capital Maintenance:** Replaced 35 insulated joints, 2,120 wood ties, 71 concrete ties, and completed 91 welds (joint elimination), 237,057 feet of spot surfacing, and 981 feet of spot undercutting in FY21. AS59.5 **Slope Stabilization Design**: Environmental permitting/ design continued. Developed proposed alignment for track shift away from Connecticut River. Construction start anticipated in FY23.	COVID-19 impacts and weather reduced manpower availability in the first half of the fiscal year.
	3	$1,969,100	$828,082	-$1,141,019		
	4	$3,356,659	$2,299,768	-$1,056,891		
	5	$2,652,281	$3,461,286	$809,005		
	25	$3,208,002	$3,537,801	$329,799		
Production High Speed Surfacing. PG00060. C.EN.101855.	2	$801,877	$181	-$801,696	In FY21, a total of 158.79 track miles were surfaced in total throughout the Amtrak system.	Our final requested AOP was $13,417,659 and our final spend was $13,052,154. The variance was due to additional spending on state partner numbers and other projects and reduced spending on this program.
	3	$0	$303,439	$303,439		
	4	$1,056,643	$1,820	-$1,054,823		
	5	$1,184,302	$485,810	-$698,492		
	25	$10,427,889	$14,853,109	$4,425,220		
Rail Grinding. PG00064. C.EN.101794.	2	$0	$54,049	$54,049	In FY21, the Loram rail grinder completed 918.11 of the planned 1,045 track miles along the NEC. Approximately 455.95 track miles were completed in New England.	The rail grinder underspent by 9% due to unplanned down days resulting from Loram maintenance issues, bad weather, train delay, and customer delay. Total planned track mile goal was also not realized due to multiple passes required on sections of track to meet required profile.
	3	$0	$160,658	$160,658		
	4	$0	$334,893	$334,893		
	5	$0	$572,240	$572,240		
	25	$401,645	$716,273	$314,628		
Rail Replacement. PG00003. C.EN.101856.	4	$0	$205,900	$205,900	A curve patch was completed on Curve 58 (AB Line MP 159) between Kingston and Davisville on Track 1.	The original estimate and schedules did not take into account all of the prep work, training on equipment, and time to complete projects. The program as a whole was within 10% of the revised budget.
Shaws Cove CT Swing Bridge Fender Replacement. P000127. C.EN.101584.	5	$4,894,227	$119,442	-$4,774,785	Plans and specifications completed for contractor RFP. Bids received +400% in excess of engineer's estimate; Amtrak rescinded solicitation and began procedures to conduct a redesign using the IDIQ contractor for the New England Division.	Cost proposals received for the fender replacement were over 400% greater than the engineer's estimate. This prompted the Structures Department to re-examine the concept and decide on re-designing the fender upgrade. Construction start has now been delayed to late FY22 or early FY23.

Capital Renewal Detail: New England [Amtrak-owned; BCC Segments 2-5, 25] continued on the next page >>

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

Capital Renewal Detail: New England [Amtrak-owned; BCC Segments 2-5, 25] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Track Rehabilitation. PG00063. C.EN.101859.	4	$1,019,034	$1,890,367	$871,333	**Groton House Track, CT:** new turnout and fit concrete ties installed **Westerly Yard, RI:** fit concrete ties installed in yard	Program underspent by $2.1 M or 12% of approved FY21 adjusted AOP.
Track Undercutting. PG00062. C.EN.100269.	4	$0	$457,194	$457,194	The Undercutting work group undercut a total of 16,181 track feet. This work occurred strictly in Q1 FY21, as work planned for Q2 through Q4 was canceled.	With change requests accounted for, the program completed the year at 7% underspent.
	5	$1,804,696	$2,547,183	$742,487		
Turnout Renewal. PG00065. C.EN.101860.	2	$2,728,912	$197,711	-$2,531,201	In the turnout program for FY21 we replaced turnouts on the New England, New York, and Mid-Atlantic divisions. Cable and panel replacements were also performed as needed at the install locations.	A change request was submitted in July to adjust the program's FY21 budget to $55,715,404. Our overall FY21 spend came in at $51,989,239. The ~$4 Million variance came from some locations that pushed into FY22 due to Hurricane Ida response and material issues.
	3	$1,140,839	$625,017	-$515,822		
	5	$730,159	$414,948	-$315,211		
BCC Segments 2-5; 25 Total		**$56,698,762**	**$43,279,104**	**-$13,419,658**		

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

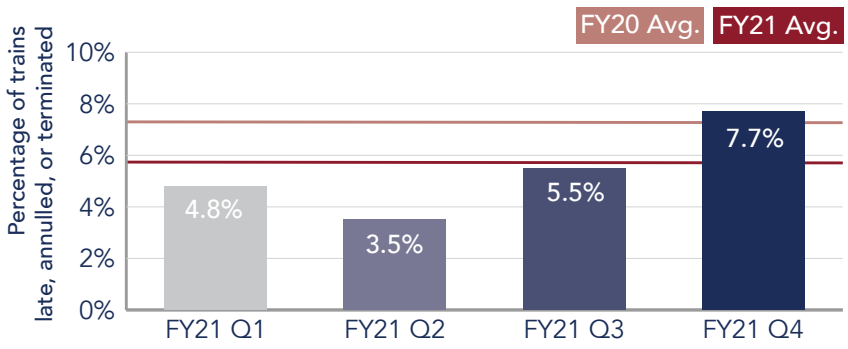
This page left intentionally blank.

Operations: 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.

Train performance profile

Metric	FY20 Avg.	FY21 Avg.
Percent NEC trains late, annulled, or terminated	7.2%	5.7%
Percent NEC trains not completed	0.58%	0.37%
Avg min late per NEC train	14.4	12.8

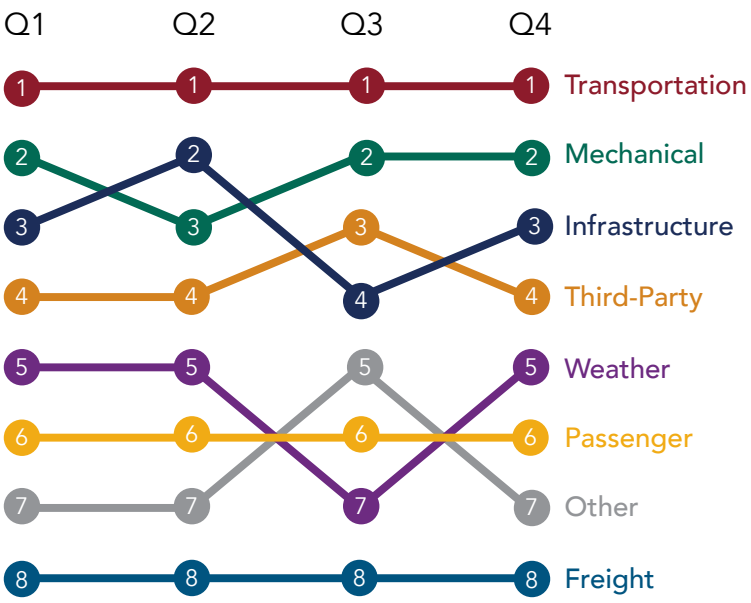


Train-delay minutes by cause

Total and percent change, FY20-21

Cause	FY20	FY21	Change
Infrastructure	20,989	15,693	-25.2%
Mechanical	27,057	22,331	-17.5%
Transportation	12,706	10,196	-19.8%
Passenger	6,801	2,832	-58.4%
Weather	8,257	5,171	-37.4%
Third-Party	4,166	5,399	29.6%
Freight	346	214	-38.2%
Other	963	747	-22.4%
Total	**81,285**	**62,583**	**-23.0%**

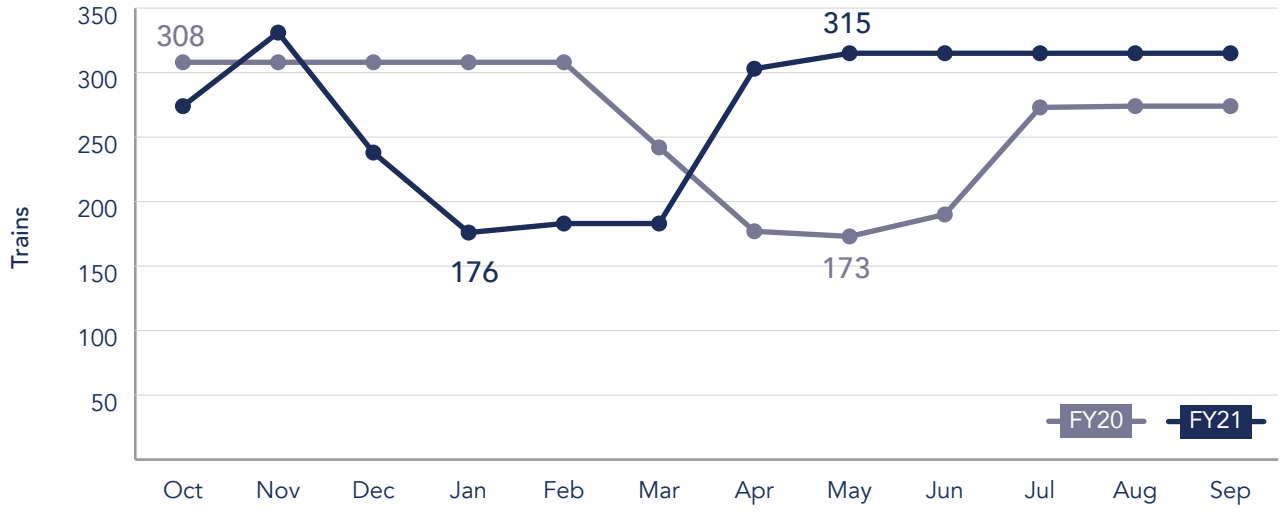
Rank by category, FY21



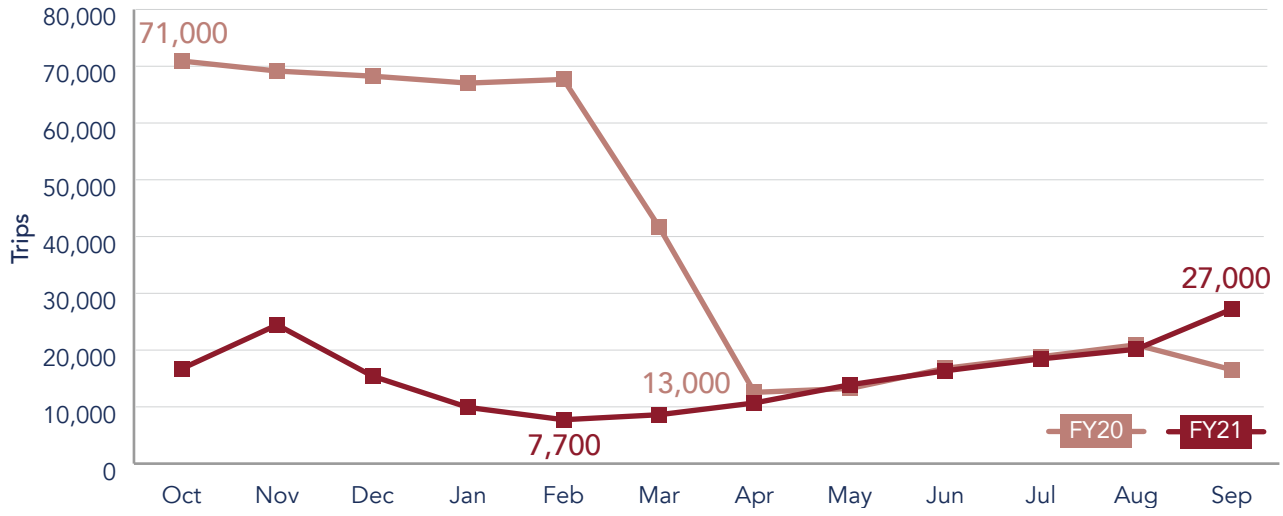
MBTA NEC Service and Ridership

Period	Average NEC weekday trains			Average NEC weekday trips		
	FY20	FY21	Change from FY20	FY20	FY21	Change from FY20
Q1 (Oct - Dec)	308	279	-10% ↓	69,441	18,854	-73% ↓
Q2 (Jan - Mar)	285	181	-37% ↓	58,813	8,749	-85% ↓
Q3 (Apr - Jun)	180	311	+72% ↑	14,194	13,644	-4% ↓
Q4 (Jul - Sep)	274	315	+15% ↑	18,767	21,935	17% ↑
FY Average (Oct - Sep)	**262**	**269**	**+3% ↑**	**40,304**	**15,796**	**-61% ↓**

MBTA Average NEC Weekday Trains



MBTA Average NEC Weekday Trips

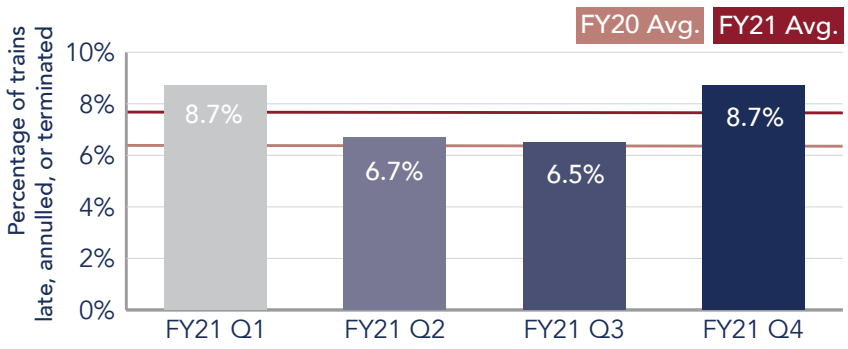


Operations: CTrail

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.

Train performance profile

Metric	FY20 Avg.	FY21 Avg.
Percent NEC trains late, annulled, or terminated	6.3%	7.7%
Percent NEC trains not completed	0.45%	0.24%
Avg min late per NEC train	15.8	17.4

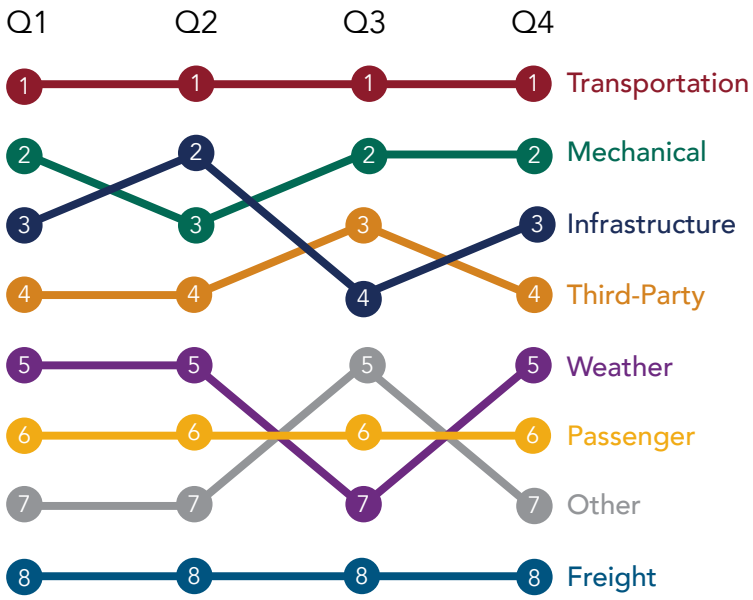


Train-delay minutes by cause

Total and percent change, FY20-21

Cause	FY20	FY21	Change
Infrastructure	2,655	2,510	-5.5%
Mechanical	2,893	3,347	+15.7%
Transportation	5,628	5,680	+0.9%
Passenger	250	298	+19.4%
Weather	398	522	+31.2%
Third-Party	752	1,717	+128.3%
Freight	25	21	-14.3%
Other	480	192	-60.0%
Total	**13,080**	**14,287**	**+9.2%**

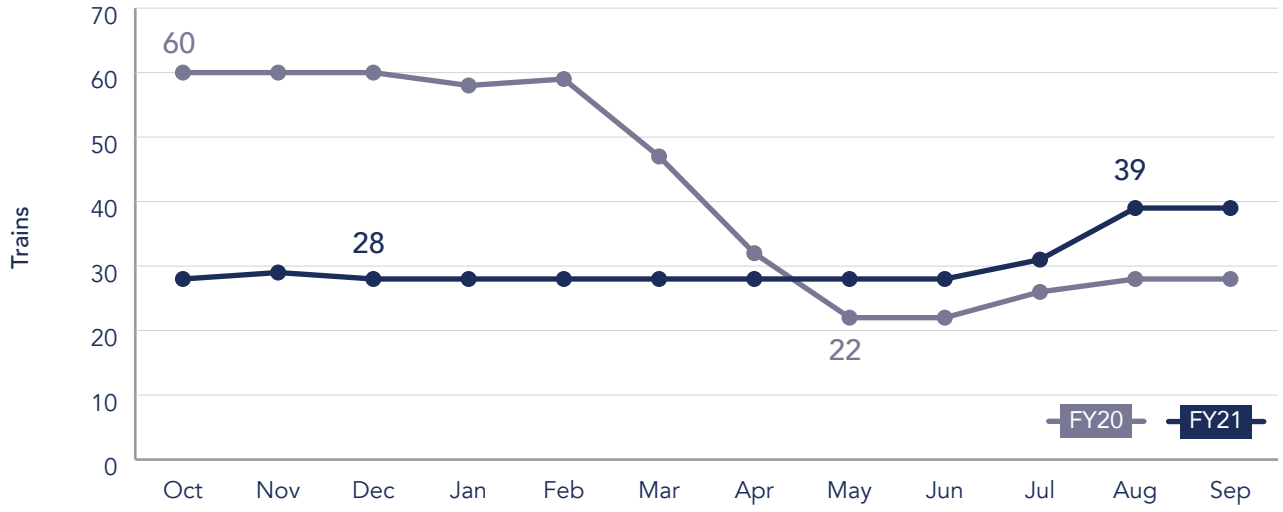
Rank by category, FY21



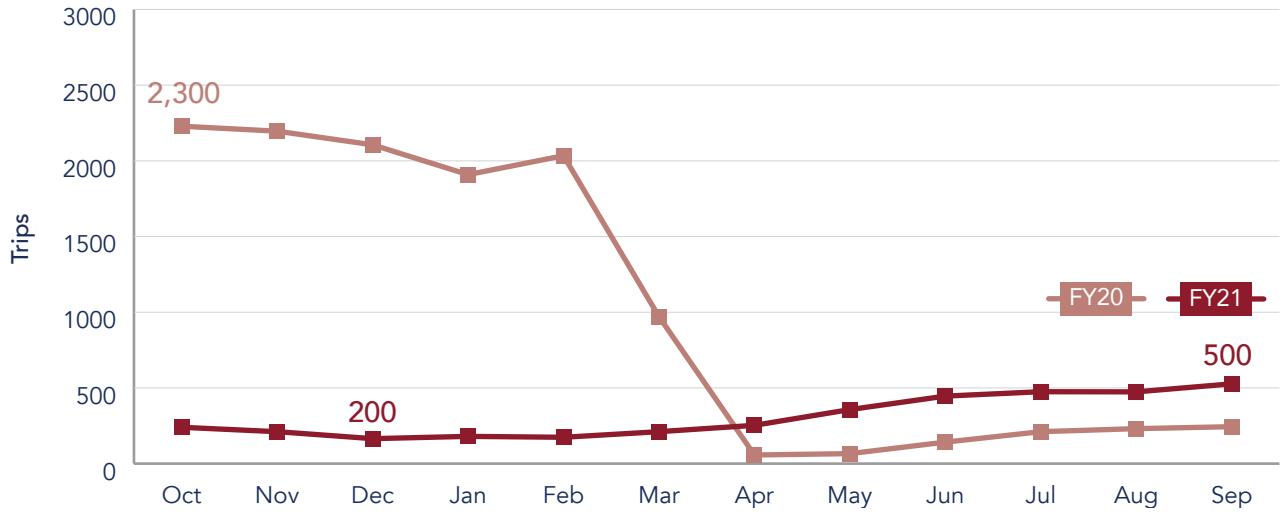
CT*rail* NEC Service and ridership

Period	Average NEC weekday trains			Average NEC weekday trips		
	FY20	FY21	Change from FY20	FY20	FY21	Change from FY20
Q1 (Oct - Dec)	60	28	-53% ↓	2,177	205	-91% ↓
Q2 (Jan - Mar)	56	28	-50% ↓	1,638	188	-89% ↓
Q3 (Apr - Jun)	26	28	+10% ↑	88	352	+300% ↑
Q4 (Jul - Sep)	27	36	+31% ↑	229	492	+115% ↑
FY Average (Oct - Sep)	**42**	**30**	**-29% ↓**	**1,033**	**309**	**-70% ↓**

CT*rail* Average NEC Weekday Trains



CT*rail* Average NEC Weekday Trips



Region: Connecticut-Westchester (NHL)

Infrastructure and Operations Detail

Operators: Amtrak, MTA Metro-North Railroad

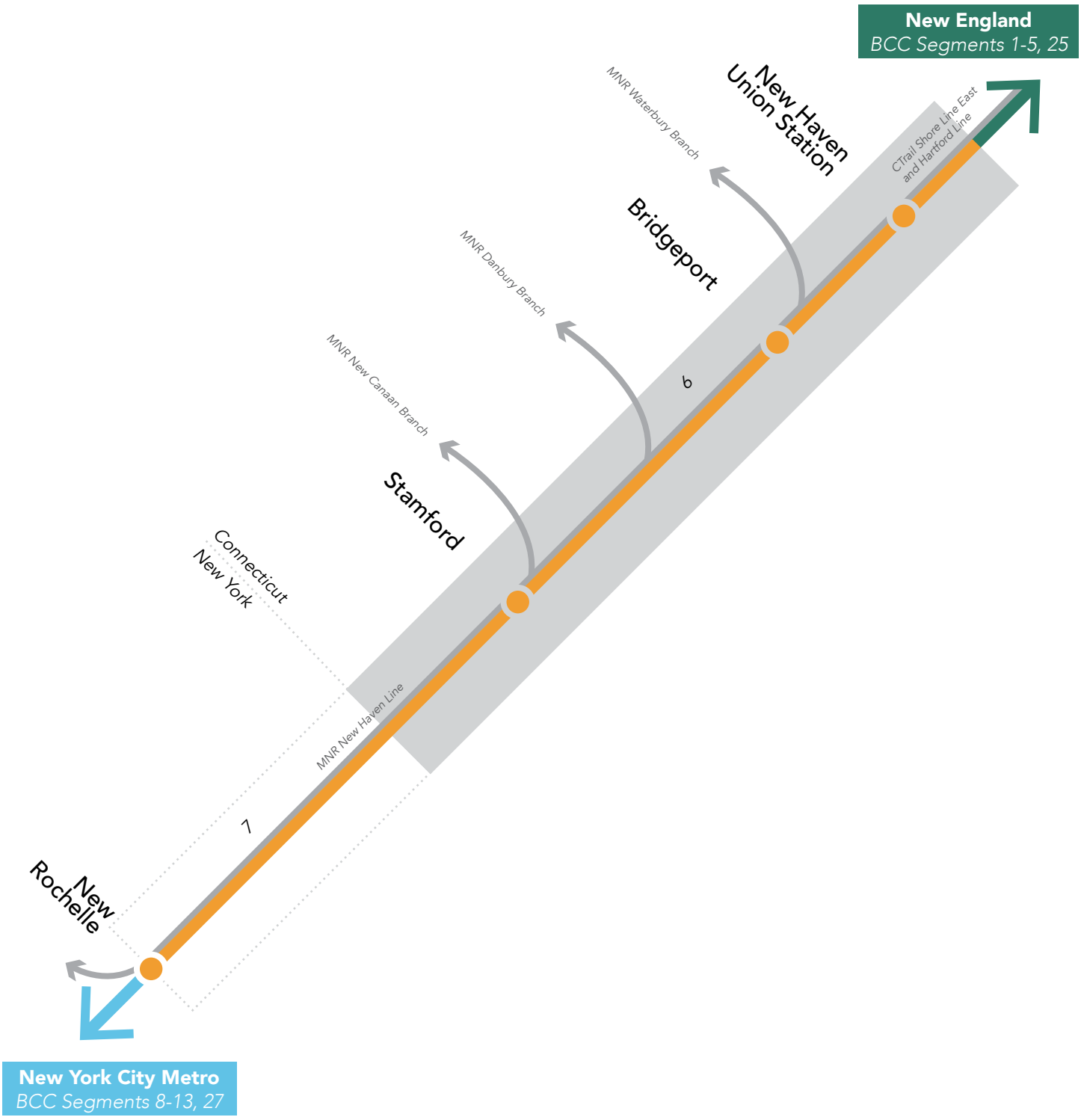
RoW Owners: Connecticut DOT, MTA Metro-North Railroad

BCC Segments

6: New Haven to CT/NY State Line

7: CT/NY State Line to New Rochelle

Connecticut-Westchester (NHL)
BCC Segments 6-7



Not all intermediate stations shown.

Infrastructure: Special Projects

Connecticut DOT coordinated work with Amtrak and MTA Metro-North Railroad on 5 special projects throughout the New Haven Line. In total, $141 million was invested in FY21 (105% of plan).

Special Projects Detail: Connecticut-Westchester (NHL)

Connecticut DOT		**FY21 Actual Expenditure: $141,841,367**
Bridgeport Speed Improvements		
FY21 Planned Expenditure & Scope	$2,000,000	Begin design and complete NEPA
FY21 Actual Expenditure & Accomplishments	$66,812	The first infrastructure project for the TIME FOR CT program is underway. A design consultant is in place for this major initiative. ➔ PE/NEPA: *Deferred to FY22*
Variance & Explanation	-$1,933,188	The project scope has been updated and there has been an internal reorganization in the Department.
Devon Bridge Replacement		
FY21 Planned Expenditure & Scope	$500,000	Design activities will continue with the goal of completing 60% design.
FY21 Actual Expenditure & Accomplishments	$53,941	The 15% design of this major movable bridge was completed. The design and preliminary engineering continues.
Variance & Explanation	-$446,059	None submitted.
New Haven Line Yard and Facility Program		
FY21 Planned Expenditure & Scope	$1,000,000	Final Design S&I (Service and Inspection) Shop
FY21 Actual Expenditure & Accomplishments	$33,995,111	This major program in the New Haven Rail Yard has completed various designs and major projects are in the construction phase. ➔ Final Design S&I: *Deferred to FY22*
Variance & Explanation	$32,995,111	Track outages and project coordination among the construction projects.
Stamford Station Improvements		
FY21 Planned Expenditure & Scope	$1,500,000	Complete Final Design for Elevator/Escalator Project
FY21 Actual Expenditure & Accomplishments	$6,110,248	The design of the project was completed. The project will upgrade all the elevators and escalators. ☑ Final Design Escalator/Elevator: Achieved May 2021
Variance & Explanation	$4,610,248	The construction cost of the project was increased due to the low bid.
Walk Bridge Program		
FY21 Planned Expenditure & Scope	$130,000,000	Activities include completing design, initiating construction. Work continues on CP243, Danbury, and utility relocations.
FY21 Actual Expenditure & Accomplishments	$101,615,255	Two of the major projects, CP243 and the Danbury Dock Yard are almost complete. These projects are need to replace the major Walk Movable Bridge. ☑ Complete Final Design: Achieved Dec 2020
Variance & Explanation	-$28,384,745	Most of the schedule changes for this major project are due to permit coordination.

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

Infrastructure: Capital Renewal

In the Connecticut-Westchester (NHL) region, Baseline Capital Charges (BCCs) are allocated by Amtrak, Connecticut DOT, and MTA Metro-North Railroad to fund the capital renewal of basic infrastructure on the NEC Main Line between New Haven, CT and New Rochelle, NY. In total, $159 million was invested in FY21 (106% of plan).

BCC Segment	RoW owner	Operators					FY21 expenditure by segment
		Amtrak	CTDOT Shore Line East	CTDOT Hartford Line	CTDOT New Haven Line	MTA Metro-North Railroad	
6. New Haven to CT/NY State Line	CTDOT	$17,114,900	$1,074,478	$225,275	$101,544,233	-	**$119,958,886**
7. CT/NY State Line to New Rochelle	MTA Metro-North	$2,526,015	-	-	-	$36,508,970	**$39,034,985**
FY21 total regional capital renewal expenditure by RoW Owner		**$19,640,915**	**$1,074,478**	**$225,275**	**$101,544,233**	**$36,508,970**	**$158,993,871**

FY21 Expenditure

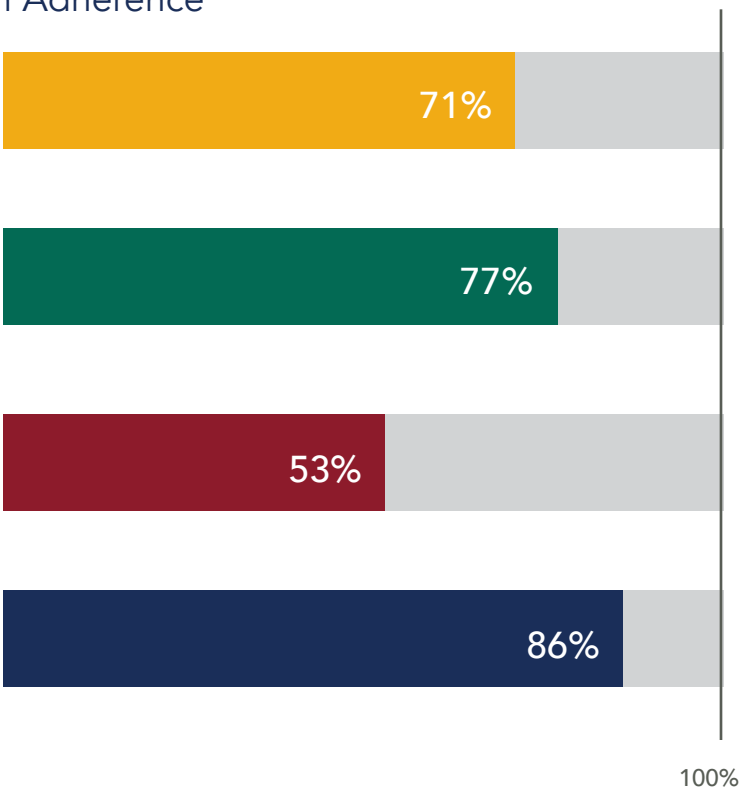
COMMUNICATION & SIGNALS
$29.4 MILLION

ELECTRIC TRACTION
$21.6 MILLION

STRUCTURES & FACILITIES
$44.7 MILLION

TRACK
$32.5 MILLION

Plan Adherence



Capital Renewal Detail: Connecticut-Westchester (NHL) [Connecticut DOT-owned; BCC Segment 6]

Project/Program	FY21 Planned expenditure	FY21 Actual expenditure	Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Atlantic Street Bridge Project	$20,000,000	$10,914,952	-$9,085,048	The construction of the Atlantic Street Bridge was completed. The catenary work is on-going.	The project required major track outages and coordination.
Auto-Tension Catenary Replacement Project: Segments C1A and C2 Construction	$5,000,000	$13,459,893	$8,459,893	The last two segments of the catenary replacement program are almost complete. The program started more than twenty years ago and updates all the catenary infrastructure in the New Haven Line.	Work accomplished based on Track outage availability and Force account resource.
Bridge Design Program	$3,200,000	$2,831,978	-$368,022	This bridge design program has completed various railroad designs to maintain the railroad infrastructure in a state of good repair.	None submitted
Bridge Replacement/Repair Program	$8,000,000	$363,707	-$7,636,293	The replacement and rehabilitation of the railroad bridges have increased the railroad ratings and provided a safer infrastructure on all our lines in Connecticut	Work accomplished based on Track outage availability and Force account resource.
Bridge Timber Program	$2,900,000	$1,993,076	-$906,924	Based on Track outage and available resource completed bridges timber replacement on 8 bridges.	None submitted
East Ave, Osbourne, and Fort Point Bridges Replacement Project	$10,000,000	$3,341,448	-$6,658,552	The design of these bridges has been completed and the next phase is the procurement and construction. The project replaces the open deck bridge structures with ballasted deck structures.	The bridges are part of the Walk Bridge program
Moveable Bridge Repair Program: Cos Cob Bridge Interim Repairs	$6,000,000	$367,894	-$5,632,106	Replace Safety walk way on North Side of the moveable bridge Span 8 and 9.	Work accomplished based on Track outage availability and Force account resource.
Moveable Bridge Repairs Program: Saugatuck Bridge Interim Repairs	$6,000,000	$952,299	-$5,047,701	Miter rail, expansion joint replaced on Track 2.	Work accomplished based on Track outage availability and Force account resource.
Network Infrastructure Upgrade Project: Phase 2 Construction	$3,000,000	$2,239,319	-$760,681	The project included the installation of a security system and a fiber backbone in the Stratford to Westport area. The security system of one of the major Movable Bridges (Peck Bridge) was upgraded	None submitted
Network Infrastructure Upgrade Project: Phase 3 Preliminary Engineering	$3,000,000	$0	-$3,000,000	The design of the network infrastructure between Westport and Stamford was completed. The construction of the project is underway.	None submitted
Network Infrastructure Upgrade Project: Phase 3 Construction	$3,000,000	$4,973,464	$1,973,464	Installed micropiles for Node House. Began work in Rm 442 of the CCO Bldg. Continued conduit and cable installation at stations. Continued with installation of CCTV cabinets and racks. Continued with submittal approvals. Delays have been identified in procurement of additional switches incorporated through a design change.	Contract value was increased by $297k to account for changes incorporated through design initiated change orders 1 & 2, as well as Contract quantity overruns.

Capital Renewal Detail: Connecticut-Westchester (NHL) [Connecticut DOT-owned; BCC Segment 6] continued on the next page >>

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

Capital Renewal Detail: Connecticut-Westchester (NHL) [Connecticut DOT-owned; BCC Segment 6] cont.

Project/Program	FY21 Planned expenditure	FY21 Actual expenditure	Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Network Infrastructure Upgrade Project: Phase 4 Preliminary Engineering	$3,000,000	$8,248	-$2,991,752	The design of the last network infrastructure program is underway. All the fiber backbone has been installed, and the last part of the program is updating the security system on the New Haven Line and the branches	The scope was revised to include the fiber drops required by Metro-North
Positive Train Control Program	$15,000,000	$30,712,703	$15,712,703	Completed PTC ERSD/PTC commissioning NHL CP229-CP274, NC, Danbury and Waterbury Branches. Completed work to install local FO cables to wayside radio cases between CP232-CP240. Completed additional re-wiring work to resolve interoperability and power/overheating of WIU CP271-274. Comp. M8 OBC software updates to Version 5.3 for ADU, cont. test train runs to vet within NHL and NC territory. Completed Wayside radio DC converter and software upgrades CP229-CP274. Completed Office work to place Waterbury Branch online. Completed WIU updates for CP241 & 261. Completed updates for NC CP307 to allow 8 car consist. Preparing for update of WIU rack control cards on NHL January 2022.	None submitted
Signal System Replacement: Phase 1	$5,000,000	$12,698,685	$7,698,685	Completed all burial cable and conduit installations and crossings were completed for CP's 229, 230, 234 and all MLs. Completed install of all signal houses and cases for CP229 and intermediate cases CP229 up to CP232. Completed 95% of aerial express cable work CP229-CP240, 5% remaining is for CP234. Completed 25% of aerial crossings from the north to south side ROW, 27 remain. MNR F/A has completed all terminating of cables and pre-testing of field apparatus for cutover Stage 1 for CP229. Transformer installs have begun and are 25% complete.	None submitted
Signal System Replacement: Phases 2, 3, 4	$5,000,000	$0	-$5,000,000	This initiative upgrades the aged railroad signal system in Connecticut. The new system provides a safe and efficient system along the New Haven Main Line	The start of the design was delayed due to staffing changes
Structures (S) Program: S-23	$3,100,000	$2,938,119	-$161,881	All Scope of work completed, Final invoice processing and close out project.	None submitted
Substation Repairs/Improvements: Sasco Creek Power Supply, Oil Filled Circuit Breakers, HMI	$6,000,000	$4,515	-$5,995,485	The progress for the design for the substation repairs and improvements has been slow.	There has been various changes in project management, mostly due to retirements
Substation Replacements: Sub 1, 2, 3, 4, 5, 6	$2,000,000	$2,783,976	$783,976	This major project that included the replacement of six substations was completed	Work accomplished based on Track outage availability and Force account resource.

Capital Renewal Detail: Connecticut-Westchester (NHL) [Connecticut DOT-owned; BCC Segment 6] continued on the next page >>

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

Capital Renewal Detail: Connecticut-Westchester (NHL) [Connecticut DOT-owned; BCC Segment 6] cont.

Project/Program	FY21 Planned expenditure	FY21 Actual expenditure	Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
TIME for CT Program	$4,000,000	$66,812	-$3,933,188	The full range of project activities has been identified resulting in a well thought-out Preliminary Engineering and Preliminary Design scope of work for the initial stage of the project's design.	The initial consultant design fee is estimated between $13-15M, due to the size of the scope of work the review period took longer than expected and there would have been some initial consultant design expenditures that did not occur.
Track (C) Program: C-31	$1,000,000	$8,916,773	$7,916,773	Processing invoices and waiting for final audit.	None submitted
Track (C) Program: C-32	$17,000,000	$20,391,025	$3,391,025	Completed work on NH line Track1 CP233 to CP235 installed 3577 ties and surfacing, Track2 MP26.1 to MP29.9 installed 4218 ties and surfacing. CP 257 Track 8,10,12, 14 installed 872 ties and surfacing. Out of face surfacing CP 266 to CP 271 Track 2 and Track 1. Rail installation on Curve 36B tk1 , Curve 38 Tk4 Curve 40 Tk4 and CP 257 to CP261 track 4 16000 lf of replacement 131lb to 136lb rail. CP 234 and Stamford yard total 8 Switch replacement.	Work accomplished based on Track outage availability and Force account resource.
BCC Segment 6 Total	**$131,200,000**	**$119,958,886**	**-$11,241,114**		

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

Capital Renewal Detail: Connecticut-Westchester (NHL) [MTA Metro-North-owned; BCC Segment 7]

Project/Program	FY21 Planned expenditure	FY21 Actual expenditure	Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Bridge 23	$0	$3,949,225	$3,949,225	MNR began commissioning and final acceptance testing of the Signal Substation component of Bridge 23. This process has identified many issues that MNR has troubleshooted with the consultant that are being addressed before final acceptance and project closeout.	Project delays were due to coordination issues between MNR, Contractors and utility providers caused by COVID-19 pandemic. This delayed project completion beyond FY21
Catenary Structure Rehabilitation	$0	$262,351	$262,351	MNR finalized plans and design specifications for rehabilitation.	Funding for construction was impacted by COVID-19 pandemic, and MTA is locating new resources to program this work.
Comms & Signal Program	$500,000	$0	-$500,000	None submitted.	None submitted.
GIS Expansion	$0	$5,160	$5,160	None submitted.	None submitted.
Overhead Bridge Rehabilitation Program: Center Av Bridge Replacements	$2,000,000	$26,589	-$1,973,411	MNR hopes to sign the contract to begin this study in early FY22. The clearance study will help determine the scope for Centre Av Bridge replacement.	None submitted.
Overhead Bridge Rehabilitation Program: Design for NH Bridge Replacements	$2,000,000	$0	-$2,000,000	None submitted.	None submitted.
Positive Train Control	$0	$9,528,258	$9,528,258	PTC implementation began in FY '21. FRA Acceptance is pending.	Project implementation continued into FY '21.
Replace Timbers on Undergrade Bridges	$0	$395,784	$395,784	None submitted.	None submitted.
Retaining Wall Reconstruction: Port Chester Retaining Wall	$750,000	$2,222,021	$1,472,021	The retaining walls were constructed, and back filled ahead of the construction tasks associated with the surrounding bridges.	Most of the construction work associated with the retaining wall reconstruction was completed. Minor civil work at the site is needed, with a change order under negotiation. Some additional work is anticipated in FY '22
Structures Program	$250,000	$0	-$250,000	None submitted.	None submitted.
Substation 128 and 178 replacement	$2,000,000	$1,384,476	-$615,524	Preliminary design and specifications have been accepted, and MNR is prepared to release a bid package for Design-Build procurement.	Procurement has been slowed while MNR gets internal agreement on cost escalation associated with this program. The identification of funding is delaying procurement.
System-wide Support Programs	$450,000	$82,800	-$367,200	Ongoing support for capital investment in the Northeast Corridor.	None submitted.
Track Programs	$2,250,000	$906,525	-$1,343,475	Approximately 1 mile of new rail installed	MNR faces challenges to program work in this segment, due to limited outage availability and needs elsewhere throughout MNR network.
Undergrade Bridge Rehabilitation Program: Willet Av and Highland Rd Bridge Replacements	$9,000,000	$20,271,796	$11,271,796	Significant heavy construction work on the replacement of Willet Avenue and Highland Rd bridges, with new structures in place on 3 of 4 tracks.	After delays to the start of construction, MNR has utilized the decrease in train activity in the project area during the COVID-19 pandemic to maintain an aggressive construction window. Significant amount of heavy construction to renew these assets was able to planned and completed this year.
BCC Segment 7 Total	**$19,200,000**	**$39,034,985**	**$19,834,985**		

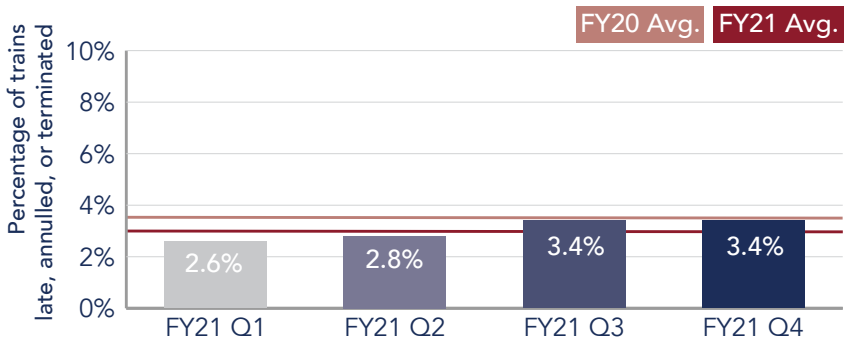
Project data including expenditures, accomplishments, and explanation of variances are published as submitted by RoW owners.

Operations: MTA Metro-North Railroad

MTA Metro-North Railroad (Metro-North) operates on the NEC Main Line, south from New Haven, CT into New York through New Rochelle, NY where trains leave the corridor to proceed to Grand Central Station. Branch lines from New Canaan, Danbury, and Waterbury connect with the New Haven Line at Stamford, South Norwalk, and Devon. Metro-North service outside of the state of New York is operated on behalf of Connecticut DOT.

Train performance profile

Metric	FY20	FY21
Percent NEC trains late, annulled, or terminated	3.6%	3.0%
Percent NEC trains not completed	0.58%	0.24%
Avg min late per NEC train	15.0	17.0

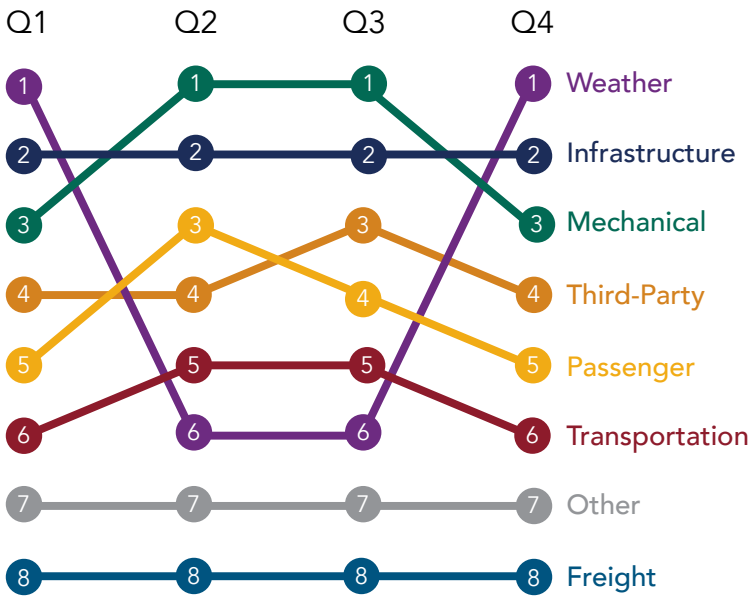


Train-delay minutes by cause

Total and percent change, FY20-21

Cause	FY20	FY21	Change
Infrastructure	9,645	6,535	-32.2%
Mechanical	6,152	7,500	+21.9%
Transportation	1,145	1,204	+5.2%
Passenger	2,542	1,787	-29.7%
Weather	8,914	3,996	-55.2%
Third-Party	7,204	3,710	-48.5%
Freight	0	3	-
Other	7	60	+757.1%
Total	**35,609**	**24,795**	**-30.4%**

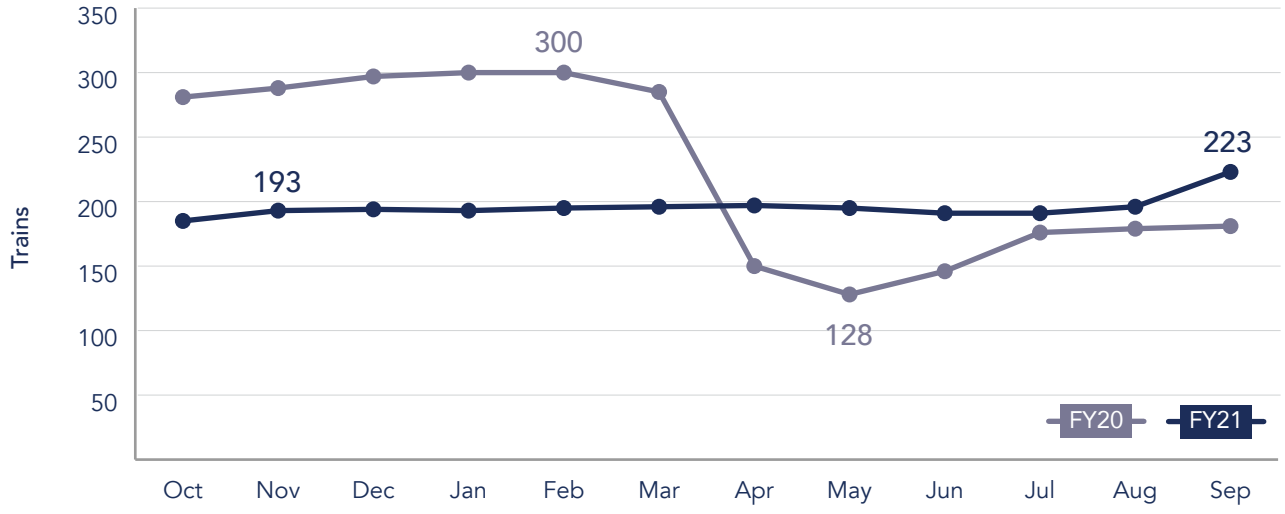
Rank by category, FY21



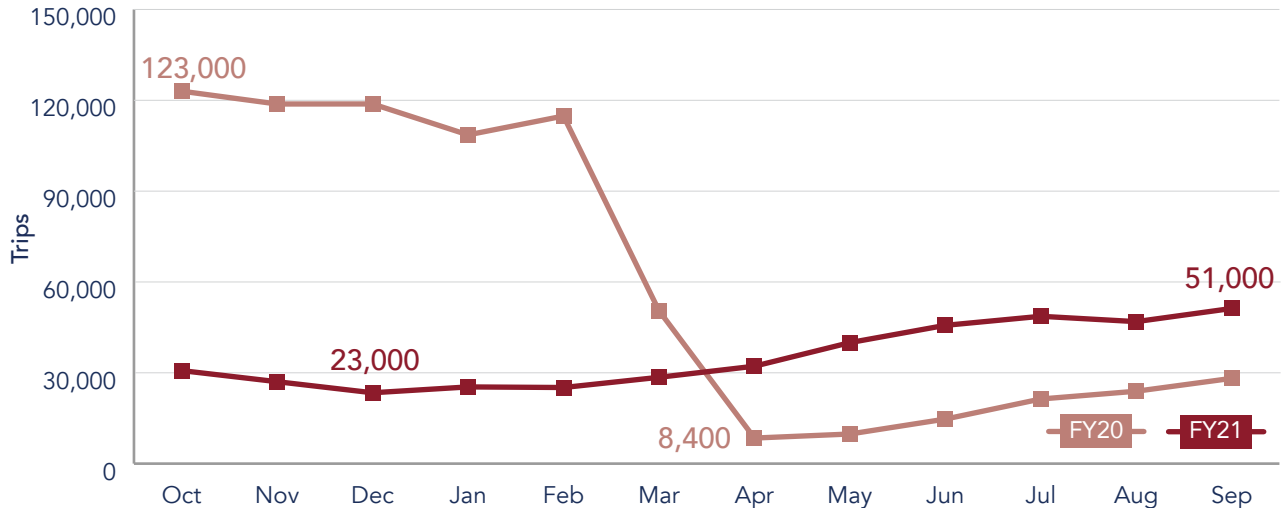
MTA Metro-North NEC Service and ridership

Period	Average Weekday NEC Trains			Average Weekday NEC Trips		
	FY20	FY21	Change from FY20	FY20	FY21	Change from FY20
Q1 (Oct - Dec)	289	191	-34% ↓	120,195	27,062	-77% ↓
Q2 (Jan - Mar)	295	195	-34% ↓	91,300	26,328	-71% ↓
Q3 (Apr - Jun)	142	194	+37% ↑	10,980	39,273	+258% ↑
Q4 (Jul - Sep)	178	203	+14% ↑	24,472	48,938	+100% ↑
FY Average (Oct - Sep)	**226**	**196**	**-13% ↓**	**61,737**	**35,400**	**-43% ↓**

MTA Metro-North Average NEC Weekday Trains



MTA Metro-North Average NEC Weekday Trips



Region: New York City Metro

Infrastructure and Operations Detail

Operators: Amtrak, MTA Long Island Rail Road, NJ TRANSIT, SEPTA

RoW Owners: Amtrak

BCC Segments

8: New Rochelle to Harold

9: Harold to F Interlocking

10: F Interlocking to Penn Station New York

11: Penn Terminal

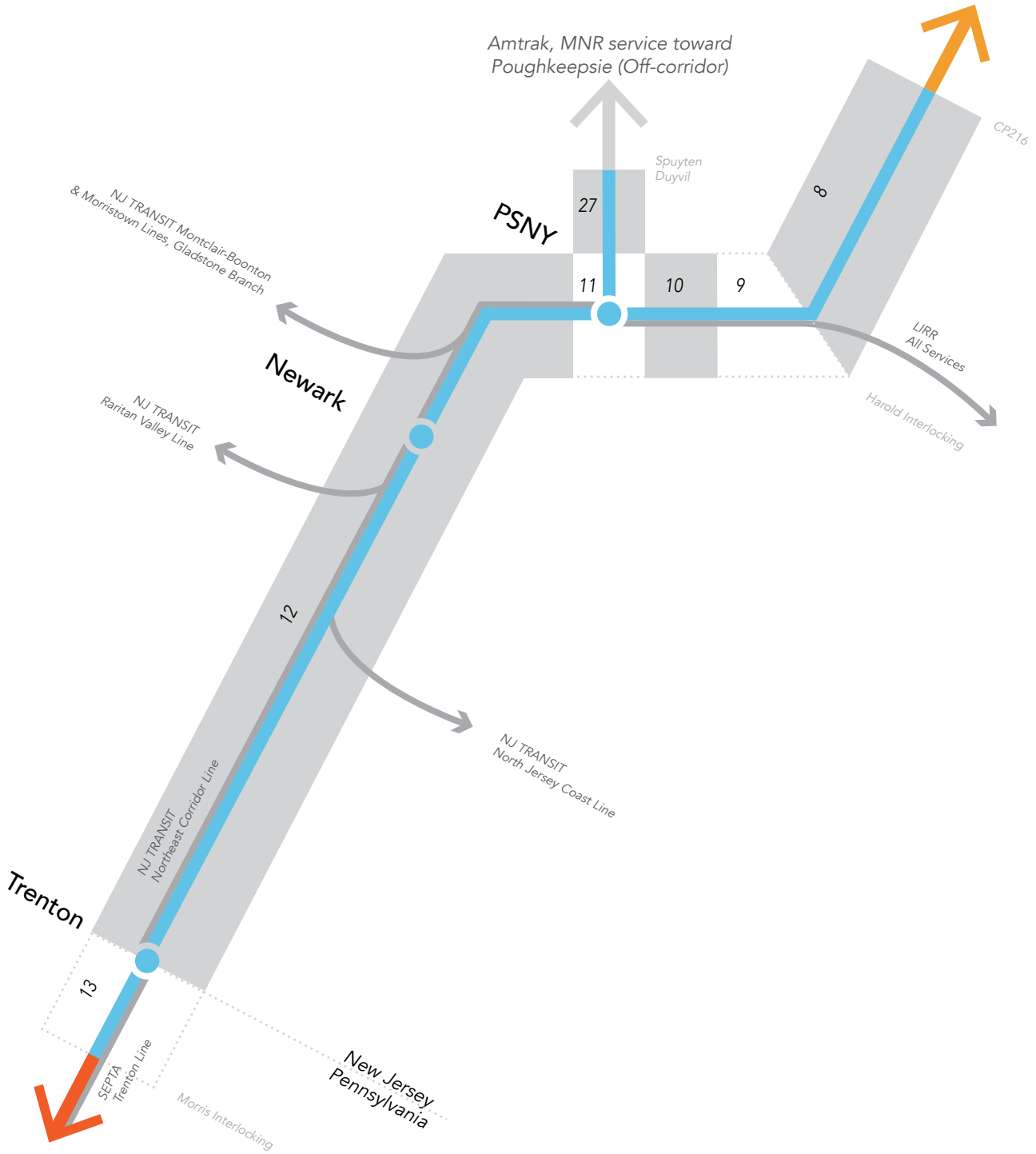
12: Penn Station New York to Trenton

13: Trenton to Morris

27: Spuyten Duyvil to Penn Station New York

New York City Metro
BCC Segments 8-13, 27

Connecticut - Westchester (NHL)
BCC Segments 6-7



Mid-Atlantic North
BCC Segments 14-20, 28-30

Not all intermediate stations shown.

Infrastructure: Special Projects

Amtrak, MTA, and NJ TRANSIT coordinated work on 24 special projects throughout the New York City Metro region. In total, $779 million was invested in FY21 (162% of plan).

Special Projects Detail: New York City Metro

Amtrak		**FY21 Actual Expenditure: $411,398,654**
East River Tunnel Rehabilitation		
FY21 Planned Expenditure & Scope	$8,737,000	Advance the design of the tunnel rehab from nominally 60% to nominally 90% level and beyond toward 100% Design; advance to 60% design to necessary work outside of the tunnel proper. Advance the design of the Sunnyside Yard Connections enabling projects : Sub 3-Line 4, Sub 4 -Line 2 and Reverse Signaling of Loop Tracks. Procure and advance construction of S3 relocation- Phase A.
FY21 Actual Expenditure & Accomplishments	$5,550,505	• Completed 90% tunnel rehabilitation base scope design and progressed toward 100% • Performed discipline-specific, multi-agency, and sister railroad review workshops to circulate and elicit feedback on the 90% design • Added Modification 14 to scope which allows for "outside of portal" design extension to logical points of system renewal termination / tie-in. • Performed over 20 weeknight tunnel and utility chamber visits under a full track closure to perform detailed surveys to inform the final design (constrained by limited NYC Amtrak Force Account) • Performed over 25 weekday surveys in Sunnyside Yard to rapidly ramp-up "Mod 14" scope design effort (constrained by limited NYC Amtrak Force Account) • Received direction from FRA on potential NEPA Class of Action and produced drafts of the associated Categorical Exclusion Worksheet and historic preservation Memorandum of Agreement • Progressed early work package for S3 Cable Relocation Phase A to a pre-bid state of completeness for FY22 implementation. S3 is the name of a 12kV feeder cable that runs from Sunnyside yard to Substation 43 in Manhattan. • Held numerous coordination meetings with Amtrak C&S, Amtrak ET, Amtrak IT, LIRR ET, LIRR Communications, 3rd Party Fiber Tenants, 3rd Party Wireless Tenants and others to refine the design details moving toward final design. • Briefed the Fire Department of New York on the current state of the design • Worked with MTA on Sunnyside Yard East River Tunnel/MTA projects to develop design, combined schedule to incorporate all Sunnyside Yard East River Tunnel/East Side Access project, advance MTA's Substation 3 and Substation 4 track design and, finalize scope for signal design for Substation 3 & Substation 4. Amtrak track design unit completed field survey for Substation 4, developed concept design to verify track layout and track switches. ☑ Reverse Signaling 90% Design: Achieved January 2021 ☑ 90% Design Completion (Base Scope): Achieved March 2021 ➔ 100% Design Completion (Base Scope): *Deferred to May 2022* ➔ S3 Relocation Phase A - Construction 90%: *Deferred to September 2022* ➔ Sub 3 to Line 4 Upgrade 90% Design: *Deferred to September 2022* ➔ Sub 4 to Line 2 Upgrade 30% Design: *Deferred to September 2022* ➔ 60% Design (Expanded Scope): *Deferred to October 2022* ➔ NEPA Class of Action and CE/EA: *Deferred to October 2022*
Variance & Explanation	-$3,186,495	• The spend plan originally envisioned a full throttle initiation to FY21 but was delayed due to reduced spending in Q1 and created a lag in activity progress. • The original schedule envisioned having Mod 14 in place as soon as possible within FY21. This was pushed to Calendar 2021 due to reduced spending in Q1. Once a plan adjustment was processed through Q2-FY21 to accommodate the various schedule shifts, the Mod 14 approvals took roughly two months to process, further delaying notice to proceed of this additional work. • Labor support for inspections and survey were slow to materialize and often less productive than planned due to COVID-19 workforce attrition and other competing projects. For example, for over one-month, daytime survey protection in Sunnyside Yard was provided by the departing night crew, providing only 2 hours of productive work. As a result, surveying delays pushed back the full release of additional design efforts, since it cannot proceed without this foundational information.
Gateway: Dock Bridge Rehabilitation		
FY21 Planned Expenditure & Scope	$1,586,245	FY21 scope will include the preliminary design of the rehabilitation program.
FY21 Actual Expenditure & Accomplishments	$6,139	Ongoing coordination with USCG to advance permit public notice (2nd notice required) ☑ Anticipated Federal State Partnership SOGR Grant Announcement: Achieved Oct 2020 ➔ 30% Design Deliverable: *Deferred to FY22* ➔ Dock Bridge Rehab - Design NTP: *Deferred to FY22*
Variance & Explanation	-$1,580,106	The project has been placed on hold due to funding.

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

Special Projects Detail: New York City Metro continued on the next page >>

Gateway: Harrison Fourth Track		
FY21 Planned Expenditure & Scope	$1,660,000	FY21 Scope will include continuation of Preliminary Engineering through 30 percent design. Following 30 percent design deliverable, a contract mod will be issued for final design and contract packaging to begin in the latter half of the fiscal year.
FY21 Actual Expenditure & Accomplishments	$801,510	Concurrence and approval for the proposed track configuration is being obtained. Amtrak and AECOM met with Siemens to discuss Siemens's scope of work on September 9, 2021. Amtrak received the draft scope of work for final design from AECOM on September 17, 2021, and is being reviewed. ☑ 30% Draft Design Submittal/Presentation: Achieved September 2021 ➔ NTP - Final Design and Packaging: *Deferred to January 2022* ➔ Cat Ex Worksheet Submission: *Deferred to March 2022* ➔ Submit Final 30% Design: *Deferred to December 2022*
Variance & Explanation	-$858,490	The budget variance is due to the deferral of final design from FY21 to FY22.
Gateway: Hudson Tunnel Project		

FY21 Planned Expenditure & Scope	$35,741,495	Includes scope under four different projects at Amtrak:
		• **Hudson Tunnel Project Design:**
		  • A project-wide engineering services contract modification to support pre-procurement activities for a Design/Build contract for HTP Package 1 (Civil Works), including procurement support for an RFQ/RFP, engineering design support, environmental support services and non-NEPA permitting, risk management, additional contract packaging, and safety and security activities.
		  • Continuation of supplemental geotechnical borings.
		  • The start of final design of interior tunnel systems.
		• **Hudson Yards Concrete Casing - Section 3:** With the bid phase in process in Q4 of FY20, the construction phase will initiate and progress to substantial completion in FY21 with an estimated period of performance of approximately 13-14 months. Work must be complete, by agreement with the developer, by October 1, 2021. Work includes relocation of Long Island Rail Road Emergency Services Building utilities.
		• **Hudson Tunnel Project NEPA:** Update of the administrative draft Final Environmental Impact Statement (FEIS) that was completed in February 2018 and updated in December 2018. An updated FEIS will be published in coordination with FRA and FTA, followed by Records of Decision by both agencies.
		• **Manhattan Property Acquisition:** Preparatory activities to purchase Block 675 Lot 1 the key construction staging site and location of the permanent ventilation plant for the new Hudson River Tunnel, and securing a temporary construction easement for Block 675 Lot 12.

FY21 Actual Expenditure & Accomplishments	$378,665,913	**Hudson Tunnel Project Design:** Modification 19, a.k.a. "Bridge Modification" has been issued to consultants and kickoff meeting took place in June 2021. Critical pre-procurement tasks include progressing non-NEPA permitting and risk management activities. **Hudson Yards Concrete Casing - Section 3 (HYCC-3) Utility Relocation Early Work:** Construction field activities are underway for the Emergency Service Building (ESB). In August 2021, the contractor began test pit work for the West access road. Additional work was advanced on fire alarm and communication systems. **Hudson Tunnel Project NEPA:** The FRA and FTA published a Joint Record of Decision (ROD)/Final Environmental Impact Statement (FEIS) in May 2021, a necessary step for this project to proceed, and marking the completion of the NEPA process for this project.. **Manhattan Property Acquisition:** Amtrak filed condemnation papers with the court and deposited the appraised fair market value of Block 675 Lot 1, the primary construction staging site and site of permanent vent plant for Hudson Tunnel Project in Manhattan in early August. Amtrak took possession of 260 12th Avenue on 8/16/2021. ☑ Hudson Yard - Construct Tunnel Box Segment 1 - Lessons Learned Register: Achieved March 2021 ☑ Hudson River New Tunnels Design: Bridging Mod NTP: Achieved April 2021 ☑ HYCC-3 Early Work: Electrical Manholes/Pull Boxes/Cables: Achieved August 2021 ☑ HYCC-3 Early Work: Fabrication and delivery of long lead equipment: Achieved August 2021 ☑ HYCC-3 Early Work: Compound Canopy/Equipment/Fence: Achieved August 2021 ➔ HYCC-3 Early Work: Splicing, Testing, Commissioning: *Deferred to April 2022*
Variance & Explanation	$342,924,418	The variance reflects property acquisition costs, which were not reflected in the original planned expenditure for FY21. As part of its commitment to the Hudson Tunnel Project and on behalf of its project partners, Amtrak is responsible for property acquisition needed for the project in Manhattan. In summer 2021, following issuance of the NEPA Record of Decision, Amtrak acquired 260 12th (Block 675, Lot 1) Avenue via eminent domain, a property needed for a construction shaft and future ventilation facility for the new tunnel.
Gateway: Sawtooth Bridges Replacement		
FY21 Planned Expenditure & Scope	$9,277,500	FY21 scope will include initiation of Preliminary Engineering contract and submission of 15% design package.
FY21 Actual Expenditure & Accomplishments	$56,089	None ➔ Preliminary Engineering NTP: *Deferred to Dec 2021* ➔ 15% Track and Bridge Concept Design: *Deferred to Feb 2022* ➔ Complete Field Investigations: *Deferred to May 2022*
Variance & Explanation	-$9,221,411	Variance is due to delayed preliminary engineering initiation.

Special Projects Detail: New York City Metro continued on the next page >>

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

Moynihan Station: Phase 2 [completed]		
FY21 Planned Expenditure & Scope	$50,700,000	The FY21 focus will be on construction and activation activities for the opening of Moynihan Train Hall. Activities include Moynihan Train Hall fit-out construction, furnish the spaces, complete operational readiness planning and execution, complete the execution of agreements and formation of the Train Hall condominium, test the building and security systems, train employees are using the new equipment and the new space, conduct operational trials, and move employees to the Train Hall from NYP and other locations. The Moynihan Train Hall will open to customers in early 2021.
FY21 Actual Expenditure & Accomplishments	$22,438,609	Moynihan Train Hall at New York Penn Station opened to Amtrak and MTA Long Island Rail Road passengers on January 1, 2021. In preparation for this, signage at Levels A and B of New York Penn Station, directing passengers to Moynihan, was updated and ready for Moynihan opening. Completed familiarization tour with employees, and station operations staff trained and prepared for successful opening. Amtrak IT completed configuration of customer facing technology. Following the opening, project partners held lessons-learned sessions and completed lessons-learned documentation. ☑ Employee Station Familiarization Complete: Achieved December 2020 ☑ Signage Complete: Achieved December 2020 ☑ Moynihan Train Hall Opening Day: Achieved January 2021 ☑ Substantial Completion of Amtrak Fit-out: Achieved June 2021
Variance & Explanation	-$28,261,391	Substantial completion was declared in FY2021. Moynihan Train Hall: Phase 2 remains in the financial closeout process as the project partners finalize negotiations.
Newark Penn Station: Platform Rehabilitation (A, B, C)		
FY21 Planned Expenditure & Scope	$1,000,000	Design Consultant to design Refurbishment of Platforms A,B &C including train shed Façade
FY21 Actual Expenditure & Accomplishments	$138,814	Completed structural report and developed scope and responsibilities for right-of-way improvements. ☑ Final Structural Report: Achieved August 2021 ➔ Design Procurement: *Deferred to January 2022* ➔ Design NTP: *Deferred to March 2022* ➔ 30% Design Submission: *Deferred to July 2022* ➔ 60% Design Submission: *Deferred to Nov 2022*
Variance & Explanation	-$861,186	Roadway Worker Protection plan for structural report was underestimated, leading to schedule delays.
Next Generation High Speed Fleet Infrastructure: Sunnyside Yard Facility Improvements		
FY21 Planned Expenditure & Scope	$41,600,000	Complete S&I facility modifications including fabrication, delivery, installation, testing and commissioning of all specialty equipment, installation of new roof access platforms, installation of new Alstom trailer, and installation of associated utility improvements. Begin demolition and construction activities at Ready Tracks including removal of Honeywell Street Ramp and beginning installation of retaining wall, Honeywell Street staircase, trackwork, and utility work, installation, and track improvements, catenary improvements, and associated utility improvements, fencing, & wayside power.
FY21 Actual Expenditure & Accomplishments	$3,741,075	Completed 100% design for Ready Tracks and substantially completed service & inspection (S&I) modifications. ☑ Ready Tracks Package 'B' 100% design: Achieved November 2020 ☑ S&I Mods Substantial Completion: Achieved February 2021 ➔ Ready Tracks Package 'A' Construction NTP: Deferred to November 2021 ➔ Ready Tracks Package 'B' Construction NTP: Deferred to November 2021
Variance & Explanation	-$37,858,925	The original planned FY21 expenditure anticipated an award and Notice to Proceed to a General Contractor in FY21 Q2. However, a delay in obtaining a labor clearance (which was not received until August 2021) precluded a general contract from being awarded, thereby delaying heavy construction work activities until FY22.
NY MTA		**FY21 Actual Expenditure: $309,194,992**
East River Tunnel: Right of Way Infrastructure Improvements		
FY21 Planned Expenditure & Scope	$3,000,000	Continue antenna replacement in ERT's 3&4 and platforms. Continue ERT Line 4 Total Track Replacement.
FY21 Actual Expenditure & Accomplishments	$10,420,108	Completed ERT Line 4 Track Rehabilitation. Completed PSNY Track 12, Track 9 replacements; switches 551/555, 549/551, 131/135, 127/131, 119/123, 119/95 and 111W&635 Turnouts. ☑ Complete ERT Line 4 Track Rehab: Achieved September 2021 ➔ Complete Tunnel Antenna Project: *Deferred to December 2021*
Variance & Explanation	$7,420,108	The SOGR Base Capital Cost Project (BCC) completed in FY21, funded under the five year, 2019-2023 Capital Investment Plan, is now included in this report.

Special Projects Detail: New York City Metro continued on the next page >>

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

Gateway: New York Penn Station Expansion		
FY21 Planned Expenditure & Scope	TBD	Initiation of Penn Station Expansion Environment Impact Statement and Preliminary Engineering.
FY21 Actual Expenditure & Accomplishments	$1,400,964	None submitted. ☑ Environmental Consultant NTP: Achieved September 2020 ➔ Data Gap Analysis: Achieved August 2021 ➔ Engineering Consultant NTP: *Deferred to FY22*
Variance & Explanation	$1,400,964	None submitted.
Harold Interlocking		
FY21 Planned Expenditure & Scope	$100,000,000	Award and commence construction under a third party contract (CH063) to undertake project related catenary and trackwork: October 2020. Award and commence construction of the Eastbound Reroute contract (CH058B).
FY21 Actual Expenditure & Accomplishments	$62,143,462	Award of EBRR contract (CH058B), design work for catenary contract (CH063), completion of Loop 1A and EBRR approach structure (CH058A). ☑ Award and NTP for Catenary Contract (CH063): Achieved October 2020 ☑ Complete Amtrak Building Demolition (HSR Grant Task 7): Achieved March 2021 ☑ Award and NTP for EBRR East Approach work (CH058B): Achieved August 2021 ☑ Complete Line 1 track and catenary work: Achieved August 2021 ☑ Complete Loop 1A track and catenary work: Achieved August 2021
Variance & Explanation	-$37,856,538	Award of the construction contract for the Eastbound Reroute (EBRR) and a separate contract for electric traction catenary work were both delayed by COVID-19 issues and Amtrak outage planning. The Eastbound Reroute will create a bypass for eastbound Amtrak trains at the interlocking, thereby reducing the number of train conflicts.
New York Penn Station LIRR Concourse: Reconstruction (Near Term)		
FY21 Planned Expenditure & Scope	TBD	Complete Construction of the new LIRR Entrance at 33rd Street.
FY21 Actual Expenditure & Accomplishments	$214,487,049	East End Gateway Entrance (Phase 1) completed. PSNY Elevator/Escalator Refurbishment was completed. Advanced design for Stairs replacement and new ceiling system for Platforms 7 & 8. The Moynihan Train Hall was opened. Awarded LIRR Concourse project (Phase 2) - Began Civil & Structural work. ☑ Complete Construction of East End Gateway Entrance: Achieved December 2020 ☑ LIRR Concourse Construction, Award Phase 2 D/B Contract: Achieved February 2021 ☑ PSNY Elevator/Escalator Refurbishment: Achieved April 2021 ☑ Stairs and ceiling improvement for Platforms 7 & 8, Design Start: Achieved April 2021
Variance & Explanation	$214,487,049	None. FY21 Planned Expenditure was not provided in the FY21-25 CIP.
New York Penn Station Master Plan: Reconstruction		
FY21 Planned Expenditure & Scope	TBD	Initiation of Penn Station Reconstruction Master Plan and Preliminary Engineering.
FY21 Actual Expenditure & Accomplishments	$7,450,287	Narrowed down alternatives. Started public outreach process with stakeholders.
Variance & Explanation	$7,450,287	None.
Penn Station Access		
FY21 Planned Expenditure & Scope	TBD	$1,213,905,516 is available for this project in FY21. MTA plans to complete PE/NEPA in FY2021, in order to procure a design/build contract by the end of FY2021 for the completion of PSA.
FY21 Actual Expenditure & Accomplishments	$12,956,317	30% PD & 100% track design completed. NEPA Completed. Design/Build Procurement restarted. ➔ PE/NEPA Complete: Deferred to December 2021 ➔ Execute Design-Build Agreement: Deferred to March 2022 ➔ Award Design-Build: Deferred to March 2022 ➔ Initiate Final Design: Deferred to FY22 ➔ Initiate Construction: Deferred to FY22
Variance & Explanation	$12,956,317	None. Design-build underway.

Special Projects Detail: New York City Metro continued on the next page >>

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

River-to-River Rail (R4) Resiliency Projects		
FY21 Planned Expenditure & Scope	$25,000,000	Construction start of the West Side Yard (WSY) and Queens North & South flood perimeter walls. Procurement of a Design-Builder for the Queens ERT Portals flood protection.
FY21 Actual Expenditure & Accomplishments	$336,805	WSY Floodwall Project - Request to Advertise approved and D/B Procurement in progress.
Variance & Explanation	-$24,663,195	Design-build award for WSY was delayed due to labor clearances issues, and procurement process change. Amtrak site access agreement for Queens ERT pending resolution of site survey provisions.
NJ TRANSIT		**FY21 Actual Expenditure: $58,099,148**
Delco Lead		
FY21 Planned Expenditure & Scope	$8,000,000	The Construction Contract is to be advertised in January 2021. The contract is expected to be awarded by NJ TRANSIT's Board of Directors in July 2021 and, Notice to Proceed is scheduled to be issued to the winning bidder in September 2021.
FY21 Actual Expenditure & Accomplishments	$2,505,500	None submitted. ➔ Procurement (Phase 1 GC01 Advertise): *Deferred to December 2021* ➔ Contract Award (Phase 1 GC01): *Deferred to October 2022* ➔ Notice to Proceed (Phase 1 GC01): *Deferred to October 2022*
Variance & Explanation	-$5,494,500	None submitted.
Elizabeth Station Improvements		
FY21 Planned Expenditure & Scope	$20,000,000	The full construction work as described above will be continuing throughout the FY '21 fiscal year.
FY21 Actual Expenditure & Accomplishments	$40,389,000	None submitted. ➔ Achieve 50% Completion: *Deferred to December 2021*
Variance & Explanation	$20,389,000	None submitted.
Gateway: Portal North Bridge		
FY21 Planned Expenditure & Scope	$66,701,000	The Procurement Phase to secure the services of a Construction Contractor is slated to begin in October 2020. This phase will be supplemented with a Contractor/DBE Outreach Event scheduled for January 2021. Bid opening is tentatively scheduled for March/April 2021, and that event would be followed by the issuance of Notice to Proceed to the winning bidder within Q4 FY21. Financially, the project's next Financial Plan is anticipated to be submitted to the FTA by the end of September 2020 and the execution of an FFGA with the FTA is contemplated to occur within the 1st or 2nd Quarters of FY21.
FY21 Actual Expenditure & Accomplishments	$5,632,368	Receipt of Bids ☑ Contractor / DBE Outreach Event: Achieved to May 2021 ➔ Contract Award: *Deferred to October 2021* ➔ NTP Issued: *Deferred to December 2021*
Variance & Explanation	-$61,068,632	Minor delays associated with the procurement process resulted in the award of the contracts for both general construction and construction management services occurring in Q1 of FY22. As a result, expenditures during FY21 were below planned. Spending will be normalized and increased once the physical start of construction begins.
New Brunswick Station Improvements		
FY21 Planned Expenditure & Scope	$21,348,000	Activities expected to continue during FY '21 includes either design or construction work on the Pedestrian Walkway Overpass; Elevator Rehabilitation; Escalator Replacement; NEC Eastbound Extension; Station Repairs and, Soft Costs.
FY21 Actual Expenditure & Accomplishments	$1,542,466	NTP issued for Escalator Upgrades project and construction ongoing. 100% design milestone reached for platform extension project. ☑ NTP - Escalator Replacement: Achieved February 2021 ➔ Construction Complete - Elevator Rehabilitation: *Deferred to June 2022*
Variance & Explanation	-$19,805,534	Variance is due to invoices paid to the contractors.

Special Projects Detail: New York City Metro continued on the next page >>

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

New Brunswick Station: State of Good Repair Program [completed]		
FY21 Planned Expenditure & Scope	$0	Project not in FY21-25 CIP
FY21 Actual Expenditure & Accomplishments	$278,119	The construction on the windscreen and stairs were completed Jul 2021. ☑ Short-term Work Plan Completion: Achieved July 2021
Variance & Explanation	$278,119	The project was able to finish a month earlier than anticipated.
New York Penn Station: NJ TRANSIT Near-Term Improvements		
FY21 Planned Expenditure & Scope	$10,028,000	The removal of the Transit Art is expected to get underway. Some work on the Hilton Passageway is expected to begin during the fiscal year.
FY21 Actual Expenditure & Accomplishments	$592,200	None submitted. ➔ NTP - Transit Arts Removal: *Deferred to March 2022* ➔ NTP - Hilton Passageway Project - Escalator 4B: *Deferred to September 2022*
Variance & Explanation	-$9,435,800	None submitted.
Newark Penn Station: State of Good Repair Program Phase 1.1		
FY21 Planned Expenditure & Scope	$0	Project not in FY21-25 CIP
FY21 Actual Expenditure & Accomplishments	$1,019,785	Construction started on phase 1.1 in Oct 2020. Several scope of work items were completed by the Summer of 2021 including the lighting, painting, and bathroom partitions. ☑ Construction Start Phase 1.1: Achieved October 2020
Variance & Explanation	$1,019,785	None
Newark Penn Station: State of Good Repair Program Phase 1.2		
FY21 Planned Expenditure & Scope	$0	Project not in FY21-25 CIP
FY21 Actual Expenditure & Accomplishments	$264,594	Construction on phase 1.2 started in Jun 2021. Parts of the scope of work were completed by fall of 2021 including the pedestrian walkway lighting, new signage, and drainage improvements at Market Street. ☑ Construction Start Phase 1.2: Achieved June 2021
Variance & Explanation	$264,594	None
Newark Penn Station: State of Good Repair Program Phase 2.0		
FY21 Planned Expenditure & Scope	$0	Project not in FY21-25 CIP
FY21 Actual Expenditure & Accomplishments	$4,719	Request for proposal was advertised in August 2021. ☑ Phase 2.0 Design Advertisement: Achieved August 2021
Variance & Explanation	$4,719	None
Newark Penn Station: Station Rehabilitation		
FY21 Planned Expenditure & Scope	$0	Notice to proceed on design for Platform D and begin 30% design activities.
FY21 Actual Expenditure & Accomplishments	$27,054	None submitted. ☑ NTP Design: Achieved to December 2020 ☑ Concept Planning: Achieved March 2021
Variance & Explanation	$27,054	None submitted.

Special Projects Detail: New York City Metro continued on the next page >>

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

NJ TRANSITGRID		
FY21 Planned Expenditure & Scope	$76,394,000	The contract for the Distributed Generation (DG) contract is expected to receive approval from NJ TRANSIT's Board of Directors. The design of the Microgrid Central Facility (MCF) is expected to continue until reaching 100% complete.
FY21 Actual Expenditure & Accomplishments	$4,891,531	Microgrid Central Facility Project: Arcadis brought on under the Task Order Contract for renewables energy technologies. Advertised the RFQ Special Prequalification. Shortlisted 4 Respondents to the RFQ. The Distributed Generation Contract was modified to include 6 sites with NPS as a stand alone package. The CM and CA packages have been modified to cover the 6 site IFB package. The Newark Penn Station complex will be the subject of a separate design, bid/build contract. The IFB proposals (6 Sites) were received and pending award. The Construction Assistance Services contract with AECOM and the RFP covering CM services have been repackaged to include the 6 sites. Construction Assistance Services will be the subject of a Board Authorization on or about December. CM contract pending award. ➔ Distributed Generation - Issue NTP: *Deferred to February 2022* ➔ Distributed Generation - Start Construction: *Deferred to February 2023* ➔ Microgrid Central Facility - Complete Design: *Deferred to May 2025*
Variance & Explanation	-$71,502,469	In Q1 of FY21, the NJ TRANSIT Board of Directors committed to a re-imagined path forward for the TRANSITGRID. The Board created an Energy and Sustainability Policy Committee to ensure that renewable energy technologies are incorporated into the project. This new approach prompted a change to the previously assumed procurement and construction schedule, resulting in a lower than anticipated expenditure during FY21.
North Brunswick Station		
FY21 Planned Expenditure & Scope	$0	No work planned in FY21
FY21 Actual Expenditure & Accomplishments	$30,500	MCIA successfully executed the Concept/Design/Engineering contract with WSP and Phases 1 & 2 were authorized by NJT. Concept development underway. ☑ Design Procurement: Achieved April 2021 ☑ Design Contract Award: Achieved October 2021 ☑ Design Notice to Proceed: Achieved November 2021
Variance & Explanation	$30,500	Total estimated costs of $295,000 expected: NJT Staff + WSP contract charges.
Princeton Junction Station Improvements [completed]		
FY21 Planned Expenditure & Scope	$747,000	Repair of the platform would begin and be completed.
FY21 Actual Expenditure & Accomplishments	$823,975	None submitted. ☑ Noticed to Proceed: Achieved August 2020 ☑ 50% Complete: Achieved September 2020 ☑ Project Complete: Achieved Nonmember 2020
Variance & Explanation	$76,975	None submitted.
Trenton Transit Center: State of Good Repair Program		
FY21 Planned Expenditure & Scope	$0	Not applicable
FY21 Actual Expenditure & Accomplishments	$97,337	RFP design package was advertised Jul 2021. ☑ Advertise Design Contract: Achieved July 2021
Variance & Explanation	$97,337	None

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

Infrastructure: Capital Renewal

In the New York City Metro region, Baseline Capital Charges (BCCs) are allocated by Amtrak, MTA Long Island Rail Road, NJ TRANSIT, and SEPTA to fund the capital renewal of basic infrastructure on the NEC Main Line in New York and New Jersey and the NEC Branch Line from Penn Station New York to Spuyten Duyvil, NY. In total, $156 million was invested in FY21 (88% of plan).

BCC Segment	RoW owner	Operators				FY21 expenditure by segment
		Amtrak	MTA Long Island Rail Road	NJ TRANSIT	SEPTA	
8. New Rochelle to Harold	Amtrak	$3,627,146	-	-	-	**$3,627,146**
9. Harold to F Interlocking	Amtrak	$16,523,183	-	-	-	**$16,523,183**
10. F Interlocking to Penn Station New York	Amtrak	$3,322,878	$3,475,531	-	-	**$6,798,409**
11. Penn Terminal	Amtrak	$14,623,716	$5,328,289	$23,766,753	-	**$43,718,758**
12. Penn Station New York to Trenton	Amtrak	$10,883,235	-	$68,811,712	-	**$79,694,947**
13. Trenton to Morris	Amtrak	$983,788	-	-	-	**$983,788**
27. Spuyten Duyvil to Penn Station New York	Amtrak	$5,102,820	-	-	-	**$5,102,820**
FY21 total regional capital renewal expenditure by agency		**$55,066,766**	**$8,803,820**	**$92,578,465**	**$0**	**$156,449,051**

FY21 Expenditure

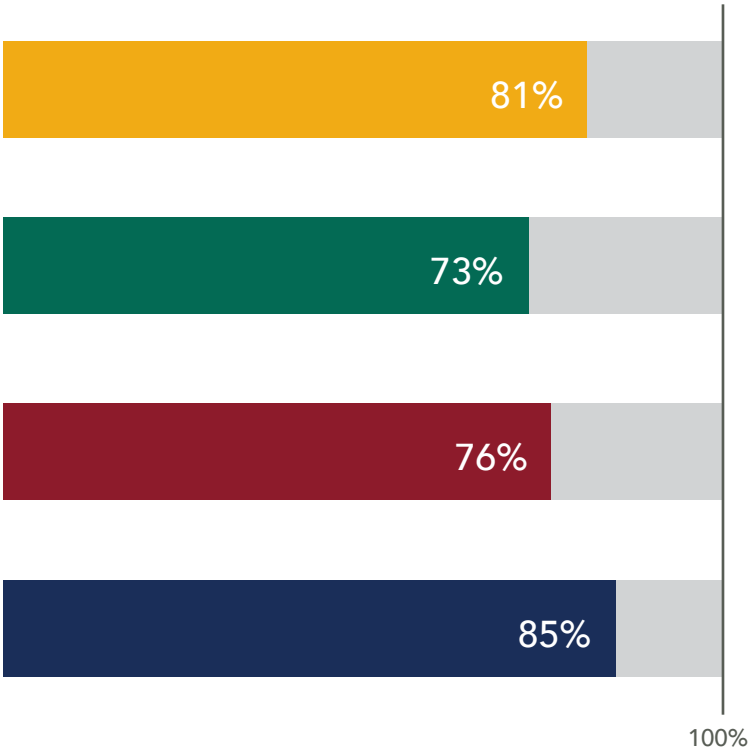
COMMUNICATION & SIGNALS
$23.9 MILLION

ELECTRIC TRACTION
$62.3 MILLION

STRUCTURES & FACILITIES
$21.2 MILLION

TRACK
$46.4 MILLION

Plan Adherence



Capital Renewal Detail: New York City Metro [Amtrak-owned; BCC Segments 8-13, 27]

Accomplishments and explanations of variance are submitted by Amtrak for the entire project or program. Therefore, they will include activities across all relevant segments, including those outside of the New York City Metro region. All data is published, as submitted by the RoW owner.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
1st Avenue Ventilation Fan Upgrade. P000170. C.EN.101910.	10	$144,933	$18,106	-$126,827	Awarded design services contract to redo the project specifications.	Project was put on hold due to the pandemic until Q3 of FY21. Due to delays in the project funding approvals, the construction services contract was not advertised and awarded.
Amtrak Owned Positive Train CTRL (PTC) Installation. PG00085. C.EN.201034.	8	$0	$8,161	$8,161	In the first quarter of FY21, PTC was completely implemented by the Federal Mandated date of December 31, 2020. This included interoperability at all boundary locations with NJ Transit, SEPTA, LIRR and Metro-North in the New York area. For the remainder of the fiscal year we concentrated on upgrading the system to include additional functionality requested by the FRA including D2 Mitigation, Boxcars, Back to Back which required upgraded OBC Software as well as reprogramming and replacement of Transponders and WIU's. This work is ongoing into FY22.	For FY21 we successfully spent 97% of our approved budget. Our goal was to spend with a +/- 5% variance and this was achieved with this program
	12	$827,452	$230,649	-$596,803		
	13	$73,528	$0	-$73,528		
	27	$0	$9,124	$9,124		
Amtrak System CETC Tech. Renewal. C.IT.100457.	11	$0	$562,528	$562,528	Planned work removed from FY21 plan.	Planned work removed from FY21 plan.
Brookfield Overbuild Support. P000039. C.EN.100882.	11	$1,245,081	$0	-$1,245,081	Completed in FY20	Completed in FY20
Clark to Ham Constant Tension Upgrade. P000011. C.EN.101765.	12	$21,095,733	$15,576,337	-$5,519,396	• Awarded construction contract to Keller Contractor to furnish and install catenary foundations and also procure and deliver the balance of steel catenary structures. • Completed 124 out of 150 Foundations at Track 1 • Completed 28 out of 155 Foundations at Track • Completed 57 lower columns erected at Track 1	Delay on delivery of the remaining catenary structural steel. Keller Foundation contractor production was low due to switching operation from drill and set concrete to soft digging to mitigate. Underground utility conflict caused the variance of initial budget estimated vs actuals.

Capital Renewal Detail: New York City Metro continued on the next page >>

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

Capital Renewal Detail: New York City Metro [Amtrak-owned; BCC Segments 8-13, 27] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Communications System Upgrades. PG00083. C.EN.101857.	10	$160,860	$0	-$160,860	We began work on the Fiber Transport Upgrade projects in the New York area. We began procurement for a new Fiber Optic Transport System. We began the conceptual phase for a Radio Upgrade System for the entire northeast corridor and central division. We continued to work on radio improvements in Penn Station NY.	Our original AOP was $4,999,545 with the bulk of the funding being allocated to the new Fiber Optic Transport System. Due to delays in the project getting started, and request for further information from procurement, the project was not put out for bid until August 2021. We reduced the original budget to $1,824,660. We spent 95% of this budget which was within the target range of +/- 5%
	11	$0	$102,918	$102,918		
	12	$254,442	$110,055	-$144,387		
	13	$17,354	$0	-$17,354		
Dock Fender Replacement. P000128. C.EN.101867.	12	$1,732,924	$28,152	-$1,704,772	The plan for FY21 was to submit a grant modification for the project and advertise for construction services.	The project was canceled as it was moved to be part of the Gateway program. This project will be incorporated into the Gateway program.
East River Tunnel Line 3/4. P000021. C.EN.100756.	10	$0	$2,407,894	$2,407,894	Completed two weekends of track panel replacement approximately 600 LF of new track, third rail, drainage. Complete installation of most of the planned CWR installation at locations for new track panels installed in FY20 and FY21.	CWR and welding work extending into third weekend which pushed into October 2022. Underspent in FY21 as a result.
East River Tunnels Radio Antenna Replacement. P000012. C.EN.101780.	10	$735,473	($2,308,784)	-$3,044,257	Continued radio antenna work based on tunnel outage availability.	Schedule variance due to FRA suspension of the project, requiring re-approval.
Empire Line Lighting Upgrade. P000136. C.EN.100732.	27	$107,953	$103,404	-$4,549	The design was completed for the lighting upgrades. The design was advertised and proposals received. We anticipated Notice to Proceed in FY22.	No variances outside the +/-10% margin
Fair Interlocking Renewal. P000026. C.EN.101277.	12	$7,706,082	$4,249,021	-$3,457,061	Installed E86 turnout, surfaced High and Low tracks, de-stressed newly installed rail, welded newly installed rail, commissioned new signal system on west end of interlocking, completed PTC improvements and upgrades, removed old signals and installed new signals, disposed of spoils from turnout installations, removed propane tanks from project site, cleaned up catenary wire within interlocking, installed new catenary wire, installed sectionalizing switches and completed all project designs.	Due to manpower unavailability less sectionalizing switches were installed than originally planned. Did not close out all outstanding invoices as originally planned due to late contractor invoice submissions.
FDNY Tunnel Radio System Upgrades. P000177. C.EN.101627.	11	$991,323	$817,884	-$173,439	There are 3 major locations North River Tunnel, East River Tunnel and the Empire Line. The overall scope was at 40% completed by September 27, 2021. All locations were at 60% complete with the exception of the Empire Line. All material was procured.	No variances outside the +/-10% margins.

Capital Renewal Detail: New York City Metro continued on the next page >>

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

Capital Renewal Detail: New York City Metro [Amtrak-owned; BCC Segments 8-13, 27] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Fence Upgrades. PG00069. C.EN.101854.	8	$59,064	$22,086	-$36,978	Fence upgrades were completed at 3 locations in the New Jersey (approximately 2,800 LF): • Metuchen, NJ • New Brunswick, NJ • Princeton Junction, NJ	Program underspent by $251 K or 3% of approved FY21 AOP. All planned work was accomplished. A new location (New Brunswick, NJ) was added to the plan over the course of the year.
	12	$685,839	$775,031	$89,192		
Ham Interlocking Renewal. P000156. C.EN.101308.	12	$6,797,870	$1,189,047	-$5,608,823	• Awarded and kicked off design services contract for Signal design. • Completed 60% Signal design and 30% Track design. • Replaced signal troughing on east end of interlocking. • Completed NEPA/Section 106 studies.	Due to manpower unavailability less troughing was completed than originally planned. Electric Traction design was not started due to delay in Track design approvals.
Hellgate Substation 45-47 Rehabilitation. P000018. C.EN.101745.	8	$2,417,522	$1,272,615	-$1,144,907	• Completed design, and fabrication of 18 new breakers for Hellgate Substation 45, 46 and 47. • Took delivery of new breakers for Substation 46.	Schedule delay in installation of new breakers due to longer than anticipated lead times on materials for new breakers. Installation start delayed from August 2021 to October 2021.
Kearny to Waverly Transmission Tower Upgrade. P000036. C.EN.101787.	12	$7,372,149	$470,918	-$6,901,231	• The PATH/Amtrak Easement Agreement was signed by Amtrak. • Submitted to PATH Senior Management for approval. • Submitted NJ Department of Environmental Protection (NJ DEP) Permits.	Project was approved by the FRA for the FY21 Program in 2nd Quarter February 2021 which delayed the project progress. Overall coordination amongst several departments and other agencies has been difficult to complete the easement acquisition process.
Metuchen Frequency Converter: Equipment Upgrades. P000042. C.EN.101747.	12	$72,000	$287,990	$215,990	Negotiated closeout, submitted change request and accrued final invoice.	Accrued final invoice; Change request to add funds was approved, but funds were never provided.
MofE ICT Facility Program: NY Sunnyside Yard ICT Site Analysis. P000181. C.EN.101904.	10	$2,166,127	$0	-$2,166,127	*NEC Commission staff determined this Amtrak capital renewal project was a duplicate of the Amtrak **Next-Generation High Speed Fleet Infrastructure: Sunnyside Yard Facility Improvements** special project. Information on this project is available under the Amtrak special projects (page 86).*	
Moveable Point Frog Switch Machine Rod Replacement. P000160. C.EN.101894.	9	$90,981	$32,845	-$58,136	In FY21, all of the Movable Point Frog rod packages planned for F Interlocking except for 1 location were installed. We also installed rod packages at Lane Interlocking but still have 3 locations left to do there. All other locations were moved to FY22 due to material acquisition issues.	The final AOP was $101,986 and the final spend for FY21 was $101,734 so variance was negligible.
	12	$763,813	$65,502	-$698,311		

Capital Renewal Detail: New York City Metro continued on the next page >>

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

Capital Renewal Detail: New York City Metro [Amtrak-owned; BCC Segments 8-13, 27] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
NEC Trip Time Reduction. PG00089. C.EN.101909.	8	$0	$0	$0	This was a new program starting in FY21. Due to COVID-19 we did not get started on this program until January 2021. Design was started to implement A, B and C speeds based on updated speed tables on the Hell Gate Line. This work will continue into FY22.	The original AOP for this program was 1,290,013 but due to the delayed start because of COVID the budget was reduced to $174,500. We spent 12% over the revised budget ($194,913) this was due to the design contractor completing more of the design than anticipated.
New Hackensack Substation 42 Control House. P000048. C.EN.101535.	12	$468,963	$437,803	-$31,160	• Commenced procurement for 3rd party construction services for the new Control House 42. • Issued NTP for substation yard lighting design. • Commenced procurement of Mothballing design consultant.	None
New York Catenary. PG00037. C.EN.101843.	8	$732,314	$299,367	-$432,947	• Replaced the 72 low rupture breaker at PSNY in February 2021. • Work continued for the replacement of post insulators for catenary renewal at Hellgate Line between MP12.8 – 13.8 throughout FY21. • Work continued to replace trolley switches at Lane Interlocking through the end of FY21. • Work continued to install the track heater at Q Interlocking through the end of FY21.	Lane Interlocking Trolley Switches Replacement and Track Heater Replacement at Q Interlocking slipped into FY22 due to labor resources being utilized on more high priority projects resulting in an underspend in FY21.
	9	$0	$118,056	$118,056		
	11	$0	$160,148	$160,148		
	12	$870,671	$103,865	-$766,806		
New York Facilities. PG00039. C.EN.101845.	9	$239,538	($68,183)	-$307,721	• Completed the low-level platform replacement at Metropark Station in January 2021. • Completed the fire alarm panel replacement at 1st Ave in May 2021. • Completed the stair installation at Rahway MP18.98 in July 2021. • Work continued to replace emergency access signage at Empire tunnel through the end of FY21. • Work continued for replacement of trailers at Hunter Yard, NJ and Rahway, NJ through the end of FY21. • Work continued to upgrade electrical service at Grundy Interlocking through the end of FY21 • Work continued to upgrade the Hamilton ET Headquarters through the end of FY21.	Trailer procurement delays caused the projects at Hunter Yard and Rahway slip into FY22 causing an underspend in FY21.
	10	$44,481	$96,520	$52,039		
	11	$316,357	$0	-$316,357		
	12	$1,313,596	$676,118	-$637,478		
	27	$20,207	$96,623	$76,416		
New York Penn Station Escalator SOGR. C.RE.100050.	11	$0	$443,403	$443,403	None submitted	None submitted

Capital Renewal Detail: New York City Metro continued on the next page >>

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

Capital Renewal Detail: New York City Metro [Amtrak-owned; BCC Segments 8-13, 27] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New York Signals. PG00041. C.EN.101846.	8	$0	$284,789	$284,789	• Completed the RTU replacement at Union Interlocking in January 2021. • Completed the derails removal at Pelham bay Bridge in January 2021. • Completed the work to complete the WIU transponders in February 2021. • Completed the installation of electrical switch lock at General Tire and National Can MP27.6 completed in June 2021. • Completed the installation of electronic relays at Line 3 and Line 4 of East River Tunnels until end of July 2021. • Completed the event recorder upgrade at Inwood Interlocking and Pelham Bay Bridge in June 2021 • Completed eight (8) switch machines replacement on AN Line until end of July 2021. • Work to continue to replace East River Tunnels Relays and is expected to continue through the end of FY21. • Work to continue to upgrade the Signals at PSNY started in January 2021 and is expected to continue through the end of FY21. • Work to continue to replace the switch machines on AN Line and is expected to continue through the end of FY21. • Work to continue to upgrade the LEDs at West End and is expected to continue through the end of FY21.	Procurement delays due to supply chain issues slipped the air dryer and signal LED projects into FY22 causing an underspend in FY21.
	9	$281,551	$61,344	-$220,207		
	10	$733,743	$257,126	-$476,617		
	11	$246,931	$184,816	-$62,115		
	12	$1,265,891	$1,340,012	$74,121		
	13	$0	$9,751	$9,751		
	27	$187,926	$269,593	$81,667		

Capital Renewal Detail: New York City Metro continued on the next page >>

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

Capital Renewal Detail: New York City Metro [Amtrak-owned; BCC Segments 8-13, 27] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New York Structures. PG00042. C.EN.101847.	8	$71,329	$331,169	$259,840	• Completed the replacement of Mitre Rail at Portal Bridge in October 2020. • Completed the retaining wall at loop 2 Track at SSYD in March 2021. • Completed the spot timber replacement at Washington St Bridge in May 2021. • Completed the culvert upgrades at MP36.66 in May 2021. • Completed the bridge strike mitigation at North Ave Bridge in June 2021. • Completed the stairs installation at Q Tower in July 2021. • Completed the replacement of interlocking lights at Delco Interlocking in August 2021. • Completed the sump pump cable replacement at Lines 3 and 4 at East River Tunnel in August 2021. • Completed the lighting upgrades at Elmora Interlocking in September 2021. • Work continued to rehab benchwall handrails at East River Tunnels through the end of FY21. • Work continued to mitigate strikes at Parsonage Rd Bridge through the end of FY21. • Work continued to replace bridge timbers at Portal Bridge Track 2/3 through the end of FY21.	More labor resources utilized than anticipated for Portal Bridge Timber project resulted in an overspend by 2%.
	9	$0	$163,821	$163,821		
	10	$2,422,598	$2,099,340	-$323,258		
	11	$115,096	$195,079	$79,983		
	12	$3,259,369	$5,375,338	$2,115,969		
	13	$0	$87,142	$87,142		
	27	$807,327	$429,217	-$378,110		

Capital Renewal Detail: New York City Metro continued on the next page >>

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

Capital Renewal Detail: New York City Metro [Amtrak-owned; BCC Segments 8-13, 27] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New York Substations. PG00043. C.EN.101848.	8	$0	$37,716	$37,716	• Completed the new distribution bus AC/DC at Sub-33 Edgely in November 2020. • Completed the bus/tie breaker at Sub-40 Waverly in April 2021. • Completed the signal cable replacement at Dock Interlocking in April 2021. • Completed the battery replacement at Sub-44 Sunnyside Yard in April 2021. • Completed the installation of splicers on the feeder cables 32L and 34L at PSNY in May 2021. • Completed the replacement of substation unit at Swift Interlocking in June 2021. • Replaced about 10 B&F switches at PSNY Sub-43 until end of July 2021. • Work continued for breaker replacement at Sub-33 Edgely through the end of FY21. • Work continued for Signal Power Frequency Converter at Sub-35 Princeton through the end of FY21. • Work continued for B&F Switch replacement at PSNY Sub-43 through the end of FY21. • Work continued for B&F Switch replacement at Sub-42 Hackensack through the end of FY21.	Long lead material delays for Signal Freq Converter for Princeton and labor resources being utilized on more high priority projects made the projects slip into FY22 resulting in an underspend in FY21.
	9	$1,003,157	$27,250	-$975,907		
	10	$0	$34,487	$34,487		
	11	$787,005	$808,586	$21,581		
	12	$3,272,232	$2,781,560	-$490,672		
New York Track. PG00044. C.EN.101849.	8	$1,159,142	$1,371,244	$212,102	Completed: • 52.4 miles of surfacing • 73,353 wood ties/timbers • 760 concrete ties • 17,722 ft of rail • 502 insulated joints • 432 joint elimination welds. • North Tube Track panel replacement at Track 3 in April 2021.	More production of track assets than anticipated caused an overspend of 2% in FY21.
	9	$4,560,535	$3,251,739	-$1,308,796		
	10	$2,766,253	$3,729,033	$962,780		
	12	$16,383,828	$21,666,744	$5,282,916		
	13	$1,363,089	$843,998	-$519,091		
	27	$2,242,787	$279,253	-$1,963,534		
NYP Elevator C2 & P4 Modernization. C.RE. 100078.	11	$0	$6,801,096	$6,801,096	Work is complete on both elevators. Currently working through project closeout.	None submitted
Penn Station NY Scada Phase II. P000060. C.EN.100081.	11	$2,576,989	$1,028,952	-$1,548,037	• Completed Work Package 3 Design • Contract Award Work Package 3 for construction	Minor budget and schedule variance based on originally estimated procurement award and contractor start dates versus actual. Multi-year project will utilize FY21 variance funds in FY22.

Capital Renewal Detail: New York City Metro continued on the next page >>

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

Capital Renewal Detail: New York City Metro [Amtrak-owned; BCC Segments 8-13, 27] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Penn Station NY Sectionalizing Project. P000037. C.EN.101783.	11	$0	$20,619	$20,619	Project was deferred from FY21 program. Reprogramming request approved to add it back to plan, but approval was not received until September 2021.	Reprogramming request approved to add project to FY21 plan, but approval was not received until September 2021. There was no time to restart the work in FY21. Schedule is pushed back another year as a result.
Penn Station NY: Infrastructure Renewal. P000059. C.EN.101104.	11	$29,236,213	$32,592,728	$3,356,515	Completed majority of planned work within Penn Station including rehabilitating body Track 12 and Track 9. Replaced 8 switches in FY21.	The 633/637 slip switch replacement was delayed from August 2021 to October 2021 due to material delivery lead times. Used up contingency weekends on some U ladder switch installations due to equipment issues that resulted in being unable to work two planned outages.
Production Concrete Tie/Timber Replacement. PG00067. C.EN.101870.	12	$1,650,456	$0	-$1,650,456	Planned work in this area removed from FY21 plan.	Planned work in this area removed from FY21 plan.
Production High Speed Surfacing. PG00060. C.EN.101855.	9	$236,178	$0	-$236,178	In FY21, a total of 158.79 track miles were surfaced in total on the AB, AN, AZ, AR, AP, and AH lines.	Our final requested AOP was $13,417,659 and our final spend was $13,052,154. The variance was due to additional spending on state partner numbers and other projects and reduced spending on this program.
	12	$2,090,786	$687,087	-$1,403,699		
	13	$280,187	$0	-$280,187		
Production Wood Tie/Timber Replacement. PG00071. C.EN.101858.	11	$103,309	$0	-$103,309	Planned work in this area removed from FY21 plan.	Planned work in this area removed from FY21 plan.
	12	$2,062,948	$849	-$2,062,099		
Q Interlocking C&S Equipment Replacement. P000066. C.EN.100676.	8	$162,953	$0	-$162,953	Completed fabrication of all phase 1 signal enclosures and installed on site, completed all signal design, simulation testing and local control programming for new CIH, completed troughing and cable pulling within the interlocking, and procured all material for phase 1 construction.	All planned scope for FY21 was completed. Work originally tagged in BCC Segments 8 and 10 was tagged incorrectly and transferred to the correct BCC Segment 9.
	9	$6,793,343	$6,010,671	-$782,672		
	10	$16,665	$0	-$16,665		
Rail Grinding. PG00064. C.EN.101794.	8	$403,053	$0	-$403,053	Completed: In FY21, the Loram rail grinder completed 918.11 of the planned 1,045 track miles along the NEC (approximately 359.82 track miles in the New York area)/	The rail grinder underspent by 9% due to unplanned down days resulting from Loram maintenance issues, bad weather, train delay, and customer delay. Total planned track mile goal was also not realized due to multiple passes required on sections of track to meet required profile.
	10	$351,612	$398,949	$47,337		
	12	$81,738	$1,629,013	$1,547,275		
	13	$0	$42,896	$42,896		
	27	$135,993	$134,344	-$1,649		

Capital Renewal Detail: New York City Metro continued on the next page >>

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

Capital Renewal Detail: New York City Metro [Amtrak-owned; BCC Segments 8-13, 27] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Rail Replacement. PG00003. C.EN.101856.	12	$2,657,057	$4,167,249	$1,510,192	Rail replacement occurred at 2 locations: • Sunnyside Yard (Loop Tracks 1, 2, and A) • Ham to Midway (AN Line MP 41.6 - 55.5, Track 4) Curve patches occurred at 3 locations: • AN Line MP 26.39 • AN Line MP 24.69 • AN Line MP 26.75 • Bergen Curve (AZ Line MP 3.54 to 3.86) •	Rail Installation year end review for FY21 – Variances: The original estimate and schedules did not take into account all of the prep work, training on equipment, and time to complete projects. The project as a whole was within 10% of the revised budget.
RBED System Geotech Hazard Inventory & Assessment. PG00090. C.EN.101908.	27	$9,218	$0	-$9,218	Planned work in this area removed from FY21 plan.	Capital Accounting advised that this work cannot be capitalized. This work would need to be funded through a core operating budget
River to River Railroad Resiliency Grant (R4 Grant). P000171. C.EN. AAAAA2.	10	$525,736	$0	-$525,736	*NEC Commission staff determined this Amtrak capital renewal project was a duplicate of the MTA **River-to-River Rail (R4) Resiliency** special project. Information on this project is available under the MTA special projects (page 88).*	
Spuyten Duyvil Fenders System Upgrades. P000049. C.EN.101791.	27	$5,750,133	$3,781,262	-$1,968,871	The contractor has submitted and received approval for all shop drawings involving steel fabrication. The steel fabrication is divided into 3 sections: nose, middle and back of fender. The nose is completed and the middle is in the process of being galvanized. All permits are in place and contractor to mobilized barges by 10/28/22.	The variance for Spuyten Duyvil Bridge comes as a consequence of not mobilizing the contractor on September 1. The reason for missing the mobilization date was the current condition of submarine cables located at the eastern fender. We needed to develop an emergency action plan/back-up plan that would protect Amtrak operations before relocating the submarine cable's termination point. The new mobilization date is 10/25 if everything is successful between 10/25 and 11/12. We should meet the substantial completion date of 4/29/22 for the fender. We anticipate a change request to ask the contractor to install the new submarine cables by 11/15/2022.
Sunnyside Yard Frequency Converter Upgrade. P000077. C.EN.101239.	9	$642,958	$180,235	-$462,723	Completed 30% design package for replacement of Sunnyside Yard Frequency Converter. Completed Request for Qualifications for design-build (D-B) team to complete design and perform construction; short listed D-B teams. Issued Request for Proposal and responded to first round of questions from bidders.	Procurement for D-B vendors was extended to allow for multiple rounds of questions and responses based on requests from short listed D-B teams. Award for final design and construction contract delayed from September 2021 to January 2022.
	10	$47,434	$0	-$47,434		

Capital Renewal Detail: New York City Metro continued on the next page >>

Capital Renewal Detail: New York City Metro [Amtrak-owned; BCC Segments 8-13, 27] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Sunnyside Yard S4 Substation Relocation/ Upgrades. P000051. C.EN.101792.	9	$5,920,923	$6,117,591	$196,668	Completed design revisions for new S4 substation and issued contract modifications to construction contractor for these changes. Completed excavation for new substation foundation and nearly completed installation of new foundation. Completed temporary power feeders to permit the substation relocation. Started fabrication of switch gears and wayside cabinets.	Design changes during construction resulted in construction cost increases and extended schedule. Target to achieve substantial completion in January 2022.
	10	$21,834	$9,377	-$12,457		
Sunnyside Yard Service Platform Upgrade. P000016. C.EN.101433.	9	$0	$486,628	$486,628	Closed out Phase 1 construction contract for Sunnyside Yard platform rehabilitation and settled all out standing claims with contractor. Started procurement for new design contract for Phase 2 of platform rehabilitation.	Underspend variance was due to favorable negotiations of claims from Phase 1 Construction Contractor and reduced temporary platform rehabilitation by Amtrak forces in FY21.
Sunnyside Yard Water Main Upgrades. P000176. C.EN.101913.	9	$0	$141,186	$141,186	Completed 100% design for replacement of watermains throughout Sunnyside Yard to improve water supply to building and comply with water demands for fire fighting in accordance with FDNY. Issued Request for Proposal for construction to replace the water main in conjunction with the Amtrak Ready Track project. Received proposals and performed technical review for the construction contract.	Award of the construction contract was delayed from May 2021 to October 2021. This delay was caused by the Ready Track project (separate) that is the lead project in this joint project construction contract. This project is only for Phase 2 of the watermain and will occur after the work on Phase 1 of the watermain which is part of the Ready Track project.
	10	$4,348,606	$56,360	-$4,292,246		
Total Track Renewal. PG00061. C.EN.101871.	12	$0	$15,126	$15,126	• B&B Production installed 1,645 block tie in Track 8 and 1,645 block ties in Track 10. Each track is 1,337' of cast in place concrete embedded track. • Independent Track South installed new CWR throughout and installed new track and surfaced the transitions. • ET installed new overhead catenary system for each track.	Change request submitted to give back of 23% of budget due to cost reduction due to lower than expected Contractor bid and efficiency in force account labor.
Track Rehabilitation. PG00063. C.EN.101859.	12	$0	$635,809	$635,809	Work completed in FY21: • Milham Yard, NJ - track 5 extended by 4,500'	Program underspent by $2.1 M or 12% of approved FY21 adjusted AOP.
Turnout Renewal. PG00065. C.EN.101860.	12	$9,565,200	$17,195,672	$7,630,472	In the turnout program for FY21 we replaced turnouts on the New England, New York, and Mid-Atlantic divisions. Cable and panel replacements were also performed as needed at the install locations.	A change request was submitted in July to adjust the program's FY21 budget to $55,715,404. Our overall FY21 spend came in at $51,989,239. The ~$4 Million variance came from some locations that pushed into FY22 due to Hurricane Ida response and material issues.
BCC Segments 8-13, 27 Total		**$178,125,941**	**$156,449,051**	**-$21,676,890**		

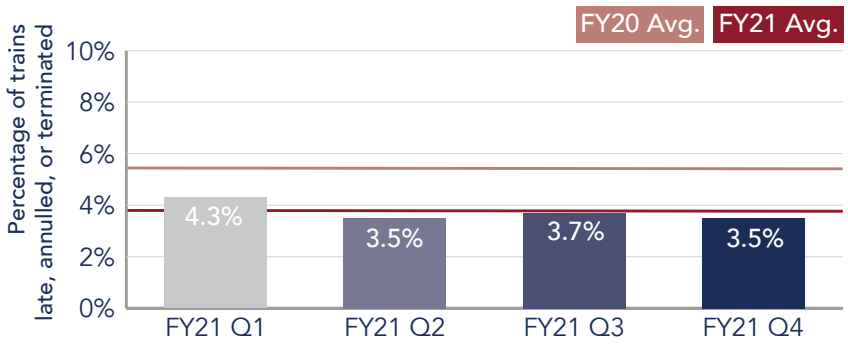
Project data including expenditures, accomplishments, and explanation of variances are published as submitted by RoW owners.

Operations: MTA Long Island Rail Road

MTA Long Island Rail Road (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.

Train performance profile

Metric	FY20	FY21
Percent NEC trains late, annulled, or terminated	5.4%	3.8%
Percent NEC trains not completed	0.58%	0.58%
Avg min late per NEC train	11.0	10.8

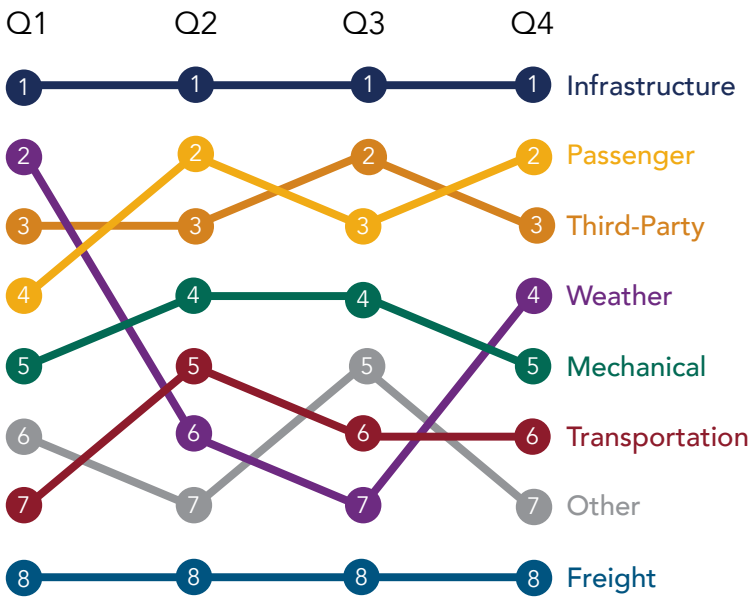


Train-delay minutes by cause

Total and percent change, FY20-21

Cause	FY20	FY21	Change
Infrastructure	25,125	19,618	-21.9%
Mechanical	9,092	4,560	-49.8%
Transportation	3,439	1,946	-43.4%
Passenger	20,045	9,215	-54.0%
Weather	8,466	7,491	-11.5%
Third-Party	8,150	10,624	+30.4%
Freight	90	329	+265.6%
Other	4,094	1,798	-56.1%
Total	**78,501**	**55,581**	**-29.2%**

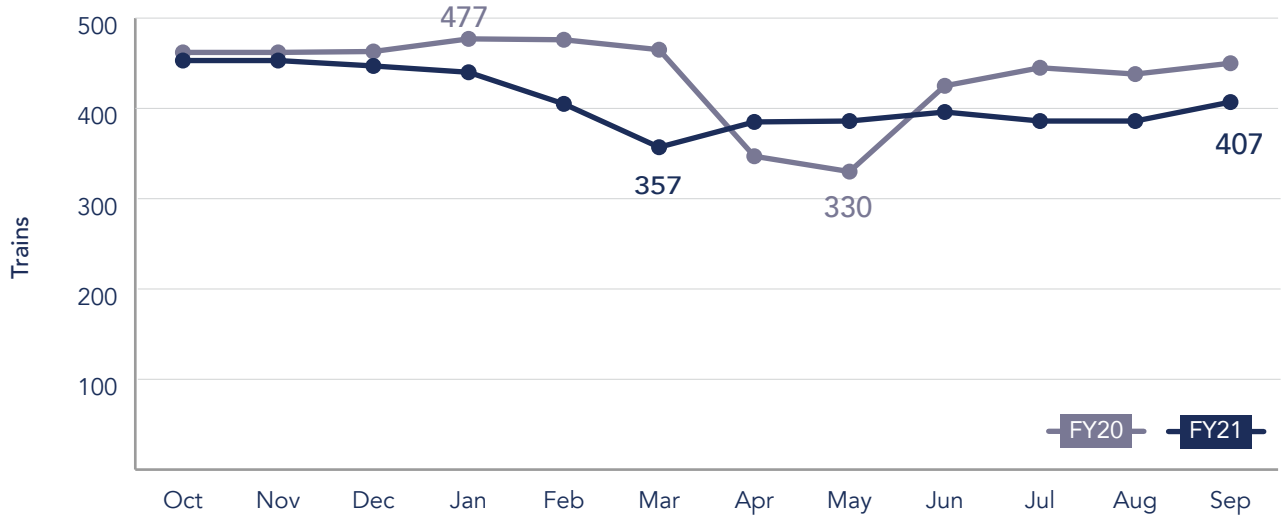
Rank by category, FY21



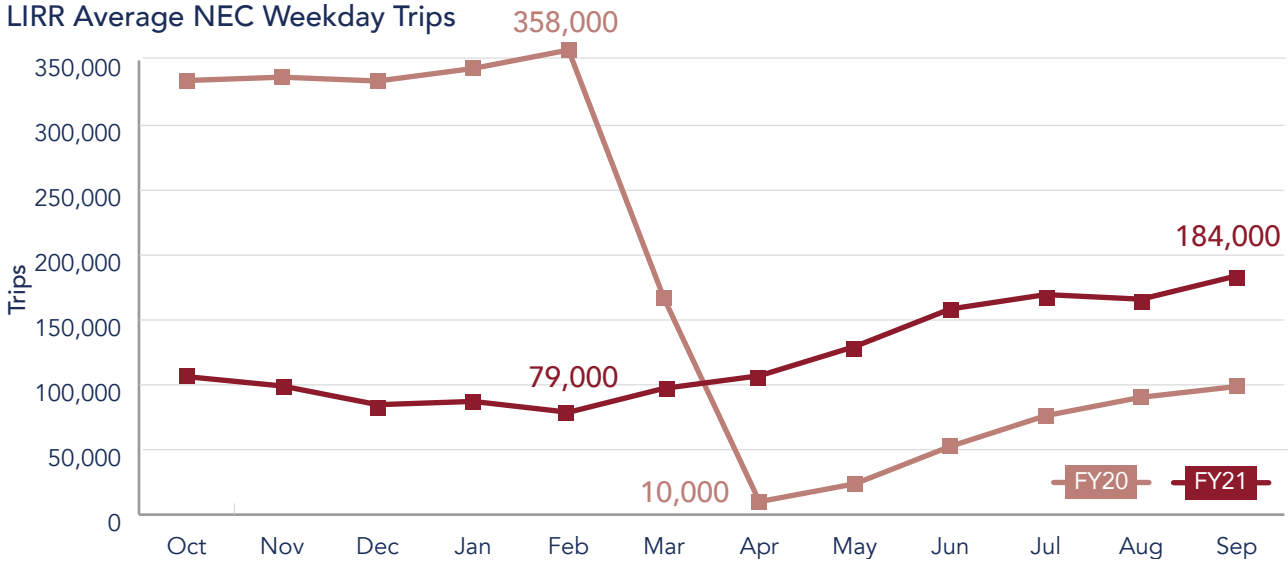
LIRR NEC Service and Ridership

Period	Average Weekday NEC Trains			Average Weekday NEC Trips		
	FY20	FY21	Change from FY20	FY20	FY21	Change from FY20
Q1 (Oct - Dec)	462	451	-2% ↓	335,288	96,735	-71% ↑
Q2 (Jan - Mar)	473	398	-16% ↓	289,537	87,803	-70% ↓
Q3 (Apr - Jun)	368	389	+6% ↑	28,784	131,688	+358% ↑
Q4 (Jul - Sep)	444	393	-12% ↓	88,486	173,206	+96% ↑
FY Average (Oct - Sep)	**437**	**407**	**-7% ↓**	**185,524**	**122,358**	**-34% ↓**

LIRR Average NEC Weekday Trains



LIRR Average NEC Weekday Trips

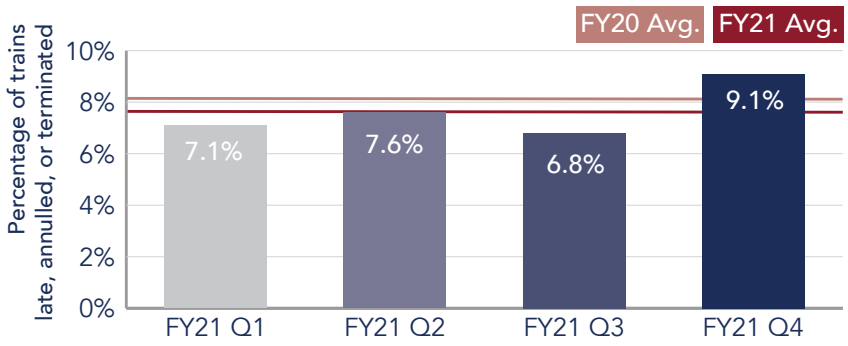


Operations: NJ TRANSIT

NJ TRANSIT (NJT) operates its Northeast Corridor Line service on the NEC Main Line between Penn Station New York and Trenton, NJ. The North Jersey Coast, Midtown Direct, and Raritan Valley Lines to/from Penn Station New York also operate partially on the NEC. The Atlantic City Line operates between Philadelphia 30th St Station and Atlantic City, NJ, partially on the NEC.

Train performance profile

Metric	FY20	FY21
Percent NEC trains late, annulled, or terminated	8.1%	7.6%
Percent NEC trains not completed	2.68%	1.92%
Avg min late per NEC train	17.2	14.2

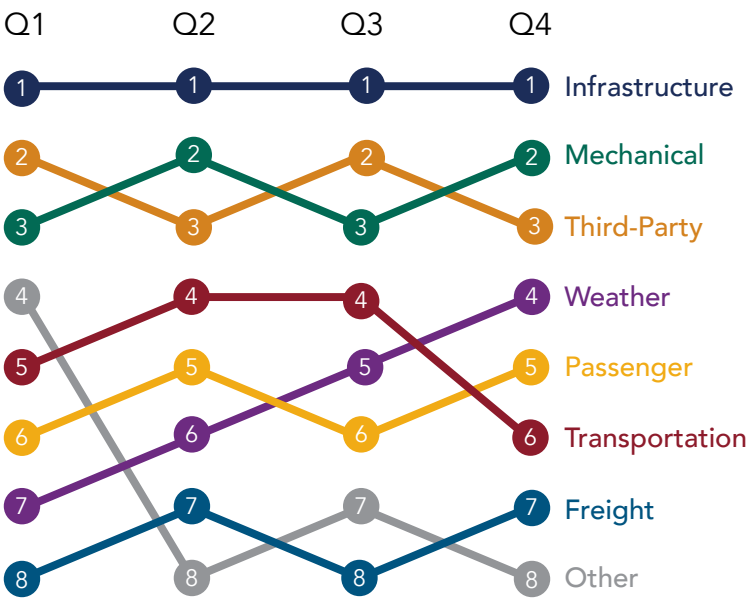


Train-delay minutes by cause

Total and percent change, FY20-21

Cause	FY20	FY21	Change
Infrastructure	34,640	45,121	+30.3%
Mechanical	19,099	26,814	+40.4%
Transportation	13,118	10,873	-17.1%
Passenger	7,595	7,684	+1.2%
Weather	8,530	12,155	+42.5%
Third-Party	21,761	24,704	+13.5%
Freight	254	940	+270.1%
Other	137	2,727	+1890.5%
Total	**105,134**	**131,018**	**24.6%**

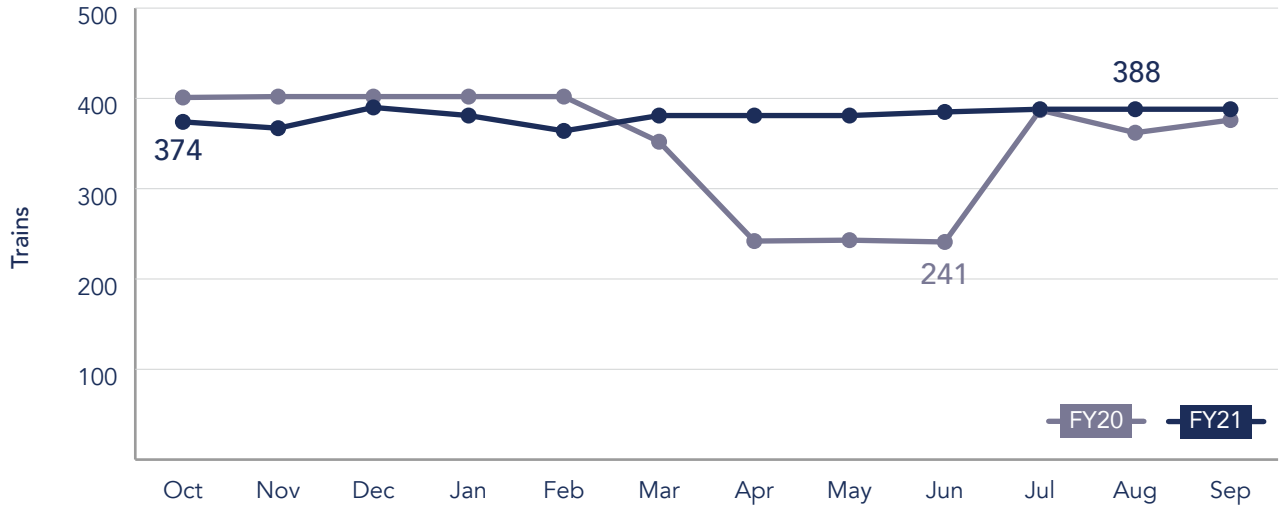
Rank by category, FY21



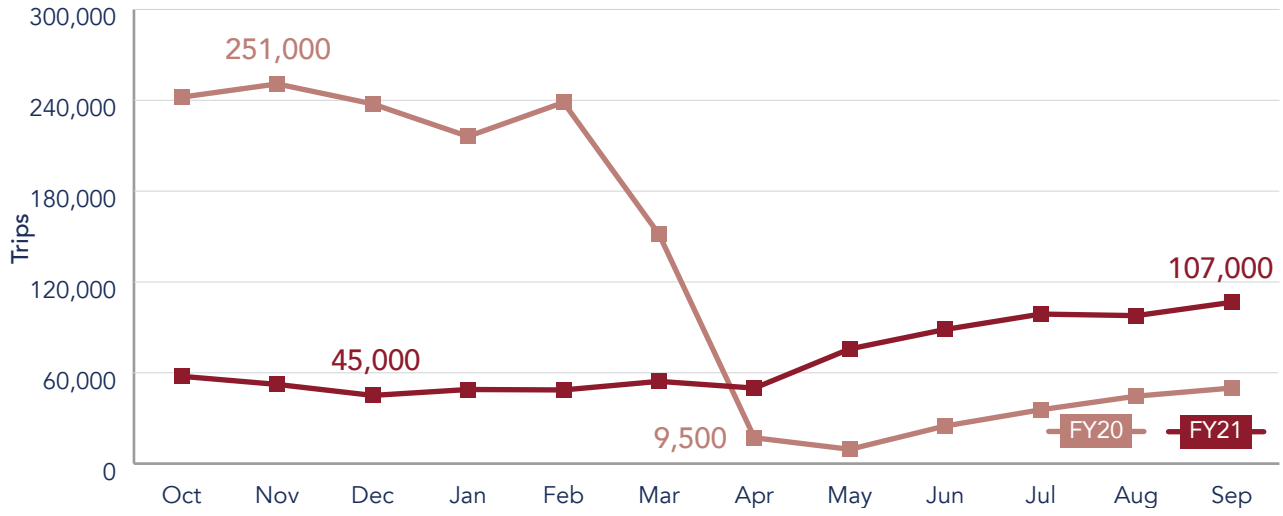
NJ TRANSIT NEC Service and ridership

Period	Average Weekday NEC Trains			Average Weekday NEC Trips		
	FY20	FY21	Change from FY20	FY20	FY21	Change from FY20
Q1 (Oct - Dec)	402	378	-6% ↓	243,507	51,687	-79% ↓
Q2 (Jan - Mar)	384	376	-2% ↓	202,093	50,659	-75% ↓
Q3 (Apr - Jun)	242	383	+58% ↑	17,133	71,441	+317% ↑
Q4 (Jul - Sep)	375	388	+4% ↑	43,354	101,038	+133% ↑
FY Average (Oct - Sep)	**351**	**381**	**+9% ↑**	**126,522**	**68,706**	**-46% ↓**

NJ TRANSIT Average NEC Weekday Trains



NJ TRANSIT Average NEC Weekday Trips



Region: Mid-Atlantic North

Infrastructure and Operations Detail

Operators: Amtrak, NJ TRANSIT, SEPTA

RoW Owner: Amtrak

BCC Segments

14: Morris to Holmes

15: Holmes to Shore

16: Shore to Girard

17: Girard to Philadelphia 30th Street

18: Philadelphia 30th Street to Arsenal

19: Arsenal to Marcus Hook

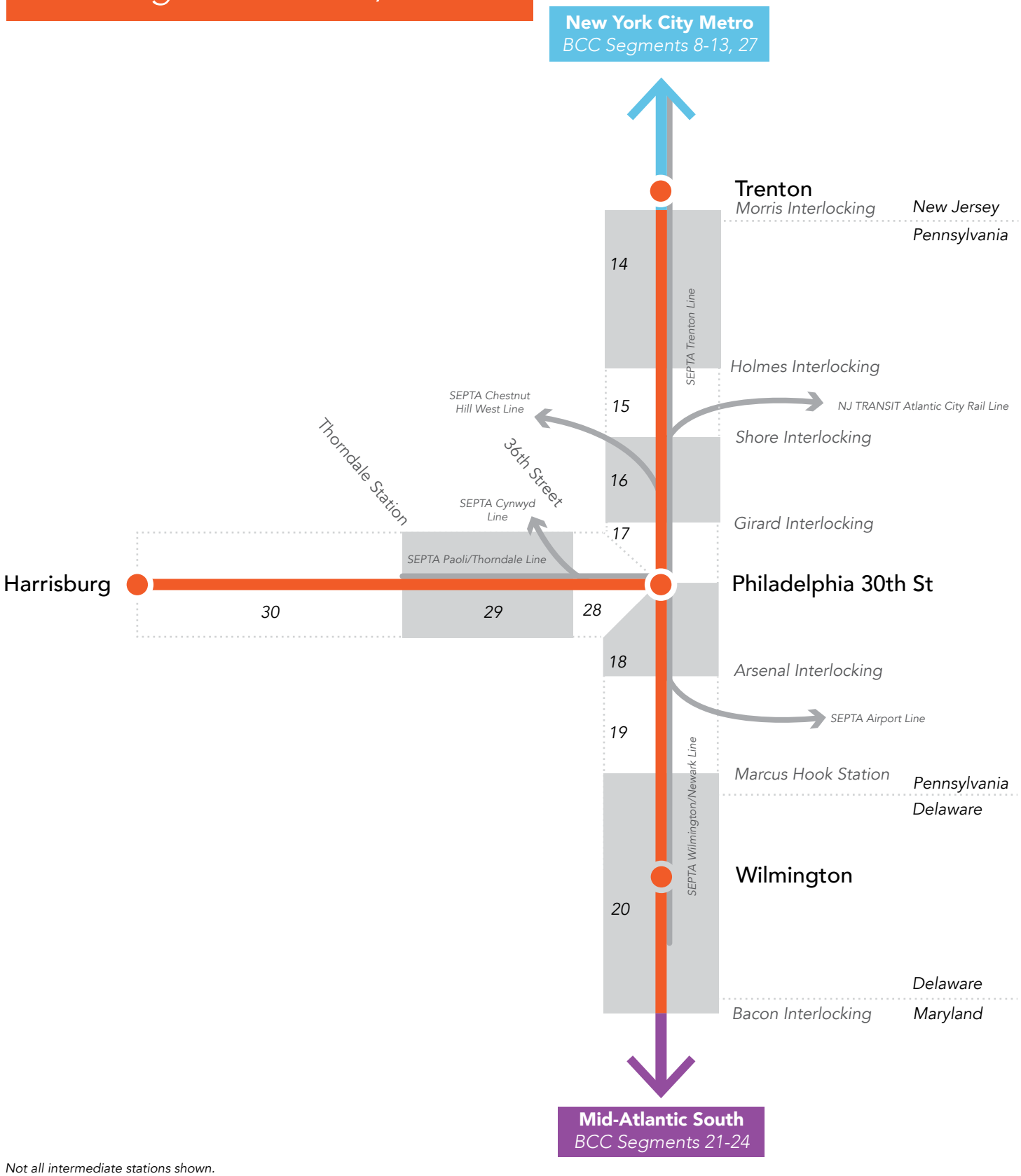
20: Marcus Hook to Bacon

28: Philadelphia 30th Street to 36th St

29: 36th Street to Thorndale

30: Thorndale to Harrisburg

Mid-Atlantic North
BCC Segments 14-20, 28-30



Not all intermediate stations shown.

Infrastructure: Special Projects

Amtrak, Delaware DOT, Pennsylvania DOT, and SEPTA coordinated work on 15 special projects throughout the Mid-Atlantic North region. In total, $59 million was invested in FY21 (52% of plan).

Special Projects Detail: Mid-Atlantic North

Amtrak		**FY21 Actual Expenditure: $6,433,536**
Philadelphia 30th Street Station District Plan Implementation		
FY21 Planned Expenditure & Scope	$3,100,000	Amtrak will engage with selected development partner to finalize negotiations, execute the Agreement, to be followed by a six (6) month Due Diligence Period. Once the Due Diligence Period is completed to finalize the financial transaction and design construction pricing, Amtrak Board approval will be requested for Financial Close in Q2 FY2021.
FY21 Actual Expenditure & Accomplishments	$6,433,536	Reached financial close in September 2021. ☑ Complete Due Diligence: Achieved January 2021 ☑ Amtrak Board Approval: Achieved August 2021 ☑ FRA Administrator Approvals: Achieved September 2021 ☑ Financial Close: Achieved September 2021 ➔ Finalize 100% Design Documentation: *Deferred to August 2022*
Variance & Explanation	$3,333,536	Delay in executing agreement a result of iterative discussions with FRA. FRA and Amtrak approval and financial close still achieved within FY21.
SEPTA		**FY21 Actual Expenditure: $13,543,511**
30th Street West Catenary Replacement		
FY21 Planned Expenditure & Scope	$2,236,845	SEPTA forces and contractors are expected to initiate construction in the Spring of 2021.
FY21 Actual Expenditure & Accomplishments	$232,636	Design review comments on the 100% complete package have been finalized, and a Force Account Plan has been established. SEPTA continues to coordinate with the FTA as this project undergoes the NEPA review process. ➔ Design Complete: *Deferred to February 2022* ➔ Issue NTP: *Deferred to October 2022*
Variance & Explanation	-$2,004,209	Project delayed due to longer than expected NEPA process.
Ardmore Transportation Center: Phase 1 ADA Improvements		
FY21 Planned Expenditure & Scope	$12,580,000	The FY21 project scope is to continue construction, which is expected to be completed in FY2023.
FY21 Actual Expenditure & Accomplishments	$3,052,379	Construction has reached 17% completion. Low-level sections of the inbound and outbound platforms have been erected, along with all grounding and conduit.
Variance & Explanation	-$9,527,621	This project has been delayed due to the ongoing effects of the pandemic, including workforce shortages.
Frazer Rail Shop and Yard Upgrade		
FY21 Planned Expenditure & Scope	$1,844,592	The FY21 project scope includes substantial completion of Package 1, closeout of Package 2 and the start of Package 3 construction.
FY21 Actual Expenditure & Accomplishments	$1,376,381	Phase II has reached 100% project completion, and Phase III has reached 100% design. ➔ Package 3 Bid Cycle Start: *Deferred to January 2022* ➔ Package 2 Closeout: *Deferred to March 2022*
Variance & Explanation	-$468,211	Phase 2 closeout has been delayed as a result of SEPTA waiting on closeout documents. Phase 3 construction is scheduled to begin in FFY2022. Construction packaging and phasing was changed to adapt to available funding resources.

Special Projects Detail: Mid-Atlantic North continued on the next page >>

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

Harrisburg Line Track 2 Upgrade: Glen to Thorn (MP 25.3 to 35.0)		
FY21 Planned Expenditure & Scope	$4,670,000	Complete FRA grant agreement, SEPTA-Amtrak project agreement, and initiate construction
FY21 Actual Expenditure & Accomplishments	$1,751,138	SEPTA received pre-award authority from the FRA and executed a project agreement with Amtrak. ☑ Initiate Construction: Achieved April 2021
Variance & Explanation	-$2,918,862	Amtrak used relay rail on the project and found that the rail delivered was defective, necessitating stoppage of the rail portion of project work.
Southwest Connection Improvement Project		
FY21 Planned Expenditure & Scope	$6,270,798	The FY21 project scope is to continue construction to be completed in FY22.
FY21 Actual Expenditure & Accomplishments	$7,130,977	The rehabilitation of the Walnut Street Tunnel was completed during the Summer 2021 outage. Additionally, a new turnback track within Civic Interlocking was installed.
Variance & Explanation	$860,179	Contract work was greater than initially expected.
Pennsylvania DOT		**FY21 Actual Expenditure: $19,108,458**
Coatesville Station Improvements		
FY21 Planned Expenditure & Scope	$15,000,000	Sheet piling on the south side to support the tracks. Caissons and retaining walls on the south side to support the high level platforms. Construction of the south elevator and stair tower.
FY21 Actual Expenditure & Accomplishments	$542,664	• Received all approvals • Completed station design, advertised & let construction project • Progressed design of third track & signals ➔ Start Physical Work: *Deferred to January 2022*
Variance & Explanation	-$14,457,336	Construction did not start on the original schedule due to scope change and additional time to secure all needed approvals
Downingtown Station Improvements		
FY21 Planned Expenditure & Scope	$2,500,000	Final design of building demolition in the north east quadrant. Preliminary engineering of the bridge replacement.
FY21 Actual Expenditure & Accomplishments	$1,841,942	• Initial Environmental Clearances • Design of station, track, and signals progressed to 30% • Demolition work prepared for bid process • Traffic Impact Study completed ☑ 15% Design: Achieved April 2021 ☑ Complete 30% Design: Achieved July 2021 ➔ 100% Building Demo: *Deferred to October 2022*
Variance & Explanation	-$658,058	Delays with demolition
Harrisburg Line Interlocking Improvements: Zoo		
FY21 Planned Expenditure & Scope	$2,000,000	Phase 1 final design will be completed in FY2021. This design will address reconstruction of retaining walls in the area of 40th Street, Philadelphia and track reconstruction adjacent to the wall.
FY21 Actual Expenditure & Accomplishments	$1,487,793	Completed design ☑ 100% final design: Achieved August 2021
Variance & Explanation	-$512,207	Delays in completing construction agreement

Special Projects Detail: Mid-Atlantic North continued on the next page >>

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

Lancaster Station Improvements		
FY21 Planned Expenditure & Scope	$2,000,000	Completion of final design for the project
FY21 Actual Expenditure & Accomplishments	$782,156	• Keller Ave parking lot 90% design submitted • Pedestrian Bridge 30% design resubmitted ➔ Design Completion: *Deferred to March 2022*
Variance & Explanation	-$1,217,844	Project experienced right-of-way issues and scope changes for pedestrian bridge with pier placement and addition of HVAC
Middletown Station Improvements		
FY21 Planned Expenditure & Scope	$10,000,000	Completion of Station Construction
FY21 Actual Expenditure & Accomplishments	$14,452,213	Construction nearing completion ➔ Construction Completion: *Deferred to November 2021*
Variance & Explanation	$4,452,213	Delays due to COVID-19 and Amtrak invoice submissions
Parkesburg Station Improvements		
FY21 Planned Expenditure & Scope	$500,000	Preliminary engineering and NEPA
FY21 Actual Expenditure & Accomplishments	$1,690	Resolution of design agreement ➔ Preliminary Engineering and NEPA: *Deferred to FY22*
Variance & Explanation	-$498,310	Delays in execution of design agreement
Delaware DOT		**FY21 Actual Expenditure: $20,336,912**
Claymont Regional Transportation Center		
FY21 Planned Expenditure & Scope	$32,217,097	The Design/Build Team will finalize the project design. The team will continue to continue to commence construction activities on approved design elements. The start of the construction of the parking garage, parking lot, and roadway elements are scheduled for FY21. The team also hopes that the ET project will be finalized in design and will be able to begin construction.
FY21 Actual Expenditure & Accomplishments	$15,187,637	Utility work on Philadelphia Pike. Constructed access roads. Erected parking garage. Received Amtrak approval of 100% design of platform, pedestrian bridge and station. ☑ Start of garage construction: Achieved June 2021 ☑ Completion of Project Design: Achieved October 2021 ➔ Start of Station construction: *Deferred to December 2021*
Variance & Explanation	-$17,029,460	Work was delayed through 2021 Q1 ad Q2 as DelDOT and the designer builder worked through various design issues with Amtrak. The issues involved but were not limited to Amtrak comments concerning the 100% track plans that had been previously approved as well as site drainage control. Several meetings, the intervention of DelDOT's Secretary and Amtrak's cooperation helped resolve the issues.
Delaware Third Track Program [completed]		
FY21 Planned Expenditure & Scope	$0	Construction cut and throw track work is expected to be completed in September 2020 with project closeout activities thereafter in FY21.
FY21 Actual Expenditure & Accomplishments	$3,246,457	Not applicable ☑ Complete Project Closeout Work: Achieved February 2021 ☑ Complete Grant Closeout: Achieved July 2021
Variance & Explanation	$3,246,457	Not applicable

Special Projects Detail: Mid-Atlantic North continued on the next page >>

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

Newark (DE) Regional Transportation Center		
FY21 Planned Expenditure & Scope	$19,259,786	Complete final design, begin DelDOT and Amtrak force account construction contracts for Track A relocation.
FY21 Actual Expenditure & Accomplishments	$1,902,818	Completed Contract 2 station construction and competed 100% design for Contract 3. ☑ 100% C&S Design: Achieved September 2021 ☑ 100% Platform and Ped Bridge Design: Achieved September 2021 ➔ Bid Advanced Grading contract for Track A relocation: *Deferred to October 2021*
Variance & Explanation	-$17,356,968	Completion and approval of 90% and 100% design Contract 3B submissions encountered review delays and comments by Amtrak. Bidding of Contract 3B pushed to FY22. Project Initiative 17, Amtrak Contract 3B track work not agreed upon due to $18M increase proposed by Amtrak. Resolution of force account work pushed to FY22.

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

Infrastructure: Capital Renewal

In the Mid-Atlantic North region, Baseline Capital Charges (BCCs) are allocated by Amtrak, NJ TRANSIT, SEPTA, and Delaware DOT to fund the capital renewal of basic infrastructure on the NEC Main Line in Pennsylvania and Delaware and the NEC Branch Line from Philadelphia to Harrisburg, PA. In total, $149 million was invested in FY21 (99% of plan).

BCC Segment	RoW owner	Operators				FY21 expenditure by segment
		Amtrak	NJ TRANSIT	SEPTA	Delaware DOT	
14. Morris to Holmes	Amtrak	$6,283,968	-	-	-	**$6,283,968**
15. Holmes to Shore	Amtrak	$2,118,355	-	-	-	**$2,118,355**
16. Shore to Girard	Amtrak	$17,118,952	-	$4,715,379	-	**$21,834,331**
17. Girard to Philadelphia 30th Street	Amtrak	$9,257,703	-	-	-	**$9,257,703**
18. Philadelphia 30th Street to Arsenal	Amtrak	$3,798,505	-	-	-	**$3,798,505**
19. Arsenal to Marcus Hook	Amtrak	$13,316,010	-	$5,522,134	-	**$18,838,144**
20. Marcus Hook to Bacon	Amtrak	$35,165,494	-	-	$2,748,695	**$37,914,189**
28. Philadelphia 30th Street to 36th St	Amtrak	$5,321	-	-	-	**$5,321**
29. 36th St to Thorndale	Amtrak	-$3,096	-	$33,078,670	-	**$33,075,574**
30. Thorndale to Harrisburg	Amtrak	$15,477,442	-	-	-	**$15,477,442**
FY21 total regional capital renewal expenditure by agency		**$102,538,654**	**$0**	**$43,316,183**	**$2,748,695**	**$148,603,532**

FY21 Expenditure

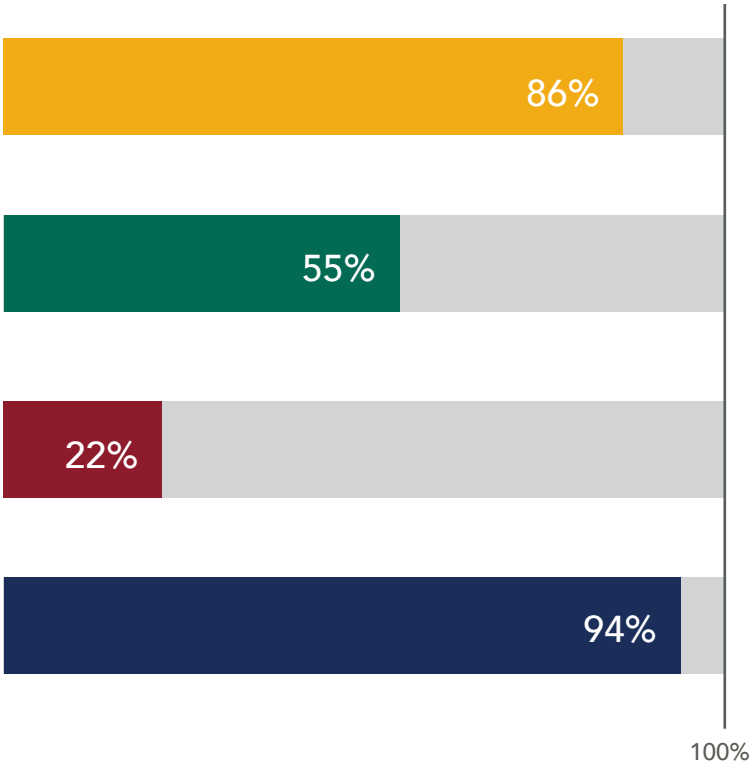
COMMUNICATION & SIGNALS
$37.1 MILLION

ELECTRIC TRACTION
$6.4 MILLION

STRUCTURES & FACILITIES
$2.0 MILLION

TRACK
$97.4 MILLION

Plan Adherence



This page left intentionally blank.

Capital Renewal Detail: Mid-Atlantic North [Amtrak-owned; BCC Segments 14-20, 28-30]

Accomplishments and explanations of variance are submitted by Amtrak for the entire project or program. Therefore, they will include activities across all relevant segments, including those outside of the Mid-Atlantic North region. All data is published, as submitted by the RoW owner.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
30th Street Station Facade Restoration. P000091. C.EN.100039.	17	$1,072,400	-$182,448	-$1,254,848	Project is on hold while investigation by OIG and law enforcement is finalized.	No work performed in FY21 due to investigation.
Amtrak Owned Positive Train CTRL (PTC) Installation. PG00085. C.EN.201034.	16	$0	$65,070	$65,070	In the first quarter of FY21, PTC was completely implemented by the Federal Mandated date of December 31, 2020. This included interoperability at all boundary locations with NJ Transit and SEPTA. For the remainder of the fiscal year we concentrated on upgrading the system to include additional functionality requested by the FRA including D2 Mitigation, Boxcars, Back to Back which required upgraded OBC Software as well as reprogramming and replacement of Transponders and WIU's. This work is ongoing into FY22.	For FY21 we successfully spent 97% of our approved budget. Our goal was to spend with a +/- 5% variance and this was achieved with this program
	17	$114,072	$133,421	$19,349		
Brandy to Ragan Section Improvement. P000003. C.EN.201126.	20	$536,204	$0	-$536,204	Completed in FY20	Completed in FY20
Brill to Landlith OCS Improvements. P000109. C.EN.101880.	20	$222,275	$0	-$222,275	• Issued Notice to Proceed to Jacobs for Preliminary Engineering on 02/02/2021. • Successfully completed Overheard Bridge, Interlocking Lighting, and Retaining Walls Surveys • Geotechnical Boring Program has been completed ahead of schedule.	Reduction of Boring numbers to accommodate available Mid-Atlantic RWP Support.
Communications System Upgrades. PG00083. C.EN.101857.	20	$126,472	$79,921	-$46,551	This program made quite a few accomplishments in FY21. We installed and cut over a new radio hut at Delaware Park (MP 34.3). We began work on the Fiber Transport Upgrade projects on the Harrisburg Line. We began procurement for a new Fiber Optic Transport System. We began the conceptual phase for a Radio Upgrade System for the entire Northeast Corridor.	Our original AOP was $4,999,545 with the bulk of the funding being allocated to the new Fiber Optic Transport System. Due to delays in the project getting started, and request for further information from procurement, the project was not put out for bid until August 2021. We reduced the original budget to $1,824,660. We spent 95% of this budget which was within the target range of +/- 5%
Conestoga Substation Improvements. P000111. C.EN.101877.	30	$900,817	$193,245	-$707,572	The project awarded the design project to Gannet Flemming to create a 2 phase plan set for construction.	The budget was reduced due to schedule updates in the last quarter of the fiscal year. The project was in procurement to award a design firm but later pulled the procurement to establish it within Amtrak's ET departments BPO contract with GF. This caused a delay in the Notice to Proceed with design.

Capital Renewal Detail: Mid-Atlantic North continued on the next page >>

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

Capital Renewal Detail: Mid-Atlantic North [Amtrak-owned; BCC Segments 14-20, 28-30] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Conestoga to Royalton Transmission Line Replacement. P000014. C.EN.101785.	30	$3,000,300	$554,344	-$2,445,956	Completed Soil Borings on 5 miles of Rail to Trail Section for Foundation Design 60% Design in Progress	NS Approval for pole locations along ROW has delayed Project
Fence Upgrades. PG00069. C.EN.101854.	14	$0	$59,024	$59,024	Fence upgrades were completed at 2 locations in this region: • Croydon, PA • Parkesburg, PA	Program underspent by $251k or 3% of approved FY21 AOP. All planned work was accomplished. Croydon, PA and Parkesburg, PA were added to the plan over the course of the year.
	30	$0	$25,161	$25,161		
Gunpow Substation 18 New Prefabricated Control House. P000168. C.EN.101900.	20	$428,961	$0	-$428,961	Scope of Work Generated for new Control House	On hold until new consultant is on boarded
Mid-Atlantic North Catenary. PG00013. C.EN.101822.	16	$0	$118	$118	• Completed switch heater substation replacements at Caln and Mantua Interlockings. • Completed 250 SAP assembly installations between Bell and Baldwin. • Completed 24 catenary sectionalizing switch replacements at North Penn Interlocking. • Completed 1 mile of contact wire replacement between Thorn and Downs Interlockings.	Exceeded budget slightly due to learning curve associated with SAP assembly installation.
	17	$617,033	$502,571	-$114,462		
	19	$903,905	$0	-$903,905		
	29	$311,026	$242,673	-$68,353		
	30	$0	$59,043	$59,043		
Mid-Atlantic North Facilities. PG00015. C.EN.101824.	17	$0	$38,414	$38,414	• Completed lighting upgrades at PCY ET Training Facility. • Closed-out the Wilmington Shop Fluid Distribution System Project. • Completed the Lancaster Shop Water Storage Project.	• The Contractor portion of the Lancaster Shop Water Storage Project was charged to a different WBS number. • The Downingtown Signals Trailer was completed in FY20. • The Wilmington Car Shop Building Demo Design was put on hold. • The Wilmington CNOC Electrical Upgrades was deferred to FY22.
	20	$587,402	$11,538	-$575,864		
	30	$156,226	$20,052	-$136,174		
Mid-Atlantic North Signals. PG00017. C.EN.101825.	14	$370,145	$363,534	-$6,611	• Completed Girard RTU Replacement • Completed Cork and Conestoga Switch Machine Replacements. • Completed Overbrook to Bryn Mawr Signal Cable Replacement. • Completed Holmes Dragger/Hot Box installation • Continued work on Code Relay Replacements.	Deferred High Signal Replacements to FY22.
	16	$131,056	$114,503	-$16,553		
	19	$301,078	$331,689	$30,611		
	20	$301,078	$267,057	-$34,021		
	29	$1,733,016	$1,155,856	-$577,160		
	30	$1,225,303	$821,637	-$403,666		

Capital Renewal Detail: Mid-Atlantic North continued on the next page >>

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

Capital Renewal Detail: Mid-Atlantic North [Amtrak-owned; BCC Segments 14-20, 28-30] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Mid-Atlantic North Structures. PG00018. C.EN.101826.	16	$643,440	$360,327	-$283,113	• Completed Wilmington Wall Rehab. • Completed Bridge timber design work for five bridges. • Advanced Darby CIH Support Design Project. • Closed out Whitford Rd UGB Rehab (completed previous FY). • Advanced PCY Stringer Rehab Design. • Advanced Lehigh Ave UGB Rehab. • Completed Culvert St UGB Rehab. • Completed Lumbard St UGB Rehab. • Completed Justison St UGB Rehab. • Completed York St UGB Rehab. • Began material procurement for three FY22 Bridge Timber Replacement Projects. • Completed Mantua Interlocking Lighting upgrades. • Completed AH Line MP 48.99 Culvert upgrades.	• Two Bridge Timber Replacement Projects deferred to FY 23 due to material delays. • Two Bridge Rehab projects on hold due to re-evaluation.
	17	$0	$28,525	$28,525		
	19	$1,528,157	$135,220	-$1,392,937		
	20	$589,829	$265,577	-$324,252		
	29	$321,720	$24,797	-$296,923		
	30	$589,829	$346,037	-$243,792		
Mid-Atlantic North Substations. PG00019. C.EN.101827.	15	$0	$23,399	$23,399	• Completed Royalton Sub Battery Charger Replacement • Completed West Phila Sub Battery Charger Replacement • Completed Conestoga Step-up Yard Bus Grounding • Completed Brill Sub Motor Mechanism Replacement • Completed Lamokin Converter Unit #4 Study • Completed Glenolden Sub ABS 110/110G Replacement • Completed Royalton 353 Breaker Replacement • Completed Lamokin ABS Replacement • Completed Thorndale and Frazer Transformer Replacements • Substantially completed Parkesburg Transformer Replacement.	Slightly overspent due to Transformer Replacement Work.
	17	$0	$17,133	$17,133		
	18	$898,435	$1,132,860	$234,425		
	19	$403,385	$681,924	$278,539		
	20	$0	$4,953	$4,953		
	28	$148,583	$5,321	-$143,262		
	29	$1,885,794	$1,899,111	$13,317		
	30	$77,264	$1,114,183	$1,036,919		

Capital Renewal Detail: Mid-Atlantic North continued on the next page >>

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

Capital Renewal Detail: Mid-Atlantic North [Amtrak-owned; BCC Segments 14-20, 28-30] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Mid-Atlantic North Track. PG00020. C.EN.101828.	15	$1,611,064	$1,689,986	$78,922	• Built 883 FT of track panels • De-stressed 800 FT of rail • Ditch and graded 7,311 FT • Drug and regulated 80,470 FT of ballast • Welded and ground 52 frogs • 402 joints eliminated • Installed / renewed 443 plates • Installed 25 wood block ties • Installed 132 insulated joints • Installed 6,267 FT of rail • Installed 660 switch timbers • Installed 126 concrete ties • Installed 4,480 wood ties • Installed 392 FT track panels • Reclaimed and distributed 4,773 CUYD of ballast • Renewed 27 frogs • Renewed 138 guard rails • Renewed 10 switch point stock rail • Surfaced 141,776 FT of track • Surfaced 3,994 switches • Thread 600 FT of rail • Undercut 3,980 FT	• Insulated Joint Replacement: Decreased aggregate units from 40 to 38, decreased aggregate allocations by $ 165,964 (-) • Joint Elimination: Increased aggregate units from 260 to 468, increased aggregate allocations by $ 244,848 (+) • Concrete Tie Replacement: Decreased aggregate units from 100 to 77, increased aggregate allocations by $ 47,881 (+) • Tie/Timber Replacements: Increased aggregate units from 1,250 to 11,328, increased aggregate allocations by $ 8,578,185 (+) • Spot Surfacing: Increased aggregate units from 260,000 PF to 379,356 PF, increased aggregate allocations by $ 1,963,107 (+) • Spot Undercutting: Decreased aggregate units from 34,000 LF to 3,976 LF, decreased aggregate allocations by $ 8,021,641 (-) • Interlocking Steel Component Replacements: Increased aggregate units from 20 to 50, increased aggregate allocations by $ 4,531,671 (+) • Rail Vac Elements: Loram Rail Vacs used in MAD North territory increased from 1 to 2, increase allocations by $ 69,644 (+) • Loram Equipment Layover Costs: Rail Vac stand-by time higher than planned, Increase allocation by $ 874,668 (+) • Miscellaneous Drainage/slope Improvements: Decreased aggregate allocations by $ 241,997 (-) • Miscellaneous Lubrication Upgrades: increase allocation by $ 197,621 (+) • Phil to Baldwin Ditching (production project): Project cost exceeding estimate, increase allocation by $ 433,921 (+) • HSS (production work): No work performed, decrease allocation by $ 779,472 (-) • Project Management: Allocation increased by $42,607 (+)
	16	$3,966,921	$2,925,103	-$1,041,818		
	17	$1,158,171	$760,997	-$397,174		
	18	$2,021,285	$2,665,645	$644,360		
	19	$4,777,791	$7,339,927	$2,562,136		
	20	$3,821,734	$7,331,540	$3,509,806		
	29	$3,895,647	$4,492,807	$597,160		
	30	$3,910,810	$4,774,565	$863,755		
Mid-Atlantic South Structures. PG00026. C.EN.101833.	20	$975,202	$9,983	-$965,219	• Newark, DE Culvert Ballast Retention Replacement (MP 33.12) • Muddy Line Strike Mitigation (MP 45.21)	Budget overage due to Susquehanna River Bridge emergency.
Mid-Atlantic South Substations. PG00027. C.EN.101834.	20	$291,187	$47,289	-$243,898	• Completed Jericho Park circuit breaker final design. • Began Baltimore signal power frequency converter installation. • Completed Perryman relay and breaker installation. • Completed Icy City transformer, switch, and breaker installation.	Delays due to Amtrak force account availability.

Capital Renewal Detail: Mid-Atlantic North continued on the next page >>

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

Capital Renewal Detail: Mid-Atlantic North [Amtrak-owned; BCC Segments 14-20, 28-30] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Mid-Atlantic South Track. PG00028. C.EN.101835.	20	$4,157,268	$3,600,737	-$556,531	In BCC Segment 20, Mid-Atlantic South Track Program completed: • 13,588 PF of track surfacing • 4,272 FT of vacuum train/spot undercutting • 75 joint eliminations • 68 insulated joints installed	Delays to MP 103.9 project.
Middletown, PA Station. P000104. C.EN.100891.	30	$191,097	$0	-$191,097	*NEC Commission staff determined this Amtrak capital renewal project was a duplicate of the Pennsylvania DOT **Middletown Station Improvements** special project. Information on this project is available under the Pennsylvania DOT special projects (page 110).*	
Moveable Point Frog Switch Machine Rod Replacement. P000160. C.EN.101894.	20	$163,766	$0	-$163,766	In FY21, all of the Movable Point Frog rod packages planned for F Interlocking except for 1 location were installed. We also installed rod packages at Lane Interlocking but still have 3 locations left to do there. All other locations were moved to FY22 due to material acquisition issues.	The final AOP was $101,986 and the final spend for FY21 was $101,734 so variance was negligible.
New York Facilities. PG00039. C.EN.101845.	14	$363,592	$97,170	-$266,422	Work continued to upgrade electrical service at Grundy Interlocking through the end of FY21.	Trailer procurement delays caused the projects at Hunter Yard and Rahway slip into FY22 causing an underspend in FY21.
New York Signals. PG00041. C.EN.101846.	14	$158,082	$189,118	$31,036	• Croy Event Recorder Replacement (MP 68.3) • Grundy Interlocking RTU Upgrade (MP 65.3)	Procurement delays due to supply chain issues slipped the air dryer and signal LED projects into FY22 causing an underspend in FY21.
New York Structures. PG00042. C.EN.101847.	14	$813,634	$17,695	-$795,939	• Signal Bridge Fall Protection (MP 65.47, MP 64,90) • Bath Road New Parapet Wall (MP 66.86)	More labor resources utilized than anticipated for Portal Bridge Timber project resulted in an overspend by 2%.
New York Substations. PG00043. C.EN.101848.	14	$964,683	$1,558,753	$594,070	• Completed the new distribution bus AC/DC at Sub-33 Edgely in November 2020. • Work continued for breaker replacement at Sub-33 Edgely through the end of FY21.	Long lead material delays for Signal Freq Converter for Princeton and labor resources being utilized on more high priority projects made the projects slip into FY22 resulting in an underspend in FY21.
New York Track. PG00044. C.EN.101849.	14	$1,933,698	$1,844,918	-$88,780	In BCC Segment 14, New York Track Program completed: • 134 PF of track surfacing • 3 insulated joints installed • 26 joint eliminations • 191 wood ties/timbers installed • 6 concrete ties installed	More production of track assets than anticipated caused an overspend of 2% in FY21.
PCY Acela 21 Shop . P000161. C.EN.101893.	17	$7,116,269	$0	-$7,116,269	Project work has been removed from FY21 plan.	Project work has been removed from FY21 plan.

Capital Renewal Detail: Mid-Atlantic North continued on the next page >>

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

Capital Renewal Detail: Mid-Atlantic North [Amtrak-owned; BCC Segments 14-20, 28-30] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Penn Coach Yard High Mast Lighting. P000112. C.EN.101874.	17	$0	$414,645	$414,645	• Amtrak's 3rd party contractor has installed the foundations for the lighting masts. • Amtrak's ET department has installed all required electrical box upgrades to accommodate tie-ins. • Amtrak's B&B department has installed 20 LF of PVC conduit for the north tower.	• Amtrak's 3rd party contractor submitted an updated schedule due to materials and equipment delays due to COVID pandemic. • Amtrak submitted an Change request to give money back due to activities that were don't completed in FY21 and scheduled to take place in FY22.
Penn Coach Yard Paving Improvements. P000135. C.EN.101807.	17	$0	$2,454	$2,454	The project reboot was completed. An updated estimate that included the redefined scope of work for the project was provided by the contractor.	The project budget was decreased due to COVID pandemic.
Penn Coach Yard Water Main Replacement. P000114. C.EN.101876.	17	$0	$9,236	$9,236	Design firm submitted the 90% and final plans for Amtrak's review/approval.	Amtrak engineering comments were not fully addressed and now awaiting a revised set of plans/specifications and estimate from designer.
Pennswood Bridge Catenary Improvements. P000154. C.EN.101892.	29	$232,901	$0	-$232,901	Project will be completed in FY22 Q1.	Variance is due to increased availability of materials and resources the project finished ahead of schedule.
Production High Speed Surfacing. PG00060. C.EN.101855.	14	$2,152,935	$2,031,920	-$121,015	In FY21, a total of 158.79 track miles were surfaced in total on the AB, AN, AZ, AR, AP, and AH lines.	Our final requested AOP was $13,417,659 and our final spend was $13,052,154. The variance was due to additional spending on state partner numbers and other projects and reduced spending on this program.
	15	$490,831	$359,396	-$131,435		
	16	$0	$74,265	$74,265		
	17	$771,744	$0	-$771,744		
	19	$0	$863,220	$863,220		
	20	$2,284,571	$80,001	-$2,204,570		
	29	$672,677	$1,626,202	$953,525		
	30	$427,070	$1,041,992	$614,922		
Production Wood Tie/Timber Replacement. PG00071. C.EN.101858.	16	$0	$1,211,556	$1,211,556	Z181 de-stressed rail on Track 1 between Thorn and Park. Z181 installed 9,327 ties and 260 timbers between Thorn and Park and at Phil and Mantua.	Z181 installed fewer than expected ties because the tie gang was delayed due to extensive de-stressing.
	17	$863,629	$0	-$863,629		
	19	$0	$244,333	$244,333		
	20	$0	$10,312	$10,312		
	29	$0	$1,942,066	$1,942,066		
	30	$6,481,106	$6,252,157	-$228,949		

Capital Renewal Detail: Mid-Atlantic North continued on the next page >>

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

Capital Renewal Detail: Mid-Atlantic North [Amtrak-owned; BCC Segments 14-20, 28-30] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Rail Grinding. PG00064. C.EN.101794.	14	$0	$121,836	$121,836	Rail Grinding work occurred at several locations throughout the Mid-Atlantic North region: • AN Line (MP 58 - 87.7) • AP Line (MP 29.6 - 41.4) • AH Line (1.9 - 104) •	Rail Grinding year end review for FY21 – Variances - The rail grinder underspent by 9% due to unplanned down days resulting from Loram maintenance issues, bad weather, train delay, and customer delay. Total planned track mile goal was also not realized due to multiple passes required on sections of track to meet required profile.
	15	$0	$42,896	$42,896		
	16	$0	$21,448	$21,448		
	20	$0	$150,136	$150,136		
	29	$1,258,487	$155,973	-$1,102,514		
	30	$0	$258,955	$258,955		
Rail Replacement. PG00003. C.EN.101856.	20	$0	$35,419	$35,419	A curve patch was completed on Curve 332 on Track 2 between Ragan and Davis Interlockings.	Rail Installation year end review for FY21 – Variances: The original estimate and schedules did not take into account all of the prep work, training on equipment, and time to complete projects. The project as a whole was within 10% of the revised budget.
RBED System Geotech Hazard Inventory & Assessment. PG00090. C.EN.101908.	30	$37,114	$0	-$37,114	Planned work was removed from FY21 plan.	Capital Accounting advised that this work cannot be capitalized. This work would need to be funded through a core operating budget.
Ride Quality Improvements between Hook and Baldwin. PG00088. C.EN.101902.	19	$2,183,548	$5,944,486	$3,760,938	The project completed work on Track 4 and Track 1, and started work on Track 2 between the Hook and Baldwin Interlockings. The gang completed the bridge approaches on Track 4 and Track 1, track panels between bridges, and viaduct of the following bridges: Central, Tilghman, Kerlin, Parker, Concord, and Barclay bridges. On Track 2, the gang completed digging grade on Concord and Barclay St. bridges as well as the Viaduct. The gang also built and loaded 7 panels on flat cars for install, and began working on installing Geo Cell in Sept. The project will continue into FY22 to complete the work on Track 2.	The first Change request inputted into the system, was to increase the scope, adjust the schedule and request funds for the budget to cover the increase in scope. On Track 4 the project added 2 bridge locations Concord and Barclay. On Track 1, the project added 6 bridge location: Concord, Barclay, CENTRAL, TILGHMAN, KERLIN, and PARKER. The project also added also added another WBS for Track 1 panel installation. The Project Change request also asked for additional funds to cover the costs of the scope change. The second Project Change request Project: Planned to start work on Track 2 on Monday, Sept. 13. The gang will work on Track 2 from Sept. 13 to end of FY21 Sept. 30. The Change request also created a new Element .0010: Track 2 (Barclay/ Concord) for the gang to charge to. (Then will cont. with FY22 work.)
	20	$0	$5,805,366	$5,805,366		
Signal System Upgrades to 562: Park to Paoli. P000117. C.EN.101770.	29	$1,643,033	$563,435	-$1,079,598	• Lancaster shops fabrication of signal equipment for Downs to Glen • 562 upgrades for Park to Thorn	Signal upgrade work from Thorn to Downs is now being handled under a separate SEPTA funded project.
	30	$0	$16,071	$16,071		

Capital Renewal Detail: Mid-Atlantic North continued on the next page >>

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

Capital Renewal Detail: Mid-Atlantic North [Amtrak-owned; BCC Segments 14-20, 28-30] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
TLS Concrete Tie Replacement. PG00057. C.EN.101652.	15	$0	$2,679	$2,679	The TLS work group installed concrete ties and continuously welded rail between Philadelphia and Washington, in the Mid-Atlantic Division.	An Change request was submitted in Q3 to return $8,000,0000, as the Davis to Bacon location was canceled due to deliveries of defective clips from Pandrol. With Change requests accounted for the program completed the year at 3% overspent.
	16	$0	$672,440	$672,440		
	20	$24,644,262	$20,179,986	-$4,464,276		
Total Track Renewal. PG00061. C.EN.101871.	17	$9,481,611	$6,654,642	-$2,826,969	• B&B Production replaced 1,645 block ties on Track 8 and 1,645 block ties on Track 10 at 30th Street Station. Each track is 1,337' of cast in place concrete embedded track. • Track Replacement on Track 1 at Baldwin Interlocking	CR submitted to give back of 23% of budget due to cost reduction due to lower than expected Contractor bid and efficiency in force account labor.
	19	$0	$11,402	$11,402		
Track Rehabilitation. PG00063. C.EN.101859.	17	$0	$878,117	$878,117	Work completed in FY21: • **Bear, DE:** approximately 2,000 wood ties replaced • **Penn Coach Yard (PHL):** Track 26 and Track 37 completely renewed	Program underspent by $2.1 M or 12% of approved FY21 adjusted AOP. All planned work was accomplished with the exception of Wilmington Yard switch installation was deferred due to material delays.
	19	$0	$2,726	$2,726		
	20	$350,175	$0	-$350,175		
Track Undercutting. PG00062. C.EN.100269.	16	$2,349,218	$7,358,598	$5,009,380	The Undercutting work group undercut a total of 16,181 track feet. This work occurred strictly in Q1 FY21, as work planned for Q2 through Q4 was canceled.	With Change requests accounted for, the program completed the year at 7% underspent.
Turnout Renewal. PG00065. C.EN.101860.	16	$8,156,210	$9,030,903	$874,693	In the turnout program for FY21 we replaced turnouts on the New England, New York, and Mid-Atlantic divisions. Cable and panel replacements were also performed as needed at the install locations.	An Change request was submitted in July to adjust the program's FY21 budget to $55,715,404. Our overall FY21 spend came in at $51,989,239. The ~$4 Million variance came from some locations that pushed into FY22 due to Hurricane Ida response and material issues.
	17	$873,714	$0	-$873,714		
	19	$4,522,873	$3,283,217	-$1,239,656		
	20	$0	$13,589	$13,589		
	29	$15,791,403	$20,804,901	$5,013,498		
Wilmington Training Center Parking Access Improvements. P000119. C.EN.101879.	20	$859,818	$20,786	-$839,032	This project was postponed due to funding for FY21.	None, project was postponed.
Zoo to Paoli Catenary Structure Upgrade. P000090. C.EN.201264.	29	$804,302	$167,752	-$636,550	Relocation of Signal Frequency Converter drawings submitted for approval	Relocation of signal frequency converter was not approved to begin construction execution
BCC Segments 14-20, 28-30 Total		**$149,750,342**	**$148,603,533**	**-$1,146,809**		

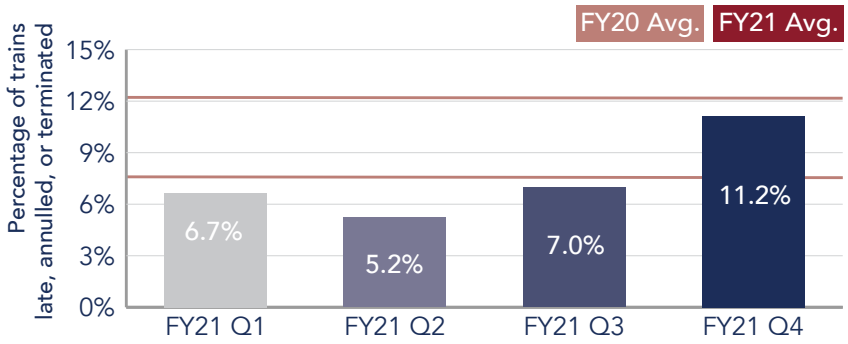
Project data including expenditures, accomplishments, and explanation of variances are published as submitted by RoW owners.

Operations: SEPTA

SEPTA operates on the NEC Main Line between Trenton, NJ and Newark, DE and on an NEC Branch Line between Philadelphia 30th Street Station and Thorndale, PA. Three additional SEPTA lines operate partially on the NEC and all SEPTA lines are accessible via Philadelphia 30th Street. SEPTA service in Delaware is operated on behalf of Delaware DOT.

Train performance profile

Metric	FY20	FY21
Percent NEC trains late, annulled, or terminated	12.0%	7.6%
Percent NEC trains not completed	0.51%	0.30%
Avg min late per NEC train	11.4	11.6

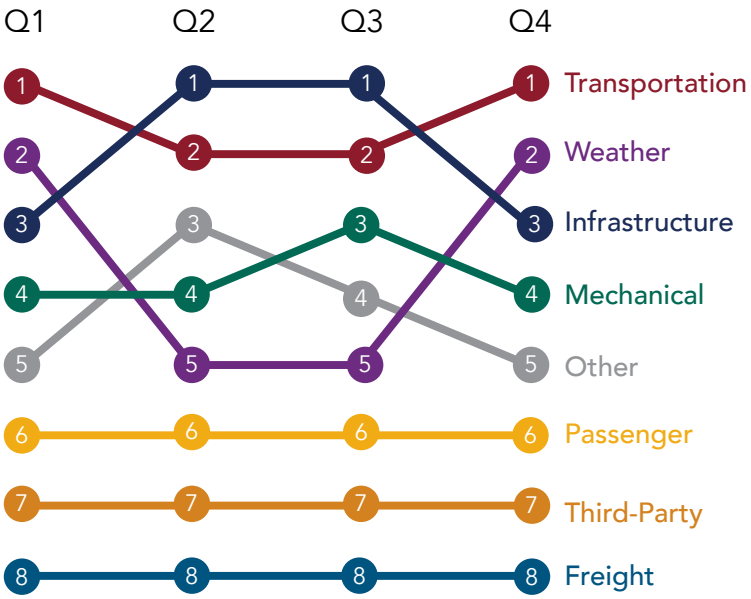


Train-delay minutes by cause

Total and percent change, FY19-20

Cause	FY20	FY21	Change
Infrastructure	16,655	13,251	-20.4%
Mechanical	8,922	6,882	-22.9%
Transportation	28,147	16,340	-41.9%
Passenger	13,330	4,016	-69.9%
Weather	11,214	10,587	-5.6%
Third-Party	1,935	569	-70.6%
Freight	151	408	+170.2%
Other	5,825	6,550	+12.4%
Total	**86,179**	**58,603**	**-32.0%**

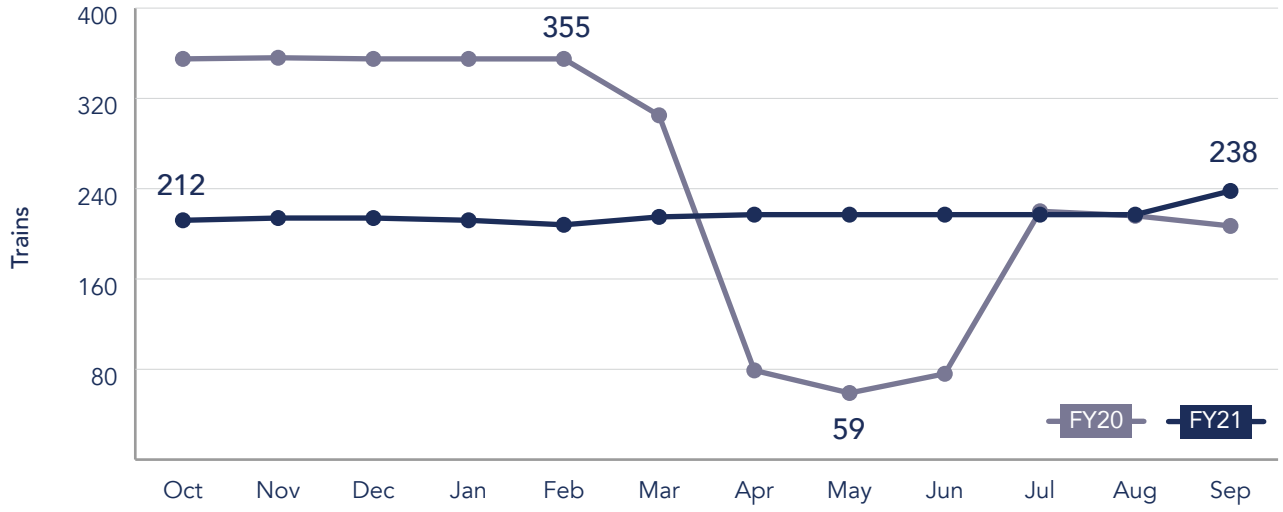
Rank by category, FY21



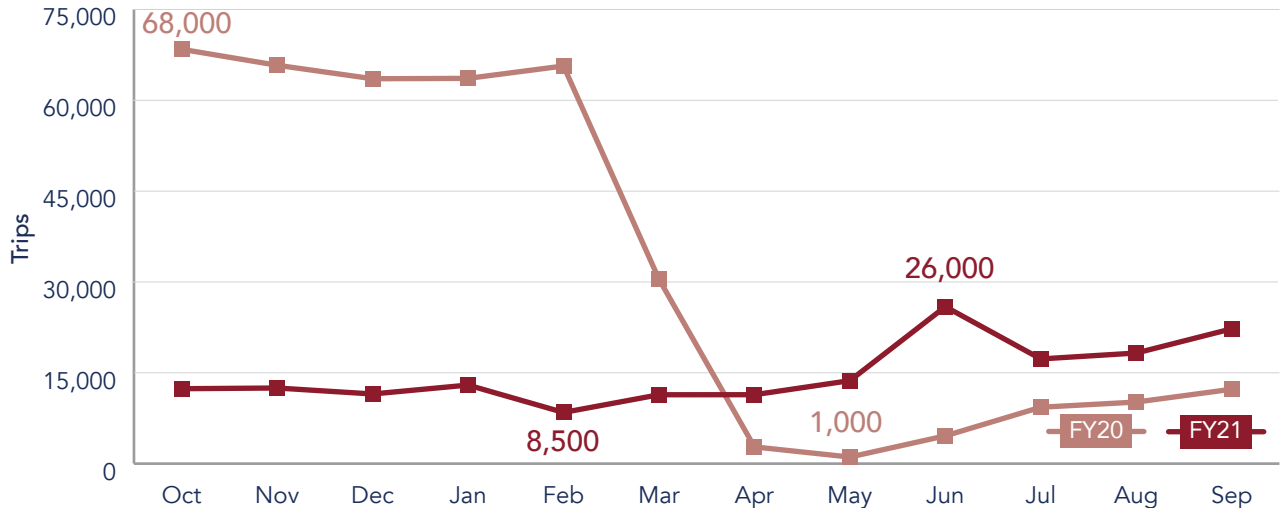
SEPTA NEC Service and Ridership

Period	Average Weekday NEC Trains			Average Weekday NEC Trips		
	FY20	FY20	Change from FY20	FY20	FY21	Change from FY20
Q1 (Oct - Dec)	355	213	-40% ↓	65,924	12,121	-82% ↓
Q2 (Jan - Mar)	338	212	-37% ↓	53,249	10,933	-79% ↓
Q3 (Apr - Jun)	72	217	+203% ↑	2,811	17,000	+505% ↑
Q4 (Jul - Sep)	214	224	+5% ↑	10,588	19,272	+82% ↑
FY Average (Oct - Sep)	**245**	**217**	**-12% ↓**	**33,143**	**14,831**	**-55% ↓**

SEPTA Average NEC Weekday Trains



SEPTA Average NEC Weekday Trips



Region: Mid-Atlantic South

Infrastructure and Operations Detail

Operators: Amtrak, MARC, VRE

RoW Owner: Amtrak

BCC Segments

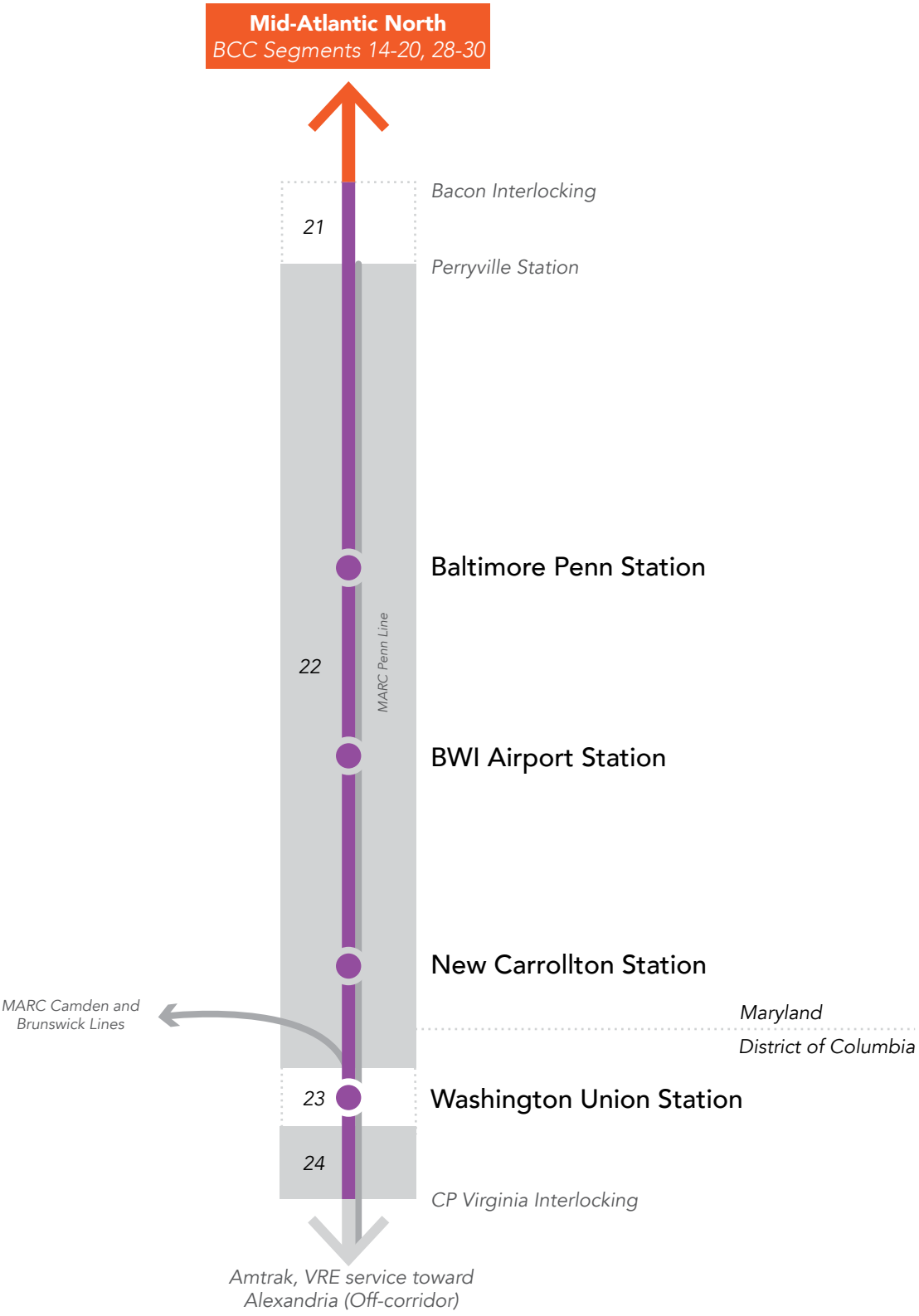
21: Bacon to Perryville

22: Perryville to Washington Union Station

23: Washington Union Terminal

24: Washington Union Station to CP Virginia

Mid-Atlantic South
BCC Segments 21-24



Not all intermediate stations shown.

Infrastructure: Special Projects

Amtrak, MDOT MTA / MARC, and VRE coordinated work on 16 special projects throughout the Mid-Atlantic South region. In total, $65 million was invested in FY21 (45% of plan).

Special Projects Detail: Mid-Atlantic South

Amtrak		**FY21 Actual Expenditure: $65,309,281**
Baltimore & Potomac Tunnel Replacement: Enabling Components		
FY21 Planned Expenditure & Scope	$16,300,000	Continue development of a Project Plan identifying major elements, cash flow, and required resources. Prepare design of Track A upgrade from Winans to Bridge. Prepare 60% submittals for replacing Warwick Avenue and Franklintown Road undergrade bridges. Initiate design on Edmondson Avenue and Lafayette Avenue Bridges and Sub 20. Continuing to prepare documents and exhibits to meet commitments in the Project's Section 106 Programmatic Agreement (PA) and Record of Decision (ROD); Coordinate with CSX regarding the reconstruction of the CSX Bridge over the proposed Alignment. Coordinate with local utilities regarding utility relocations. Initiate Right-of-Way / Property acquisition.
FY21 Actual Expenditure & Accomplishments	$5,032,590	Re-start design, coordination, and program management efforts - submission of select 60% design deliverables; continued development of scope, schedule, and budget to reflect phased approach; submission of NEPA re-evaluation; expansion of program team; commencement of property acquisition process; and continued stakeholder engagement. ☑ Issue Contract Mod to proceed into Final Design: Achieved March 2021 ☑ Franklintown Road and Warwick Avenue Bridge Replacement 60% Design: Achieved August 2021 ➔ Track A Final Design: *Deferred to September 2022*
Variance & Explanation	-$11,267,410	Variance results from lingering COVID-19 and work stoppage impacts. The program team continues to ramp up following these impacts.
Baltimore & Potomac Tunnel Replacement: Construction - Phase 1		
FY21 Planned Expenditure & Scope	$10,700,000	Advance design of the tunnel proper and balance of project not contained within enabling projects towards 60% level and continuing geotechnical exploration program. Continue development of a Project Plan identifying major elements, cash flow, and required resources. Initiate Right-of-Way / Property acquisition.
FY21 Actual Expenditure & Accomplishments	$6,294,425	Re-start design, coordination, and program management efforts - submission of select 60% design deliverables; continued development of scope, schedule, and budget to reflect phased approach; submission of NEPA Re-evaluation; expansion of program team; commencement of property acquisition process; continued stakeholder engagement. ☑ Issue Contract Mod to proceed into Final Design: Achieved March 2021
Variance & Explanation	-$4,405,575	Variance results from lingering COVID-19 and work stoppage impacts. The program team continues to ramp up following these impacts.
Baltimore Penn Station: Infrastructure Improvements		
FY21 Planned Expenditure & Scope	$16,628,643	In FY21, we plan to award a contract to a General Contractor to begin the construction phase of this project. Early construction items include the foundation work for the new Platform 2 and potentially the new Platform 5 as well as the catenary pole foundations for Platform 5 (funded through an Amtrak ET GCAP Project). The demo of the existing Platform 2 and the construction of the new Platform 2 will also begin. Canopy work will also begin for Platform 2 as well as vertical circulation work.
FY21 Actual Expenditure & Accomplishments	$2,987,894	Executed construction contract, issued notice to proceed to mobilize contractor, and finalized signal design. ☑ NTP General Contractor: Achieved August 2021 ➔ Mobilization and start of Construction: *Deferred to November 2021* ➔ Cat pole foundation finish: *Deferred to March 2022*
Variance & Explanation	-$13,640,749	The Notice to Proceed for the general contractor was delayed. Construction work is expected occur in FY22.
Baltimore Penn Station: Master Plan		
FY21 Planned Expenditure & Scope	$16,865,226	The FY21 scope includes completing design and moving into construction of the Exterior Envelope, and Early Action SOGR improvements, as well as advancing design for the remaining SOGR improvements, station modernization, and concourse expansion.
FY21 Actual Expenditure & Accomplishments	$1,987,863	Completed design development and review of Historic Exterior Envelope renovations. Advanced design for remaining renovations and station expansion. ☑ 30% Design Documentation for Station Expansion: Achieved December 2020 ➔ NTP for SOGR Exterior Envelope Construction: *Deferred to January 2022* ➔ 60% Design Documentation for Station Expansion: *Deferred to March 2022*
Variance & Explanation	-$14,877,363	Construction start was delayed due to pending final design and lease execution for early action state-of-good-repair construction, pushing back construction costs to FY22 and beyond.

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

Special Projects Detail: Mid-Atlantic South continued on the next page >>

Hanson Interlocking		
FY21 Planned Expenditure & Scope	$16,812,914	Main items for FY21 is to install signal bridges and catenary poles for Hanson. This will involve coordination with Pepco, WMATA, Zayo and Transportation. C&S will work on testing. ET will begin catenary work after poles are installed.
FY21 Actual Expenditure & Accomplishments	$6,877,736	Completed NEPA/National Historic Preservation Act (NHPA)agreement, completed steel fabrication, began catenary pole install, and finished installation of satellite cases. ☑ Complete steel fabrication: Achieved April 2021 ☑ Complete Section 106 NEPA/NHPA: Achieved August 2021 ☑ Begin Catenary Pole Installation: Achieved August 2021 ☑ Begin Signal Bridge Installation: Achieved September 2021 ➔ Complete Signal Bridge Installation: *Deferred to March 2022* ➔ Complete Catenary Pole Installation: *Deferred to April 2022*
Variance & Explanation	-$9,935,178	NHPA Section 106 review began late in FY20 and continued during most of FY21. Catenary pole and signal bridge work could not move forward until the Section 106 review was complete and the Memorandum of Agreement was signed, which occurred in August 2021. Additionally, power distribution to Hanson Interlocking has been delayed, as Pepco requires an easement from Washington Metropolitan Area Transit Authority (WMATA) to bring power to Amtrak property via WMATA infrastructure.
Maryland Section Reliability Improvements [Completed]		
FY21 Planned Expenditure & Scope	$640,111	Complete C&S Construction, which includes PTC and signal systems, and prepare built drawings.
FY21 Actual Expenditure & Accomplishments	$838,296	Project work completed in FY21. Upgraded Track 1 between Bridge and Carrol Interlocking. ☑ Complete ET As Built Drawings: Achieved February 2021 ☑ Track Surfacing to Adjust 18 Curves: Achieved March 2021 ☑ C&S CONSTRUCTION (PTC and Signal Sys.): Achieved September 2021
Variance & Explanation	$198,185	PTC Transponder cost more than expected.
New Carrollton Station: Next-Generation Acela Upgrades		
FY21 Planned Expenditure & Scope	$8,490,000	Finalize WMATA design package. Finalize 100% design phase. Issue construction NTP. Excavate areas that are sensitive to the WMATA tracks during WMATA's track outage in the Summer of FY21.
FY21 Actual Expenditure & Accomplishments	$353,924	Completed the 100% Design, issued construction bid documents, and submitted Section 106 documentation to SHPO for review. ☑ Submit 2nd WMATA package: Achieved October 2020 ☑ Finalize WMATA package: Achieved December 2020 ☑ Begin RFP process for construction contractor: Achieved December 2020 ☑ Finalize and submit 100% Design: Achieved January 2021 ☑ Procurement Start: Achieved June 2021 ➔ Construction NTP: *Deferred to February 2022*
Variance & Explanation	-$8,136,076	The construction did not start in FY21 as planned due to outstanding negotiations between Amtrak and Norfolk Southern Railroad.
New Carrollton Station: State of Good Repair Improvements		
FY21 Planned Expenditure & Scope	$0	Finish design phase, procure a contractor to commence construction (dependent on funding request of $1.2M).
FY21 Actual Expenditure & Accomplishments	$461,000	Completed design and bid phase. ☑ IFB Submission, complete design: Achieved April 2021 ☑ Start construction procurement: Achieved July 2021 ➔ Complete construction procurement, issue NTP: Deferred to February 2022 ➔ Start Construction: Deferred to March 2022
Variance & Explanation	$461,000	While constructions bids were received, a contractor has not yet been selected and construction did not start in FY21.

Special Projects Detail: Mid-Atlantic South continued on the next page >>

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

Next Generation High Speed Fleet Infrastructure: Ivy City/Washington Terminal Yard Facility Improvements		
FY21 Planned Expenditure & Scope	$22,400,000	Complete S&I facility modifications including fabrication, delivery, installation, testing and commissioning of all specialty equipment, installation of new roof access platforms, installation of new Alstom trailer, and installation of associated utility improvements. Complete North Storage Track installation including all track improvements, catenary improvements, and associated utility improvements, fencing, & wayside power. Complete wheel lathe pit modifications including delivery of new wheel truing machine and associated testing and commissioning.
FY21 Actual Expenditure & Accomplishments	$21,514,436	Due to issues identified with outages, the medium voltage cable replacement is deferred to FY22. ☑ S&I Mods Substantial Completion: Achieved February 2021 ☑ New wheel lathe put in-service: Achieved April 2021 ☑ North Storage Tracks Substantial Completion: Achieved to September 2021
Variance & Explanation	-$885,564	Deferral of medium voltage cable replacement to FY22.
Susquehanna River Bridge Replacement: Phase 1		
FY21 Planned Expenditure & Scope	$2,840,000	In FY21 we plan to reach the 60% design milestone and move toward the 90% design milestone. We will also look at the potential to perform some small precursor projects that are part of the construction phase.
FY21 Actual Expenditure & Accomplishments	$1,308	None ➔ Grace Interlocking Design (Precursor Activity): *Deferred to September 2022*
Variance & Explanation	-$2,838,692	Project has been deferred to FY22 and is currently unfunded for FY21. Project requires comprehensive project delivery strategy including schedule and spending forecast.
Washington Union Station: Claytor Concourse Modernization Program		
FY21 Planned Expenditure & Scope	$1,417,663	USRC will undertake a constructibility of the Concourse project and produce final bid documents to progress the project forward to procurement in late FY21/early FY22.
FY21 Actual Expenditure & Accomplishments	$1,062,519	Completed design for the relocation of most Amtrak Police Department (APD) facilities into the nearby REA Building and began construction procurement. For the concourse modernization itself, an independent project delivery review was completed. ☑ Amtrak project delivery review and recommendation: Achieved September 2021
Variance & Explanation	-$355,144	APD Patrol building final design delayed due to protracted stakeholder coordination and existing conditions site survey. Additionally, the project lead for was revised from Union Station Redevelopment Corporation (USRC) to Amtrak.
Washington Union Station: Long Term Station Expansion		
FY21 Planned Expenditure & Scope	$1,879,871	Finalize EIS with Record of Decision. Determine governance structure, funding potential, procurement strategy and next steps to advance project from EIS concept level to design.
FY21 Actual Expenditure & Accomplishments	$2,758,883	Completed environmental remediation work for H Street Utility Design and continued to advance coordination for revised NEPA alternative for the station expansion. ➔ Determine road map to advance the project with partners: *Deferred to January 2022* ➔ Record of Decision: *Deferred to March 2022*
Variance & Explanation	$879,012	Prolonged coordination with stakeholders delayed due to restarting NEPA activities for the station expansion.
Washington Union Station: Near Term Rail Program		
FY21 Planned Expenditure & Scope	$1,131,377	Complete design for Satellite Commissary, Crew Base, and Substation 25A. Progress Satellite Commissary to construction procurement during 2nd half of FY21 in order to begin construction at the beginning of FY22.
FY21 Actual Expenditure & Accomplishments	$590,799	Established a construction procurement strategy for Satellite Commissary and Crew Base. Restarted Substation 25A design work and achieved preliminary IT design. ➔ Satellite Commissary construction procurement commences: *Deferred to January 2022* ➔ Satellite Commissary design complete: *Deferred to March 2022* ➔ Crew Base Design complete: *Deferred to March 2022* ➔ Substation 25A design complete: *Deferred to March 2022*
Variance & Explanation	-$540,578	Protracted stakeholder coordination delayed design activities for Satellite Commissary and Crew Base. Substation 25A delayed due to prolonged Section 106 coordination.

Special Projects Detail: Mid-Atlantic South continued on the next page >>

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

Washington Union Station: Subbasement Program		
FY21 Planned Expenditure & Scope	$22,033,042	Progress Track 22 construction. Finalize Subbasement design and support USRC led utility relocation and investigation that is needed to advance the Subbasement reconstruction.
FY21 Actual Expenditure & Accomplishments	$14,507,987	Completion of technical design milestone for Subbasement Structural Replacement. USRC completed design of pump relocation in support of Subbasement. Track 22 construction activities were mobilized in the North Hangar, completed steel installation for walkway, and began work on platform installation. ☑ Track 22 North Hangar Mobilization: Achieved April 2021 ☑ Subbasement technical design: Achieved July 2021 ☑ USRC pumps design: Achieved July 2021 ☑ Track 22 walkway installed: Achieved September 2021
Variance & Explanation	-$7,525,055	An agreement between for utility relocation and storage mitigation has been delayed, negatively affecting expenditures, and delaying project schedule.
MDOT MTA / MARC		**FY21 Actual Expenditure: $17,299**
MARC Storage Improvements: Martin Airport		
FY21 Planned Expenditure & Scope	$0	No work planned in FY21
FY21 Actual Expenditure & Accomplishments	$17,299	Easement Acquisition between Amtrak, SHA & MTA.
Variance & Explanation	$17,299	Expenditure was reduced as result of SWM and ET OCS Design Review Modifications.
VRE		**FY21 Actual Expenditure: $22,322**
VRE Midday Storage Facility		
FY21 Planned Expenditure & Scope	$8,383,706	Continue discussions with Amtrak on most efficient use of space within Ivy City property and best approach for meeting near- and long-term capacity needs.- Prepare for critical property acquisition actions
FY21 Actual Expenditure & Accomplishments	$22,322	Project coordination meetings and coordination of real estate activities.
Variance & Explanation	-$8,361,384	Continued Delays in initiation of Final Design due to ongoing agreement negotiations

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

Infrastructure: Capital Renewal

In the Mid-Atlantic South region, Baseline Capital Charges (BCCs) are allocated by Amtrak, MARC, and VRE to fund the capital renewal of basic infrastructure on the NEC Main Line in Maryland the District of Columbia. In total, $91 million was invested in FY21 (102% of plan).

BCC Segment	RoW owner	Operators			FY20 expenditure by segment
		Amtrak	MARC	VRE	
21: Bacon to Perryville	Amtrak	$3,134,573	-	-	**$3,134,573**
22: Perryville to Washington Union Station	Amtrak	$59,209,878	$18,233,967	-	**$77,443,845**
23: Washington Union Terminal	Amtrak	$10,073,733	-	$634,769	**$10,708,502**
24: Washington Union Station to CP Virginia	Amtrak	-	-	$2,430	**$2,430**
FY21 total regional capital renewal expenditure by agency		**$72,418,184**	**$18,233,967**	**$637,199**	**$91,289,350**

FY21 Expenditure

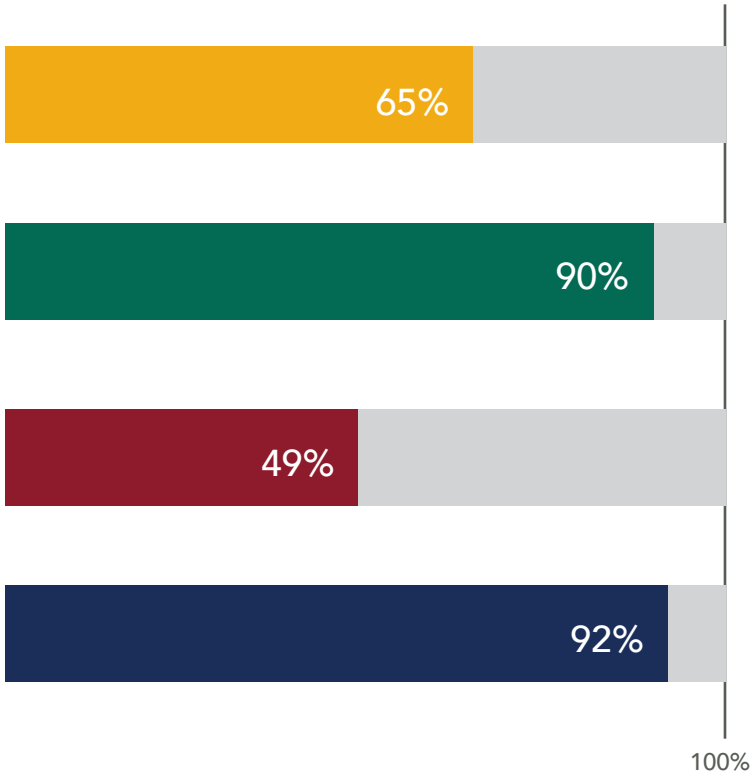
COMMUNICATION & SIGNALS
$4.8 MILLION

ELECTRIC TRACTION
$4.9 MILLION

STRUCTURES & FACILITIES
$10.9 MILLION

TRACK
$70.6 MILLION

Plan Adherence



This page left intentionally blank.

Capital Renewal Detail: Mid-Atlantic South [Amtrak-owned; BCC segments 21-24]

Accomplishments and explanations of variance are submitted by Amtrak for the entire project or program. Therefore, they will include activities across all relevant segments, including those outside of the Mid-Atlantic South region. All data is published, as submitted by the RoW owner.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
B&P Block Tie Replacement. P000130. C.EN.101885.	22	$16,086,000	$27,603,734	$11,517,734	Planned work in this area removed from FY21 plan	Planned work in this area removed from FY21 plan
Communications System Upgrades. PG00083. C.EN.101857.	22	$65,221	$134,982	$69,761	This program made quite a few accomplishments in FY21. We installed and cut over a new communications hut at Winans Interlocking MP 103.3 in the Mid Atlantic Division. We installed and cut over a new radio hut at Delaware Park MP 34.3 in the Mid Atlantic Division. We began work on the Fiber Transport Upgrade projects on the Harrisburg Line and NYD East and West. We began procurement for a new Fiber Optic Transport System. We began the conceptual phase for a Radio Upgrade System for the entire northeast corridor and central division. We continued to work on radio improvements in Penn Station NY and Washington 1st Street Tunnel.	Our original AOP was $4,999,545 with the bulk of the funding being allocated to the new Fiber Optic Transport System. Due to delays in the project getting started, and request for further information from procurement, the project was not put out for bid until August 2021. We reduced the original budget to $1,824,660. We spent 95% of this budget which was within the target range of +/- 5%
	23	$0	$129,412	$129,412		
Fence Upgrades. PG00069. C.EN.101854.	22	$1,946,505	$2,609,826	$663,321	Locations completed in FY21: • NED (4 locations: Providence, RI; Madison, CT; Charleston, RI; Stonington, CT) - approximately 13,300' • NYD (4 locations: Metuchen, NJ; Croydon, PA; New Brunswick, NJ; Princeton Junction, NJ) - approximately 2,800' • MAD (4 locations: Baltimore, MD; Odenton, MD; Middle River, MD; Bowie, MD) - approximately 9,000'"	Program underspent by $251 K or 3% of approved FY21 AOP. All planned work was accomplished with the exception of Hialeah which was deferred to FY22 due to COVID. Two new locations, Croydon, PA and New Brunswick, NJ were added to the plan over the course of the year.
Gunpow Substation 18 New Prefabricated Control House. P000168. C.EN.101900.	22	$0	$5,213	$5,213	Scope of Work Generated for new Control House	On hold until new consultant is on boarded
Ivy City Potable Water System Replacement. P000123. C.EN.101718.	22	$6,153,100	$23,082	-$6,130,018	Started the Constructibility Review for the project.	Construction of the project was delayed due to the need to do a Constructibility Review. Constructibility Review was necessary because when the project was put out to bid previously, bid prices were well above the engineer's estimate.
	23	$0	$36,982	$36,982		

Capital Renewal Detail: Mid-Atlantic South continued on the next page >>

Capital Renewal Detail: Mid-Atlantic South [Amtrak-owned; BCC segments 21-24] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Jericho Park Frequency Converter Replacement. P000169. C.EN.101750.	22	$536,204	$0	-$536,204	Scope of Work Generated for Converter Replacement	Scope of Work was not approved to acquire design consultant
Mid-Atlantic North Structures. PG00018. C.EN.101826.	22	$0	$470,221	$470,221	• Completed Wilmington Wall Rehab. • Completed Bridge timber design work for five bridges. • Advanced Darby CIH Support Design Project. • Closed out Whitford Rd UGB Rehab (completed previous FY). • Advanced PCY Stringer Rehab Design. • Advanced Lehigh Ave UGB Rehab. • Completed Culvert St UGB Rehab. • Completed Lumbard St UGB Rehab. • Completed Justison St UGB Rehab. • Completed York St UGB Rehab. • Began material procurement for three FY22 Bridge Timber Replacement Projects. • Completed Mantua Interlocking Lighting upgrades. • Completed AH Line MP 48.99 Culvert upgrades.	• Two Bridge Timber Replacement Projects deferred to FY 23 due to material delays. • Two Bridge Rehab projects on hold due to re-evaluation.
Mid-Atlantic South Catenary. PG00021. C.EN.101829.	21	$0	$705	$705	• Installed 323 SAPs; removed 81 steady spans. • Completed Charles and Paul switch heater stations. • Began Magnolia and Wood switch heater stations.	Due to delay in receiving SAPs from manufacturer, installation was delayed.
	22	$2,058,530	$4,175,041	$2,116,511		
	23	$0	$3,620	$3,620		
Mid-Atlantic South Facilities. PG00023. C.EN.101831.	21	$0	$421,155	$421,155	• Completed Ivy City Compressor Final Design. Replaced PVL water heater. • Began Odenton high mast lighting. • Began PVL high mast lighting.	Odenton high mast lighting delayed due to procurement; Ivy City air compressors delayed due to site plan redesign.
	22	$582,312	$157,828	-$424,484		
	23	$2,204,184	$99,938	-$2,104,246		
	24	$0	$2,430	$2,430		
Mid-Atlantic South Signal System Upgrades to 562. P000120. C.EN.101872.	22	$2,922,287	$1,214,865	-$1,707,422	Continued work on Oak to Bush 562 Upgrades.	562 upgrades from Bush to Wood was delayed due to manpower. CP to Landover design was deferred.
Mid-Atlantic South Signals. PG00025. C.EN.101832.	21	$0	$351,625	$351,625	Converted Gunpow home signals to LEDs. 57 signal cable splices tested/replaced.	Delays in obtaining additional funding delayed ramp up of work.
	22	$412,872	$535,265	$122,393		
	23	$0	$11,742	$11,742		

Capital Renewal Detail: Mid-Atlantic South continued on the next page >>

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

Capital Renewal Detail: Mid-Atlantic South [Amtrak-owned; BCC segments 21-24] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Mid-Atlantic South Structures. PG00026. C.EN.101833.	21	$1,741,804	$22,658	-$1,719,146	• Completed 3 culvert replacements. • Completed upgrade of Patapsco River bridge pedestals under tracks 1 and A. • Began emergency improvements to Susquehanna River Bridge pier 6. • Continued 1st St. Tunnel drainage improvement. • Continued Gunpowder River Bridge concrete improvements. • Completed Jay's Run bridge upgrades. • Continued Cheverly culvert final design. • Began Furnace Ave. Bridge improvements. • Continued Cheverly flood assessment.	Budget overage due to Susquehanna River Bridge emergency.
	22	$3,356,324	$6,803,574	$3,447,250		
	23	$0	$331,851	$331,851		
	24	$804,300	$0	-$804,300		
Mid-Atlantic South Track. PG00028. C.EN.101835.	21	$1,963,383	$1,122,588	-$840,795	• Welded 166 frogs. • 309 field welds. • Installed 257 wood block ties. • Installed 195 insulated joints. • Installed 672 switch timbers. • Installed 112 concrete ties. • Installed 1,676 wood ties. • Renewed 30 frogs. • Renewed 5 guard rails. • Renewed 109 switch points/stock rails. • Surfaced 185,331 ft. of track. • Undercut/vacuumed 19,861 ft. of track.	Delays to MP 103.9 project.
	22	$14,190,328	$12,049,180	-$2,141,148		
	23	$3,216,419	$3,695,630	$479,211		
MofE ICT Facility Program: DC Ivy City Yard ICT Site Analysis. P000180. C.EN.101905.	23	$678,066	$0	-$678,066	*NEC Commission staff determined this Amtrak capital renewal project was a duplicate of the Amtrak **Next Generation High Speed Fleet Infrastructure: Ivy City/Washington Terminal Yard Facility Improvements** special project. Information on this project is available under the Amtrak special projects (page 128).*	
Moveable Point Frog Switch Machine Rod Replacement. P000160. C.EN.101894.	22	$72,785	$0	-$72,785	In FY21, all of the Movable Point Frog rod packages planned for F Interlocking except for 1 location were installed. We also installed rod packages at Lane Interlocking but still have 3 locations left to do there. All other locations were moved to FY22 due to material acquisition issues.	The final AOP was $101,986 and the final spend for FY21 was $101,734 so variance was negligible.
New Hanson-Landover Interlocking. P000029. C.EN.100201.	22	$53,620	$0	-$53,620	*NEC Commmission staff determined this Amtrak capital renewal project was a duplicate of the Amtrak **Hanson Interlocking** special project. Information on this project is available under the Amtrak special projects (page 127).*	

Capital Renewal Detail: Mid-Atlantic South continued on the next page >>

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

Capital Renewal Detail: Mid-Atlantic South [Amtrak-owned; BCC segments 21-24] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Production High Speed Surfacing. PG00060. C.EN.101855.	21	$253,944	$195	-$253,749	In FY21, a total of 158.79 track miles were surfaced in total on the AB, AN, AZ, AR, AP, and AH lines.	Our final requested AOP was $13,417,659 and our final spend was $13,052,154. The variance was due to additional spending on state partner numbers and other projects and reduced spending on this program.
	22	$3,334,825	$4,380,997	$1,046,172		
Production Wood Tie/Timber Replacement. PG00071. C.EN.101858.	22	$129,099	$518,829	$389,730	Z181 de-stressed rail on Track 1 between Thorn and Park. Z181 installed 9327 ties and 260 timbers between Thorn and Park and at Phil and Mantua. Z192 installed rail, track panels, 2645 ties and 490 timbers at Landover, Washington DC, and Lorton, VA. Z192 also coordinate with B&B for demolition and renewal of cart path crossing surface. New England Construction installed 37,584 ties and de-stressed rail between Mill River and Windsor on the Springfield Line.	Z181 installed fewer than expected ties because the tie gang was delayed due to extensive de-stressing.
	23	$914,520	$3,464,246	$2,549,726		
Rail Grinding. PG00064. C.EN.101794.	21	$0	$107,240	$107,240	In FY21, the Loram rail grinder completed 918.11 of the planned 1,045 TK miles along the NEC. (Approximately 359.82 TK miles for NYD, 455.95 TK miles for NED, and 102.34 TK miles for MAD.)	The rail grinder underspent by 9% due to unplanned down days resulting from Loram maintenance issues, bad weather, train delay, and customer delay. Total planned track mile goal was also not realized due to multiple passes required on sections of track to meet required profile.
	22	$0	$479,161	$479,161		
TLS Concrete Tie Replacement. PG00057. C.EN.101652.	21	$0	$838,007	$838,007	The TLS work group installed concrete ties and continuously welded rail between Philadelphia and Washington, in the Mid-Atlantic Division.	An Change request was submitted in Q3 to return $8,000,0000, as the Davis to Bacon location was canceled due to deliveries of defective clips from Pandrol. With Change requests accounted for the program completed the year at 3% overspent.
	22	$19,330,908	$13,420,008	-$5,910,900		
Track Rehabilitation. PG00063. C.EN.101859.	21	$0	$270,400	$270,400	Work completed in FY21: • Bear, DE - approximately 2,000 wood ties replaced • Penn Coach Yard, PA - tracks 26 and 37 completely renewed • Groton House Track, CT - new turnout and fit concrete ties installed • Westerly Yard, RI - fit concrete ties installed in yard • Perryville Yard, MD - one new turnout installed • Milham Yard, NJ - track 5 extended by 4,500'"	Program underspent by $2.1 M or 12% of approved FY21 adjusted AOP. All planned work was accomplished with the exception of Wilmington Yard switch installation which was deferred due to material delays.
	22	$539,706	$0	-$539,706		
Track Undercutting. PG00062. C.EN.100269.	22	$0	$54,193	$54,193	The Undercutting work group undercut a total of 16,181 track feet. This work occurred strictly in Q1 FY21, as work planned for Q2 through Q4 was canceled.	With Change requests accounted for, the program completed the year at 7% underspent.

Capital Renewal Detail: Mid-Atlantic South continued on the next page >>

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

Capital Renewal Detail: Mid-Atlantic South [Amtrak-owned; BCC segments 21-24] cont.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Turnout Renewal. PG00065. C.EN.101860.	22	$2,191,357	$2,075,805	-$115,552	In the turnout program for FY21 we replaced turnouts on the New England, New York, and Mid-Atlantic divisions. Cable and panel replacements were also performed as needed at the install locations.	An Change request was submitted in July to adjust the program's FY21 budget to $55,715,404. Our overall FY21 spend came in at $51,989,239. The ~$4 Million variance came from some locations that pushed into FY22 due to Hurricane Ida response and material issues.
	23	$0	$347,329	$347,329		
	24	$814,449	$0	-$814,449		
WAS Washington Station High Level Platform Refresh. C.RE.100084.	23	$0	$2,502,486	$2,502,486	All tactile and trip hazard mitigation complete on Platforms 17/18 and 19/20. Work started on the historic canopy restoration on the same platforms. Work also started on the platform gate entries.	Due to material delays, and production delays due to weather, COVID and other Amtrak Engineering projects, the project completion was pushed to early Q3 of FY22.
Washington Terminal & Ivy City Facility Electrical Upgrades. P000074. C.EN.100850.	22	$2,209,145	-$14,689	-$2,223,834	Started working on the RFPs for three design projects.	Was unable to complete the three planned final design projects due to ET personnel working on the RFPs left the company.
	23	$0	$85,268	$85,268		
BCC Segments 21-24 Total		**$89,896,242**	**$91,289,350**	**$1,393,108**		

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

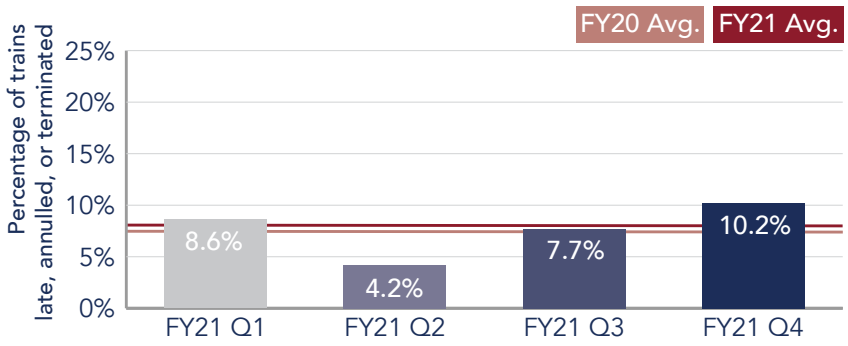
This page left intentionally blank.

Operations: MARC

MARC's Penn Line service operates entirely on the NEC Main Line between Perryville, MD 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.

Train performance profile

Metric	FY20	FY21
Percent NEC trains late, annulled, or terminated	7.5%	7.9%
Percent NEC trains not completed	0.89%	0.96%
Avg min late per NEC train	17.8	22.9

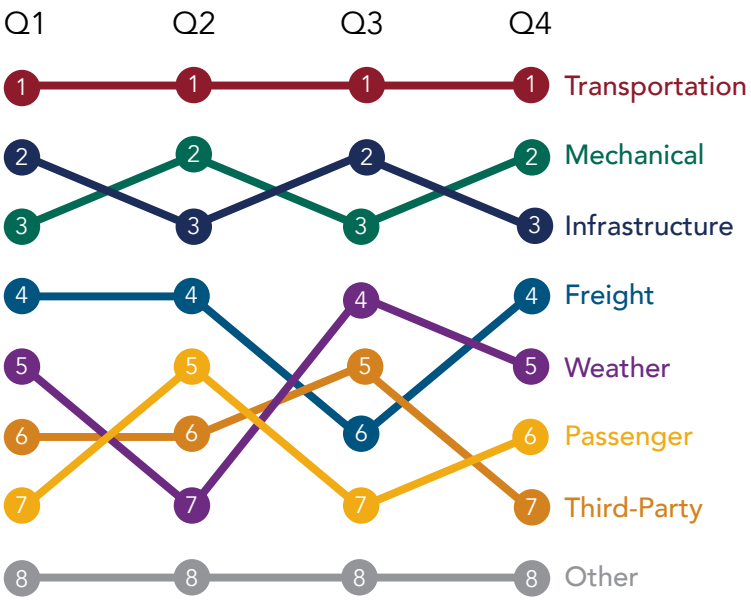


Train-delay minutes by cause

Total and percent change, FY20-21

Cause	FY20	FY21	Change
Infrastructure	5,792	5,623	-2.9%
Mechanical	6,483	6,331	-2.3%
Transportation	16,114	12,670	-21.4%
Passenger	472	607	28.6%
Weather	8,684	1,720	-80.2%
Third-Party	6,428	1,056	-83.6%
Freight	2,411	2,604	+8.0%
Other	0	0	-
Total	**46,384**	**30,611**	**-34.0%**

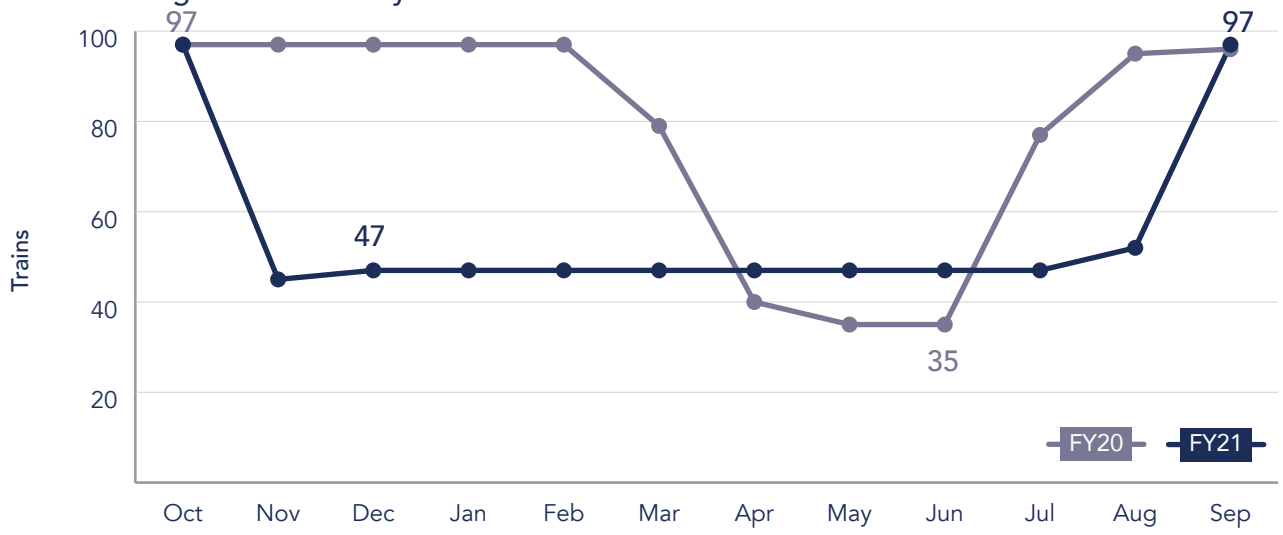
Rank by category, FY21



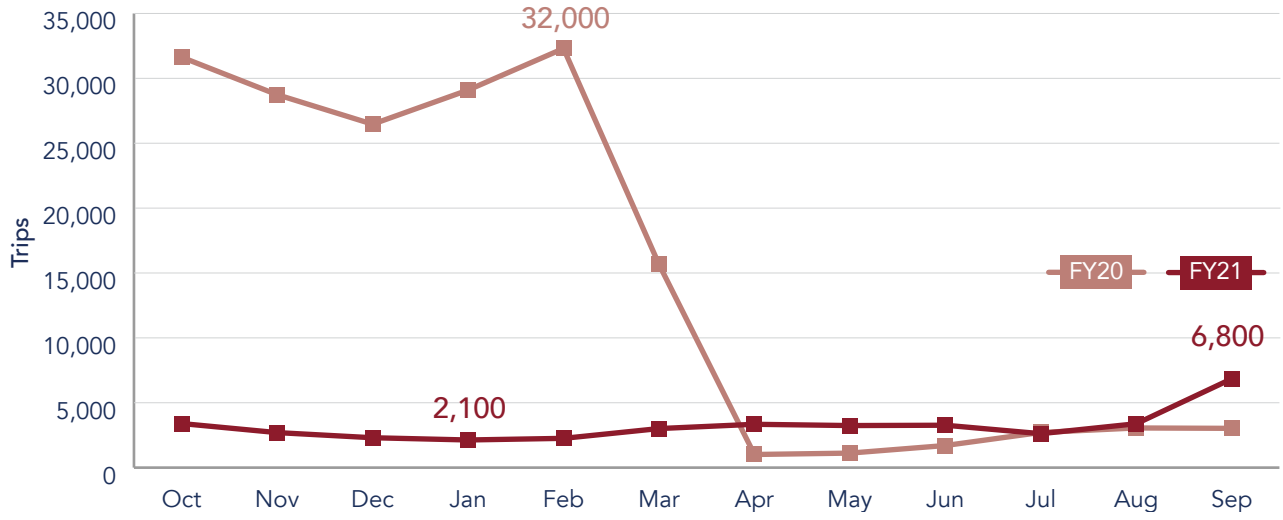
MARC NEC Service and Ridership

Period	Average Weekday NEC Trains			Average Weekday NEC Trips		
	FY20	FY21	Change from FY20	FY20	FY21	Change from FY20
Q1 (Oct - Dec)	97	64	-34% ↑	28,946	2,799	-90% ↓
Q2 (Jan - Mar)	91	47	-48% ↓	25,689	2,465	-90% ↓
Q3 (Apr - Jun)	37	47	+28% ↓	1,278	3,283	+157% ↑
Q4 (Jul - Sep)	89	65	-27% ↓	2,931	4,281	+46% ↑
FY Average (Oct - Sep)	**78**	**56**	**-29%** ↓	**14,711**	**3,207**	**-78%** ↓

MARC Average NEC Weekday Trains



MARC Average NEC Weekday Trips

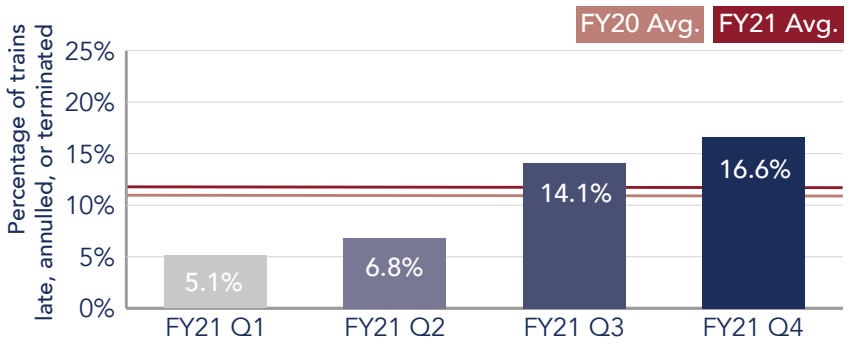


Operations: VRE

VRE operates two commuter lines out of Washington Union Station to Manassas, VA over NS track and Fredricksburg, VA over CSX track. Both lines operate on a segment of the NEC Main Line just south of Washington Union Station.

Train performance profile

Metric	FY20	FY21
Percent NEC trains late, annulled, or terminated	11.0%	11.8%
Percent NEC trains not completed	0.00%	0.09%
Avg min late per NEC train	16.1	17.1

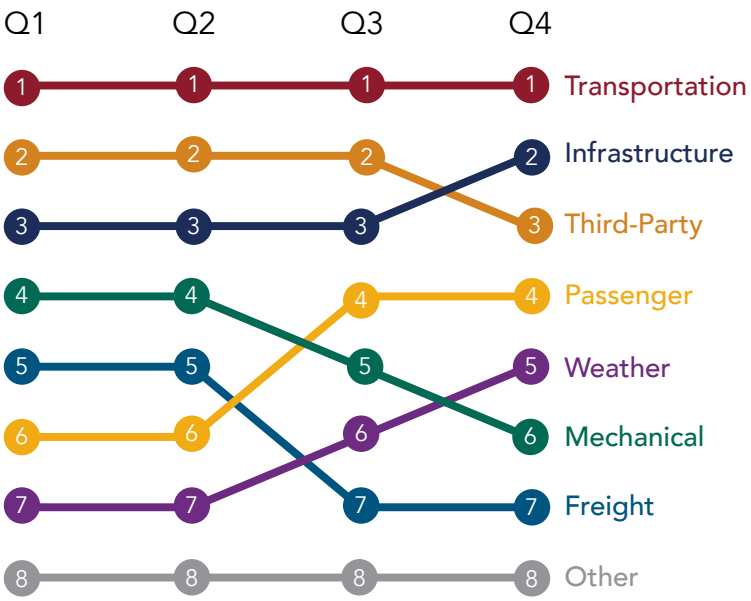


Train-delay minutes by cause

Total and percent change, FY20-21

Cause	FY20	FY21	Change
Infrastructure	1,828	3,051	+66.9%
Mechanical	1,739	501	-71.2%
Transportation	3,958	5,184	+31.0%
Passenger	314	923	+193.9%
Weather	597	390	-34.7%
Third-Party	1,447	2,861	+97.7%
Freight	969	139	-85.7%
Other	254	0	-100.0%
Total	**11,106**	**13,049**	**+17.5%**

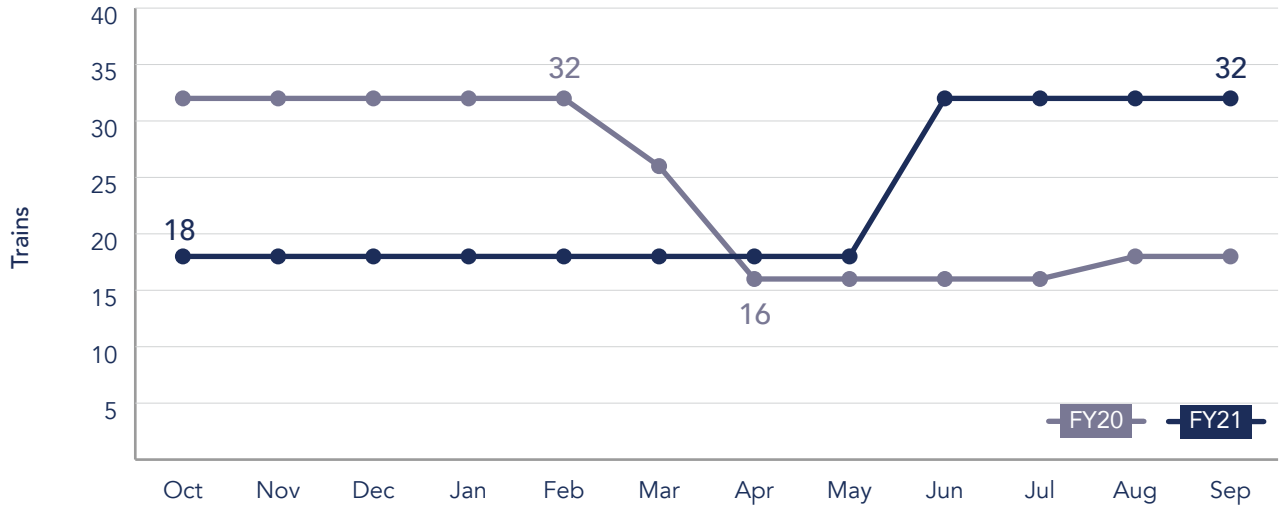
Rank by category, FY21



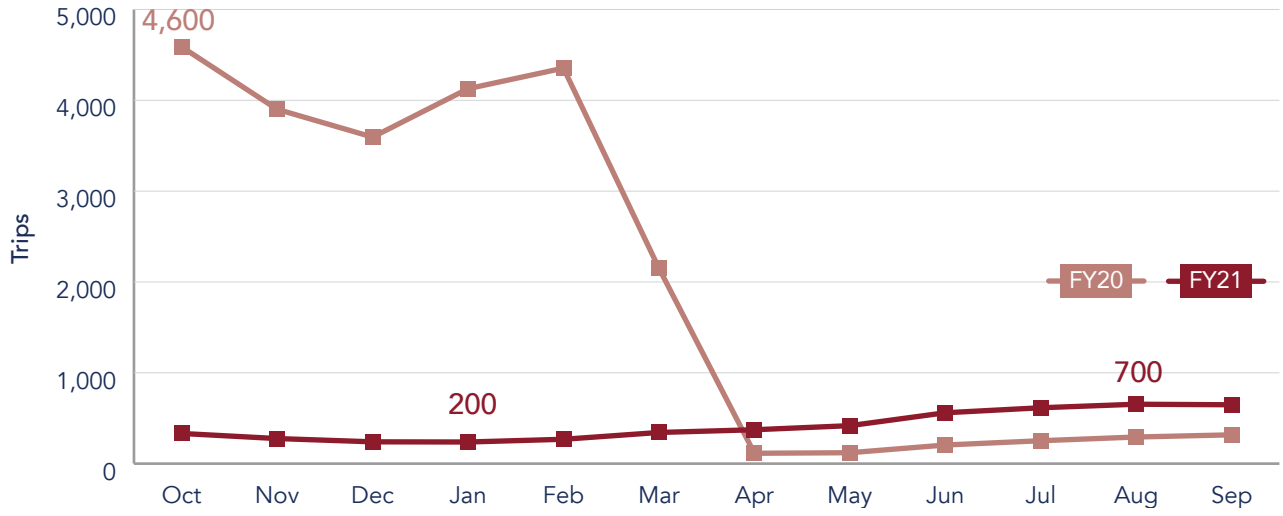
VRE NEC Service and Ridership

Period	Average Weekday NEC Trains			Average Weekday NEC Trips		
	FY20	FY21	Change from FY20	FY20	FY21	Change from FY20
Q1 (Oct - Dec)	32	18	-44% ↓	4,028	259	-146% ↓
Q2 (Jan - Mar)	30	18	-40% ↓	3,544	260	-93% ↓
Q3 (Apr - Jun)	16	23	+42% ↑	146	413	+182% ↑
Q4 (Jul - Sep)	17	32	+83% ↑	287	586	+104% ↑
FY Average (Oct - Sep)	**24**	**23**	**-5%** ↓	**2,001**	**380**	**-81%** ↓

VRE Average NEC Weekday Trains



VRE Average NEC Weekday Trips



Region: Amtrak System-wide

Infrastructure and Operations Detail

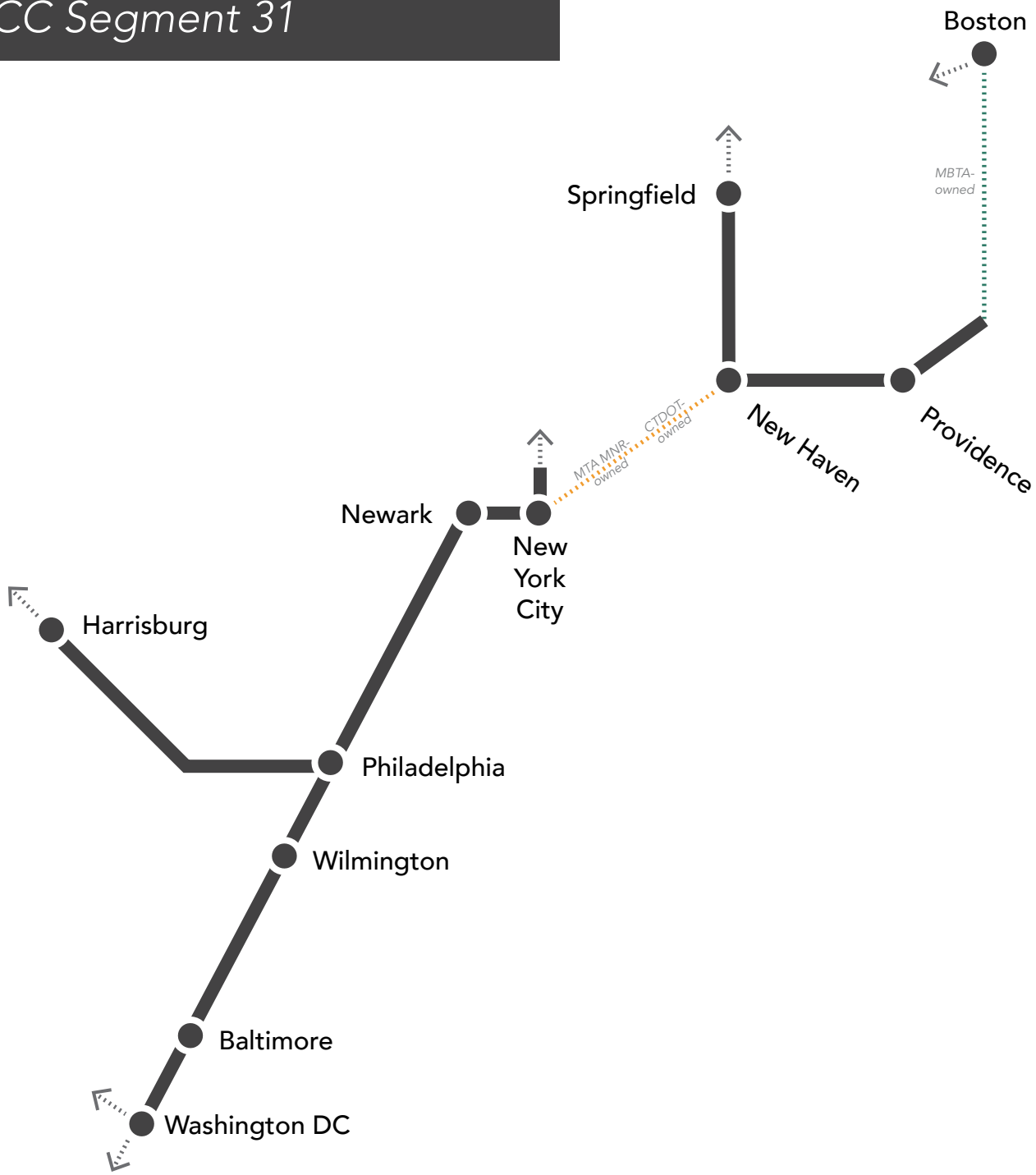
Operators: Amtrak

RoW Owner: Amtrak

BCC Segments

31: Amtrak System-wide

Amtrak System-wide
BCC Segment 31



Not all intermediate stations shown.

Segment 31 comprises of capital renewal investments that cannot be tied to a specific location and have benefits throughout the Amtrak-owned portion of the NEC.

Amtrak-owned
Non Amtrak-owned
Non-NEC Connecting Corridors

Infrastructure: Special Projects

Amtrak coordinated work on 2 special projects throughout it's NEC region with the commuter operators. In total, $15 million was invested in FY21 (60% of plan).

Special Projects Detail: Amtrak System-wide

Amtrak		**FY21 Actual Expenditure: $14,974,564**
Next Generation High Speed Fleet Infrastructure: Ride Quality Investment		
FY21 Planned Expenditure & Scope	$3,456,396	Finish the NEC Baseline LiDAR Survey started in FY-20. The Baseline Survey will produce a 3D point cloud. The 3D point cloud will be used to create the new track alignment designs. Complete CORS Node Densification. The will provide a overlapping GPS correction signal along the entire NEC. Track design for test section of NEC track. C&S and ET design for test section of NEC tracks.
FY21 Actual Expenditure & Accomplishments	$1,009,764	Completed 95% NEC LiDAR survey, collecting control points, initial post processing and feasibility testing of the Plasser GPS system. ☑ Complete CORS Node Densification: Achieved November 2020 ➔ Complete NEC Baseline LiDAR Survey: *Deferred to December 2021* ➔ Track Design: *Deferred to October 2022* ➔ ET Design: *Deferred November 2022*
Variance & Explanation	-$2,446,632	The LiDAR is still being reprocessed because of quality issues. The activity is taking longer than expected to complete.
Next Generation High Speed Fleet Infrastructure: Safety Mitigation		
FY21 Planned Expenditure & Scope	$21,464,393	**Gates/Fencing:** The installation of fencing, guard rails and motorized gates at select locations on the NEC, per Tier III FRA Waiver. **PTSO:** This work will meet the FRA waiver requirements with the design enhancement of the PTSR button installation on Acela 21 trains. **Maintenance-of-Way:** This project is to prevent on track work equipment from collisions that could happen when working on tracks. **Adjacent Tracks:** Complete project work and clean up for the two sidings listed below: **Merckens Chocolate Lead**: Mansfield, MA (MP 204.2 to 204.8), Adjacent to Track 2 **Blaine Chemical Lead**: Mansfield MA (MP 204.3 to 204.8), Adjacent to Track 1
FY21 Actual Expenditure & Accomplishments	$2,958,055	Completed the Adjacent Tracks scope of work and awarded a limited notice to proceed for the maintenance-of-way collision avoidance system. ☑ PTSO: NTP for Hardware Completion: Achieved October 2020 ☑ Adjacent Tracks: Complete Construction: Achieved August 2021 ☑ Maintenance-of-Way: NTP Collision Avoidance System Phase: Achieved October 2021
Variance & Explanation	-$18,506,338	The security gates scope of work was removed from this project and reflected in a new Amtrak special project that was added to plan, **Next Generation High Speed Fleet Infrastructure: Tier III Waiver Gates,** listed below.
Next Generation High Speed Fleet Infrastructure: Tier III Waiver Gates		
FY21 Planned Expenditure & Scope	$0	Not in FY21-25 CIP.
FY21 Actual Expenditure & Accomplishments	$11,006,745	Solicitation, award, and installation completed for all Phase 1 high-speed priority vehicle access gates and associated fencing. Solicitation and award were completed, and installation began for all Phase 1 Access Control systems. ☑ Gates/Fencing: Start Security Gate Installation: Achieved November 2020
Variance & Explanation	$11,006,745	Revisions to the technical design, and supply chain and raw material delays pushed completion of electronic Access Controls beyond the end of Q4 FY21 and into the beginning of Q2 FY22. Phase 1 planned gates and fencing were completed in Q4 FY21, except for three locations affected by adjacent private property concerns, and Amtrak Engineering's review and decision on design/location of vehicular access.

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

Infrastructure: Capital Renewal

Through Amtrak's NEC system, it can allocate Baseline Capital Charges (BCCs) to fund the capital renewal of basic infrastructure on the NEC main and branch lines. In total, $126 million was invested in FY21 (81% of plan).

BCC Segment	RoW owner	Operators	FY21 expenditure by segment
		Amtrak	
31. Amtrak System-wide	Amtrak	$125,746,487	**$125,746,487**
FY21 total regional capital renewal expenditure by agency		**$125,746,487**	**$125,746,487**

FY21 Expenditure

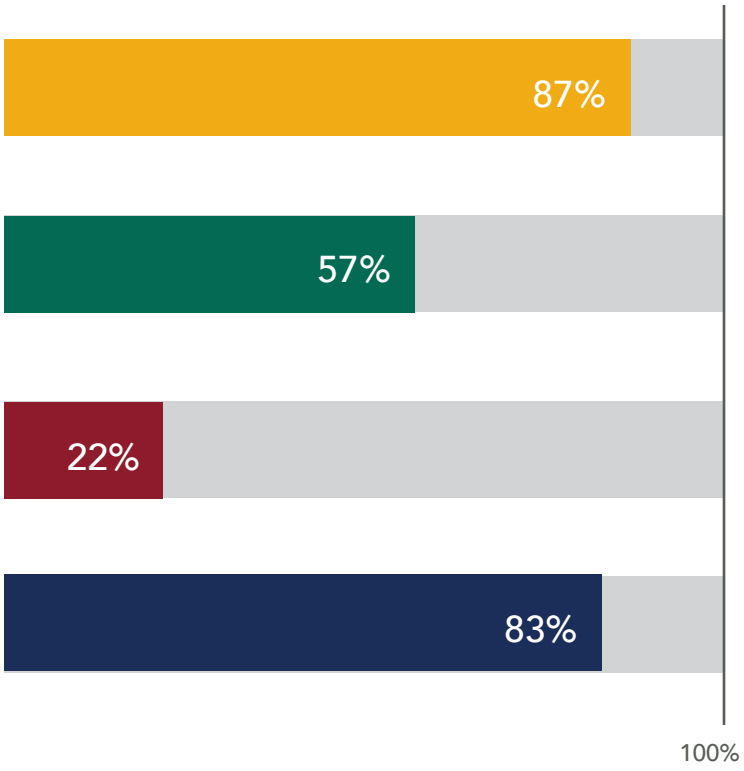
COMMUNICATION & SIGNALS
$16.4 MILLION

ELECTRIC TRACTION
$4.7 MILLION

STRUCTURES & FACILITIES
$0.9 MILLION

TRACK
$96.2 MILLION

Plan Adherence



Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Accomplishments and explanations of variance are submitted by Amtrak for the entire project or program. All data is published, as submitted by the RoW owner.

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Acela 21 Electric Traction: Load Flow Study. P000151. C.EN.101887.	31	$379,264	$265,299	-$113,965	1. Amtrak accepted the 25 HZ RELAY COORDINATION ASSESSMENT AND REPORT 2. Completed Train Data gathering for ET electrical load study. 3. Completed Work on Basis of Analysis Report (BOA) for ET electrical load study. 4. Updated PSSE model with New Acela Trainset electrical parameters. 5. Systra started the ET system load simulation study. The simulation data loader was complete. 6. Systra completed ET load study for 2022. 7. Systra used the 2025 loading to look at the total load east of Sub 42 (where the 138 kV transmission ends). 8. Started looking at 2035 data to restate the generation schedule."	The ET Load Simulation computer program took much longer than expected to run. The computer run time caused a project delay delivering the draft final report.
Amtrak Owned Positive Train CTRL (PTC) Installation. PG00085. C.EN.201034.	31	$10,512,659	$10,561,721	$49,062	In the first quarter of FY21, PTC was completely implemented by the Federal Mandated date of December 31, 2020. This included interoperability at all boundary locations with NJ TRANSIT, SEPTA, MBTA, LIRR and Metro-North. For the remainder of the fiscal year we concentrated on upgrading the system to include additional functionality requested by the FRA including D2 Mitigation, Boxcars, Back to Back which required upgraded OBC Software as well as reprogramming and replacement of Transponders and WIU's. This work is ongoing into FY22.	For FY21 we successfully spent 97% of our approved budget. Our goal was to spend with a +/- 5% variance and this was achieved with this program
Brill to Landlith OCS Improvements. P000109. C.EN.101880.	31	$4,687,574	$1,926,596	-$2,760,978	1. Issued Notice to Proceed to Jacobs for Preliminary Engineering on 02/02/2021. 2. Successfully completed Overheard Bridge, Interlocking Lighting, and Retaining Walls Surveys 3. Geotechnical Boring Program has been completed ahead of schedule."	Reduction of Boring numbers to accommodate available Mid-Atlantic RWP Support.
CETC Technology Renewal Program. PG00081. C.EN.101853.	31	$0	$854,993	$854,993	Outstanding costs associated with FY20 work accommodated by FY21 allotments	Variance between outstanding costs and allotment for FY21 is minimal

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31] [cont.]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Communications System Upgrades. PG00083. C.EN.101857.	31	$4,737,163	$1,307,453	-$3,429,710	This program made quite a few accomplishments in FY21. We installed and cut over a new communications hut at Winans Interlocking MP 103.3 in the Mid Atlantic Division. We installed and cut over a new radio hut at Delaware Park MP 34.3 in the Mid Atlantic Division. We began work on the Fiber Transport Upgrade projects on the Harrisburg Line and NYD East and West. We began procurement for a new Fiber Optic Transport System. We began the conceptual phase for a Radio Upgrade System for the entire northeast corridor and central division. We continued to work on radio improvements in Penn Station NY and Washington 1st Street Tunnel.	Our original AOP was $4,999,545 with the bulk of the funding being allocated to the new Fiber Optic Transport System. Due to delays in the project getting started, and request for further information from procurement, the project was not put out for bid until August 2021. We reduced the original budget to $1,824,660. We spent 95% of this budget which was within the target range of +/- 5%
Electric Traction Maintenance Equipment Acquisition. PG00080. C.EN.101520.	31	$0	$354,397	$354,397	In the first quarter of FY21, deliveries were completed for all open contracts.	There were many workmanship issues with the Cat Car delivered in March 2021, most notably rainwater intrusion into the cabin. The supplier (Tesmec) notified Amtrak that it's subcontractor could not be immediately available for commissioning. As a result, Tesmec performed an on-site inspection of the equipment and is working with Amtrak Procurement and Law Departments to resolve the issues.
Electric Traction System Aerial System Assessment. P000158. C.EN.101809.	31	$1,978,579	$1,221,518	-$757,061	Catalyst performed inspections for 3,000 structures.	This was less than originally planned, but was the adjusted plan based on COVID related delays. The was 2,000 structures less and $728,000 less than originally planned.
Engineering Advanced Technology Track Inspection. PG00066. C.EN.101659.	31	$0	$1,838,357	$1,838,357	The 10006 TGC was transported from Beech Grove to Wilmington. Once in Wilmington, Delaware care completed the teardown of the equipment and began construction. Progress was made in designs and procurement of materials, but delivery of the materials was ultimately delayed due to COVID-19 and supply chain problems. The completion of construction is delayed into FY22.	With Change requests accounted for the program completed the year at 1% overspent.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance

Engineering Asset Management System. PG00078. C.EN.100123.	31	$3,753,396	$2,410,363	-$1,343,033	• Completed the 2021 Asset Line Plan with improvements to data quality and usability, utilizing the lessons learned from previous years.
					• Continued the development of asset condition assessments beyond the age-based condition
					• Assisted technical disciplines with initiatives to improve reliability and OTP by using data to drive decision making.
					• Developed various business cases to support/ justify various improvement projects.
					• Supported the on-going Equipment acquisition program.
					• Maintained and increased compliance with FRA/ Amtrak maintenance programs for all Engineering disciplines by:
					  • Combining inspections resulting in fewer work orders to complete
					  • Creating new inspections and revising existing inspections
					  • Supporting deployment of new tablets to ET and B&B disciplines resulting in more prompt completion of inspections.
					• Implemented a new Maximo-based program for the C&S trouble desk.
					• Developed a new Teams-based program to capture new asset data and build new inspections prior to field go-live.
					• Conducted data cleanup for asset hierarchy, labor reporting and inspections.
					• Maintained the Engineering Asset Database, using collected asset data to calculate signal and track design measurements to ensure safety standards are met on the NEC.
					• Ongoing geospatial data migration project in which an old, antiquated SQL database is being mapped to a new Enterprise Geospatial Database (EGS) with feature classes, which will enable the storage of accurate real-time shape data for the business.
					• Used asset data and GIS software to create spatial analytics and material utilization maps, perform root-cause analysis, and create optimal plans for all engineering disciplines, improving capital and maintenance efficiency and identifying cost saving opportunities.
						• Completed all requirements of the Asset Line Plan, but additional improvements still required moving forward for upcoming years plan.
						• Continued the development of asset condition assessments, additional work is required to continue to develop and execute the assessments
						• Maintained current FRA/Amtrak maintenance programs in Maximo, additional updates required as asset change-outs and updates occur.
						• Geospatial data migration still underway to complete the new Enterprise Geospatial Database (EGS)

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Engineering Capital/ Management. PG00077. C.EN.100418.	31	$4,656,169	$3,958,228	-$697,941	Project and program management support, including estimating, scheduling, reporting, change requests and reprogrammings for portfolio under Project Delivery organization. Monthly and quarterly reporting completed and submitted to stakeholders each month and quarter. Change request application and processes implemented and Change Control Board formed. Activities completed for FY22 include capital submission in AIMS for $1.048B, HPP documentation for HPP projects, Board of Directors memo, planning sheets and dashboard for scopes, level 1 and level 2 WBS numbers. Documented lessons learned from FY22 capital submission process to develop path forward for FY23 capital submission. Prepared for FY22 change request and reporting application upgrades.	Program was underspent by approximately 19% for FY21. Despite the increases in scope and resources during the FY, a big accomplishment was the working time allocation of the schedulers and estimators between other projects and project C.EN.100418, resulting in important savings in labor.
Engineering Equipment Acquisition. PG00054. C.EN.100285.	31	$14,552,142	$9,719,072	-$4,833,070	Several track maintenance vehicles were delivered in FY21, including 4-Man Polaris, PTS62 Stabilizer, 09-32 Continuous Action Tamper, 590 Backhoes (4 out of 7), Nipper Clipper and Spikers.	The purchase requisition for J-3 Welding trucks was canceled, leaving approximately $1.8M to reallocate. Lengthy Change request process and continued delays with manufacturing impacted ability to purchase equipment identified during reallocation of J3 welding truck funding. Additionally, after several failed attempts to reach the supplier, modification packages for Cat Inspection Car expected by 9/2021 were not received in time.
Engineering Equipment Heavy Overhaul. PG00053. C.EN.100157.	31	$9,651,601	$6,029,512	-$3,622,089	Overhauls were completed on multiple pieces of equipment, including TLM, Stabilizer, as well as several Tie Handlers and Ballast Regulators.	Due to changes in operational commitments and the changing COVID-19 pandemic constraints concerning supply chain and OEM manufacturer parts availability, many projects were delayed. The equipment overhauls impacted by these delays includes the Cat Car, Tie Adzer, 20 MFS40 Cars, CX Spiker, Undercutter and Tie Tripp (3).

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Engineering Major Equipment Acquisition. PG00052. C.EN.101757.	31	$68,163,393	$55,951,802	-$12,211,591	There were several pieces of equipment delivered under the Engineering Major Equipment Acquisition program in FY21. The equipment delivered includes Flat Cars, Ballast Cars, Side Dumps, 32T Tamper, Tie Cranes, 04S Tampers and Brandt Trucks, Dynamic Track Stabilizer (3 of 7), High Speed Surfacing Tamper (1 of 5). In addition to deliveries, the contracts for GP-38 Locomotives and BMS were issued. Finally, design reviews were completed for the LORAM Material Hopper Car and MFS40 Cars. The Rail Bound Tunnel Crane design review is still in process.	The Major Equipment Purchase Program experienced some delivery delays due to loss of manpower at the manufacturer's facility, including the first of five Ballast Management System BDS 100/200, and welding trucks. Negotiations with Amtrak Procurement and Legal Departments and TLM selected vendor, Matisa, took several months, delaying the spending of funds from FY21 to FY22.
Engineering Vehicle Acquisition. PG00056. C.EN.101455.	31	$8,069,188	$6,330,444	-$1,738,744	The vehicles delivered under the Vehicle Acquisition Program include Brandt Trucks, Thermite Weld Trucks, and a Knuckle Boom Truck.	Procurement did not have the resources required to complete some items as planned.
ET Linear Assets Research and Development Program. PG00086. C.EN.101873.	31	$1,598,503	$114,760	-$1,483,743	This program consists of several different projects which result from research and development of improvements to Amtrak's electric traction system. The project got a late start due to Covid-19 and did not start until January of 2021. The majority of the funding was for a contract to design and install 6 new signal power huts in the NEC. Design did begin on this project and reached approximately 30% complete by the end of the fiscal year. Additional projects dealt with reducing faults on the catenary due to wildlife or other weather element in the New England Division and Mid Atlantic Divisions. All of these projects have started and are currently underway.	The fiscal year started with an AOP of $1,490,585 and was reduced to $266,056 due to the late start, delays in receiving materials and issues with the acceptability of the design for the signal power huts. We spent 55% of the revised budget. We anticipated being able to accrue for the work done by the designer for the Signal Power huts which would have brought us close to 10% of the revised budget, but the plans submitted just before the end of the fiscal year were not at a point that was acceptable to Amtrak and charges could not be accrued.
Fence Upgrades. PG00069. C.EN.101854.	31	$123,484	$90,725	-$32,759	Locations completed in FY21: • New England Division (4 locations): Providence, RI; Madison, CT; Charleston, RI; Stonington, CT (approximately 13,300') • New York Division: (4 locations): Metuchen, NJ; Croydon, PA; New Brunswick, NJ; Princeton Junction, NJ (approximately 2,800') • Mid-Atlantic Division: (4 locations) Baltimore, MD; Odenton, MD; Middle River, MD; Bowie, MD (approximately 9,000')	Program underspent by $251k or 3% of approved FY21 AOP. All planned work was accomplished with the exception of Hialeah which was deferred to FY22 due to COVID. Two new locations, Croydon, PA and New Brunswick, NJ were added to the plan over the course of the year.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Mid-Atlantic North Catenary. PG00013. C.EN.101822.	31	$80,430	$1,238,382	$1,157,952	• Completed switch heater substation replacements at Caln and Mantua Interlockings. • Completed 250 SAP assembly installations between Bell and Baldwin Interlockings. • Completed 24 catenary sectionalizing switch replacements at North Penn Interlockings. • Completed 1 mile of contact wire replacement between Thorn and Downs Interlockings.	Exceeded budget slightly due to learning curve associated with SAP assembly installation.
Mid-Atlantic North Facilities. PG00015. C.EN.101824.	31	$367,379	$38,866	-$328,513	• Completed lighting upgrades at PCY ET Training Facility. • Closed-out the Wilmington Shop Fluid Distribution System Project. • Completed the Lancaster Shop Water Storage Project.	• The Contractor portion of the Lancaster Shop Water Storage Project was charged to a different WBS number. • The Downingtown Signals Trailer was completed in FY20. • The Wilmington Car Shop Building Demo Design was put on hold. • The Wilmington CNOC Electrical Upgrades was deferred to FY22.
Mid-Atlantic North Signals. PG00017. C.EN.101825.	31	$80,430	$21,963	-$58,467	• Completed Girard RTU Replacement. • Completed Cork and Conestoga Switch Machine Replacements. • Completed Overbrook to Bryn Mawr Signal Cable Replacement. • Completed Holmes Dragger/Hot Box installation. • Continued work on Code Relay Replacements.	Deferred High Signal Replacements to FY22.
Mid-Atlantic North Structures. PG00018. C.EN.101826.	31	$80,430	$58,981	-$21,449	• Completed Wilmington Wall Rehab. • Completed Bridge timber design work for five bridges. • Advanced Darby CIH Support Design Project. • Closed out Whitford Rd UGB Rehab (completed previous FY). • Advanced PCY Stringer Rehab Design. • Advanced Lehigh Ave UGB Rehab. • Completed Culvert St UGB Rehab. • Completed Lumbard St UGB Rehab. • Completed Justison St UGB Rehab. • Completed York St UGB Rehab. • Began material procurement for three FY22 Bridge Timber Replacement Projects. • Completed Mantua Interlocking Lighting upgrades. • Completed AH Line MP 48.99 Culvert upgrades.	• Two Bridge Timber Replacement Projects deferred to FY23 due to material delays. • Two Bridge Rehab projects on hold due to re-evaluation.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Mid-Atlantic North Substations. PG00019. C.EN.101827.	31	$80,430	$33,881	-$46,549	• Completed Royalton Sub Battery Charger Replacement. • Completed West Phila Sub Battery Charger Replacement. • Completed Conestoga Step-up Yard Bus Grounding. • Completed Brill Sub Motor Mechanism Replacement. • Completed Lamokin Converter Unit #4 Study. • Completed Glenolden Sub ABS 110/110G Replacement. • Completed Royalton 353 Breaker Replacement. • Completed Lamokin ABS Replacement. • Completed Thorndale and Frazer Transformer Replacements. • Substantially completed Parkesburg Transformer Replacement.	Slightly overspent due to Transformer Replacement Work.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Mid-Atlantic North Track. PG00020. C.EN.101828.	31	$0	$1,097,258	$1,097,258	• Built 883 FT of track panels • De-stressed 800 FT of rail • Ditch and graded 7,311 FT • Drug and regulated 80,470 FT of ballast • Welded and ground 52 frogs • 402 joints eliminated • Installed / renewed 443 plates • Installed 25 wood block ties • Installed 132 insulated joints • Installed 6,267 FT of rail • Installed 660 switch timbers • Installed 126 concrete ties • Installed 4,480 wood ties • Installed 392 FT track panels • Reclaimed and distributed 4,773 CUYD of ballast • Renewed 27 frogs • Renewed 138 guard rails • Renewed 10 switch point stock rail • Surfaced 141,776 FT of track • Surfaced 3,994 switches • Thread 600 FT of rail • Undercut 3,980 FT	• Insulated Joint Replacement: Decreased aggregate units from 40 to 38, decreased aggregate allocations by $ 165,964 (-) • Joint Elimination: Increased aggregate units from 260 to 468, increased aggregate allocations by $ 244,848 (+) • Concrete Tie Replacement: Decreased aggregate units from 100 to 77, increased aggregate allocations by $ 47,881 (+) • Tie/Timber Replacements: Increased aggregate units from 1,250 to 11,328, increased aggregate allocations by $ 8,578,185 (+) • Spot Surfacing: Increased aggregate units from 260,000 PF to 379,356 PF, increased aggregate allocations by $ 1,963,107 (+) • Spot Undercutting: Decreased aggregate units from 34,000 LF to 3,976 LF, decreased aggregate allocations by $ 8,021,641 (-) • Interlocking Steel Component Replacements: Increased aggregate units from 20 to 50, increased aggregate allocations by $ 4,531,671 (+) • Rail Vac Elements: Loram Rail Vacs used in MAD North territory increased from 1 to 2, increase allocations by $ 69,644 (+) • Loram Equipment Layover Costs: Rail Vac stand-by time higher than planned, Increase allocation by $ 874,668 (+) • Miscellaneous Drainage/slope Improvements: Decreased aggregate allocations by $ 241,997 (-) • Miscellaneous Lubrication Upgrades: increase allocation by $ 197,621 (+) • Phil to Baldwin Ditching (production project): Project cost exceeding estimate, increase allocation by $ 433,921 (+) • HSS (production work): No work performed, decrease allocation by $ 779,472 (-) • Project Management: Allocation increased by $42,607 (+)
Mid-Atlantic South Catenary. PG00021. C.EN.101829.	31	$56,564	$42,700	-$13,864	"Installed 323 SAPs; removed 81 steady spans. Completed Charles and Paul switch heater stations. Began Magnolia and Wood switch heater stations."	Due to delay in receiving SAPs from manufacturer, installation was delayed.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Mid-Atlantic South Facilities. PG00023. C.EN.101831.	31	$58,449	$35,471	-$22,978	• Completed Ivy City Compressor Final Design. • Replaced PVL water heater. • Began Odenton high mast lighting. • Began PVL high mast lighting.	Odenton high mast lighting delayed due to procurement; Ivy City air compressors delayed due to site plan redesign.
Mid-Atlantic South Signal System Upgrades to 562. P000120. C.EN.101872.	31	$187,670	$40,374	-$147,296	Continued work on Oak to Bush 562 Upgrades.	562 upgrades from Bush to Wood was delayed due to manpower. CP to Landover design was deferred.
Mid-Atlantic South Signals. PG00025. C.EN.101832.	31	$0	$23,291	$23,291	• Converted Gunpow home signals to LEDs. • 57 signal cable splices tested/replaced.	Delays in obtaining additional funding delayed ramp up of work.
Mid-Atlantic South Structures. PG00026. C.EN.101833.	31	$65,987	$54,429	-$11,558	• Completed 3 culvert replacements. • Completed upgrade of Patapsco River bridge pedestals under tracks 1 and A. • Began emergency improvements to Susquehanna River Bridge pier 6. • Continued 1st St. Tunnel drainage improvement. • Continued Gunpowder River Bridge concrete improvements. • Completed Jay's Run bridge upgrades. • Continued Cheverly culvert final design. • Began Furnace Ave. Bridge improvements. • Continued Cheverly flood assessment.	Budget overage due to Susquehanna River Bridge emergency.
Mid-Atlantic South Substations. PG00027. C.EN.101834.	31	$56,564	$84,279	$27,715	• Completed Jericho Park circuit breaker final design. • Began Baltimore signal power frequency converter installation. • Completed Perryman relay and breaker installation. • Completed Icy City transformer, switch, and breaker installation.	Delays due to Amtrak force account availability.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Mid-Atlantic South Track. PG00028. C.EN.101835.	31	$1,772,350	$1,313,960	-$458,390	• Welded 166 frogs. • 309 field welds. • Installed 257 wood block ties. • Installed 195 insulated joints. • Installed 672 switch timbers. • Installed 112 concrete ties. • Installed 1,676 wood ties. • Renewed 30 frogs. • Renewed 5 guard rails. • Renewed 109 switch points/stock rails. • Surfaced 185,331 ft. of track. • Undercut/vacuumed 19,861 ft. of track."	Delays to MP 103.9 project.
MofE ICT Facility: Program. Management. P000178. C.EN.101907.	31	$873,534	$0	-$873,534	*NEC Commission staff determined this Amtrak capital renewal project was a duplicate of the Amtrak **Next Generation High Speed Fleet Infrastructure: Facility Improvements** special projects.*	
Moveable Point Frog Switch Machine Rod Replacement. P000160. C.EN.101894.	31	$1,262,336	$12,366	-$1,249,970	In FY21, all of the Movable Point Frog rod packages planned for F Interlocking except for 1 location were installed. We also installed rod packages at Lane Interlocking but still have 3 locations left to do there. All other locations were moved to FY22 due to material acquisition issues.	The final AOP was $101,986 and the final spend for FY21 was $101,734 so variance was negligible.
NEC Norfolk Southern I-ETMS Installation. P000028. C.EN.101621.	31	$0	$255,455	$255,455	Completion of I-ETMS installation between Philadelphia and Washington, and on the Harrisburg Line. Also completion of installation of Radio Filters on ACS 64 vehicles.	We spent 8% more than our yearly AOP, however this project is reimbursable to NS and this is within the 10% +/- target.
NEC Trip Time Reduction. PG00089. C.EN.101909.	31	$1,383,410	$208,507	-$1,174,903	This was a new program starting in FY21. Due to COVID-19 we did not get started on this program until January 2021. The major accomplishments were the completion of design of speed upgrades from 150 to 160 MPH in the New England Division at MP194.5-205, 174.5-180.5 and 154.3-171.1. Additionally, construction was completed between MP 154.3-171.1. Design was also started to implement A, B and C speeds based on updated speed tables on the Hell Gate Line. These projects continue into FY22.	The original AOP for this program was 1,290,013 but due to the delayed start because of COVID the budget was reduced to $174,500. We spent 12% over the revised budget ($194,913) this was due to the design contractor completing more of the design than anticipated.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New England Catenary. PG00029. C.EN.101836.	31	$71,512	$24,267	-$47,245	**Catenary Hardware Renewal:** Continued installation of insulator beads. Southampton Street Yard Motor **Operated Disconnect Units:** Completed the replacement of the three MODs at Southampton Street Yard planned for FY21. **Track 4 OCS Renewals:** Completed the installation of the Track 4 OCS upgrades into service in Attleboro, MA. **View Interlocking Lighting Upgrades:** Received materials, mobilized, and began prep work for the LED installations.	View Interlocking Lighting materials delayed pushing scheduled completion date out into FY22.
New England Communications. PG00030. C.EN.101837.	31	$44,655	$16,798	-$27,857	Received materials for the next ten SCADA/RTU locations to be upgraded.	Cutover and testing of the existing SCADA/RTUs from the ARINC system to the AMTEC system on-going delaying the planned FY21 installations. Expected testing completion date is mid-January 2022. New SCADA/RTU installations anticipated to start once the cutover/testing of existing system is complete.

New England Facilities. PG00031. C.EN.101838.	31	$71,847	$156,090	$84,243	• Southampton Street Yard Facility Water Main Upgrades:
					  • Procurement phase commenced for contractor. Southampton Street Yard Sub 579 Switchgear and Transformer Replacement.
					  • Procurement phase commenced for switch gear in Q4. Delivery anticipated in FY22 Q1.
					• Hamden MOFW Facilities Upgrades Project:
					  • Completed procurement for overhead doors. Anticipate to begin HVAC / Roof design in Q1
					  • FY22 with construction anticipated Q2/Q3 FY22.
					• Southampton Street Yard Energy Efficiency Upgrades:
					  • Reached substantial completion on the interior upgrades (framing, insulation, sheetrock).
					  • Long lead time for overhead doors to push schedule for project into FY22.
						Southampton Street Yard Facility Water Main Upgrades experienced delays during the contractor procurement phase pushing the scheduled construction start until FY22.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New England Signals. PG00033. C.EN.101839.	31	$0	$45,114	$45,114	**RTU Upgrades:** Continued design efforts reaching the 60% - 100% design level. Installations anticipated in FY22. **Track Circuit Protection:** Completed installations in Rhode Island and substantially completed installations in Connecticut on the AB Line. **Impedance Bonds:** Reached substantial completion for Connecticut locations on the AB Line. Rhode Island planned for FY22. **Switch Machines Upgrades:** Materials delivered for installation locations on the AB line planned in FY22. **Grade Crossing Upgrades:** Reached substantial completion for upgrades at Hayden Station Road and Macktown Road with punch-list work planned to be requested in FY22.	Grade crossing recorders project delayed based on coordination and further evaluation of the technical requirements between IT and Engineering. Cable upgrades project in Mystic, CT installation delayed based on material delivery delays.
New England Structures. PG00034. C.EN.101840.	31	$59,531	$104,379	$44,848	**Conn. River Bridge (CT49.73) Steel Upgrades and Bridge Timbers:** Contract awarded, pre-construction activities commenced with contractor, and bridge timber material began to be delivered. **Niantic River Grease Shield:** Completed the installation of the grease shield. **Shoreline Junction Retaining Wall:** Complete the installation of the retaining wall. **Moveable Bridge Projects:** Completed replacement of first gearbox and commenced procurement for second gearbox anticipated to be installed in FY2 in Mystic, CT. Material delivered for Shaw's Cove wedge screw jack anticipated to be installed in FY22. Began mobilizing and prep work for the CT106.89 Conn. River Bridge segmental girder and tread plate replacements.	Experienced delays during contractor procurement phase for the Conn. River Bridge (CT49.73) Steel Upgrades and Bridge Timbers project which pushed construction until FY22.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New England Substations. PG00035. C.EN.101841.	31	$192,710	$55,249	-$137,461	**View Interlocking Commercial Power Upgrades:** Completed installation of small pad mounted transformer. Wiring to be completed in FY22. **Substation Assessments:** Third party completed substation assessments and provided report for condition and proposed improvements at Branford, New London, Warwick, and Sharon. **Norton Transformer Replacement:** Bids received for Norton Transformer and under technical evaluation. Expect to install in FY22.	Experienced delays during the procurement process and with equipment delivery for Substation Batteries, Sharon/New London Substation Breaker/Relays and Vacuum Bottle Replacements, and Sump Pumps Replacements.
New England Track. PG00036. C.EN.101842.	31	$95,461	$102,266	$6,805	**Track Capital Maintenance:** Replaced 35 insulated joints, 2,120 wood ties, 71 concrete ties, and completed 91 welds (joint elimination), 237,057 feet of spot surfacing, and 981 feet of spot undercutting in FY21. **AS59.5 Slope Stabilization Design:** Environmental permitting / design continued. Developed proposed alignment for track shift away from Connecticut River. Construction start anticipated in FY23.	**Track Capital Maintenance**: COVID-19 impacts and weather reduced manpower availability in the first half of the fiscal year.
New York Catenary. PG00037. C.EN.101843.	31	$20,227	$33,382	$13,155	• Replaced the 72 low rupture breaker at PSNY in February 2021. • Work continued for the replacement of post insulators for catenary renewal at Hellgate Line between MP12.8 – 13.8 throughout FY21. • Work continued to replace trolley switches at Lane Interlocking through the end of FY21. • Work continued to install the track heater at Q Interlocking through the end of FY21.	Lane Interlocking Trolley Switches Replacement and Track Heater Replacement at Q Interlocking slipped into FY22 due to labor resources being utilized on more high priority projects resulting in an underspend in FY21.
New York Facilities. PG00039. C.EN.101845.	31	$132,903	$41,062	-$91,841	• Completed the low-level platform replacement at Metropark Station in January 2021. • Completed the fire alarm panel replacement at 1st Ave in May 2021. • Completed the stair installation at Rahway, NJ MP18.98 in July 2021. • Work continued to replace emergency access signage inside the Empire Connection tunnel through the end of FY21. • Work continued for replacement of trailers at Hunter Yard, NJ and Rahway, NJ through the end of FY21. • Work continued to upgrade electrical service at Grundy Interlocking through the end of FY21. • Work continued to upgrade the Hamilton ET Headquarters through the end of FY21.	None submitted

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New York Signals. PG00041. C.EN.101846.	31	$32,171	$116,946	$84,775	• Completed the RTU replacement at Union Interlocking in January 2021. • Completed the derails removal at Pelham Bay Bridge in January 2021. • Completed the work to complete the WIU transponders in February 2021. • Completed the installation of electrical switch lock at General Tire and National Can MP27.6 completed in June 2021. • Completed the installation of electronic relays at Line 3 and Line 4 of East River Tunnels until end of July 2021. • Completed the event recorder upgrade at Inwood Interlocking and Pelham Bay in June 2021 • Completed eight (8) switch machines replacement on AN Line until end of July 2021. • Work to continue to replace East River Tunnels Relays and is expected to continue through the end of FY21. • Work to continue to upgrade the Signals at PSNY started in January 2021 and is expected to continue through the end of FY21. • Work to continue to replace the switch machines on AN Line and is expected to continue through the end of FY21. • Work to continue to upgrade the LEDs at West End and is expected to continue through the end of FY21.	Procurement delays due to supply chain issues slipped the air dryer and signal LED projects into FY22 causing an underspend in FY21.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New York Structures. PG00042. C.EN.101847.	31	$60,772	$70,331	$9,559	• Completed the replacement of mitre rail at Portal Bridge in October 2020. • Completed the Track 2 retaining wall at Sunnyside Yard March 2021. • Completed the spot timber replacement at Washington St Bridge in May 2021. • Completed the culvert upgrades at MP36.66 in May 2021. • Completed the bridge strike mitigation at North Ave Bridge in June 2021. • Completed the stairs installation at Q Tower in July 2021. • Completed the replacement of interlocking lights at Delco Interlocking in August 2021. • Completed the sump pump cable replacement at Lines 3 and 4 at East River Tunnel in August 2021. • Completed the lighting upgrades at Elmora Interlocking in September 2021. • Work continued to rehab benchwall handrails at East River Tunnels through the end of FY21. • Work continued to mitigate strikes at Parsonage Rd Bridge through the end of FY21. • Work continued to replace bridge timbers at Portal Bridge Track 2/3 through the end of FY21.	More labor resources utilized than anticipated for Portal Bridge Timber project resulted in an overspend by 2%.
New York Substations. PG00043. C.EN.101848.	31	$21,448	$50,590	$29,142	• Completed the new distribution bus AC/DC at Sub-33 Edgely in November 2020. • Completed the bus/tie breaker at Sub-40 Waverly in April 2021. • Completed the signal cable replacement at Dock Interlocking in April 2021. • Completed the battery replacement at Sub-44 Sunnyside Yard in April 2021. • Completed the installation of splicers on the feeder cables 32L and 34L at PSNY in May 2021. • Completed the replacement of substation unit at Swift Interlocking in June 2021. • Replaced about 10 B&F switches at PSNY Sub-43 until end of July 2021. • Work continued for breaker replacement at Sub-33 Edgely through the end of FY21. • Work continued for Signal Power Frequency Converter at Sub-35 Princeton through the end of FY21. • Work continued for B&F Switch replacement at PSNY Sub-43 through the end of FY21. • Work continued for B&F Switch replacement at Sub-42 Hackensack through the end of FY21.	Long lead material delays for Signal Freq Converter for Princeton and labor resources being utilized on more high priority projects made the projects slip into FY22 resulting in an underspend in FY21.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
New York Track. PG00044. C.EN.101849.	31	$3,850,165	$3,118,249	-$731,916	**Q1**: Completed 90005 ft surfacing; 1239 wood ties/ timbers; 352 concrete ties; 7225 ft of rail; 238 insulated joints and 61 joint elimination welds. **Q2**: Completed 81368 ft surfacing; 830 wood ties/ timbers; 93 concrete ties; 2951 ft of rail; 181 insulated joints and 192 joint elimination welds. Completed the North Tube Track panel replacement at Track 3 in April 2021. **Q3**: Completed 43510 ft surfacing; 584 wood ties/ timbers; 115 concrete ties; 4546 ft of rail; 63 insulated joints and 79 joint elimination welds. **Q4**: Completed 62000 ft surfacing; 700 wood ties/ timbers; 200 concrete ties; 3000 ft of rail; 20 insulated joints and 100 joint elimination welds.	More production of track assets than anticipated caused an overspend of 2% in FY21.
Penn Coach Yard High Mast Lighting. P000112. C.EN.101874.	31	$1,181,007	$0	-$1,181,007	• Amtrak's 3rd party contractor has installed the foundations for the lighting masts. • Amtrak's ET department has installed all required electrical box upgrades to accommodate tie-ins. • Amtrak's B&B department has installed 20 LF of PVC conduit for the north tower.	• Amtrak's 3rd party contractor submitted an updated schedule due to materials and equipment delays due to COVID pandemic. • Amtrak submitted an Change request to give money back due to activities that were don't completed in FY21 and scheduled to take place in FY22.
Penn Coach Yard Paving Improvements. P000135. C.EN.101807.	31	$258,767	$0	-$258,767	The project reboot was completed. An updated estimate that included the redefined scope of work for the project was provided by the contractor.	The project budget was decreased due to COVID pandemic.
Penn Coach Yard Water Main Replacement. P000114. C.EN.101876.	31	$214,482	$0	-$214,482	Design firm submitted the 90% and final plans for Amtrak's review/approval.	Amtrak engineering comments were not fully addressed and now awaiting a revised set of plans/specifications and estimate from designer.
Production Concrete Tie/Timber Replacement. PG00067. C.EN.101870.	31	$26,809	$446	-$26,363	Planned work in this area removed from FY21 plan.	Planned work in this area removed from FY21 plan.
Production High Speed Surfacing. PG00060. C.EN.101855.	31	$1,071,650	$1,940,256	$868,606	In FY21, a total of 158.79 track miles were surfaced in total on the AB, AN, AZ, AR, AP, and AH lines.	Our final requested AOP was $13,417,659 and our final spend was $13,052,154. The variance was due to additional spending on state partner numbers and other projects and reduced spending on this program.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Production Wood Tie/Timber Replacement. PG00071. C.EN.101858.	31	$3,227,856	$922,203	-$2,305,653	Z181 de-stressed rail on Track 1 between Thorn and Park. Z181 installed 9327 ties and 260 timbers between Thorn and Park and at Phil and Mantua. Z192 installed rail, track panels, 2645 ties and 490 timbers at Landover, Washington DC, and Lorton, VA. Z192 also coordinate with B&B for demolition and renewal of cart path crossing surface. New England Construction installed 37,584 ties and de-stressed rail between Mill River and Windsor on the Springfield Line.	Z181 installed fewer than expected ties because the tie gang was delayed due to extensive de-stressing.
PTC NEC Secure Wireless Communications Installation. P000030. C.EN.101537.	31	$417,053	$167,248	-$249,805	• Systra delivered final software and documentation deliverables for Secure Wireless key exchange. • Manual key exchange put in place due to extensive networking delays. • FRA grant for the project was closed.	Extended networking delays pushed this project to the very end of FY21, causing a cost overrun. An Change request was processed for this overrun. Unable to fully implement full agreements with key exchange partners.
Rail Grinding. PG00064. C.EN.101794.	31	$117,963	$50,004	-$67,959	In FY21, the Loram rail grinder completed 918.11 of the planned 1,045 TK miles along the NEC. Approximately 359.82 track miles for NYD, 455.95 track miles for NED, and 102.34 track miles for MAD.	The rail grinder underspent by 9% due to unplanned down days resulting from Loram maintenance issues, bad weather, train delay, and customer delay. Total planned track mile goal was also not realized due to multiple passes required on sections of track to meet required profile.
Rail Replacement. PG00003. C.EN.101856.	31	$88,924	$130,927	$42,003	The rail listed in the scope for the following projects was completed: .0001: Mich. West, .0004 Ham/ Midway, .007 Ragan/ Davis, .0014 Post Road, .0018 Albany SA6, .0020 RAIL NYD MP26.75-CURVE PATCH REPLACE TK2. The project as a whole was within 10% of the revised budget. The following two projects' work was canceled for FY21 and work deferred to FY22: .0021 MP26.39-CURVE PATCH REPLACE TK2, and .0022 MP24.69-CURVE PATCH REPLACE TK2. An Change request was created, in Sept. to add scope and created WBS .0025: DIV POST/MILL RIVER-RAIL RPL TK1/2. This element allowed New England to unload the rail train and setup the AB FY22 projects.	The original estimate and schedules did not take into account all of the prep work, training on equipment, and time to complete projects. An Change request was submitted to request additional funds. The project as a whole was within 10% of the revised budget. An Change request was created, in Sept. to add scope and created WBS .0025: DIV POST/MILL RIVER-RAIL RPL TK1/2. This element allowed New England to unload the rail train and setup the AB FY22 projects.
RBED System Geotech Hazard Inventory & Assessment. PG00090. C.EN.101908.	31	$150,226	$0	-$150,226	Planned work in this area removed from FY21 plan.	Capital Accounting advised that this work cannot be capitalized. This work would need to be funded through a core operating budget.

Capital Renewal Detail: Amtrak System-wide continued on the next page >>

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Ride Quality Improvements between Hook and Baldwin. PG00088. C.EN.101902.	31	$0	$540,807	$540,807	The project completed work on Track 4 and Track 1 and started work on Track 2 between the Hook and Baldwin Interlockings. The gang completed the bridge approaches on Track 4 and Track 1, track panels between bridges, and viaduct of the following bridges: Central, Tilghman, Kerlin, Parker, Concord, and Barclay bridges. On Track 2, the gang completed digging grade on Concord and Barclay St. bridges as well as the Viaduct. The gang also built and loaded 7 panels on flat cars for install, and began working on installing Geo Cell in Sept. The project will continue into FY22 to complete the work on Track 2.	Ride Quality year end review for FY21 – Variances: The first Change request inputted into the system, was to increase the scope, adjust the schedule and request funds for the budget to cover the increase in scope. On Track 4 the project added 2 bridge locations Concord and Barclay. On Track 1, the project added 6 bridge location: Concord, Barclay, CENTRAL, TILGHMAN, KERLIN, and PARKER. The project also added also added another WBS for Track 1 panel installation. The Project Change request also asked for additional funds to cover the costs of the scope change. The second Project Change request Project: Planned to start work on Track 2 on Monday, Sept. 13. The gang will work on Track 2 from Sept. 13 to end of FY21 Sept. 30. The Change request also created a new Element .0010: Track 2 (Barclay/ Concord) for the gang to charge to. (Then will cont. with FY22 work.)
Rolling Stock Heavy Overhaul. PG00055. C.EN.101456.	31	$0	$2,583,453	$2,583,453	Self performed overhauls for Concrete Tie Cars and Side Dumps began and continued throughout the year.	Employees on medical leave have caused manpower constraints, which impacted the progress of this program.
Signal System Upgrades to 562: Park to Paoli. P000117. C.EN.101770.	31	$0	$285,036	$285,036	Lancaster shops fabrication of signal equipment for Downs to Glen. 562 upgrades for Park to Thorn.	Signal upgrade work from Thorn to Downs is now being handled under a separate SEPTA funded project.
Sunnyside Yard Frequency Converter Upgrade. P000077. C.EN.101239.	31	$19,305	$0	-$19,305	Completed 30% design package for replacement of Sunnyside Yard Frequency Converter. Completed Request for Qualifications for design-build (D-B) team to complete design and perform construction; short listed D-B teams. Issued Request for Proposal and responded to first round of questions from bidders.	Procurement for D-B vendors was extended to allow for multiple rounds of questions and responses based on requests from short listed D-B teams. Award for final design and construction contract delayed from September 2021 to January 2022.
Sunnyside Yard Service Platform Upgrade. P000016. C.EN.101433.	31	$360,326	$0	-$360,326	Closed out Phase 1 construction contract for Sunnyside Yard platform rehabilitation and settled all out standing claims with contractor. Started procurement for new design contract for Phase 2 of platform rehabilitation.	Underspend variance was due to favorable negotiations of claims from Phase 1 Construction Contractor and reduced temporary platform rehabilitation by Amtrak forces in FY21.
TLS Concrete Tie Replacement. PG00057. C.EN.101652.	31	$1,205,046	$2,619,852	$1,414,806	The TLS work group installed concrete ties and continuously welded rail between Philadelphia and Washington, in the Mid-Atlantic Division.	An Change request was submitted in Q3 to return $8,000,0000, as the Davis to Bacon location was canceled due to deliveries of defective clips from Pandrol. With Change requests accounted for the program completed the year at 3% overspent.

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

Capital Renewal Detail: Amtrak System-wide [Amtrak-owned; BCC Segment 31]

Project/Program	BCC Segment	FY21 Planned segment expenditure	FY21 Actual segment expenditure	Segment Expenditure Variance	Submitted project/program accomplishments	Submitted project/program explanation of variance
Total Track Renewal. PG00061. C.EN.101871.	31	$80,365	$27,083	-$53,282	• B&B Production installed 1645 block tie in Track 8 and 1645 block ties in Track 10. Each track is 1337' of cast in place concrete embedded track. • Independent Track South installed new CWR throughout and installed new track and surfaced the transitions. • ET installed new overhead catenary system for each track.	Change request submitted to give back of 23% of budget due to cost reduction due to lower than expected Contractor bid and efficiency in force account labor.
Track Rehabilitation. PG00063. C.EN.101859.	31	$37,697	$131,412	$93,715	Work completed in FY21: **Bear, DE**: approximately 2,000 wood ties replaced **Penn Coach Yard (PHL):** tracks 26 and 37 completely renewed **Groton House Track, CT:** new turnout and fit concrete ties installed **Westerly Yard, RI:** fit concrete ties installed in yard **Perryville Yard, MD:** one new turnout installed **Milham Yard, NJ**: track 5 extended by 4,500'"	Program underspent by $2.1 M or 12% of approved FY21 adjusted AOP. All planned work was accomplished with the exception of Wilmington Yard switch installation which was deferred due to material delays.
Track Undercutting. PG00062. C.EN.100269.	31	$564,648	$2,095,582	$1,530,934	The Undercutting work group undercut a total of 16,181 track feet. This work occurred strictly in Q1 FY21, as work planned for Q2 through Q4 was canceled.	With Change requests accounted for, the program completed the year at 7% underspent.
Turnout Renewal. PG00065. C.EN.101860.	31	$367,291	$1,284,095	$916,804	In the turnout program for FY21 we replaced turnouts on the New England, New York, and Mid-Atlantic divisions. Cable and panel replacements were also performed as needed at the install locations.	An Change request was submitted in July to adjust the program's FY21 budget to $55,715,404. Our overall FY21 spend came in at $51,989,239. The ~$4 Million variance came from some locations that pushed into FY22 due to Hurricane Ida response and material issues.
Washington to Boston ARINC to AMTEC Software Upgrade. P000085. C.EN.101767.	31	$1,191,220	$1,537,957	$346,737	The FY21 Accomplishments for the AMTEC Project was Completing the Hardware and software installation and testing of the AMTEC System in the New England CETC Dispatching office this year and also installation of the Enhanced Employee Protection System (EEPS) that will give field employees another layer of protection when working on the tracks.	There was 7.34% Project Variance in FY21 because we had three Project Employees leave the company and those resources were unavailable to support the Project so we needed to do a Change request Change request and give the FY21 funding back that wasn't going to be spent in the project in FY21.
BCC Segment 31 Total		**$154,503,112**	**$125,746,487**	**-$28,756,625**		

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

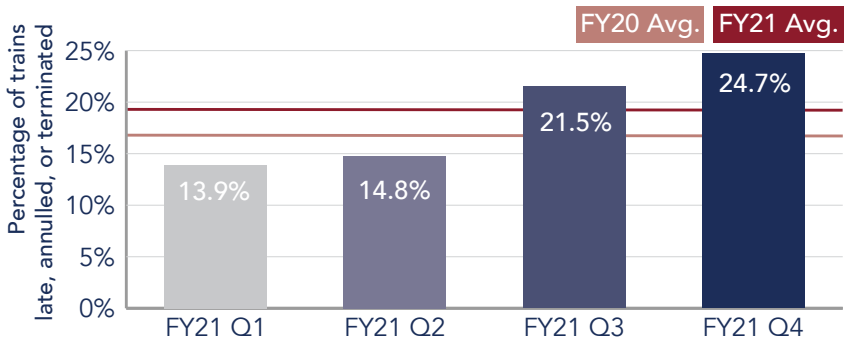
This page left intentionally blank.

Operations: Amtrak

Amtrak operates intercity service on along the NEC Main Line between Boston, MA and Washington D.C. and on the three NEC Branch Lines to Springfield, MA, Spuyten Duyvil, NY, and Harrisburg, PA. Amtrak's Northeast Regional, Acela, Hartford Line, and Keystone Services routes operate entirely on the NEC main and branch lines and several state-supported and long distance routes operate on sections of the NEC.

Train performance profile

Metric	FY20	FY21
Percent NEC trains late, annulled, or terminated	16.9%	19.1%
Percent NEC trains not completed	0.32%	0.27%
Avg min late per NEC train	61.9	60.3

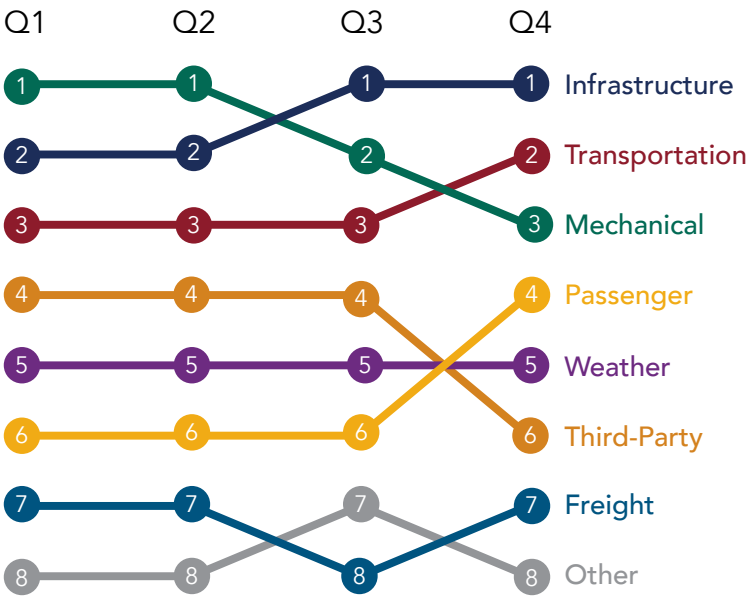


Train-delay minutes by cause

Total and percent change, FY20-21

Cause	FY20	FY21	Change
Infrastructure	48,691	40,860	-16.1%
Mechanical	33,256	33,780	+1.6%
Transportation	38,114	28,729	-24.6%
Passenger	9,919	11,773	+18.7%
Weather	26,651	16,771	-37.1%
Third-Party	17,916	22,073	+23.2%
Freight	1,624	3,314	+104.1%
Other	3,848	2,396	-37.7%
Total	**180,019**	**159,696**	**-11.3%**

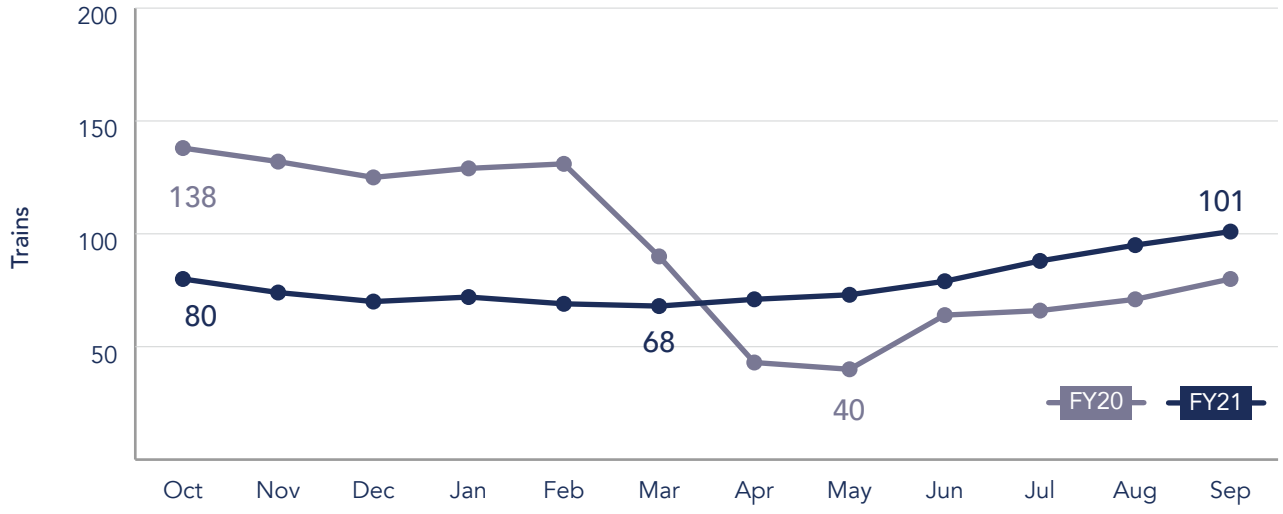
Rank by category, FY21



Amtrak NEC Service and Ridership

Period	Average Weekday NEC Trains			Average Weekday NEC Trips		
	FY20	FY21	Change from FY20	FY20	FY21	Change from FY20
Q1 (Oct - Dec)	132	75	-43% ↓	53,100	9,248	-83% ↓
Q2 (Jan - Mar)	116	69	-40% ↓	36,012	9,255	-74% ↓
Q3 (Apr - Jun)	49	74	+51% ↑	2,163	19,968	823% ↑
Q4 (Jul - Sep)	72	95	+31% ↑	7,829	30,206	286% ↑
FY Average (Oct - Sep)	**92**	**78**	**-15%** ↓	**24,776**	**17,169**	**-31%** ↓

Amtrak Average NEC Weekday Trains



Amtrak Average NEC Weekday Trips

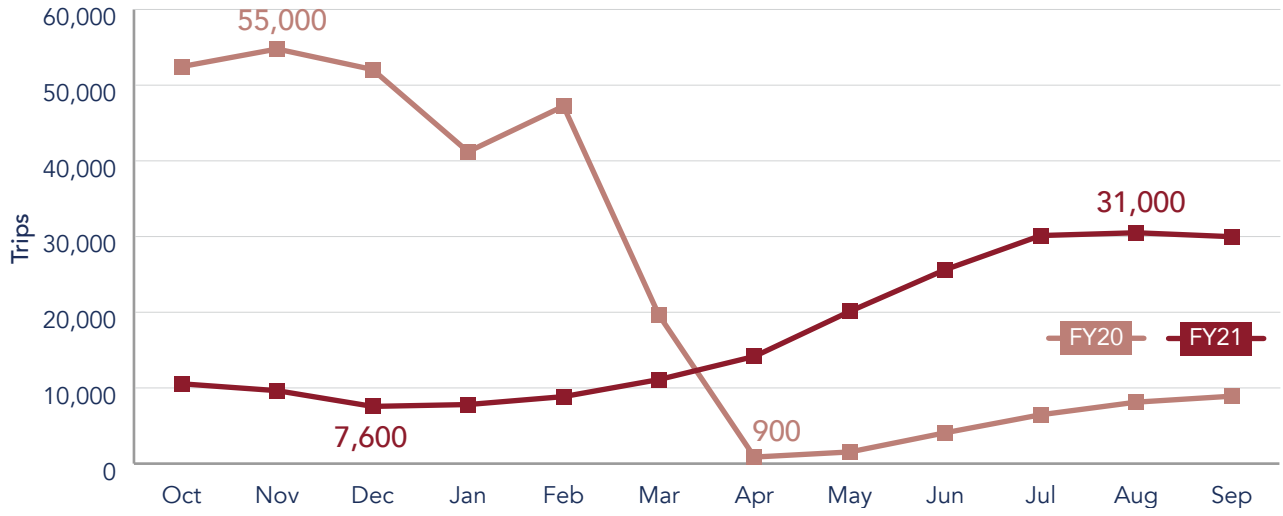


Photo Credits

Front cover: "30th Street Station, Philadelphia" by flickr user Peter Miller, 2020. Used under Creative Commons License Attribution-NonCommercial-NoDerivs 2.0 Generic (CC BY-NC-ND 2.0); https://creativecommons.org/licenses/by-nc-nd/2.0/. Photo available at https://flic.kr/p/2jDybjz.

Page iv: Courtesy of Amtrak, 2021.

Page vi: Courtesy of Amtrak.

Page 6, President Biden: Courtesy of Amtrak, 2021. Photo available at https://media.amtrak.com/media-images/50th-anniversary-celebration-event-with-president-biden/.

Page 6, Harold Interlocking: "Placement of a new railroad switch in Harold Interlocking" by flickr user MTA Construction & Development Mega Projects, 2018. Used under Creative Commons License Attribution 2.0 Generic (CC BY 2.0); https://creativecommons.org/licenses/by/2.0/. Photo available at https://flic.kr/p/2b5xpFh.

Page 7, MARC conductors: Courtesy of Amtrak, 2021. Photo available at https://media.amtrak.com/media-images/bp-tunnel-groundbreaking-150th-anniversary-event/.

Page 7, MTA Mask Force: "MTA Leadership and Members of "Mask Force" Hand out Thousands of Pink Masks in Honor of Breast Cancer Awareness Month" by flickr user Metropolitan Transportation Authority of the State of New York, 2021. Used under Creative Commons License Attribution 2.0 Generic (CC BY 2.0); https://creativecommons.org/licenses/by/2.0/. Photo available at https://flic.kr/p/2mCmZYB.

Page 9: Courtesy of NJ TRANSIT, 2021.

Page 16: "Signing of the full funding grant agreement" by flickr user Governor Phil Murphy, 2021. Used under Creative Commons License Attribution-NonCommercial 2.0 Generic (CC BY-NC 2.0); https://creativecommons.org/licenses/by-nc/2.0/. Photo available at https://flic.kr/p/2ks9kCn.

Page 20, undercutting: Courtesy of Northeast Corridor Commission, 2019.

Page 20, B&P Tunnel: Courtesy of Amtrak. Photo available at https://media.amtrak.com/media-images/ready-to-build/.

Page 20, escalator work: Courtesy of Amtrak, 2020.

Page 21, track work at New York Penn Station: Courtesy of Amtrak, 2020.

Page 21, track work at Harold Interlocking, "Work on the Eastbound Reroute in Harold Interlocking" by flickr user MTA Construction & Development Mega Projects, 2020. Used under Creative Commons License Attribution 2.0 Generic (CC BY 2.0); https://creativecommons.org/licenses/by/2.0/. Photo available at https://flic.kr/p/2iWqUcL.

Page 21, close up of track: Courtesy of Metropolitan Transportation Authority, 2021. Photo available at https://new.mta.info/document/58631, page 103.

Page 35: "MTA Responds to Winter Storm Feb. 18, 2021" by flickr user Metropolitan Transportation Authority of the State of New York, 2020. Used under Creative Commons License Attribution 2.0 Generic (CC BY 2.0); https://creativecommons.org/licenses/by/2.0/. Photo available at https://flic.kr/p/2kCXv1K.

Page 36, winter storm: "MTA Crews Respond to Winter Storm" by flickr user Metropolitan Transportation Authority of the State of New York, 2020. Used under Creative Commons License Attribution 2.0 Generic (CC BY 2.0); https://creativecommons.org/licenses/by/2.0/. Photo available at https://flic.kr/p/2khSds4.

Page 36, signals: "North Broad Station" by flickr user Adam Moss, 2013. Used under Creative Commons License Attribution-ShareAlike 2.0 Generic (CC BY-SA 2.0); https://creativecommons.org/licenses/by-sa/2.0/. Photo available at https://flic.kr/p/g3QSRW.

Page 36, catenary: "Last Call…" by flickr user David-Michael Cook, 2007. Used under Creative Commons License Attribution-NonCommercial-NoDerivs 2.0 Generic (CC BY-NC-ND 2.0); https://creativecommons.org/licenses/by-nc-nd/2.0/. Photo available at https://flic.kr/p/44wkUY.

Page 39: Courtesy of the Northeast Corridor Commission, 2021.

Back cover: "Sculpture on South Water Street near the Providence River" by flickr user Chris Rycroft, 2021. Used under Creative Commons License Attribution 2.0 Generic (CC BY 2.0); https://creativecommons.org/licenses/by/2.0/. Photo available at https://flic.kr/p/2mSyZxR.

Front Cover: Philadelphia, PA
Back Cover: Providence, RI

nec-commission.com